



**PLAYFUL WORK DESIGN:
*HOMO LUDENS FABER***

Yuri S. Scharp

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Yuri S. Scharp

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Playful Work Design: Homo ludens faber

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De spelende werkende mens

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Chapter 1

Introduction

GENERAL INTRODUCTION

“When the work is done, then the play can come, but not before” was the philosophy of business magnate Henry Ford (2007). I disagree. Every day, individuals around the world engage in some form of play. Throughout our lives and even throughout history, play makes its appearance. Also at work, play opportunities present themselves. Yet, despite the conspicuous universality of play, relatively few studies systematically tackled the topic in organizations (Petelczyc et al., 2018). Should we heed the words of the American industrialist and ban such a natural phenomenon from the work domain? To address this issue, I aim to answer several questions. How does play manifest during work? What are the consequences of integrating play with work? Was Henry Ford right regarding the danger of mixing play with work? These questions open up exciting opportunities for research. For this purpose, I conceptualize and investigate employee-initiated play during work, referred to as *playful work design* (PWD), in my dissertation entitled “Playful Work Design: Homo Ludens Faber”.

Homo Ludens and Homo Faber translate to “Humankind the player” and “Humankind the architect”. They signify an essential function of *play* in humans and stress the uniqueness of human *agency*: The ability of humans to create, control, and *design* their surroundings. “Design” is derived from the Latin prefix as well as verb *de* and *signare*, respectively, which translate to ‘giving it significance’ or ‘designating its relation to other things’. In other words, making sense of things (Krippendorff, 1989). These concepts exemplify the core ideas of this dissertation. Traditionally, play is considered to be the antithesis of work or at least subversive to the serious ethos of labor (Kavanagh, 2011). However, contemporary scholars and practitioners have started to diverge from this perspective. They increasingly recognize that employees and organizations may harness the *transformative* power of play and believe that play and work may coincide productively (Celestine & Yeo, 2021; Petelczyc et al., 2018).

The present dissertation aims to advance and complement the discursive shift in the discussion about the benefits of play for organizations. Recent research suggests

organizations may adopt play as a top-down work design strategy to foster well-being and performance (e.g., Fourie et al., 2020; Silic et al., 2020; West et al., 2016). However, due to the increasingly dynamic nature of work, it might prove difficult and impractical for organizations to know for what activities and which individuals a playful approach to work would yield benefits and how to design these initiatives. To illustrate, while adding fun to activities may significantly benefit certain employees, others may prefer the addition of challenge. Similarly, interruptions at work may contain requests outside the scope of organizational play initiatives. Play initiated by employees themselves may therefore crucially complement 'one-size-fits-all' top-down play initiatives. Yet, the active role of employees in integrating play with work has received relatively little attention. Refuting traditional contentions regarding the subversive nature of play at work, I posit that employees naturally initiate play during work activities to design optimal experiential qualities and promote performance behaviors (e.g., productivity, creativity). Furthermore, the transformative nature of play suggests PWD represents a promising strategy for employees to sustain their vigor, dedication, and absorption (i.e., work engagement; Schaufeli & Bakker, 2010).

PURPOSE AND GUIDING RESEARCH QUESTIONS

The present dissertation aims to advance the literature on play at work by adopting a bottom-up perspective (see **Chapter 3** for an overview of the research included in this dissertation). Given the scant systematic research on play initiatives by employees, a central issue concerns the conceptualization and measurement of employee-centered play initiatives during work activities, which I call *playful work design* (PWD). Hence, this dissertation aims to answer several fundamental questions: First, what does PWD constitute and how do we measure it? Second, how does the manifestation of PWD relate to individual and situational differences? Third, what is the purpose of PWD? The latter question aims to reveal what employees and organizations may gain (or lose) from PWD. For this purpose, I examine the association between PWD and several indicators of employee well-being and

performance. Finally, what are the boundary conditions of the effectiveness of PWD? By answering this question, I aim to elucidate when PWD especially promotes employee well-being and performance. By investigating the boundary conditions of PWD, I aim to facilitate a critical evaluation of for whom and when PWD is effective.

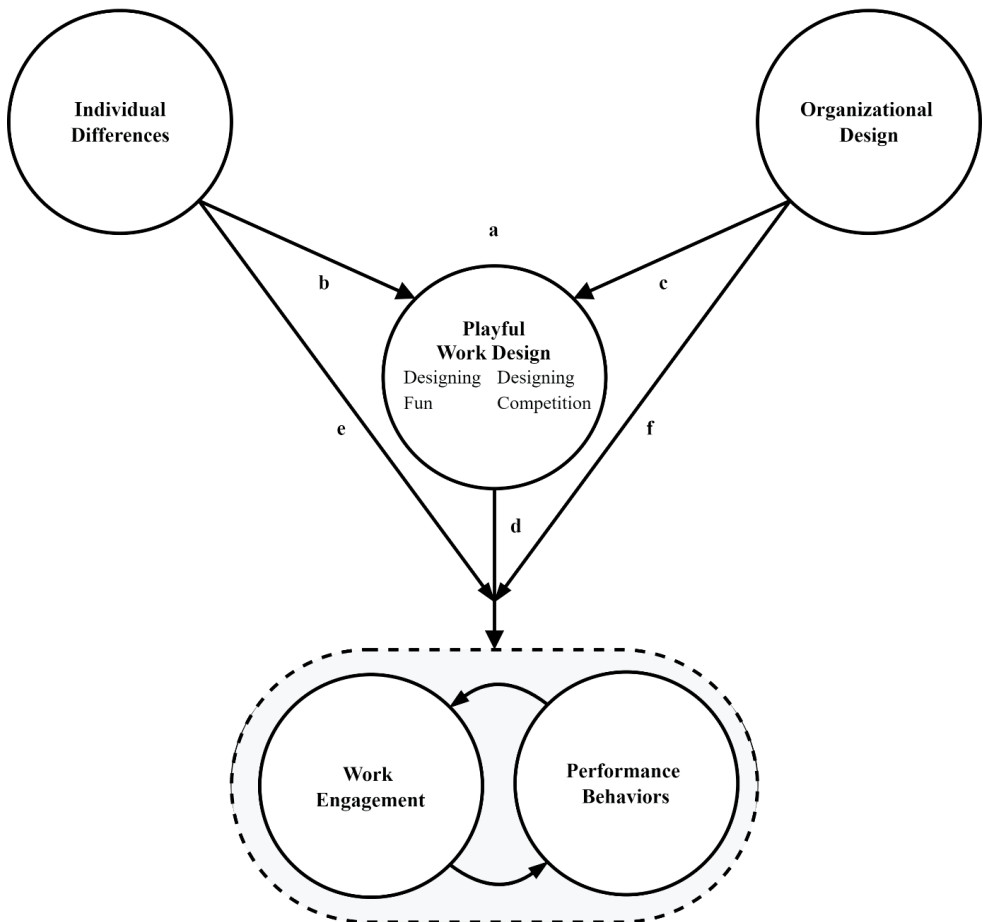
To answer these research questions, I draw on the play and work design literatures as well as several resource principles to construe the overarching theoretical model that is guiding this dissertation (see Figure 1). The model posits that: PWD consists of proactively designing fun and designing competition, and can be measured as a relatively stable tendency as well as fluctuating behavior (*Proposition a*); individuals with playful traits will be more likely to design their work to be playful (*Proposition b*); situations that afford latitude for play stimulate PWD (*Proposition c*); PWD relates positively to employee well-being and performance (*Proposition d*); the relation of PWD with well-being and performance is qualified by personality traits (*Proposition e*); the association between PWD and well-being / performance is contingent on situational characteristics (*Proposition f*); To test these propositions, I conducted several quantitative studies, adopted various methodologies, and utilized multi-source data.

THEORETICAL BACKGROUND

Rooted in the spirit of Homo Ludens and Homo Faber, this dissertation synthesizes the seemingly divergent literatures of play and work. I build on their fundamentals to answer what play during work activities constitutes as well as what the consequences of and favorable conditions for self-initiated play are. The present chapter briefly introduces the core literatures and theories regarding play and work that inform Figure 1.

Figure 1

Overarching Model of the Dissertation on Playful Work Design



HOMO FABER FUNDAMENTALS

In organizational psychology, a large tradition of scholarship has focused on how organizations can influence how individuals perform and experience their jobs through work design. Work design refers to the content and organization of work tasks, activities, relationships, and responsibilities (Parker, 2014). The Industrial Revolution propelled the early beginnings of work design research (Parker, 2001). Early research focused on how employers could optimize productivity and minimize costs through job simplification (Taylor, 1911). By standardizing and removing tasks,

this process also minimized the need for employee proficiency. While efficient, the jobs that followed from this practice were devoid of meaning and negatively affected employees' well-being (Parker, 2001; Van Veldhoven et al., 2020). As a response, research slowly shifted towards how the practice of enriching jobs with autonomy and variety fosters meaning and motivation (e.g., Hackman & Oldham, 1976; Karasek, 1979). This theme is still dominant in contemporary work design research (Bakker & Demerouti, 2017), which suggests that organizations can redesign work to positively shape employee well-being and performance (i.e., top-down).

Complementary to organizational initiatives, employees may also influence the content and organization of their work themselves (bottom-up; Parker, 2014). This perspective diverges from the traditional notion that employees represent passive recipients or products of their jobs, and acknowledges the active role of employees. For instance, Nicholson (1971) argued that employees "may initiate changes in task objectives, methods, materials, scheduling and in the interpersonal relationships integral to task performance" (p. 175). More recently, research on proactive work design initiatives by employees has gained momentum. In particular, the concept of "job crafting" witnessed a steep rise in popularity during the last decade. Job crafting describes the expansion (promotion-oriented) and contraction (prevention-oriented) of job boundaries (Bindl et al., 2019; Tims et al., 2012; Wrzesniewski & Dutton, 2001; Zhang & Parker, 2019). The proliferation of research articles on proactive work strategies represents an important marker of scholarly interest as well as their value. Initiatives by employees are becoming increasingly important in contemporary, rapidly changing, and dynamic job environments. Hence, knowledge regarding effective proactive work strategies is vital. I aim to advance insight regarding the nature and feasibility of play as a work design strategy nested in work activities.

HOMO LUDENS FUNDAMENTALS

Play as a phenomenon has enjoyed attention from a multitude of disciplines, ranging from anthropology, sociology, history, and biology to psychology (Sutton-Smith, 2009). In the social sciences, we can roughly discern three major streams of research on play: (1) play from a personality perspective, (2) play from an activity perspective, and (3) play from a cognitive-behavioral perspective (see Figure 2). Their complementary findings offer unique insights regarding the conceptualization of PWD and the propositions tested in this dissertation.

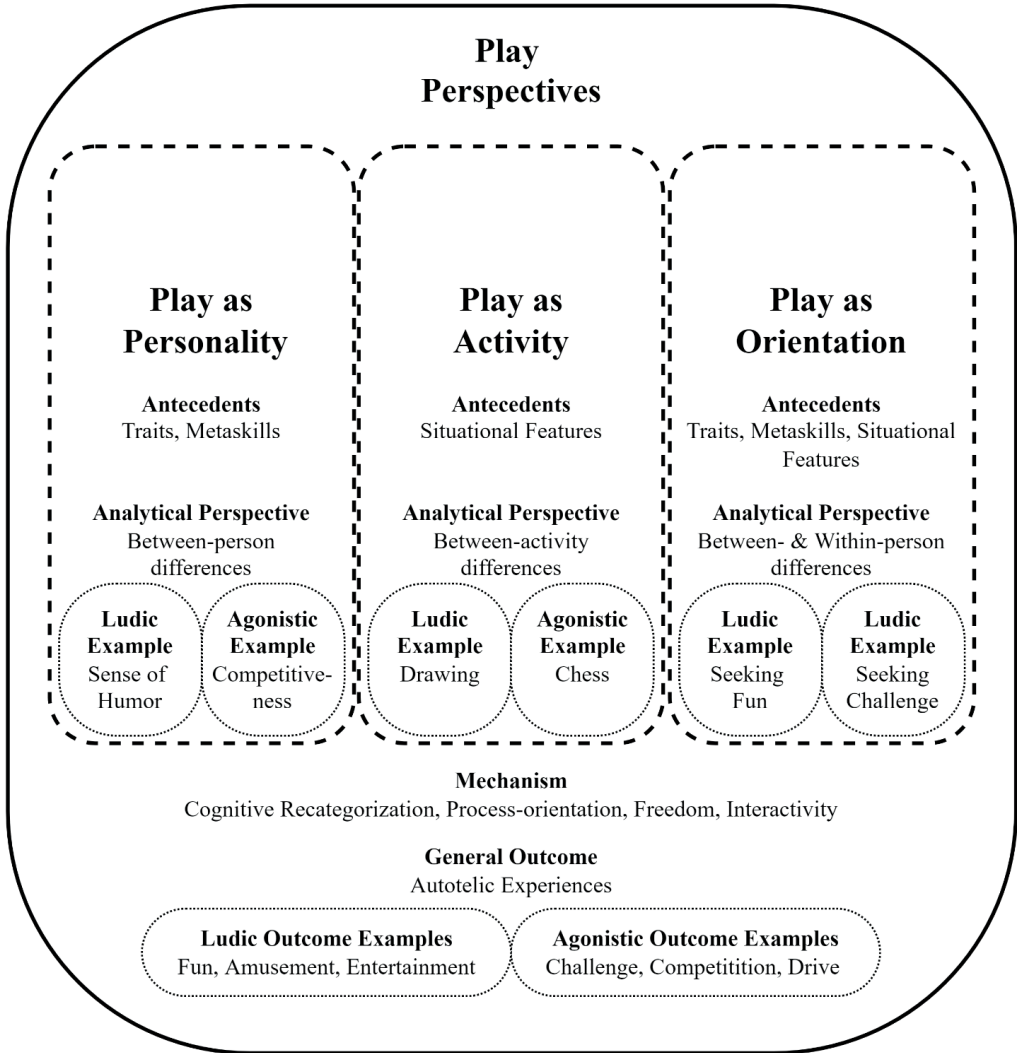
First, the play-as-personality paradigm suggests that individual differences represent key considerations in investigating playful work design. In this paradigm, play is often described as a manifestation of internal, latent dispositions or meta-skills that enable individuals to modify experiential qualities (i.e., play-as-personality). Scholars in this field usually summarize the stable characteristics of “playful individuals”. For instance, scholars describe a playful personality as the tendency to be creative, spontaneous, humorous, fun-seeking, competitive, and challenge-seeking (e.g., Barnett, 1990; Glynn & Webster, 1992; Lieberman, 2014; Proyer, 2012; Shen et al., 2014; Tse et al., 2020). Another example pertains to the structural model of playfulness by Proyer (2017). The structural model proposes that playfulness consists of the tendency to be intellectual (e.g., liking to play with ideas), lighthearted (e.g., liking to improvise), other-directed (e.g., enjoying play with others), and whimsical (e.g., finding amusement in odd situations).

Second, various scholars describe play as a quality of specific activities (i.e., play-as-activity). These researchers often propose taxonomies and features that characterize play activities (e.g., Caillois, 2001; Huizinga, 1949; Van Vleet & Feeney, 2015; West et al., 2016). For instance, in 1883, Lazarus described play as an “activity which is itself free, aimless, amusing or diverting”. In the same tradition, Day and Murray (1978) utilized a multidimensional scaling method to derive a workfulness–playfulness continuum that described activities such as algebra, cleaning dishes, and taking out the garbage in terms of characteristics such as work, compulsory, and dull

(Day, 2013). In contrast, dancing, partying, and being with friends were described as play, voluntary, and interesting activities. As such, games and sports

Figure 2

Differences and Commonalities Between Streams of Research on Play



represent purposefully designed activities to stimulate play. The play-as-activity paradigm suggests that job conditions similar to those in games, such as autonomy and interactivity, may encourage employees to be playful.

Finally, researchers have considered play as a behavioral attitude that is relatively independent of activities (i.e., play-as-orientation). This paradigm argues that play involves organizing cognition and behavior in relation to activities to regulate the self towards optimal experiences (e.g., Csikszentmihalyi, 1975; Cheng et al., 2021; Logan, 1985; Miller, 1973). In other words, when individuals make changes in their (a) mental actions and processes as well as (b) behaviors during an activity in a specific fashion, they can create the experiential qualities usually associated with play activities. For instance, in a study among tour guides, Chen et al. (2021) showed that using humor and creativity during trips stimulated the tour guides' work engagement. An important distinction in the literature on play as a behavioral orientation concerns the use of play as (1) engagement with work activities as opposed to (2) diverting attention away from them (Mainemelis & Ronson, 2006). The former directly facilitates affective and cognitive processes during work activities. Contrastingly, play as diversion concerns the use of play to disengage from work activities, which mainly acts as a strategy to limit energy consumption and restore energies (Mainemelis & Ronson, 2006; Roy, 1959). To illustrate, using humor during a discussion with a client represents play-as-engagement with the activity, whereas playing with ideas unrelated to the meeting by oneself diverts attention away from the meeting. While both strategies can be enacted during work activities, only self-initiated play as engagement with activities can be recognized as a work design strategy. Namely, using play to engage with work directly alters the organization of the work activity. In contrast, self-initiated diversionary play does not alter the organization of tasks, but instead acts as an intermittent episode of disengagement.

THE CORE AND DUALITY OF PLAY

The play paradigms converge in their description of play as a way of organizing cognition and behavior to foster autotelic experiences (i.e., derived from the Greek αὐτός 'autos', which means self and τέλος 'telos' meaning end). In other words, play generates positive experiences that are rewarding in themselves (e.g., fun, optimal challenge). Thus, the paradigms suggest that play can be conceptualized as an individual trait or quality, but also as behavior that fluctuates from one episode to the next, that promotes intrinsically enjoyable experiences (Csikszentmihalyi, 1975; Mainemelis & Ronson, 2006; Miller, 1973; Proyer, 2017; Van Vleet & Feeney, 2015). Huizinga (1949) succinctly describes an additional overarching theme in the play paradigms. Huizinga argued that play is best described by the Greek terms παιδιὰ (paidiá), which means ludic, childish, and fun, and ἀγών (agón), meaning agonistic, contest, and competition (Kolb & Kolb, 2010). Indeed, in the play-as-activity paradigm, we may discern between ludic play activities (e.g., role-play, drawing) and agonistic play activities (i.e., soccer, chess). Similarly, ludic personalities (e.g., humorousness, fantasy proneness) differ from agonistic personalities (e.g., competitiveness, achievement striving). Finally, a ludic attitude to organizing activities may focus on seeking fun, whereas an agonistic attitude aims to derive challenge during activities (e.g., Cheng et al., 2021; Logan, 1985; Miller, 1973; Csikszentmihalyi, 1975; Hamilton, 1984). While ludic and agonistic qualities diverge in their focus on fun and challenge, respectively, they converge in their transformative and autotelic nature. Both forms of play revolve around behaviorally and cognitively restructuring activities to derive pleasurable experiences. It is important to note that ludic and agonistic qualities tend to coincide. The duality of play suggests that, despite an overall core, the two different forms of PWD may relate to traits, job conditions, and well-being in a distinct fashion.

RESOURCE PRINCIPLES

PWD can be conceptualized as a proactive work design strategy that regulates resources during work activities. Hence, I build on several key principles derived from resource theories that inform the overarching model presented in Figure 1. First, drawing on self-determination theory (SDT), I derive the principles of proactivity and resource regulation (Bakker & van Woerkom, 2017; Deci & Ryan, 2000). SDT suggests humans are inherently proactive and naturally drawn to growth, development, and integrated functioning (Deci & Vansteenkiste, 2003). In other words, individuals are naturally inclined to shape their environment to satisfy basic psychological needs that promote flourishing. Moreover, Deci and Ryan (2000) explain that when behavior is autonomously regulated – directed by the self and not by external forces – individuals need to exert less effort to maintain behaviors. Taken together, this suggests that proactive behaviors such as PWD optimize well-being by creating opportunities for the satisfaction of basic needs and by minimizing energetic resource consumption. Second, to refine the aforementioned statements, I build on Conservation of Resources (COR) theory (Hobfoll, 1998) and Trait Activation Theory (TAT; Tett et al., 2013; 2021) to derive the principle of matching. COR theory highlights that individuals especially benefit from resource strategies when these initiatives “fit” the demand (Hobfoll, 1998). That is, resource strategies especially reduce resource losses when they match what is lost. For example, initiating a short break may recover the energies lost during work (Hunter & Wu, 2016; Kühnel et al., 2017). Likewise, TAT posits that a match between personality and the environment promotes intrinsic enjoyment for employees.

CONCEPTUALIZING AND MEASURING PLAYFUL WORK DESIGN

This dissertation's first question pertains to the conceptualization and measurement of self-initiated play during work activities as a work design strategy (i.e., PWD). What ‘is’ self-initiated play during work? For this purpose, I conducted a narrative review to conceptualize PWD and advance a general measurement

instrument in **Chapter 2**. I built on the play and proactivity literatures to conceptualize PWD as a proactive work strategy to optimize engagement with work activities. Moreover, I developed a two-dimensional perspective that consisted of “designing fun” (self-initiated ludic play during work activities) and “designing competition” (self-initiated agonistic play during work activities; Proposition a). This chapter includes three independent studies as well as multi-source data in which we provide convergent, divergent, concurrent, and predictive validity evidence for the instrument in terms of correlates with personality traits, proactive behaviors, job conditions, and various outcomes. Additionally, to avoid presenting “old wine in new bottles”, I differentiated PWD from job crafting theoretically as well as statistically. Finally, while the literature suggests that play differs between individuals, play may also fluctuate between situations. Hence, I conducted a daily diary study to examine the factorial validity of the daily counterpart of the PWD questionnaire in **Chapter 4**.

WHO PLAYS DURING WORK AND WHEN?

The second question concerns who plays during work and when. The play-as-personality paradigm informs us that play is idiosyncratic, whereas the play-as-activity stream of research illustrates that certain situational conditions relate to play. Thus, in terms of individual differences, play as a work design strategy may primarily manifest when individuals possess certain traits or capacities (e.g., Barnett, 2001; Lieberman, 2014; Csikszentmihalyi, 1975; Proyer, 2017; Tse et al., 2020). To illustrate, a sense of humor is a character strength that refers to the capacity to make oneself and others laugh (Peterson & Seligman, 2004), which can be recognized as a ludic trait. Individuals who possess this trait may tend to design fun—self-initiated ludic play during work activities. Contrastingly, competitiveness reflects the tendency to approach activities as competitions (Houston et al., 2002; Hibbard & Buhrmester, 2010). This tendency reflects an agonistic trait. Such individuals may especially design competition—self-initiated agonistic play. In addition to traits, situational differences may play an important role in promoting self-initiated play during work activities.

The play-as-activity literature suggests that play especially manifests when the environment provides latitude and approves of play (Ellis, 1973; Celestine & Yeo, 2021). Play activities represent a purposefully designed composition of conditions to stimulate play. Typically, these activities strive to provide a “sweet-spot” of surprises and complexities for players to foster autotelic states (i.e., fun, optimal challenge; Andersen & Roepstorff, 2021; Clark, 2018; Csikszentmihalyi, 1975). Commonly, play necessitates voluntary participation and signals that play is permissible. Hence, also at work, conditions such as autonomy or fun celebrations may stimulate employees to initiate play during work activities.

The play literatures suggest PWD manifests as a function of certain traits and job conditions. In **Chapter 2**, I built on the play-as-personality literature to hypothesize that ludic play during work (i.e., designing fun) and agonistic play during work (i.e., designing competition) both correlate with dispositions that reflect proactivity and a general desire for play. In addition, I proposed that designing fun will especially correlate positively with ludic personality traits and that designing competition will mainly relate positively to agonistic personality traits. Accordingly, I moved beyond a unidimensional perspective of play behavior. In addition, based on the play-as-activity perspective, I expected that PWD would especially arise in situations that afford latitude for play or signal that play is permissible.

THE PURPOSE OF PLAYFUL WORK DESIGN

The third question this dissertation aims to answer is: What is the purpose of self-initiated play during work activities? The most dominant theme across the different streams of research is the description of the autotelic nature of play. Relatedly, play is often understood as a self-regulatory strategy to gain and maintain energetic resources (Berlyne, 1960; Celestine & Yeo, 2021; Csikszentmihalyi, 1975; Ellis, 1973; Giddens, 1964; Gilmore, 1966). The tenets of self-determination theory (SDT; Deci & Ryan, 2000) explain why play enables individuals to manage their energetic resources. SDT proposes that intrinsic motivation during activities depends

on the extent to which individuals experience volition, relatedness, and competence (i.e., basic psychological needs). These experiences are recognized as personal psychological, energetic resources (van den Broeck et al., 2008). Relatedly, self-determination theory suggests that intrinsically rewarding behaviors such as play minimize resource depletion because they do not require effortful regulation (Deci & Ryan, 2000). Based on the premise that play satisfies basic psychological needs, self-initiated play during work activities may promote optimal experiences such as work engagement; and, therefore, enable employees to sustain their performance.

At work, employees who enjoy optimal affective and motivational experiences are often described as “engaged with work” (Schaufeli et al., 2006). Work engagement consists of three dimensions. Vigor represents the willingness of employees to invest their energies into work activities. Dedication describes positive affective feelings such as enthusiasm and pride regarding work. Finally, absorption concerns the experience of immersion during work. The willingness of employees to invest their energies into work explains the association between work engagement and a plethora of performance behaviors (Bakker & Demerouti, 2008). Indeed, engaged employees possess the resources and willingness to invest them in performing work proficiently, thinking outside the box, going the extra mile for colleagues or clients, and contributing to financial results (Borst et al., 2020; Christian et al., 2011; Garcia-Sierra et al., 2016; Halbesleben, 2010; Harter et al., 2002; Kim et al., 2013). In addition, engaged employees tend to exhibit greater well-being than their non-engaged counterparts (Bakker & Schaufeli, 2008). Hence, the relation of PWD with work engagement is an important marker of how worthwhile PWD is for employees and organizations.

Taken together, I expected that PWD increases work engagement through promoting basic need satisfaction; and, therefore, facilitates performance behaviors such as productivity, helping others, and creativity (Proposition b). For this purpose, I examined to what extent differences between individuals in PWD relate to self-ratings of work engagement as well as other ratings of work engagement,

productivity, learning, and creativity in **Chapter 2**. The inclusion of other ratings represents an important contribution of this study. In doing so, this chapter examines whether PWD manifests in work engagement and performance behaviors that are observable by colleagues. Given the almost exclusive focus of the literature on play at work on between-person associations, a within-person approach would substantially enrich the literature (Celestine & Yeo, 2021; Petelczyc et al., 2018). Hence, **Chapter 4** and **Chapter 5** examined to what extent PWD, work engagement, and performance behaviors fluctuate in harmony across days (also see **Chapter 3**). By developing two diary studies, we can examine whether within-person variability in PWD has meaningful implications for employees' daily well-being and performance. Finally, to develop insight regarding why PWD promotes work engagement, we examined the between-person and within-person psychological processes in **Chapter 6**. Specifically, I construed a multilevel model to investigate the role of basic need satisfaction in the daily association of PWD with work engagement. Furthermore, I also examined whether the PWD dimensions differ in how they relate to work engagement as well as to what extent these processes are homologous (i.e., similar across levels of analysis).

THE BOUNDARY CONDITIONS OF EFFECTIVE PLAYFUL WORK DESIGN

The final question of the dissertation pertains to the boundary conditions of 'effective' PWD. I consider PWD effective and successful when the behavior succeeds in promoting work engagement and performance behaviors. Thus, I aim to go beyond the consideration of 'simple effects' of PWD by including moderating variables. Considering the play-as-personality and play-as-activity literatures, I investigate individual (level-2) and contextual differences (level-1). Trait activation theory (Tett et al., 2013; 2021) and the play literature (e.g., Celestine & Yeo, 2021) suggest that specific personalities and situations may especially benefit from a playful approach to work activities. Namely, particular traits guide individuals towards play because these individuals have a preference for play (e.g., Barnett, 2000;

Csiskzentmihalyi, 1975; Lieberman, 2014). Likewise, trait activation theory posits that individuals especially enjoy situations when they can express their traits (Tett et al., 2013). In other words, traits may explain why certain individuals enjoy designing their work to be more playful, whereas others do not.

The literature further suggests that a playful approach may benefit certain work activities. When PWD is recognized as a self-regulation strategy, this behavior may be especially important for work engagement on days when work consists of a lack of stimulation and frustrates interpersonal experiences. For instance, Logan (1985), describes how individuals may foster immersion during solitary situations by playfully using their imagination. Moreover, resource strategies are theorized to especially benefit individuals when they fit situational demands (De Jonge & Dormann, 2006; Hobfoll, 1998). Therefore, the dimensionality of PWD in terms of self-initiated ludic play and agonistic play suggests that: designing fun may especially contribute to engagement on days when work is non-ludic (i.e., low in interpersonal affiliation and fun), whereas designing competition may especially remedy non-agonistic situations (i.e., low in task achievement and challenge).

Based on TAT and COR theory, I expected that personality (proposition c) and job conditions (proposition d) represent important boundary conditions for the ability of PWD to foster work engagement. In **Chapter 4**, I examined how personality traits interact with designing fun and designing competition. Based on Trait Activation Theory (Tett et al., 2015), I expected that fluctuations in designing fun and designing competition especially relate to changes in work engagement for individuals who score high (vs. low) on the traits of openness to experiences and playfulness. Moreover, I assessed to what extent this effect translates indirectly into creative performance. Finally, in **Chapter 5**, I investigated how daily changes in designing fun and daily designing competition enabled employees to cope with job hindrance demands. Specifically, I examined to what extent designing fun and designing competition attenuated the daily association of communion hindrance job demands (i.e., job demands that impede the sense of relatedness) and agency

hindrance job demands (i.e., job demands that limit the experience of competence) with work engagement, respectively. In addition, I tested the extent to which these interactions translated into higher extra- and in-role performance. Finally, I explored the synergistic effects of designing fun and designing competition on need satisfaction in **Chapter 6**. Thus, I examined whether designing fun and designing competition strategies are especially beneficial when used in tandem.



Chapter 2

Playful Work Design: Conceptualization, Measurement, and Validity

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Abstract

In three different studies, we challenge the traditional view that work and play are mutually exclusive phenomena. We introduce the concept of playful work design (PWD) – the proactive cognitive-behavioral orientation that employees engage in to incorporate play into their work activities to promote fun and challenge. In Study 1, we utilized expert-ratings and iterative exploratory factor analyses to develop an instrument that measures (1) designing fun and (2) designing competition. Additionally, Study 1 evidences the divergent and convergent validity of the subscales as well as their distinctiveness. Specifically, PWD was indicative of proactivity as well as play, and designing fun especially correlated with ludic traits (i.e., traits focused on deriving fun; e.g., humor), whereas designing competition particularly correlated with agonistic traits (i.e., traits focused on deriving challenge; e.g., competitiveness). Study 2 cross-validated the two-factor structure, further investigated the nomological net of PWD, and revealed that PWD is distinct from job crafting. Finally, Study 3 examined the predictive and incremental validity of the PWD instrument with self- and colleague-ratings two weeks apart. Taken together, the results suggest that the instrument may advance our understanding of play initiated by employees during work.

Keywords: playful work design, proactive work behavior, scale development, playfulness, play at work, job and work design, work engagement, competitiveness

Playful Work Design: Conceptualization, Measurement, and Validity

“Any action can be practiced as an art, as a craft.”

—Stephen Nachmanovitch, *Free play: Improvisation in Life and Art*, 1990, p. 10

Play represents a universally enjoyable phenomenon, which is why virtually everyone engages in some form of play from time to time (Huizinga, 1949; Sutton-Smith, 2009). Hence, Huizinga contended that humans are not best described as *Homo Sapiens*, mankind who knows; but rather as *Homo Ludens*, mankind who plays. Indeed, play permeates our lives in a myriad of forms; playfully teasing a friend, joking around, a game of chess, or a soccer match. Individuals pursue play for the sake of fun and challenge. For the same purpose, individuals may want to integrate play with work. Contemporary research has diverged from the traditional paradigm that considered work and play as mutually exclusive phenomena (Butler et al., 2011; Dandridge, 1986; Glynn & Webster, 1992; Kavanagh, 2011). Instead, research has started to focus on their integration (e.g., Celestine & Yeo, 2021; Mainemelis & Ronson, 2006; Petelczyc et al., 2018). Research on play initiatives by organizations and other parties is flourishing. Findings thus far suggest that organizational initiatives such as fun activities, productivity competitions (Tews et al., 2014; Tsaur et al., 2019), providing playful cues during meetings (West et al., 2016), and gamifying work by adding points, badges, and leaderboards (Deterding et al., 2011; Gerdenitsch et al., 2020) cultivate employees' motivation and performance. In the current research, we expand the existing literature on play at work by positioning the employee at the core of the process of integrating play with work.

Although play concerns a widespread phenomenon – with a surging interest from the occupational domain – scant research studied self-initiated play during work (Celestine & Yeo, 2021; Petelczyc et al., 2018; cf. Bakker, Scharp et al., 2020; Bakker, Hetland et al., 2020; Scharp et al., 2019). In this paper, we develop new insights about self-initiated play at work by synthesizing the literatures on play and work design. We build on recurrent, and often convergent themes in the literatures on play and self-initiated work design strategies (e.g., personality traits as antecedents; promotion-

focus; energy management; performance behaviors). We complement research on play at work that builds on a top-down and activity-based perspective by advancing a bottom-up and approach-based perspective. The core premise of this article is that *employees* may themselves initiate play *during* work activities to transform their experience of work, which resonates with recent advances on individual work design strategies such as job crafting (Tims et al., 2012). Contrasting top-down initiatives that utilize a 'one size fits all' approach, self-initiated play may cater more to individual needs.

Second, we answer calls for the development of a generic instrument to measure play during work (Petelczyc et al., 2018; Van Vleet & Feeney, 2015). We conceptualize and advance a two-dimensional instrument with sound psychometric qualities that measures play during work to systematically test and refine theories regarding play at work. Moreover, while play theorists often characterize play along two different dimensions, attention is usually devoted to only one of the manifestations of play. The two-dimensional conceptualization of PWD answers calls for the differentiation between types of play (Petelczyc et al., 2018). Furthermore, a two-dimensional approach distinguishing between 'designing fun' and 'designing competition' offers an enhanced understanding of the nuanced differences between these forms of play compared to a one-dimensional approach. That is, the idiosyncratic nature and differential focus of these play forms suggests they may cater to different personal needs as well as benefit distinct work conditions (e.g., Bakker, Hetland et al. 2020; Petelczyc et al., 2018; Scharp et al., 2019; Scharp et al., 2021).

Finally, we extend contemporary theorizing and empirical research on PWD in several ways. First, we highlight the theoretical similarities and differences with other play initiatives and self-initiated work design strategies to position PWD in the literature as a related, but unique concept. In consideration of the novelty of PWD, the purpose of this article was to build on the theoretical narratives that are dominant in research on play (e.g., personality, energies) and self-initiated work design (e.g., promotion- vs. prevention-focus, energies, performance behaviors). Second, we aim to

extend previous research on PWD that has mainly revealed how intraindividual differences in PWD, motivational states, and performance behaviors are interrelated (Scharp et al. 2019; Scharp et al., 2021). In contrast, the present study aims to reveal how individuals who design work to be more playful differ from their less playful counterparts in terms of traits, enduring motivational states, and performance. Third, while previous research has mainly relied on self-ratings of work engagement and performance behaviors (Bakker & van Wingerden, 2021; Scharp et al. 2019; Scharp et al., 2021), the present study also investigates how PWD relates to colleague ratings of their engagement and performance (e.g., creative performance, effort). Furthermore, we test the often-formulated propositions regarding the antecedents as well as consequences of play during work. That is, play is often conceptualized as a manifestation of certain personality traits, promotion-focused, an energy-management strategy stimulating positive affect, and promoting performance behaviors such as creativity and effort (Barnett, 2007; Celestine & Yeo, 2001; Csikszentmihalyi, 1981; Huizinga, 1949; Lieberman, 2014; Mainemelis & Ronson, 2006; Peterson & Seligman, 2004; Proyer, 2012).

The Foundation for Playful Work Design

Play Paradigms

Play has been a topic of debate across a multitude of disciplines ranging from anthropology, sociology, history, biology, to psychology (Sutton-Smith, 2009). Overall, we can roughly discern three major themes or ‘paradigms’ in the research on play where (1) play is approached as a set of activities or behaviors, (2) play is considered an individual characteristic, or (3) play is defined as a behavioral approach to an activity. First, the stream of research that approaches ‘play-as-activities’ situates play as a consequence and/or characteristic of certain activities and behaviors (e.g., Caillois, 2001; Huizinga, 1949). For instance, utilizing a multidimensional scaling method, Day (1981) positioned activities on a continuum ranging from ‘workfulness’ (e.g., algebra, dishes, taking out the garbage) to playfulness (e.g., dances, parties, being

with friends). Similarly, Van Vleet and Feeney (2015) defined play as activities or behaviors carried out for fun with a high amount of enthusiasm and interactivity (e.g., dancing together, Nerf gun shoot-outs, mock wrestling). Second, the play-as-personality stream of research approaches play as a manifestation of individual differences in specific tendencies or capacities (e.g., Barnett, 2007; Lieberman, 2014; Peterson & Seligman, 2004; Helmreich & Spence, 1978; Thorson & Powell, 1993). For instance, Proyer (2012; 2017) described playfulness as an individual characteristic that enables individuals to (re)frame situations for the purpose of entertainment and stimulation, which builds on the tendencies to be other-directed, lighthearted, intellectual, and whimsical. Finally, the play-as-approach stream of research defines play as a specific way of structuring cognition and behavior in relation to an activity (e.g., Abramis, 1990; Apter, 1991; Andersen & Roepstorff, 2021; Csikszentmihalyi, 1981; Miller, 1973). In other words, play is not considered as a “set of activities but rather a behavioral approach to performing any activity” (Mainemelis & Ronson, 2006, p. 84). For example, Hamilton et al. (1984) described how individuals play during activities such as mowing the lawn by “discovering game-like qualities in the task itself and by creating rules about what one is doing and how to do it: pretending one is ‘mowing down’ something besides grass, inscribing circular or zig-zag patterns” (p. 184). The paradigms provide complementary and unique insights into what may constitute play during work and its nomological net.

Play Communalities

While the play paradigms differ in their approach of researching play, their findings converge in their description of the core features: (1) cognitive recategorization of behaviors or activities as ‘play’, (2) a process-orientation described by a momentary focus on the behavior or activity, (3) a sense of freedom and volition, (4) interactive involvement in terms of seeking, finding, and resolving surprises and complexities, and (5) the autotelic nature, i.e., performed for the sake of the associated positive affective states (Andersen & Roepstorff, 2021; Bateson, 1972; Csikszentmihalyi,

1975; Proyer, 2017; Van Vleet & Feeney, 2015). In support of their unity, the constellation of the core features of play appears to synchronize in harmony. The presence or absence of features stimulates or inhibits the prevalence of other features. For instance, experiments reveal that framing tasks as 'play' transforms their experiential qualities; it suspends the instrumental, efficiency-oriented qualities of a task, and promotes an intrinsic, process-oriented mindset and positive affective states (Cellar & Barrett, 1987; Glynn, 1994; 1988; Heimann & Roepstorff, 2018; Sandelands, 1988; Webster et al., 1990). Similarly, a game of monopoly or a soccer match becomes dull and performative after the outcome becomes unequivocal (e.g., who will win) and more focused on the outcome (e.g., to finish the game) as opposed to the process (Andersen & Roepstorff, 2021). Likewise, forcing an individual to participate in play may create cynicism and minimize the autotelic nature and cognitive recategorization (Fleming, 2005). Finally, when individuals do not 'get' a joke or are unable to solve a puzzle; they are unable to resolve surprises and complexities, which may yield confusion or frustration instead of fun and challenge (Suls, 1983). Taken together, the research on play suggests individuals play (1) when they possess specific traits or capacities, (2) when the situation signals the freedom to play, and (3) due to the autotelic nature, i.e., to optimize personal energetic and psychological resources (Celestine & Yeo, 2021; Petelczyc et al., 2018).

The Duality of Play

Another recurrent theme across the play literatures is the duality of play. Play is often characterized along two dimensions. Huizinga (1949) concluded that this duality is best described by the ancient Greek terms παιδιά (*paidiá*), which means *ludic*, childish, and fun, and ἀγών (*agón*), meaning *agonistic*, contest, and competition. The play literature often appreciates this duality with different labels. Scholars may describe play in terms of open or closed, irrational or rational, playful or serious, imaginary or real, as well as arbitrary or rule-bound (Kolb & Kolb, 2010; Suits, 1978). Ludic play tends to be focused on deriving lighthearted pleasure and is characterized by "open" goals

(the goal is to continue playing), non-seriousness, fantasy, and arbitrary rules. In contrast, agonistic play tends to be focused on creating pleasure from stretching one's skill and involves relatively structured behaviors such as competing and striving for achievements characterized by "closed" goals (i.e., goals whose achievement ends the play episode), seriousness, reality, and explicit rules. Naturally, these forms of play do not represent dichotomous manifestations. Instead, they may covary in harmony. Moreover, the duality of play applies to the play-as-activity, play-as-personality, and play-as-approach perspectives. For instance, ludic play activities may refer to dancing and jesting, whereas rock-climbing and basketball represent agonistic play activities. Similarly, humorous and lighthearted personalities represent ludic personalities, whereas the trait of competitiveness reflects an agonistic personality. Finally, in terms of play as a behavioral approach, individuals may restructure their cognition and behavior during activities in a ludic fashion with, for instance, using humor and imagination to derive fun while cooking; or in an agonistic fashion by, for example, creating objectives and rules to create pleasure from stretching one's skill while mowing the lawn.

Play as Work Design

The literature on play shares striking similarities with the literature on work design. Parker (2014) advanced a conceptualization of "work design" that not only includes the top-down organization of work (job design; Hackman & Oldham, 1976), but also employees' emergent and self-initiated organization of tasks and activities (individual work design). Similar to research on play as activities, the literature on top-down work design reveals how creating situational conditions such as autonomy and variety can elicit motivation and behavior (Celestine & Yeo, 2021; Humphrey et al., 2007). Recently, research emerged on organizational initiatives that integrate play with top-down work design. For instance, fun activities at work and gamification represent top-down initiatives that aim to harness the autotelic nature of play. Fun activities include playful and humorous endeavors organized and sponsored by the

organization to promote amusement, enjoyment, or pleasure such as theme days, public celebrations, productivity contests, and teambuilding events (Tews et al., 2014; Michel et al., 2019). Gamification aims to integrate game elements with non-game contexts (Deterding et al., 2011) such as introducing playful instructions and props during meetings (West et al., 2016), or developing a digital environment with leaderboards, badges, and awards (Silic et al., 2020). Indeed, such top-down initiatives appear to foster employee engagement and performance (Becker & Tews, 2016; Silic et al., 2020; Tews et al., 2014; West et al., 2016). However, as proposed by Parker (2014), individuals may also organize their tasks and activities themselves, which connects with the literature that defines play as a specific way of organizing one's cognition and behavior in relation to an activity.

Individual work design strategies represent a form of proactive behavior; self-started behavior focused on promoting change as opposed to passively accepting the status quo (Crant, 2000; Frese et al., 1997; Parker et al., 2006). While proactive behaviors share a common core of being action-oriented and goal-directed, their form, intended target of impact, and temporal orientation may vary extensively (Grant & Ashford, 2008). For instance, the form and target of impact of proactive behaviors may include taking personal initiative, preventing the reoccurrence of work problems, identifying new technologies for innovation, strategic scanning for potential issues to ensure organization-environment fit, and engaging in non-work activities to mobilize personal psychological resources (Parker & Collins, 2010; Op den Kamp et al., 2018). These behaviors illustrate how proactive behaviors may differ in their intended target of impact in terms of the organization or the self, and short- or long-term results (Grant & Ashford, 2008). For instance, personal initiative, identifying new technologies, and strategic scanning reflect proactive behaviors focused on creating changes that align with the organization's mission with a long-term orientation, whereas mobilizing personal psychological resources targets the individual's experience and has a short-term orientation. Finally, in a similar vein as the autotelic nature of play, work design strategies often focus on attaining positively valenced end-states (e.g., promotion-

focus job crafting; Bindl et al., 2019; Laurence, 2010; Wrzesniewski & Dutton, 2001; Zhang & Parker, 2019). Contextualized to work, play as a cognitive-behavioral approach represents a specific individual work design strategy that (1) utilizes cognitive and behavioral restructuring to create change, (2) is short-term oriented (but can be enacted over longer periods of time), and (3) focuses on the self. This strategy contrasts fun activities and gamification in terms of agency and locus of enactment. Fun activities and gamification represent top-down initiatives, whereas play as an individual work design strategy is a bottom-up initiative. Furthermore, employees mainly engage with fun activities outside of their tasks (play as diversion from work), whereas play as an individual work design strategy is embedded in work (play as engagement with work; Mainemelis & Ronson, 2006).

Playful Work Design

The conceptualization of playful work design (PWD) synthesizes the literatures on play and individual work design. PWD represents a specific individual work design strategy that builds on play as a cognitive-behavioral orientation and the duality of play. Specifically, we define PWD as the proactive cognitive-behavioral orientation aimed at fostering fun and challenge during work activities through creating, seeking, and resolving surprises and complexities. PWD entails approaching work activities as ludic or agonistic play opportunities (i.e., cognitive recategorization) and performing them in a ludic or agonistic fashion (e.g., with humor and imagination or competitively, industriously) to attain positively valenced end-states (e.g., fun, challenge; i.e., promotion-focus). Thus, PWD represents a two-dimensional construct comprised of (1) ludic play, which we label as “designing fun”, and (2) agonistic play, which we label as “designing competition”.

Designing Fun

When employees design fun, they approach and perform work with a ludic mindset using humor and imagination to foster amusement, entertainment, and fun

during work activities. The conceptualization of designing fun builds upon research that describes how individuals utilize personal capacities such as humor and imagination to provide themselves (and possibly others) with lighthearted positive affect (Abramis, 1990; Barnett, 2007; Lieberman, 2014; Proyer et al., 2012; Robert & Wilbanks, 2012; Roy, 1959). When employees design fun, they may utilize several ludic play strategies such as ludic framing, using oneself as entertainment, imagining amusing narratives or interactions, and using humor (Logan, 1985; Robert & Wilbanks, 2012; Peterson & Seligman, 2004). By using fantasy and humor, individuals may temporarily suspend or expand features of the self or the situation; attributing “their own meanings to objects and behaviors” (Tegano, 1990, p. 1049). Thus, by constructing a playful narrative, perceiving amusing incongruities, or engaging in role-play, individuals may design fun in their work activities. To illustrate, Terkel (1974) interviewed a cashier who described ringing groceries as “playin’ a piano” (p. 376) and a server who compared work to performing as a ballerina on stage (p. 393). Another example concerns a flight attendant who went viral after using humor to make flight safety fun for everyone involved by communicating the safety procedure as a rap (CBS, 2009).

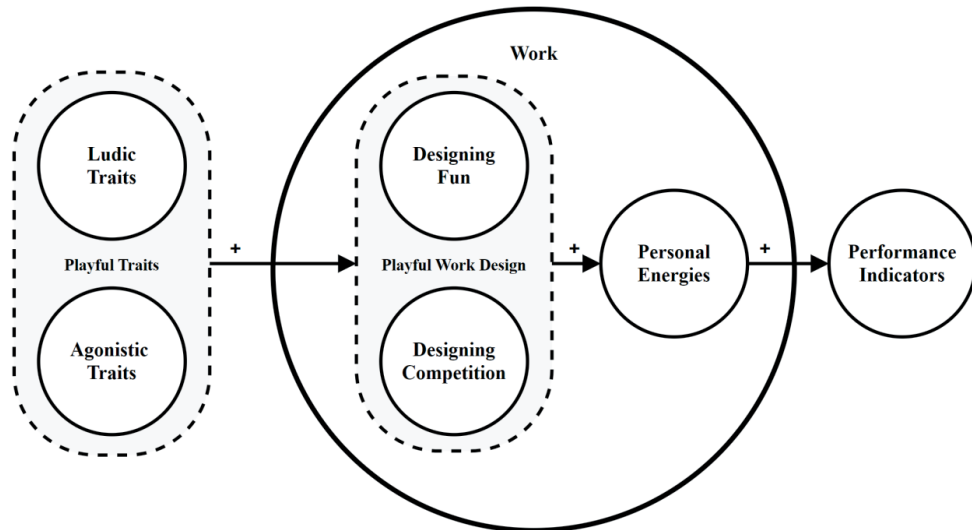
Designing Competition

Designing competition refers to when employees approach and perform work with an agonistic mindset characterized by formulating objectives and rules to foster diligence, challenge, and competition during activities. The conceptualization of designing competition builds on the literatures that describe how individuals cognitively and behaviorally restructure activities to derive pleasure from stretching their skills (Csikszentmihalyi, 1975; Hamilton et al., 1984; Howe, 2008; Miller, 1973). When employees design competition, they use play strategies such as agonistic framing, self-competition, and segmentation. By voluntarily elaborating tasks in a patterned way, individuals may design challenge in activities (Miller, 1973). Elaboration of tasks may involve setting small goals within tasks and segmenting tasks into

meaningful parts (Fisher, 1993; Hill, 1975; Roy, 1959). For instance, self-competition involves competing with personal performance standards; aiming to stretch personal skills and pushing beyond personal limits (Howe, 2008). Thus, designing competition entails creating and finding opportunities to balance skill and challenge through agonistic play. For instance, Csikszentmihalyi (1975) describes an assembly line employee who exemplifies 'designing competition'. The employee maintained engagement with work throughout years of tenure by approaching and performing every task in a competitive fashion: "How do I beat my record?" (p. 39). Likewise, an engaged bus driver described a game during rides; challenging oneself to drive as smoothly as possible with the least amount of sudden decelerations (Schaufeli et al., 2001).

Validation Studies

Taken together, we expect that individuals (1) especially enact PWD when they possess playful and proactive traits, (2) particularly use PWD when the situation affords the freedom to use PWD, and (3) who use PWD enjoy more personal psychological resources and perform better than their non-playful counterparts. We further build on the differentiation between tendencies indicative of approaching desired end-states and avoiding undesired end-states, which reflect the two independent promotion and prevention motivational systems, respectively (Higgins, 2014). PWD is expected to correlate with tendencies associated with the promotion motivational system focused on "gains", whereas we hypothesize PWD will generally diverge from indicators of the prevention-motivational system focused on avoiding "losses". Figure 1 illustrates the overall conceptual model of PWD that guides our hypotheses.

Figure 1*Conceptual Model for the Validation of the Playful Work Design Instrument***Study 1: Scale Construction and Preliminary Validity****Playful Work Design as Proactivity and Play**

In Study 1, we develop an instrument that captures PWD in terms of ludic play (designing fun) and agonistic play (designing competition). In addition, we provide preliminary evidence for the scale's validity. First, PWD and personal initiative converge in their self-starting nature but diverge in their goal content (self vs. organizational) and time-orientation (i.e., short-term vs. long-term; Frese et al., 1997). Hence, we expect that designing fun (Hypothesis 1a) and designing competition (Hypothesis 1b) are distinct from, but correlate positively with, personal initiative. Building on the research that conceptualizes play as a manifestation of specific tendencies and capacities, we hypothesize that PWD correlates positively with general tendencies associated with play such as trait curiosity and trait openness. Curiosity describes the pursuit, recognition, and desire to explore novel, uncertain, complex, and ambiguous events (Kashdan et al., 2009). Likewise, individuals high in trait openness have the "recurrent need to enlarge and examine experiences" (McCrae & Costa, 1997, p. 826).

Research suggests that individuals who possess these traits will strive to expand their experiences through play (Baumann et al., 2016; Berlyne, 1960; Guitard et al., 2005; Nakamura & Csikszentmihalyi, 2014; Proyer, 2012). Hence, we expect that designing fun correlates positively with trait curiosity (Hypothesis 2a) and trait openness (Hypothesis 2b). Similarly, we predict that designing competition relates positively to trait curiosity (Hypothesis 3a) and trait openness (Hypothesis 3b).

Designing Fun as Ludic Play

Since designing fun and designing competition reflect ludic and agonistic play, respectively, we anticipate that designing fun and designing competition will correlate positively with ludic and agonistic traits (convergent validity); however, we further predict that designing fun correlates more strongly with ludic traits than designing competition and that designing competition correlates more strongly with agonistic traits than designing fun (divergent validity). While trait playfulness, trait humor, and creative personality represent ludic characteristics, competitiveness and achievement striving reflect agonistic characteristics. The conceptualization of trait playfulness builds on the ludic play literature and refers to “the predisposition to frame (or reframe) a situation in such a way to provide oneself (and possibly others) with amusement, humor, and/ or entertainment” (Barnett, 2007, p. 955; Proyer, 2012). In a similar vein, humor is a character strength that refers to the capacity to make oneself and others laugh (Peterson & Seligman, 2004). Finally, trait creativity is considered to be a fundamental component of ludic play, reflective of the capacity for divergent thinking, which enables individuals to creatively approach and perform activities (Glynn & Webster, 1992; Guitard et al., 2005; Lieberman, 2014; see, for a review, Proyer et al., 2019). Taken together, we predict that designing fun correlates positively and more strongly than designing competition with trait playfulness (Hypothesis 4a), sense of humor (Hypothesis 4b), and trait creativity (Hypothesis 4c).

Designing Competition as Agonistic Play

Since competitiveness and achievement striving represent agonistic traits they should especially correlate with designing competition. Trait competitiveness refers to having a strong desire to outperform others and frame situations as competitions (Houston et al., 2002; Hibbard & Buhrmester, 2010). The achievement striving facet of conscientiousness refers to the will to achieve and strive for excellence (Costa & McCrae, 1985). Competitiveness and achievement striving are closely related; however, competitiveness also focuses on others, whereas achievement striving is mainly self-centered (Moon, 2001). Hence, we expect that designing competition correlates positively, and more strongly than designing fun, with competitiveness (Hypothesis 5a) and achievement striving (Hypothesis 5b).

Divergent Behavioral Tendencies

Finally, we expect PWD to diverge from constructs reflective of the prevention-motivational system focused on avoiding losses such as procrastination and cynicism. The tendency to procrastinate refers to the propensity to put off work and avoid an activity under one's control (Tuckman, 1991), which reflects avoidance of negative emotions (Sirois & Pychyl, 2013). Cynicism refers to a negative, callous, and cynical attitude towards one's job characterized by distancing oneself from work (Leiter & Schaufeli, 1996). Typically, individuals develop cynical attitudes towards their work to avoid incurring further energetic losses (Maslach et al., 2001). We expect that the enactment of PWD operates independently from procrastination and cynicism. To illustrate, individuals who score low on procrastination may utilize PWD to 'kick-start' their focal task, whereas procrastinators may employ PWD to avoid their focal task by playfully designing other work activities. Similarly, while individuals low in cynicism may initiate PWD to further expand their motivation, cynical individuals may also initiate PWD to protect their energies or as a strategy to further distance themselves from work and as a form of resistance (Rodrigues & Collinson, 1995). These opposing

associations suggest that designing fun and designing competition diverge from procrastination and cynicism.

Method

Content Validity, Item Generation, and Reduction

Four experts (one professor in organizational psychology and three work design consultants) generated 75 items utilizing an inductive approach based on their knowledge of the subject matter and experiences with clients (DeVellis, 2016). All items were positively keyed since reverse-scored items reduce validity, introduce systematic error, and may cause an artifactual response factor consisting of all negatively worded items (Hinkin, 1995). Experiences with clients comprised workshop exercises and interviews on the use of play during work to make tasks more fun and challenging. During the next round, we selected and reformulated 39 items to ensure that the final item pool consisted of statements that indicated to what extent employees proactively integrated play with work with commonly described play elements (e.g., humor, fantasy, narrative, competition, challenges, rules; Lieberman, 2014; Caillois, 2001; Csikszentmihalyi, 1975; Huizinga, 1949). A panel of six Work and Organizational psychologists was provided with the following description of PWD: "Playful work design is a proactive employee strategy of using imagination and behavior to make work more challenging and fun". The panel evaluated and scrutinized the item pool based on clarity and construct validity. Specifically, they were instructed to rate items in terms of clarity, unambiguity, and conciseness on a 5-point scale (1 = *bad quality*, 5 = *good quality*). We retained items with a high degree of consensus and minor comments ($n = 26$; $M = 4.33$). Finally, we formulated several new items based on the feedback ($n = 6$), which resulted in a total set of 32 items for the exploratory factor analyses.

Procedure and Participants

Participants were recruited through social media and the personal network of the authors. We informed participants of the general purpose of the study, that they could withdraw at any time, and that their responses were completely confidential. To incentivize participants, they could win a wireless headset worth 50 euros. In total, 428 Dutch employees participated. The sample consisted of 262 men (61.2%) and 166 women (38.8%). On average, participants were 40.42 years of age ($SD = 12.62$), worked 46.33 hours a week ($SD = 16.20$), and worked 12.97 years in their current job ($SD = 11.75$). Most of our sample received vocational training (40.2%) or finished high school (25.2%). Participants worked in a variety of sectors such as trade (41.8%), healthcare (15.4%), education (9.8%), industry (7.9%), and business services (7.2%). The participants rated the 32 items on a five-point scale (1 = *never*, 5 = *very often*).

Measures

In addition to the 32 newly developed items to measure PWD, we included various scales to establish preliminary evidence of construct validity. Statements were rated on a 5-point scale unless stated otherwise (1 = *strongly disagree*, 5 = *strongly agree*).

Proactivity. We measured proactivity with the seven-item Self-reported Initiative Questionnaire (Frese et al., 1997). An example item is: "I actively attack problems".

General Play Traits. We measured trait curiosity and trait openness. Curiosity was measured with the ten-item Curiosity and Exploration Inventory-II (Kashdan et al., 2009). Respondents rated statements such as "I am the kind of person who embraces unfamiliar people, events, and places" (1 = *not at all*, 5 = *extremely*). The ten-item Openness to Experience scale of the Big Five Inventory was used to measure openness (John et al., 2008). One example item is: "I see myself as someone who is ingenious".

Ludic Traits. We used instruments that measure trait playfulness, humor, and creative personality. We measured trait playfulness with the five-item Short Measure

of Playfulness (Proyer et al., 2012). Example items are “I am a playful person” and “Good friends would describe me as a playful person” (1 = *strongly disagree*, 7 = *strongly agree*). Humor was measured with the nine-item humor scale of the Values in Action Inventory of Strengths (Peterson & Seligman, 2004). An example item is “I use laughter to brighten the days of others” (1 = *very uncharacteristic*, 5 = *very characteristic*). We used the four-item Creative Personality Scale to measure creative personality (Gough, 1979; Zhou, 2003). Respondents rated items such as “I am inventive”.

Agonistic Traits. Competitiveness was measured with the five-item competition subscale of the Work and Family Orientation questionnaire (Helmreich & Spence, 1978). An example item is: “feel that winning is important in both work and games”. We measured the achievement striving facet of conscientiousness with the ten-item achievement striving subscale from the NEO Personality Inventory (Costa & McCrae, 1992). An example item is: “I plunge into tasks with all my heart”.

Divergent Behavioral Tendencies. We used measures of procrastination and cynicism to assess divergent validity. We measured procrastination with eight of the highest loading items of the Procrastination Scale (Tuckman, 1991), such as “I am an incurable time waster”. We used the four-item cynicism subscale from the Maslach Burnout Inventory to measure cynicism (Maslach et al., 1986). An example item is: “I doubt the significance of my work” (1 = *never*, 7 = *always*).

Results

Exploratory Factor Analyses

The 32 items were used in iterative exploratory factor analyses (EFA) using principal component analysis and oblique rotation (promax). Oblique rotation was chosen because the hypothesized factors, designing fun and designing competition, represent correlated facets of the higher-order latent PWD construct. To ensure content validity and avoid redundancy, we removed items that did not distinctly load on their intended dimension, showed substantial overlap with other items, or created aberrant deviations from the two-factor structure. In addition, to ensure a concise and

parsimonious instrument, we utilized an iterative approach where we inspected Eigenvalues (> 1), cross-loadings ($< .35$), overlap, and content validity of the statements to add and remove items (Osborne et al., 2008). An iterative approach to the factor analysis was deemed most appropriate in consideration of the novelty of the construct, need for a parsimonious meaningful instrument, and lack of empirical studies to draw items from.

In total, the iterative procedure identified 12 items that loaded distinctively on their expected factor and mirrored the proposed two-dimensional nature of PWD (see Table 1). The factor loadings ranged from .43 to .80 and none of the cross-loadings exceeded .27. The first factor described ludic play during work, which we refer to as *designing fun*, and explained 34.39% of the variance (Eigenvalue = 4.13; alpha reliability coefficient = .75). The second factor consisted of items that measure agonistic play during work, which we label as *designing competition*, and explained an additional 10.20% of the variance (Eigenvalue = 1.22). In addition to the alpha reliability coefficients (α), we calculated the omega reliability coefficients (ω) for each PWD subdimension based on maximum likelihood estimation of factor loadings and error variances (Hayes & Coutts, 2020). The reliabilities of the designing fun ($\alpha = .75$, $\omega = .75$) and designing competition scale were acceptable ($\alpha = .73$, $\omega = .74$). The item means vary between 2.61 and 3.97 ($\bar{x} = 3.18$), which suggests most individuals occasionally engage in PWD. The absolute values of the skewness and kurtosis indices did not exceed 1.1, which indicates the items are normally distributed (Kline, 1998). The designing fun and designing competition subscales were intercorrelated ($r = .56$, $p < .01$; see Table 1).

Validity Evidence

Table 2 presents the means, standard deviations, reliabilities, and correlations of the variables. We predicted that designing fun (Hypothesis 1a) and designing competition (Hypothesis 1b) would correlate positively with personal initiative. In

Table 1

Items, means, standard deviations, alpha's, and standardized factor loadings of the playful work design scale (Study 1, N = 428)

	<i>M</i>	<i>SD</i>	<i>Skew</i>	<i>Kurtosis</i>	$\rho_{X(1R)}$	α	Factor loading	
							1.	2.
<i>Designing Fun</i>							.75	
1. I look for humor in the things I need to do.	3.60	1.01	-.68	.17	.51		.80	
2. I approach my work in a playful way.	3.19	1.01	-.52	-.17	.51		.80	
3. I look for ways to make tasks more fun for everyone involved.	3.52	.99	-.60	.29	.49		.64	
4. I approach my tasks creatively to make them more interesting.	3.50	.90	-.58	.50	.49		.60	
5. I look for ways to make my work more fun.	3.24	.99	-.60	.08	.49		.54	
6. I use my imagination to make my job more interesting.	2.49	1.18	.16	-1.10	.47		.46	
<i>Designing Competition</i>							.73	
7. I try to set time records in my work tasks.	2.98	1.23	-.23	-1.03	.43		.80	
8. I try to keep score in all kinds of work activities.	2.61	1.13	.04	-1.04	.43		.73	
9. I compete with myself at work, not because I have to, but because I enjoy it.	3.11	1.20	-.34	-.78	.55		.69	
10. I try to make my job a series of exciting challenges.	2.79	1.08	-.17	-.79	.55		.55	
11. I push myself to do better even when it isn't expected.	3.97	.73	-.66	1.10	.35		.48	
12. I approach my job as a series of exciting challenges.	3.20	1.09	-.49	-.44	.47		.43	

Note. Factor loadings > .35 are shown. The original Dutch items were translated into English. Items were rated on a five-point scale

(1 = *never*, 5 = *very often*). $\rho_{X(1R)}$ = corrected item-total correlation.

support of Hypothesis 1, personal initiative associated positively with designing fun ($r = .36, p < .01$) and designing competition ($r = .36, p < .01$). Hypothesis 2 states that designing fun (a) and designing competition (b) correlate positively with the trait of curiosity. Indeed, trait curiosity was positively correlated with designing fun ($r = .42, p < .01$) and designing competition ($r = .46, p < .01$). Finally, we hypothesized that designing fun (Hypothesis 3a) and designing competition (Hypothesis 3b) would relate positively to trait openness. As expected, designing fun ($r = .40, p < .01$) and designing competition ($r = .31, p < .01$) correlated positively with trait openness. Taken together, the results indicate that individuals with proactive and playful tendencies tend to design fun and design competition.

Hypothesis 4 states that designing fun would correlate positively, and more strongly than designing competition, with trait playfulness (a), humor (b), and creative personality (c). To compare the strength of the correlations, we calculated two-tailed 95% confidence intervals of the differences (Zou, 2007). The strength of the correlations significantly differs in size when the confidence interval excludes zero. Indeed, the positive correlations between designing fun and playfulness ($r = .45, p < .01$; LL: 0.19, UL: 0.35), humor ($r = .41, p < .01$; LL: .20, UL: .36), and creative personality ($r = .36, p < .01$; LL: .04, UL: .20) were stronger than the associations between designing competition and the respective ludic traits (Table 2). In contrast, we predicted that designing competition would correlate positively, and more strongly than designing fun, with trait competitiveness (Hypothesis 5a) and achievement striving (Hypothesis 5b). Indeed, the correlations of designing competition with competitiveness ($r = .44, p < .01$; LL: .18 UL: .34) and achievement striving ($r = .34, p < .01$; LL: .04, UL: .20) were stronger than the associations between designing fun and the agonistic traits (Table 2). These findings support the conceptualization of designing fun and designing competition as ludic and agonistic play, respectively.

We expected that PWD diverged from procrastination and cynicism. Designing fun neither correlated with procrastination ($r = -.01, p = .963$) nor cynicism ($r = -.08, p$

Table 2

Means, Standard Deviations, Reliabilities (Between Brackets), and Correlations of the Variables (Study 1, N = 428)

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Designing fun	3.26	.68	(.75)											
2. Designing competition	3.11	.71	.56**	(.73)										
3. Personal initiative	4.07	.56	.36**	.42**	(.81)									
4. Curiosity	3.62	.71	.42**	.46**	.47**	(.88)								
5. Openness to experience	3.54	.54	.40**	.31**	.39**	.51**	(.73)							
6. Playfulness	4.38	1.25	.45**	.18**	.20**	.28**	.33**	(.87)						
7. Humor	3.80	.54	.41**	.13**	.24**	.31**	.28**	.53**	(.80)					
8. Creative personality	3.75	.60	.36**	.24**	.41**	.38**	.62**	.30**	.29**	(.72)				
9. Competitiveness	2.82	.95	.21**	.47**	.28**	.36**	.19**	.12*	.04	.16**	(.85)			
10. Achievement striving	4.18	.54	.22**	.34**	.65**	.42**	.34**	.10*	.18**	.34**	.30**	(.83)		
11. Procrastination	1.98	.83	-.01	-.01	-.27**	-.09	-.04	.13**	.01	-.10*	.01	-.43**	(.90)	
12. Cynicism	2.18	1.07	-.08	-.13**	-.27**	-.15**	-.08	-.06	-.11*	-.13**	-.03	-.28**	.26**	(.84)

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

= .088). Likewise, designing competition did not relate to procrastination ($r = -.01, p = .859$); however, designing competition did show a small negative correlation with cynicism ($r = -.13, p < .05$).

Discussion

The two-dimensional factor structure that emerged from iterative exploratory factor analyses mirrored the duality of play, which we labeled designing fun and designing competition. Further supporting this distinction, designing fun especially correlated with ludic traits (i.e., playfulness, humor, creative personality), whereas designing competition was especially related to agonistic traits (i.e., competitiveness, achievement striving). As hypothesized, both dimensions converged similarly with personal initiative and general traits associated with play (i.e., curiosity, openness), which supports the conceptualization of PWD as an integration of play and proactivity during work. Finally, PWD diverged from constructs reflective of withdrawal and avoidance – suggesting PWD is indicative of a different motivational system. Taken together, the findings support the two-dimensional conceptualization of PWD as behavior reflective of proactive ludic play and proactive agonistic play during work.

Study 2: Cross-Validation and Additional Validity Evidence

Playful Work Design vs. Job Crafting

Study 2 aims to cross-validate the two-dimensional factor structure of the PWD instrument (Hypothesis 6) and provide further construct validity. Job crafting is an important construct to consider in relation to PWD. Job crafting can be defined as self-initiated changes in job demands and job resources (Tims et al., 2012; Petrou et al., 2012). Such proactive efforts can also be conceptualized as contraction (prevention/avoidance-oriented) and expansion (promotion/approach-oriented) of the task, cognitive, skill, and relational boundaries of the job (Bindl et al., 2019; Laurence, 2010; Wrzesniewski & Dutton, 2001; Zhang & Parker, 2019). In contrast, PWD does not involve changing job resources or job demands. PWD also does not promote

change through expansion or contraction of the scope of the job. PWD creates change by proactively restructuring cognition and behavior *during existing* work activities. To illustrate, a cashier who crafts their job may seek out or drop certain tasks by asking to be responsible for the bookkeeping or by exchanging their cleaning task with a colleague; try to get to know or avoid certain colleagues; and, focus on how the supermarket ensures that individuals in society have easy access to food or channel attention away from tasks that involve wasting food. These behaviors exemplify self-initiated changes in job demands and job resources as well as expansion and contraction of the boundaries of the job (Bindl et al., 2019; Tims et al., 2012). In contrast, a cashier who designs work to be more playful may imagine an amusing narrative for the item list of each customer (to create fun) and try to scan articles as fast as possible (to create challenge). The cashier does not aim to modify the boundaries of their obligations, relations, and meaning of the job; the aim is to redesign the experience to be more fun and challenging by integrating play with work within the boundaries of the activities. Hence, we argue PWD is distinct from job crafting due to the differences in content and how the behaviors realize change (discriminant validity; Hypothesis 7). However, PWD and job crafting overlap in terms of self-started changes to optimize work conditions (convergent validity). Hence, we argue that designing fun correlates positively with increasing structural resources (Hypothesis 8a), increasing social resources (Hypothesis 8b), and increasing challenge job demands (Hypothesis 8c). Likewise, Hypothesis 9 states that designing competition is positively associated with increasing structural resources (Hypothesis 9a), increasing social resources (Hypothesis 9b), and increasing challenge job demands (Hypothesis 9c).

Convergent Behavioral Tendencies

We expect that when individuals design fun and design competition, they frame and perform activities with a ludic and agonistic orientation, which builds on an individual's mental capacities and flexibility (Lieberman, 2014; Csikszentmihalyi, 1975).

Imagination refers to the mental capacity to simulate certain activities and experiences (Taylor et al., 1998). When individuals design fun or competition, they may utilize their imagination to frame and approach activities in a ludic (e.g., as a theatrical performance) or agonistic (e.g., as a challenging puzzle) fashion. Hence, we expect that imagination correlates positively with designing fun (Hypothesis 10a) and designing competition (Hypothesis 10b). Behavioral rigidity refers to the tendency to maintain the status quo and avoid unknown activities (Lynam et al., 2012). This tendency stands in stark contrast with PWD, which revolves around self-initiating changes to create surprises, uncertainties, and complexities. Hence, Hypothesis 11 states that behavioral rigidity correlates negatively with designing fun (H11a) and designing competition (H11b).

Convergent Job Characteristics

Finally, as mentioned in the preceding paragraphs, PWD is embedded in activities. The characteristics of these activities may promote or limit the opportunities to playfully design work (Mainemelis & Ronson, 2006; Celestine & Yeo, 2021). Autonomy and supervision support for play provide employees with the latitude to playfully design work. Job autonomy refers to the degree of freedom, independence, and discretion (Morgeson & Humphrey, 2006). Since higher levels of autonomy afford individuals with more play opportunities, we anticipate that designing fun (Hypothesis 12a) and designing competition (Hypothesis 12b) correlate positively with autonomy. Likewise, supportive supervision may stimulate PWD by signaling that play is permissible (Celestine & Yeo, 2021; Petelczyc et al., 2018). Hence, we predict experience support for fun will correlate positively with (H13a) designing fun and (H13b) designing competition.

Divergent Behavioral Tendencies

We expect PWD to manifest independently from constructs that reflect avoidance such as laziness. Similar to procrastination, laziness reflects an unwillingness

to engage in and an avoidance of work (Costa & McCrae, 1985). Hence, we expect laziness to diverge from designing fun and designing competition.

Playful Work Design and Energy Management

Play theory suggests that individuals initiate play to expand and recuperate their energetic resources (Berlyne, 1960; Celestine & Yeo, 2021; Ellis, 1973; Giddens, 1964; Magnuson & Barnett, 2013; Spencer, 1870). The affective-energetic states of employees can be described by work engagement, exhaustion, and job boredom (Schaufeli & Salanova, 2014). Work engagement is a positive, work-related state of mind characterized by vigor, dedication, and absorption (Schaufeli & Bakker, 2010). In contrast, exhaustion refers to a feeling of fatigue due to excessive demands (Maslach et al., 1986). Finally, job boredom reflects a lack of energetic resources and passiveness due to an unstimulating environment (Reijseger et al., 2013). In other words, engagement, exhaustion, and boredom reflect the employees' energetic reservoir. Therefore, we anticipate that designing fun (H14a) and designing competition (H14b) correlate positively with work engagement. In contrast, we expect that employees who design fun (H15a) and design competition (H15b) are generally less exhausted. Similarly, we expect that employees who design fun (H16a) and design competition (H16b) are less bored with their work.

Method

Procedure and Participants

We recruited Dutch employees by posting (digital) flyers on social media channels (e.g., LinkedIn, Facebook). Participants were first informed of the general purpose of the study, the confidentiality of their responses, and that participation was voluntary. As an incentive, respondents could win a wireless headset worth 60 euros. We recruited 302 participants, which consisted of 164 women (54.3%) and 138 men (45.7%). Respondents had a mean age of 43.46 years old ($SD = 11.70$), workweek of 42.07 hours ($SD = 15.00$), and job tenure of 14.45 years ($SD = 11.95$). Most participants

received vocational training (32.5%) or higher professional education (32.1%). Participants worked in a variety of sectors, including transport (33.1%), healthcare (29.1%), education (16.2%), and business services (7.9%).

Material

All statements were rated on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*), unless stated otherwise.

Playful Work Design. PWD was measured with the newly developed twelve-item PWD questionnaire from Study 1 (see Table 1).

Job Crafting. We measured three job crafting behaviors with the Job Crafting Questionnaire (Tims et al., 2012). Each scale consists of five items. Example items are: "I try to develop myself professionally" (increasing structural job resources), "I ask colleagues for advice" (increasing social job resources), and "When an interesting project comes along, I offer myself proactively as project co-worker" (increasing challenging job demands). Items were rated on a five-point scale (1 = *never*, 5 = *very often*).

Convergent Measures. We measured imagination, rigidity, support for fun, and autonomy as general antecedents of play. We used a six-item scale to measure imagination (Costa & McCrae, 1992). Respondents rated items such as: "I feel like my imagination can run wild". Rigidity was measured with the seven-item behavioral rigidity scale (Lynam et al., 2012). An example statement is: "I am very predictable". We measured manager support for fun with the five-item Manager Support for Fun scale (Tews et al., 2014). An example item is: "My managers try to make my work fun". We used three items to measure job autonomy (Bakker et al., 2003), including, "I can decide myself how I execute my work" (1 = *totally disagree*, 7 = *totally agree*).

Divergent Measures. Laziness was measured with the five-item laziness scale (Costa & McCrae, 1992). An example item is: "I tend to be lazy".

Criterion Measures. We measured work engagement, job boredom, and exhaustion (1 = *never*, 7 = *always*). The nine-item Utrecht Work Engagement Scale was

used to measure work engagement (Schaufeli et al., 2006). An example item is: "At my work, I feel bursting with energy". Job boredom was measured with the eight-item Boredom Scale (Reijseger et al., 2013). Participants rated how frequent statements such as "I feel bored at my job" applied to them. We measured exhaustion with the five-item exhaustion subscale from the Utrecht Burnout Scale (Schaufeli et al., 1996). An example item is: "I feel mentally exhausted by my work".

Results

Confirmatory Factor Analyses

To cross-validate the two-factor structure from Study 1 (Hypothesis 6), we conducted a confirmatory factor analysis with maximum likelihood estimation using Mplus (Muthén & Muthén, 1998-2017). Model fit was assessed with the chi-square/df ratio (χ^2/df), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). These fit indices indicate acceptable fit when the χ^2/df ratio is lower than three (Kline, 1998), TLI and CFI values exceed .90, and RMSEA and SRMR values are lower than .08 (Hu & Bentler, 1999). In support of Hypothesis 8, the findings indicate that two-factor model sufficiently fits the data ($\chi^2 = 129.41$, $df = 53$, $CFI = .923$, $TLI = .905$, $RMSEA = .069$, $SRMR = .048$), whereas the one-factor model fitted less adequately to the data ($\chi^2 = 195.95$, $df = 54$; $\Delta \chi^2 = 66.54$, $\Delta df = 1$, $p < .01$, $CFI = .858$, $TLI = .826$, $RMSEA = .093$, $SRMR = .061$). The standardized factor loadings of the two-factor model were statistically significant and ranged from .39 to .75 ($p < .01$). Similar to Study 1, designing fun ($\alpha = .80$, $\omega = .80$) and designing competition ($\alpha = .75$, $\omega = .76$) were intercorrelated ($r = .59$, $p < .01$) and sufficiently reliable (See Table 2).

To assess whether we can distinguish PWD from job crafting (Hypothesis 7), we performed a series of confirmatory factor analyses (see Table 3). The

Table 3*Confirmatory Factor Analyses for Playful Work Design and Job Crafting (Study 2; N = 302)*

Model	χ^2	df	χ^2/df	CFI	TLI	RMSEA	SRMR	Comparison	$\Delta\chi^2$	Δdf
Playful Work Design										
1. 1-factor model	195.95	54	3.63	.858	.826	.061	.061			
2. Proposed 2-factor model	129.41	53	2.44	.923	.905	.069	.048	1 vs. 2	66.54**	1
Playful Work Design and Job crafting										
3. Proposed 5-factor model	654.09	314	2.08	.903	.891	.059	.052			
4. 1-factor model	1287.46	324	3.97	.717	.693	.099	.083	3 vs. 4	633.37**	10
5. 2-factor model (PWD, JC)	921.78	323	2.85	.824	.809	.078	.061	3 vs. 5	267.69**	9
6. 4-factor model (DF and STR)	940.96	318	2.96	.818	.798	.081	.071	3 vs. 6	286.87**	4
7. 4-factor model (DF and SOC)	954.91	318	3.00	.813	.793	.081	.072	3 vs. 7	300.82**	4
8. 4-factor model (DF and CHA)	876.68	318	2.76	.836	.819	.076	.068	3 vs. 8	222.59**	4
9. 4-factor model (DC and STR)	885.85	318	2.79	.833	.816	.077	.069	3 vs. 9	230.76**	4
10. 4-factor model (DC and SOC)	890.35	318	2.80	.832	.814	.077	.071	3 vs. 10	236.26**	4
11. 4-factor model (DC and CHA)	823.77	318	2.59	.851	.836	.073	.065	3 vs. 11	169.68**	4

Note. * $p < .05$; ** $p < .01$. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation;

SRMR = Standardized Root Mean Square Residual. PWD = Playful Work Design; JC = Job Crafting; DF = Designing Fun; DC = Designing Competition; STR = Increasing Structural Job Resources, SOC = Increasing Social Job Resources; CHA = Increasing Challenge Job Demands.

hypothesized measurement model consisted of five latent factors: designing fun, designing competition, increasing structural job resources, increasing job social resources, and increasing job challenges. The PWD dimensions consisted of 6 items each, whereas the three job crafting dimensions consisted of 5 items each. The hypothesized 5-factor model showed an acceptable fit to the data ($\chi^2 = 645.09$, $df = 314$, CFI = .903, TLI = .891, RMSEA = .059, SRMR = .052). In addition, we compared the five-factor model with various alternative models such as a model assuming that items indicating designing competition and increasing challenge job demands refer to one underlying “increasing challenges” dimension (Model 11). However, none of the alternative models improved model fit beyond the original, five-factor model. Hence, we conclude that designing fun and designing competition are distinct and discernable from the dimensions of job crafting.

Convergent Validity

Table 4 presents the descriptive statistics of the variables. It is important to note the low reliability of the behavioral rigidity and laziness scales, which may have limited the validity of the associations. We hypothesized that PWD would relate positively to job crafting (Hypothesis 8 and 9). Indeed, designing fun and designing competition, respectively, correlated positively with increasing social job resources ($r = .41$, $p < .01$ and $r = .43$, $p < .01$), increasing challenge job demands ($r = .49$, $p < .01$ and $r = .52$, $p < .01$), and increasing structural job resources ($r = .43$, $p < .01$ and $r = .44$, $p < .01$). We further predicted PWD to relate positively to imagination (H10) and negatively to behavioral rigidity (H11). As expected, imagination correlated positively with designing fun ($r = .22$, $p < .01$) and designing competition ($r = .23$, $p < .01$); and behavioral rigidity correlated negatively with designing fun ($r = -.23$, $p < .01$) and designing competition ($r = -.22$, $p < .01$). In other words, employees who use PWD tend to be proactive and somewhat more imaginative and less rigid in their behavior. Finally, we expected PWD to be more prevalent in settings characterized by autonomy (H12) and support for fun (H13). Indeed, autonomy correlated positively

Table 4

Means, Standard Deviations, Reliabilities (Between Brackets), and Correlations Between the Variables (Study 2, N = 302)

	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Designing Fun	3.24	.75	(.80)												
2. Designing competition	3.01	.74	.59**	(.75)											
3. Structural crafting	3.63	.80	.43**	.44**	(.79)										
4. Social crafting	2.32	.87	.40**	.43**	.62**	(.84)									
5. Challenge crafting	2.66	.97	.49**	.52**	.67**	.65**	(.83)								
6. Imagination	2.19	.94	.22**	.23**	.00	.12**	.14*	(.85)							
7. Behavioral rigidity	2.70	.62	-.23**	-.22**	-.25**	-.15**	-.27**	-.09	(.64)						
8. Job autonomy	5.21	1.34	.17**	.23**	.44**	.21**	.29**	-.05	-.19**	(.81)					
9. Support for fun	3.21	1.04	.23**	.21**	.34**	.40**	.24**	.01	-.10	.46**	(.92)				
10. Laziness	1.84	.58	-.01	-.11	-.21**	-.11	-.15*	.36**	.16**	-.14**	-.15*	(.63)			
11. Work engagement	5.09	1.08	.30**	.36**	.54**	.41**	.36**	-.08	-.20**	.43**	.46**	-.03	(.92)		
12. Job boredom	1.80	.73	.02	.04	-.19**	-.06	.00	.42**	.05	-.27**	-.28**	.20**	-.47**	(.86)	
13. Exhaustion	2.75	1.09	.01	-.07	-.17**	-.03	-.06	.22**	.24**	-.31**	-.17**	.11	-.45**	.41**	(.91)

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

with designing fun ($r = .17, p < .01$) and designing competition ($r = .23, p < .01$); likewise, support for fun related positively to designing fun ($r = .23, p < .01$) and designing competition ($r = .21, p < .01$).

Divergent Validity

We anticipated designing fun and designing competition to diverge from trait laziness. Neither designing fun ($r = -.01, p = .845$) nor designing competition ($r = -.11, p = .054$) correlated with laziness. These findings provide further evidence that PWD operates largely independently of the prevention-motivational system.

Criterion Validity

We hypothesized PWD would correlate positively with work engagement (H14), and negatively with exhaustion (H15) and boredom (H16). As hypothesized, designing fun ($r = .30, p < .01$) and designing competition ($r = .36, p < .01$) correlated positively with work engagement. However, designing fun ($r = .01, p = .931$) and competition ($r = -.07, p = .244$) were not associated with exhaustion. Similarly, designing fun ($r = .02, p = .791$) and designing competition ($r = .04, p = .523$) were not associated with job boredom. Thus, while employees who use PWD generally feel more engaged, they do not experience less or more boredom and exhaustion than less playful counterparts.

Discussion

Study 2 replicated the two-dimensional factor structure found in Study 1. In addition, the confirmatory factor analyses revealed that PWD is distinguishable from job crafting. The correlations support the conceptualization of PWD as a form of proactive behavior and play, and suggest situational latitude promotes PWD. As expected, employees who design fun and design competition generally feel more engaged. However, contrary to our expectations, PWD did not correlate with exhaustion and job boredom. The energy management perspective of play may explain these findings (Celestine & Yeo, 2021). That is, on opposing ends of the

continuum of exhaustion and boredom, employees may initiate PWD. Individuals who generally do not feel exhausted or bored may initiate PWD to expand their resources, whereas individuals who lack energetic resources may initiate PWD to recuperate.

Study 3: Longitudinal Invariance and Predictive Validity

PWD and Behavioral Motivational Systems

Study 3 further tests the psychometric robustness of the PWD instrument and provides additional validity evidence. Moreover, we examine the predictive power of the PWD scales by temporally separating designing fun and designing competition from the outcome measures (i.e., self- and colleague-ratings). In addition, we will evaluate their incremental predictive power beyond job crafting, personal initiative, and fun activities. In the preceding paragraphs, we argued that PWD resonates with the promotion-motivational system but operates largely independent of the prevention-motivational system. These systems closely relate to the behavioral activation system (BAS) and behavioral inhibition system (BIS; Gray, 1990; Strauman et al., 2013). Carver and White (1994) argued that drive, reward responsiveness, and fun seeking characterize BAS, whereas concerns regarding potentially punishing events reflect BIS. Hence, Hypothesis 17 states that (a) drive, (b) reward responsiveness, and (c) fun seeking correlate positively with designing fun. However, we expect that BIS is not associated with designing fun. Hypothesis 18 specifies that (a) drive, (b) reward responsiveness, and (c) fun seeking relate positively to designing competition. In contrast, we expect that designing competition diverges from BIS.

PWD, Energies, and Performance Behaviors

The energy management perspective of play proposes that play may enable employees to “build” energies that fuel work engagement, relational energy, and job effort (Celestine & Yeo, 2021). Relational energy encompasses energy derived from relational experiences (Owens et al., 2016). A colleague who restructures activities in a fun and challenging fashion may act as an energizer to colleagues (Neumann & Strack,

2000). Similarly, job effort is defined by time commitment and work intensity (Brown & Leigh, 1996). Since PWD involves actively restructuring activities to make them more engaging, we expect that colleagues will perceive employees who playfully design work activities to exert more effort. Thus, Hypothesis 19 describes a positive association between designing fun and (a) self-ratings of work engagement as well as colleague-ratings of (b) work engagement, (c) relational energy, and (d) job effort. Similarly, Hypothesis 20 states that designing competition positively relates to (a) self-ratings of work engagement as well as colleague-ratings of (b) work engagement, (c) relational energy, and (d) job effort.

Various disciplines endorse the idea that play fosters development through creating and resolving novelties and complexities (Clark, 2018; Piaget, 1962; White, 1959), which resonates with informal learning and creativity. Informal learning refers to self-initiated learning during work activities (Marsick & O'Neil, 1999; Noe et al., 2013). For instance, by cognitively and behaviorally restructuring work activities in a ludic and agonistic fashion, employees may learn the intricacies of tasks. Hence, PWD may offer employees unique insights that can be used to solve problems innovatively. Creative performance refers to the production of novel and appropriate responses, products, or solutions (Amabile & Mueller, 2008). Therefore, we expect that designing fun positively relates to colleague-ratings of informal learning (Hypothesis 21a) and creative performance (Hypothesis 21b). Likewise, we hypothesize that designing competition relates positively to colleague-ratings of informal learning (Hypothesis 22a) and creative performance (Hypothesis 22b).

The Dark Side of Playful Work Design

Play initiatives have been criticized for incentivizing individuals to work excessively (Goggin, 2011) and as subversive to work according to values such as the Protestant work ethic (Dandridge, 1986). We differentiate between behavioral overcommitment and psychological overcommitment. The former is operationalized by subtracting actual worked hours from contractual work hours, whereas the latter

concerns a pattern of excessive dedication of resources to work and a high need for approval (Siegrist et al., 2004). Finally, when PWD behaviors are considered subversive, they might be perceived as idling behaviors. Idling behaviors (bored behaviors) refer to withdrawal behaviors during work to alleviate the adverse consequences of boring tasks such as working slower or spending time on non-work related activities (Hooff & Hooff, 2014). Hence, Hypothesis 23 states that designing fun is positively associated with (a) psychological overcommitment, (b) behavioral overcommitment, and (c) colleague-ratings of idling behavior. Finally, Hypothesis 24 specifies that designing competition will positively relate to (a) psychological overcommitment, (b) behavioral overcommitment, and (c) colleague-ratings of idling behavior.

Method

Procedure and Participants

Dutch employees were recruited through social media and (company) newsletters. We informed participants of the study purpose, research design, confidentiality of their responses, and that participation was voluntary. Respondents were eligible to participate if their colleagues were willing to participate and able to provide accurate observations. As an incentive, respondents received a 10 euro voucher or were enrolled in a raffle for a 20 euro voucher when they and their colleagues filled out the surveys. Participants answered a survey at Time 1 ($N = 276$) and roughly two weeks later at Time 2 ($N = 257$; 93.11%), whereas their colleagues filled out a single survey about the participants at Time 2 ($N = 227$; 82.24%). The panel group included 206 women (74.6%) and 70 men (25.4%). The mean age of the sample was 34.94 ($SD = 10.59$). On average, employees' contracts specified 32.73 hours a week ($SD = 8.52$), they worked an actual 37.30 hours a week ($SD = 9.23$), and organizational tenure was 6.06 ($SD = 7.14$). The majority of the sample received a degree from an academic (55.4%) or applied sciences university (33.0%). The sample worked in a diverse set of occupational fields including education (29.7%), healthcare (22.1%), business services (17.4%), and governance (8.0%).

Measures

Statements were rated on a five-point scale unless stated otherwise (1 = *never*, 5 = *very often*).

Self-ratings

Playful Work Design. We assessed playful work design with the 12-item scale developed in Study 1 and Study 2 at T1 and T2.

Proactivity. We measured two proactive behaviors at T1. We assessed Approach Crafting (Zhang & Parker, 2019) with the three job crafting behaviors described in Study 2 (Tims et al., 2012) and with the five-item scale optimizing demands crafting developed by Demerouti and Peeters (2018). An example statement of optimizing demands crafting is "I improve work processes or procedures to make my job easier". Finally, personal initiative was measured with the 5-item scale described in Study 1 (Frese et al., 1997).

Fun activities. We used the five-item fun activities scale at T1 to assess play at work (Tews et al., 2014). A sample item is "My employer organizes public celebrations of work achievements".

Behavioral Approach and Inhibition System. The behavioral approach (BAS) and inhibition System (BIS) were measured with the BIS/BAS scales at T2 (Carver & White, 1994). The scale includes five items to measure four items to assess drive (i.e., BAS; e.g., "When I want something, I usually go all-out to get it"), reward responsiveness (i.e., BAS; e.g., "It would excite me to win a contest"), four items to measure fun seeking (i.e., BAS; e.g., I will often do things for no other reason than they might be fun), and seven items to appraise behavioral inhibition (BIS; e.g., "I feel worried when I think I have done poorly at something"). All statements were rated on a seven-point scale (1 = *strongly disagree*; 7 = *strongly agree*).

Work Engagement. We measured work engagement at T2 with the nine-item Utrecht Work Engagement described in Study 2 (Schaufeli et al., 2006).

Dark Side Outcomes. We determined behavioral overcommitment by subtracting contractual work hours per week from actual work hours a week at T1. Second, we appraised psychological overcommitment with five items of the six-item overcommitment scale at T2 (Siegrist et al., 2004). Namely, we removed one item “When I get home, I can easily relax and ‘switch off’ work” due to the lockdown measures. Respondents rated items such as “People close to me say I sacrifice myself too much for my job”.

Colleague-ratings

Energetic Outcomes. We measured work engagement at T2 with the nine-item Utrecht Work Engagement scale (Schaufeli et al., 2006). An example statement is “My colleague is bursting with energy at work”. We assessed relational energy with the five-item relational energy scale (Owens et al., 2016). The scale includes the item “After an exchange with this person I feel more stamina to do my work”. We measured colleague-rated job effort with the Work Intensity Scale (Brown & Leigh, 1996). An example statement is “My colleague works at full capacity in all of their job duties”.

Developmental Outcomes. Informal learning behaviors were measured with the three-item Informal Learning Scale (Noe et al., 2013), including the following item: “My colleague uses trial and error strategies to learn and better perform”. We used the four-item innovation subscale of the individual performance instrument to appraise creative performance (Miron et al., 2004). Respondents rated items such as: “My colleague is innovative”.

Dark Side Outcomes. We measured idling behavior with the five-item bored behavior scale (Hooff & Hooff, 2014). An example statement is “My colleague is busy with activities to kill the time”.

Results

Longitudinal Psychometric Properties

We examined the longitudinal measurement invariance of the PWD instrument across the two measurement occasions by comparing several consecutive

models that gradually increase model constraints (Table 5; Vandenberg & Lance, 2000). First, we tested the equivalence of the factor structures and freely estimated all parameters across measurement occasions, which evidenced configural invariance for the PWD scales (Model 1). Next, we constrained the factor loadings to be equal across measurement occasions (Model 2). Indicative of metric invariance, Model 1 and Model 2 did not significantly differ ($p = .551$). Finally, we compared Model 2 with a measurement model that constrained indicator intercepts to be equal across time (Model 3). Model 3 did significantly differ from Model 2 ($p < .01$). However, it is important to note that the decrease in CFI (.009), TLI (.004), RMSEA (.001), and SRMR (.003) between Model 3 and Model 2 was negligible. The chi-square test may erroneously reject a model based on trivial differences due to its sensitivity. Chen (2007) argued that differences in CFI $< .010$, supplemented by changes in RMSEA $< .015$ or SRMR < 0.030 indicate invariance for samples larger than 300, whereas for samples smaller than 300, differences in CFI $< .005$ supplemented by a change in RMSEA $< .010$ or in SRMR $< .005$ indicate invariance. The results based on our sample meet the criteria regarding the RMSEA and SRMR fit measures, but the CFI slightly deviates from the recommended cut-off score. However, in light of the other fit measures and given that our sample size is close to 300, we argue that this slight deviation does not warrant concern. The reliability coefficients for designing fun ($\alpha_{T1} = .80$, $\omega_{T1} = .81$; $\alpha_{T2} = .83$, $\omega_{T2} = .83$) and designing competition ($\alpha_{T1} = .69$, $\omega_{T1} = .68$; $\alpha_{T2} = .72$, $\omega_{T2} = .71$) were acceptable at Time 1 and Time 2. Finally, the test-retest reliability of the designing fun ($r_{ij} = .78$) and designing competition ($r_{ij} = .69$) scales was acceptable. Taken together, the results indicate that the scales represent a psychometrically sound and reliable instrument.

Table 5*Longitudinal Invariance Test of Playful Work Design (Study 3; N = 257)*

	χ^2	df	χ^2/df	CFI	TLI	RMSEA	SRMR	MLR	Comparison	$\Delta\chi^2$	Δdf
Model 1. Configural Invariance	424.12	234	1.81	.920	.906	.054	.062	1.0822			
Model 2. Metric Invariance	433.20	244	1.77	.921	.910	.053	.065	1.0808	1 vs. 2	8.80	10
Model 3. Scalar Invariance ^a	464.73	256	1.82	.912	.906	.054	.068	1.0768	2 vs. 3	32.36**	12

Note. * $p < .05$; ** $p < .01$. MLR = Scaling Correction Factor for MLR. $\Delta\chi^2$ = Sattora-Bentler Scaled Chi-Square Difference. ^a scalar invariance is not rejected based on the recommendations for testing measurement invariance (Chen, 2007).

Predictive Validity

Table 6 lists the descriptive statistics of the variables. We expected that drive (Hypothesis 17a), reward responsiveness (Hypothesis 17b), and fun seeking (Hypothesis 17c) are positively associated with designing fun, whereas BIS will diverge from designing fun. As predicted, designing fun correlated positively with reward responsiveness ($r = .23, p < .01$) and fun seeking ($r = .31, p < .01$). However, designing fun did not correlate with drive ($r = .10, p = .114$) and BIS ($r = -.09, p = .131$). Hence, Hypothesis 17 is partially supported. Hypothesis 18 states that (a) drive, (b) reward responsiveness, and (c) fun seeking correlate positively with designing competition, whereas BIS is expected to diverge from designing fun. Indeed, drive ($r = .35, p < .01$), reward responsiveness ($r = .36, p < .01$), and fun seeking ($r = .25, p < .01$) were positively associated with designing competition, whereas BIS did not correlate with designing competition ($r = -.01, p = .913$). Taken together, the findings indicate that PWD converges with the behavioral activation system, but diverges from the behavioral inhibition system.

Hypothesis 19 proposes that designing fun would relate positively to (a) self-ratings of work engagement as well as to colleague-ratings of (b) work engagement, (c) relational energy, and (d) job effort. In partial support of our hypothesis, designing fun positively related to self-ratings of work engagement ($r = .30, p < .01$) and colleague-ratings of work engagement ($r = .28, p < .01$), but did not relate to colleague-ratings of relational energy ($r = .11, p = .088$) and job effort ($r = .08, p = .222$). Hypothesis 20 states that designing competition is positively associated with (a) self-ratings of work engagement as well as colleague-ratings of (b) work engagement, (c) relational energy, and (d) job effort. Designing competition correlated positively with self-ratings of work engagement ($r = .46, p < .01$) as well as with ratings by colleagues of work engagement ($r = .31, p < .01$) and job effort ($r = .24, p < .01$), but did not promote relational energy ($r = .04, p = .581$).

We further hypothesized that designing fun would correlate positively with colleague-ratings of informal learning (Hypothesis 21a) and creative performance

Table 6

Means, Standard Deviations, Reliabilities (Between Brackets), and Correlations Between the Variables (Study 3; N = 276 at Time 1; N = 257 at Time 2)

	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	
1. Designing Fun _{T1}	3.57	.62	(.80)																				
2. Designing Competition _{T1}	3.43	.59	.43**	(.69)																			
3. Designing Fun _{T2}	3.51	.60	.78**	.40**	(.83)																		
4. Designing Competition _{T2}	3.36	.58	.32**	.69**	.44**	(.72)																	
5. Fun Activities _{T1}	2.49	.69	.07	.14*	.06	.12*	(.77)																
6. Personal Initiative _{T1}	3.96	.49	.35**	.51**	.37**	.41**	.03	(.81)															
7. Job Crafting _{T1}	3.55	.44	.28**	.50**	.31**	.48**	.21**	.63**	(.85)														
8. Drive _{T2}	4.79	.94	.10	.35**	.16**	.34**	.07	.45**	.34**	(.72)													
9. Reward Responsiveness _{T2}	5.85	.53	.23**	.36**	.23**	.38**	.09	.33**	.26**	.47**	(.61)												
10. Fun Seeking _{T2}	4.50	.83	.31**	.25**	.36**	.26**	.05	.32**	.23**	.44**	.40**	(.57)											
11. Behavioral Inhibition _{T2}	4.87	1.00	-.09	-.01	-.14*	-.03	-.11	-.11	-.01	.02	.10	-.10	(.85)										
12. Work Engagement _{T2}	3.80	.56	.30**	.46**	.30**	.46**	.04	.33**	.19**	.12	.26**	.12	-.13*	(.89)									
13. CR Work Engagement _{T2}	3.93	.48	.28**	.31**	.23**	.23**	.07	.24**	.20**	.19**	.11	-.09	.43**	(.87)									
14. CR Relational Energy _{T2}	3.98	.64	.11	.04	.07	-.03	.03	.05	.04	.04	-.01	.03	-.07	.12	.48**	(.90)							
15. CR Job Effort _{T2}	4.21	.52	.08	.24**	.12	.24**	.02	.27**	.21**	.23**	.12	.09	-.01	.16*	.57**	.48**	(.87)						
16. CR Informal Learning _{T2}	4.02	.65	.18**	.21**	.17*	.16*	.05	.22**	.25**	.11	.02	.17*	.06	.14*	.46**	.41**	.57**	(.83)					
17. CR Creative Performance _{T2}	3.88	.69	.28**	.17*	.24**	.02	.03	.30**	.20**	.17*	.07	.22**	-.05	.12	.40**	.44**	.42**	.54**	(.88)				
18. Psych. Overcommitment _{T2}	2.85	.74	-.02	.09	-.06	.03	-.13*	.17**	.07	.12	.02	.04	.37**	-.08	.11	.12	.12	.15*	.05	(.79)			
19. Behavioral Overcommitment _{T1}	4.04	7.55	-.06	-.06	-.04	.06	-.04	.03	-.01	.01	-.03	-.00	-.00	-.01	.07	.02	.05	.07	-.05	.21**			
20. CR Idling Behavior _{T2}	2.03	.58	-.01	-.01	.09	.03	.12	-.04	.03	-.02	.04	-.01	-.01	-.06	-.28**	-.23**	-.34**	-.20**	-.13	-.08	-.04	(.70)	

Note. * $p < .05$; ** $p < .01$. CR = Colleague-rated. Psych = Psychological.

(Hypothesis 21b). Indeed, designing fun was positively associated with informal learning ($r = .18, p < .01$) and creative performance ($r = .28, p < .01$). Likewise, we hypothesized that designing competition would relate positively to informal learning (Hypothesis 22a) and creative performance (Hypothesis 22b). Designing competition was positively related to informal learning ($r = .21, p < .01$) and creative performance ($r = .17, p < .05$).

Hypothesis 23 proposes that designing fun positively relates to (a) psychological overcommitment, (b) behavioral overcommitment, and (c) colleague-ratings of idling behavior. Likewise, we hypothesized that designing competition would be positively associated with (Hypothesis 24a) psychological overcommitment, (Hypothesis 24b) behavioral overcommitment, and (Hypothesis 24c) colleague-ratings of idling behavior. Contrary to our expectations, designing fun did not relate to psychological overcommitment ($r = -.02, p = .774$), behavioral overcommitment ($r = .06, p = .336$), and idling behavior ($r = -.01, p = .937$). Similarly, designing competition was not associated with psychological overcommitment ($r = .09, p = .169$), behavioral overcommitment ($r = .06, p = .336$), and idling behavior ($r = -.01, p = .878$).

Incremental Predictive Validity

We assessed the incremental predictive validity of both PWD dimensions while controlling for the other PWD dimension as well as by accounting for fun activities, personal initiative, and job crafting. PWD, fun activities, personal initiative, and job crafting were measured at Time 1, whereas the outcome variables were measured at Time 2 (Table 7; behavioral overcommitment was measured at Time 1). First, most associations were robust when controlling for the opposing PWD dimension. The incremental validity of PWD beyond fun activities was substantial as none of the associations changed when we included fun activities. Similarly, designing fun and designing competition explained additional variance beyond personal initiative and

Table 7*Incremental Predictive Validity of the Playful Work Design Instrument (Study 3; N = 276 at Time 1; N = 257 at Time 2)*

	Control Variables			Playful Work Design ¹			Fun Activities			Personal Initiative			Job Crafting			
	DF _{T1}	DC _{T1}	DF _{T2}	DC _{T2}	DF _{T1}	DC _{T1}	DF _{T2}	DC _{T2}	DF _{T1}	DC _{T1}	DF _{T2}	DC _{T2}	DF _{T1}	DC _{T1}	DF _{T2}	DC _{T2}
Drive	-.07	.32**	.01	.29**	.09	.32**	.15*	.32**	-.08	.11	-.01	.17*	.02	.21**	.07	.21**
Reward Responsiveness	.10	.29**	.11	.31**	.25**	.36**	.26**	.38**	.15*	.24**	.17*	.29**	.20**	.29**	.20**	.31**
Fun Seeking	.23**	.15*	.26**	.17*	.32**	.27**	.36**	.30**	.23**	.10	.27**	.19**	.27**	.16*	.30**	.21**
Behavioral Inhibition	-.08	.00	-.13	.01	-.09	-.03	-.13	-.04	-.05	.03	-.10	.00	-.09	-.03	-.13	-.04
Work Engagement	.14*	.39**	.17*	.36**	.32**	.47**	.34**	.46**	.24**	.38**	.26**	.38**	.29**	.44**	.30**	.42**
CR Work Engagement	.18**	.21**	.15*	.14*	.29**	.31**	.23**	.22**	.23**	.22**	.16*	.14*	.26**	.24**	.18**	.15*
CR Relational Energy	.11	-.01	.09	-.07	.12	.04	.07	-.04	.10	.01	.05	-.06	.11	.02	.06	-.06
CR Job Effort	-.02	.25**	.01	.21**	.11	.27**	.12	.24**	.01	.14*	.02	.14*	.05	.16*	.04	.14*
CR Informal Learning	.09	.16*	.11	.10	.18**	.21**	.16*	.16*	.11	.11	.09	.08	.12	.11	.09	.05
CR Creative Performance	.23**	.06	.25**	-.10	.28**	.18**	.23**	.02	.20**	.02	.14*	-.12	.25**	.09	.19**	-.08
Psych. Overcommitment	-.06	.12	-.08	.08	-.01	.12	-.04	.07	-.08	.00	-.12	-.03	-.03	.06	-.08	.01
Behavioral Overcommitment	-.05	-.02	-.07	.08	-.07	-.05	-.03	.06	-.09	-.09	-.05	.05	-.07	-.06	-.04	.06
CR Idling Behavior	.00	.02	.08	.00	.01	.01	.08	.02	.02	.05	.10	.05	.00	-.01	.07	.01

Note. * $p < .05$; ** $p < .01$. DF = Designing Fun; DC = Designing Competition; CR = Colleague-rated. ¹ Controlling for the other PWD dimension. Psych = Psychological.

job crafting in self-rated work engagement as well as colleague-ratings of work engagement, job effort, and creative performance. Moreover, replicating the findings, the pattern of significance at Time 2 mostly replicated the correlation matrix at Time 1 (91.11% of the correlations). However, the associations of (a) designing fun with reward responsiveness and informal learning, and (b) designing competition with creative performance became nonsignificant. When we controlled for personal initiative, the associations of designing competition with drive and fun seeking became nonsignificant. In addition, when we accounted for personal initiative and job crafting, two consistent changes emerged. First, designing competition was no longer related to creative performance. Second, the associations between PWD and informal learning were no longer significant.

We conducted dominance analyses to further assess the incremental predictive validity of the PWD scales. Dominance analysis is warranted when predictors are intercorrelated, since determining relative importance based on regression analyses may lead to faulty conclusions (Azen & Budescu, 2003). This analysis determines the relative importance of predictors in terms of complete, conditional, and general dominance (Luo & Azen, 2013). Complete dominance is established when a predictor always shows higher incremental validity than another predictor across all possible submodels of predictors. When the average incremental variance within each submodel is greater than that of another predictor, this signifies conditional dominance. Finally, general dominance implies that the average conditional contribution is greater than that of the other predictor. We performed dominance analyses for the outcome variables that significantly related to the competing predictors in addition to PWD (i.e., proactive behaviors and fun activities). While Table 8 presents the metrics for all three forms of dominance, we mainly limit our discussion to the general dominance of the focal variables.

For self-rated work engagement, the most important predictor was designing competition (56.4%) followed by personal initiative (20.7%), designing fun (16.6%), job crafting (5.81%), and fun activities (.41%). The PWD dimensions also dominated

Table 8

Results of the Dominance Analyses (Study 3; N = 276 at Time 1; N = 257 at Time 2)

	Self-rated			Colleague-rated			Colleague-rated			Colleague-rated		
	Work Engagement _{T1} R ²	% R ² rank	Effort _{T2} R ²	Work Engagement _{T2} R ²	% R ² rank	Effort _{T2} R ²	Informal Learning _{T2} R ²	% R ² rank	Creative Performance _{T2} R ²	% R ² rank		
Designing Fun _{T1}	0.040	16.6%	0.042	0.042	32.3%	0.003	0.014	3.4%	0.052	40.0%		
Designing Competition _{T1}	0.136	56.4%	0.050	0.050	38.5%	0.029	0.016	33.3%	0.009	6.9%		
Fun Activities _{T1}	0.001	0.41%	0.004	0.004	3.08%	0.000	0.002	0.0%	0.001	0.8%		
Personal Initiative _{T1}	0.050	20.7%	0.022	0.022	16.9%	0.039	0.019	44.8%	0.054	41.5%		
Job Crafting _{T1}	0.014	5.81%	0.012	0.012	9.2%	0.016	0.030	18.4%	0.014	10.8%		
Total	0.241	100.0%	.130	100.0%	100.0%	0.087	0.081	100.0%	0.130	100.0%		
Dominance Metrics	Comp	Cond	Gen	Comp	Cond	Gen	Comp	Cond	Gen	Comp	Cond	Gen
DF > DC	0	0	0	.5	0	0	.5	0	0	1.0	1.0	1
DF > FA	1.0	1.0	1	1.0	1.0	1	1.0	1.0	1	1.0	1.0	1
DF > PI	.5	0	0	1.0	1.0	1	0	0	.5	0	.5	0
DF > JC	.5	.5	1	1.0	1.0	1	.5	0	0	0	1.0	1
DC > FA	1.0	1.0	1	1.0	1.0	1	1.0	1.0	1	1.0	1.0	1
DC > PI	1.0	1.0	1	1.0	1.0	1	0	0	.5	0	0	0
DC > JC	1.0	1.0	1	1.0	1.0	1	1.0	1.0	1	0	.5	0
FA > PI	0	0	0	0	0	0	0	0	0	0	0	0
FA > JC	0	0	0	.5	0	0	0	0	0	0	.5	0
PI > JC	1	1	1	1.0	1.0	1	1.0	1.0	1	0	1.0	1

Note. DF = Designing fun; DC = Designing competition; FA = Fun activities; PI = Personal Initiative; JC = job crafting; Comp = Complete dominance; Cond = Conditional dominance; Gen = General dominance; 1 = X_i dominates X_j; .5 = dominance cannot be established between X_i and X_j; 0 = X_j dominates X_i.

the other predictors in explaining additional variance in colleague-rated work engagement. That is, designing competition (38.5%) and designing fun (32.3%) contributed more additional variance on average than personal initiative (16.9%), job crafting (9.2%), and fun activities (3.08%). The most important predictor of colleague-rated effort was personal initiative (44.8%) followed by designing competition (33.3%), job crafting (18.4%), designing fun (3.4%), and fun activities (0.0%). In terms of colleague-rated learning, job crafting (37.0%) explained more additional variance on average than personal initiative (23.5%), designing competition (19.8%), designing fun (17.3%), and fun activities (2.5%). Finally, personal initiative (41.5%) was closely followed by designing fun (40.0%) in explaining additional variance in colleague-rated creative performance; job crafting (10.8%), designing competition (6.9%), and fun activities (.8%) explained less additional variance on average. Taken together, PWD shows strong incremental validity in terms of work engagement, whereas designing fun and designing competition especially explain additional variance in outcomes that match their ludic content (i.e., creative performance) and agonistic nature (i.e., effort), respectively. While job crafting was the most important predictor of informal learning, the average incremental predictive power of PWD in relation to informal learning was greater than fun activities but not greater than personal initiative.

Discussion

Study 3 further evidenced the psychometric robustness and validity of the PWD instrument. The findings indicate that the PWD scales represent a reliable and invariant assessment tool across measurement occasions. In addition, the findings further substantiate the positioning of PWD as a proactive strategy to attain “gains” (promotion-motivational) but as divergent from behavior that avoids “losses” (prevention-motivational; Higgins, 2014). The analyses established the predictive and incremental explanatory power of the PWD instrument. Employees who playfully designed work were rated as more engaged, learning informally, and creative by their colleagues. However, only employees who designed competition were perceived as

exerting more job effort, whereas designing fun did not relate to job effort. Possibly, this absent association is qualified by the occupational industry. For instance, the use of humor may only be perceived as job effort in the sales, hospitality, tourism, and retail industry (Cheng et al., 2021; Gilliam et al., 2014; Tsaur et al., 2019). Finally, endorsing the distinctiveness and robustness of PWD, most associations at Time 1 replicated at Time 2 and remained significant when controlling for the opposing PWD dimension, fun activities, personal initiative, or job crafting. Moreover, dominance analyses revealed that designing fun and designing competition were relatively important predictors for self-rated work engagement, colleague-rated work engagement, effort, creative performance. Unexpectedly, PWD was not associated with relational energy and the “dark-side” criteria. First, the timing of the data collection might explain the absent association between PWD and relational energy. The majority of the sample faced strict lockdown measures and therefore worked remotely. Conceivably, the lack of face-to-face interactions due to the COVID-19 lockdown limited the energizing potential of PWD behaviors (Howell & Hall-Merenda, 1999). While the null findings regarding PWD and overcommitment and idling behaviors are encouraging, other factors may moderate these associations. For instance, PWD might only promote overcommitment for individuals with workaholic tendencies. Likewise, the values and beliefs of colleagues such as endorsing a Protestant work ethic might determine whether colleagues consider PWD behaviors as subversive (Petelczyc et al., 2018; Sanchez-Burks, 2002; Tang & Baumeister, 1984).

General Discussion

The purpose of this study was to conceptualize play as an individual work design strategy – playful work design (PWD) – as well as to develop and validate a measurement tool. We conducted a series of studies that demonstrated the psychometric properties and validity of the PWD instrument. Taken together, the present study makes three core contributions. First, we integrated the play and work design literatures to conceptualize PWD. The integration expands research on play and

individual work design by explicating the two-dimensional and self-started nature of play in organizations. Second, we developed a psychometric sound and valid instrument, which revealed that PWD is distinguishable from other proactive behaviors as well as incrementally explains variance beyond related concepts. The instrument enables systematic research to test and refine theories regarding play during work. The findings demonstrate that PWD is a unique and worthwhile concept. Finally, we validate current theorizing regarding the interrelations between play in organizations, individual differences, well-being, and performance behaviors.

Theoretical Contributions

First, the topic of play during work has received relatively little attention in the organizational sciences (Mainemelis & Ronson, 2006). We expand the literatures on play and work design by conceptualizing PWD as an individual work design strategy that utilizes play as a mechanism for change. Specifically, based on our literature review, we defined PWD as the proactive cognitive-behavioral orientation to work activities to foster fun and challenge. Furthermore, the two-dimensional conceptualization adheres to the duality of play (Kolb & Kolb, 2010) and answers calls for the differentiation between types of play (Petelczyc et al., 2018). We argued employees may playfully designing work activities in a ludic fashion (designing fun) and agonistic fashion (designing competition). The conceptualization delineates how PWD differs from other play initiatives and proactive behaviors in terms of the agent (employee vs. organization), mechanism for change (play vs. role contraction and expansion), orientation in time (short-term vs. long-term), and intended target of impact (self vs. organization).

Second, we developed and validated a psychometrically sound instrument, which answers calls for scales that measure play (e.g., Petelczyc et al., 2018; Van Vleet & Feeney, 2015). Across three studies, the findings indicate that the instrument provides a reliable and invariant method for assessing PWD. In addition, the results validate the two-dimensional measurement of PWD as a unique synthesis of (ludic and

agonistic) play and proactivity. The dimensions of PWD correlated similarly with general playful traits, proactive behaviors, and situational conditions. However, ludic traits especially correlated with designing fun and agonistic traits particularly related to designing competition. The distinctiveness of PWD and its measurement was further substantiated by confirmatory factor analyses and incremental validity evidence. The findings revealed that designing fun and designing competition are discernable from job crafting behaviors and explain incremental variance in a variety of constructs beyond each other and related concepts. Taken together, the findings emphasize the usefulness of the PWD instrument for research on the antecedents, consequences, and boundary conditions of play during work.

Third, contemporary research on play has proposed that play is instrumental for employees as well as organizations. We extend current theorizing regarding play by empirically demonstrating that PWD may represent a valuable strategy for optimizing well-being as well as performance behaviors (Celestine & Yeo, 2021; Mainemelis & Ronson, 2006). The present study provides more insight into how and why play during work activities may contribute to employees' energies and facilitate performance behaviors. Indeed, we found that employees who designed fun and designed competition during work were more engaged with work. These findings were validated by colleague-ratings of work engagement as well as observations of job effort and creative performance. Moreover, the results revealed that designing fun and designing competition appear to explain more additional variance on average than job crafting or personal initiative in outcomes such as work engagement, effort, and creative performance. For instance, designing fun and designing competition generally dominated fun activities, personal initiative, and job crafting in explaining variance in colleague-rated work engagement. In contrast, we did not find evidence for the dark side of PWD. That is, the findings appear to indicate that PWD does not represent current sitting or subversive behavior. These findings extend and expand previous research that utilized self-ratings and intraindividual methodologies (Scharp et al., 2019; Scharp et al., 2021). That is, these studies revealed that on days when individuals

play during work, they have a *relatively* 'good' day in terms of work engagement and performance in comparison to their other workdays (within-person); however, the present findings reveal that individuals who play are generally rated as more energetic and better performing than their less playful counterparts (between-person). In other words, the use of PWD appears to not only relate to relative intraindividual advantages – also interindividual differences are apparent. Moreover, the findings reveal that the association between PWD and various performance behaviors is readily observed across various occupations (Bakker, Hetland et al., 2020). Taken together, the findings suggest that PWD is worthwhile for employees and organizations.

Limitations and Future Research

While the present findings are promising, several limitations require future consideration. First, the longitudinal invariance and temporal ordering of the constructs warrant further scrutiny for two reasons. Namely, PWD was measured on two occasions, which may have influenced our findings. Future research may bolster claims regarding longitudinal invariance by increasing the number of measurement occasions. Additionally, we did not correct for stability paths, which implies we can only make claims regarding temporal precedence but not causality. For this purpose, future research may employ a cross-lagged panel or experimental research designs. Second, the associations between PWD, boredom, and exhaustion were unclear and require further investigation. Possibly, by taking an inter- and intraindividual approach, future research may distinguish how the interrelations differ across levels of analysis. Future research may further disentangle these associations by utilizing a (quasi) affect experimental design such as daily nudging (e.g., Weintraub et al., 2021) or a dynamic observational approach such as episodic experience sampling (Csikszentmihalyi & Larson, 1987). Third, although the findings showed that the scales for assessing PWD were largely invariant, future studies may further test the measurement invariance of the PWD instrument using different organizational and national contexts. Finally, in consideration of Study 1, the observation that PWD correlates more strongly with

personality warrants future research. Possibly, due to the short-term focus, PWD depends less on *general* job characteristics and more on dispositional tendencies and *daily* job characteristics. Future research may investigate to what extent these findings generalize across levels by utilizing daily diary methodology. Additionally, future research may utilize the PWD instrument to further investigate play during work (see Bakker, Scharp et al., 2020) to explain (1) *why* PWD especially fosters work engagement under certain circumstances and for certain individuals (Scharp et al., 2019; Scharp et al., 2021) as well as (2) when and why PWD manifests.

Practical Implications

The findings suggest that promoting PWD represents a valuable strategy for employees and organizations. PWD may represent a cost-effective tool to foster well-being as well as performance behaviors. Employees may strive to infuse work with play to optimize their well-being and performance. For organizations, the playful work design (PWD) instrument may also act as a developmental tool in several ways (Bakker, Scharp et al., 2020). First, the measurement tool offers insight to organizations regarding the prevalence of PWD and whether the situation warrants an intervention. Second, during interventions, participants may utilize the instrument to examine and reflect on their PWD levels. Furthermore, based on the scores, certain participants may share important insights in how they playfully design specific work activities. Sharing personal PWD experiences may foster and inspire PWD behaviors in other participants. Finally, the instrument can be used to evaluate the efficacy of PWD interventions by comparing a pre- and post-measurement. It should be noted that, since intrinsic motivation constitutes a core quality of play, interventions necessitate voluntary participation because mandated attendance will likely diminish their benefits (Fleming, 2005).

Conclusion

Research on individual work design strategies has flourished in recent years (Parker et al., 2006; Parker, 2014). However, we know little about how employees use play to proactively organize their work activities. The present study expands the literatures on play and work design by conceptualizing playful work design (PWD) and validating its measurement. PWD represents a two-dimensional proactive cognitive-behavioral orientation that constitutes cognitively and behaviorally restructuring work activities in a ludic (designing fun) and agonistic fashion (designing competition). To conclude, play permeates our lives, and the domain of work is no exception. Hence, many opportunities exist for future research on play during work activities. This fruitful avenue for research may benefit from a reliable and valid scale such as the PWD instrument.



Chapter 3

Playful Work Design: Introduction of a New Concept

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Abstract

This article introduces the concept of playful work design—the process through which employees proactively create conditions within work activities that foster enjoyment and challenge without changing the design of the job itself. First, we review play theory and the motives people may have to play during work. In addition, we use the literature on proactive work behavior to argue that individuals can take personal initiative to increase person-job fit. Combining these literatures, we provide a theoretical framework for playful work design. We discuss the development and validation of an instrument to assess playful work design, and review recent studies to elucidate the psychological effects of playful work design and its possible outcomes. Finally, we briefly discuss practical implications.

Keywords: JD-R theory, playfulness, playful work design, proactive work behavior, work engagement

Playful Work Design: Introduction of a New Concept

Work is an important source of meaning in many people's lives, but what if work involves repetitive, monotonous, or tedious activities? How do tour operators who do the same tour every day stay engaged in their work? What can food delivery workers do to stay vigorous while trying to make as many deliveries as possible in the shortest time? How can office workers continue to work happily when they receive huge numbers of e-mails each day? In this article, we argue that play is an important driver of work motivation, and that individuals in a wide range of jobs may proactively design their work to be playful in order to feel invigorated and enthusiastic (i.e., work engaged).

The central aim of this article is to introduce the concept of "playful work design"—the process of employees proactively creating conditions during work that foster enjoyment and challenge without changing the job itself (Bakker & van Woerkom, 2017; Scharp et al., 2019). First, we discuss play theory and the motives people may have to play during work. Second, we use the literature on proactive work behavior to argue that individuals can take personal initiative to change their situation or themselves to improve their work experience. Third, we combine the literatures on play and proactive work behavior to introduce the concept of playful work design. In addition, we discuss the development and validation of an instrument to assess playful work design. Moreover, we review several recent studies to elucidate the psychological effects of playful work design and its possible outcomes. Finally, we briefly discuss practical implications.

Play during Work

According to van Vleet and Feeney (2015), play is an activity or behavior with three core features. The first essential aspect of play is that the activity is carried out with the goal of fun and/or challenge (e.g., Csikszentmihalyi, 1975; Mainemelis & Ronson, 2006). The focus on fun and challenge explains why play activities are often voluntary and process-focused, and why individuals are intrinsically motivated to

engage in play (Petelczyc et al., 2018). The second feature of play is that it requires an enthusiastic and in-the-moment attitude. When individuals play, they detach from outside stressors and become completely absorbed in the activity (Csikszentmihalyi, 1975; Huizinga, 1949). The third essential element of play is that the activity is highly interactive (van Vleet & Feeney, 2015). This interaction may occur with the activity itself or with other persons who participate in the activity. Thus, enjoyable and absorbing activities that are passive and do not require personal initiative—such as reading a book or watching TV—are not considered to be play (Petelczyc et al., 2018). Conversely, a game of solitaire (i.e., individual) as well as banter between two friends (i.e., interpersonal) are both highly interactive activities where the player may initiate a wide variety of actions. The literature generally describes two types of play: ludic and agonistic play. Ludic play is playful, arbitrary, and irrational, and focuses on the use of humor and imagination such as role-play, lighthearted teasing, and joking (e.g., Barnett, 2007; Martin & Ford, 2018). In contrast, agonistic play is more serious, rational, and rule-bound. Agonistic play focuses on challenges and rules such as in sports, games, and competition (e.g., Abramis, 1990; Csikszentmihalyi, 1975).

Employees may have several motives to engage in play at work. First, Petelczyc and colleagues (2018) defined play as stimulus-seeking behavior, where people avoid boredom and increase enjoyment by raising their level of stimulation. Second, Csikszentmihalyi (1975) argued that individuals are intrinsically motivated to seek playful activities (e.g., rock climbing, dancing, playing chess) that balance challenge with some level of skill. Such activities may result in “flow”—creating a sense of control as well as a loss of self-consciousness. Third, the cathartic perspective of play proposes that engaging in play provides a person with relief (DesCamp & Thomas, 1993). Here, play is a means to recuperate from the job demands employees are exposed to. Fourth and finally, social and cognitive processing perspectives of play during work (e.g., Webster & Martocchio, 1993) contend that labeling and framing work tasks as play could improve one’s task performance, because play has a more positive connotation

than work. Labeling a work task as play may therefore improve one's attitude toward, and consequently the amount of effort spent on, that task.

Research has indeed shown that engaging in play has important implications for the work experience, as suggested by the abovementioned motives. Play has been shown to reduce boredom when confronted with monotonous work (Roy, 1959). Play has also been shown to increase job satisfaction and perceptions of competence (Abramis, 1990), and reduce job stress and burnout (e.g., DesCamp & Thomas, 1993). These findings raise the question whether employees can proactively change the experience of their work by making their work more playful. In this way, they may be able to increase the meaning of work and improve their well-being. We will first discuss the needed proactive work behavior, and then turn to playful work design.

Proactive Work Behavior

When people are proactive, they challenge the status quo rather than passively adapting to existing conditions (Crant, 2000). Proactive individuals take the initiative to improve their current circumstances—they envision and plan a different future by changing the self or the environment (Parker & Collins, 2010). Examples of proactive behavior at work are taking charge to improve work methods, proactive feedback-seeking, negotiating a customized employment arrangement, and proactive problem-solving. Recent studies have shown that employees also proactively optimize their vitality (the "self") by consciously engaging in activities that make them feel energized and motivated, for example, by regularly taking a walk, drinking coffee and socialize, or using the stairs at work (Op den Kamp et al., 2018). Moreover, the last decade has seen a sharp increase in the number of studies on job crafting, which concerns employees taking the initiative to change their personal job characteristics (Rudolph et al., 2017).

Job Demands–Resources theory (Bakker & Demerouti, 2017) outlines when employees have a good reason to engage in proactive work behavior. A central proposition in the theory is that employees feel particularly stressed when

continuously exposed to high levels of job demands (i.e., aspects of work that ask for considerable effort) combined with low levels of job resources (i.e., aspects of work that help to reach work goals, and stimulate personal growth). In contrast, employees feel bored when an abundance of job resources is paired with insufficient challenges (Bakker & Oerlemans, 2011). In both situations, employees have ample reason to proactively change the meaning of their work and improve their work-related well-being. This can be done by (a) proactively engaging in activities that are energizing (proactive vitality management); (b) proactively optimizing the job demands or resources (job crafting); or (c) proactively changing one's approach of work and thereby the accompanying experience (playful work design).

Playful Work Design

Playful work design refers to the process through which employees proactively create conditions within work activities that foster enjoyment and challenge without changing the design of the job itself (Bakker & van Woerkom, 2017). Through playful work design, employees optimize the personal experience of work. Following the duality of play, they may do so in two different ways. First, employees may engage in ludic play and make the work activity more fun, for example, by reframing a work situation to provide oneself and others with amusement (Barnett, 2007). Second, employees may use agonistic play, and playfully design their work by creating a form of competition with themselves, for example, by trying to beat the clock when performing a task. By making work activities more playful, individuals may increase their intrinsic motivation and creativity (Mainemelis & Ronson, 2006), create a sense of belongingness (Sandelands, 2010), and stimulate energetic performance (Barnett, 2007).

In interviews and workshops, we asked employees what they do to make their work more playful. One accountant said: "I try to reduce the number of emails by sending one e-mail less than the day before—and I do this every day." A pilot told: "I often try to save fuel by trying to minimize the impact of winds, turbulence, and other

natural conditions that require my plane to use additional fuel. I also try to find out what the best practices are for flying into and out of airports.” An HR manager indicated: “When I need to work on a boring, bureaucratic task, I make it playful by building additional tasks into the boring task. One option is to fill out the form using the fewest words possible yet covering all the content that must be addressed. This makes it a writing challenge and as such, more interesting.”

Playful work design originates from the synergy between the playfulness and proactive work behavior literatures. Playfulness refers to the ability to transform almost any situation into one that is amusing and entertaining (Barnett, 2007). According to Petelczyc et al. (2018), individuals have several motives to play at work, such as (a) avoiding boredom, (b) increasing flow, and (c) decreasing job stress. Proactive work behavior involves self-initiated, anticipatory action aimed at changing either the situation or oneself (Bindl & Parker, 2010). Examples include taking charge to improve work methods, proactive feedback-seeking, and proactive problem-solving. Employees who design their work to be more playful take personal initiative to make their work tasks more fun and/or competitive. By making their tasks more playful, employees redesign their work activities to be more engaging, entertaining, and meaningful. Similar to job crafting, playful work design may make work activities more challenging. However, there are important differences. Job crafting refers to proactively seeking new job resources (e.g., asking for feedback and support), and actively searching for *new* tasks and projects that are different from the work the employee is already involved in. Playful work design refers to the proactive, behavioral work orientation that designs fun and competition by imposing the experiential qualities of play on *existing work* (Scharp et al., 2019). Cognitive crafting is more closely related to playful work design than other forms of job crafting due to its focus on reframing. However, whereas cognitive crafting refers to expanding the perception of task boundaries or focusing perceptions on tasks that are most meaningful (Berg et al., 2013), playful work design refers to proactively changing the *experience* of work activities by designing these activities to be more fun or more competitive.

Our research suggests that playful work design may be applied to various work tasks, especially tasks that are repetitive, monotonous, and tedious. Although some work tasks seem at first glance less appropriate for playful work design (e.g., surgery by a surgeon), they may still be appropriate for playful work design. Csikszentmihalyi (1975, p. 156) quoted an eye surgeon, who illustrated that imagination may help to even be playful during surgery, “You use fine and precise instruments. It is an exercise in art. ... It all rests on how precisely and artistically you do the operation.” However, playful work design may be undesirable or inefficient when work tasks are severely cognitively taxing or already fun and challenging (e.g., therapy session by a psychiatrist; writing an article by a scientist). Interestingly, the concept of playful redesign may also be applicable to activities outside the work domain. For example, study activities and sports trainings are—from a psychological perspective—comparable with work. Study and sport/exercise are also structured, goal-directed, time demanding, and to a large extent obligatory, and both domains may be excellent areas for playful design.

The Measurement of Playful Work Design

A new questionnaire to measure playful work design was developed using an inductive approach (Scharp, Bakker, et al., 2020). We used the input from participants in playful work design workshops to generate 200 items. In the next step, experts selected items that best reflected playful work design (PWD), resulting in 32 items, which were tested in two samples from various occupations ($N = 428$, $N = 302$). This resulted in a twelve-item and two-dimensional instrument, including items such as “I look for ways to make my work more fun,” and “I approach my tasks creatively to make them more interesting” (Designing Fun); and “I try to set time records in my work tasks,” and “I compete with myself at work, not because I have to, but because I enjoy it” (Designing Competition). The internal consistencies of the subscales were satisfactory, with Cronbach’s alpha coefficients of .75 and .80 for Designing Fun, and .73 and .75 for Designing Competition. The two-factor solution fitted well to the data

in both samples, and outperformed a one-factor model, indicating a robust factor structure.

In support of convergent validity, employees high in personal initiative, curiosity, openness, playfulness, humor, creative personality, competitiveness, achievement striving, and imagination, and low in rigidity were more likely to engage in playful work design (Scharp, Bakker, et al., 2020). In addition, playful work design was more prevalent in work environments characterized by higher levels of autonomy and more support for fun. Nonetheless, the authors argue that PWD operates relatively independently of job characteristics. Due to the inherent cognitive nature of PWD, individuals may playfully design their work in a wide variety of settings. For instance, while bus drivers lack autonomy regarding their routes, they may frame every ride as a game with the goal of the least number of deaccelerations. Thus, playful work design is a bottom-up strategy that is initiated by the employee. Having said that, it is still possible that organizations facilitate playful work design (i.e., top-down), for example, by supporting autonomy and by offering trainings. In support of the two-factor structure and divergent validity, designing fun correlated more strongly with ludic traits (i.e., playfulness, humor, and creative personality) than designing competition, whereas designing competition correlated more strongly with agonistic traits (i.e., competitiveness and achievement striving) than designing fun. Furthermore, playful work design was weakly negatively related (or unrelated) to procrastination, cynicism, and laziness, and positively related to work engagement. These findings show that employees are more likely to show playful work design when they have playful and proactive tendencies, which helps them to be enthusiastically involved in their work.

More Empirical Evidence from Diary Studies

Since playful work design is linked to specific tasks, it fluctuates substantially within the course of a day and from one day to the other. In order to investigate under what conditions this proactive behavior is most effective, we conducted three quantitative diary studies.

In a first study, we investigated whether daily playful work design would be most effective for employees with a playful and open personality (Scharp et al., 2019). According to trait activation theory, employees intrinsically enjoy conditions at work that satisfy the stable personal needs that are rooted in their personality (Tett & Burnett, 2003). Therefore, they will seek out work situations that activate their traits. The results of the study showed that employees were more engaged in their work and more creative on the days when they used more playful work design. Moreover, the impact of playfully designing work to be more fun was stronger for individuals high in openness, and the impact of playfully designing work to be more competitive was stronger for individuals high in playfulness. These findings support the contention that employees who are high in openness to experience and playfulness profit most from playful work design.

In a second study (Scharp, Breevaart, et al., 2020), we tried to find out whether playful work design can be used to proactively deal with daily hindrance job demands, i.e., work tasks and conditions that require effort and energy, but do not have growth potential (Lepine et al., 2005). We hypothesized that employees may design fun to cope with emotionally draining work, and design competition to deal with effortless and unchallenging work. The findings revealed that employees were less engaged and performed more poorly (e.g., lower in-role and extra-role performance) on the days when they were confronted with both types of hindrance demands. However, as predicted, emotionally draining work undermined employees' enthusiasm and energy to a much lower extent on the days when they proactively designed their work to be more fun. In addition, effortless and unchallenging work reduced work engagement substantially less on the days when employees proactively designed their work to be more competitive. These findings clearly show that playful work design can be used to protect employees' work engagement and performance.

In the third diary study (Bakker et al., 2020), we examined the predictive validity of playful work design vis-à-vis job crafting, and also investigated when both proactive behaviors were most effective. We hypothesized that individuals perform better on the

days when they seek job resources and challenges, reduce job demands, or design their work to be playful. In addition, we argued that seeking resources and reducing demands would be most effective when work pressure is high, and that the stimulus-seeking behaviors of increasing challenges and playful work design would be most effective when work pressure is low. The results showed that seeking job resources, seeking challenges, and playful work design were all positively related to colleague-ratings of job performance. However, reducing job demands was negatively related to performance. As hypothesized, seeking challenges and playful work design were most effective when work pressure was low rather than high.

Practical Implications

Our research reveals that employees use playful work design for a wide range of tasks, and that this behavior fluctuates from day to day. In addition, the findings suggest that playful work design has important consequences for practice since it impacts employee work engagement and performance. The playful work design measure could be used in organizations to assess the prevalence of this proactive behavior, and find employees who approach their work most playfully. By interviewing employees who are naturally best at designing work to be playful, organizations can get more insight into the various ways through which employees may redesign their tasks and activities. This seems particularly important in organizations where hindrance demands are high, and work pressure is low. The examples of playful work design collected in interviews may then be used in training interventions to teach other employees how they may optimize their work experience in order to stay engaged and perform well. The training intervention should ideally be combined with goal setting and/or coaching to help employees implement their new work design strategies in daily practice.

Conclusion

People have a natural tendency to play, because play is intrinsically rewarding and satisfying. Building on this principle, we propose that employees may proactively

create playful work by designing elements of fun and competition in their work tasks. The first studies on playful work design indicate that this proactive behavior has positive consequences for employee well-being, creativity, and performance—particularly for individuals with an open and playful personality. Playful work design makes the work intrinsically motivating and helps to deal with draining and tedious tasks. We hope that this article will stimulate future research on playful work design as well as practical applications.



Chapter 4

Daily Playful Work Design: A Trait Activation Perspective

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Abstract

We introduce the concept of daily playful work design (PWD) and test the factorial validity of a new instrument to assess PWD. Using trait activation theory, we hypothesize that employees who are more open to experiences and playful will be more engaged and creative in their work on the days they playfully design their work activities. We tested the factorial validity of the instrument and our hypotheses in a sample of 88 employees who answered questionnaires during five consecutive workdays ($N = 391$ observations). The multilevel analyses yielded evidence for the psychometric quality of the PWD instrument and generally supported the hypotheses. The traits openness and playfulness moderated the relationship of daily PWD behaviors with daily work engagement and creativity.

Keywords: creativity; cross-level interaction; daily diary study; multilevel modeling; openness; playful work design; playfulness; proactive work behavior; trait activation; work engagement

Daily Playful Work Design: A Trait Activation Perspective

Some individuals are able to find joy in almost every task they carry out and often get fully immersed in their work activities. Even when the task is relatively simple or repetitive, they approach it with enthusiasm and invest considerable effort. What drives this energy and focus? In this study, we propose that employees may proactively shape their work experience through *play*. Although play is fundamental to human culture (Huizinga, 1949), it remains one of the least understood phenomena in organizations (Mainemelis & Ronson, 2006). We argue that employees may approach their work playfully to design fun and competition in their work – a proactive cognitive-behavioral work orientation we call *playful work design* (PWD). Moreover, we contend that PWD builds the necessary resources for creativity—the production of novel and appropriate responses, products, or solutions (Amabile & Mueller, 2008). Innovation is vital to organizational functioning, since creative ideas may solve challenging business problems and result in valuable products and services (Amabile, 1997). While lab experiments with students, field studies among children, and qualitative studies among employees support the contention that play fosters positive affect and creativity (e.g., Csikszentmihalyi, 1975b; Csikszentmihalyi, 1997; Guitard, Ferland, & Dutil, 2005; Lieberman, 2014; Russ, Robins, & Christiano, 1999; Vandenberg, 1980), a more dynamic and ecologically valid approach is needed to fully uncover how play is related to positive affect and creativity in a work context. That is, we make a crucial contribution to the literature by investigating these relationships among people at work using daily diary methodology.

More specifically, in the present study, we will investigate daily fluctuations in PWD, work engagement (i.e., work-related, activated positive affect; Bakker & Oerlemans, 2011), and creativity among a heterogeneous group of employees. We argue that employees are most creative on days they playfully design their work because this proactive cognitive-behavioral work orientation makes them more engaged in their work. Moreover, we study *for whom* PWD works best. Using trait activation theory (TAT; Tett, Simonet, Walser & Brown, 2013), we develop a theoretical

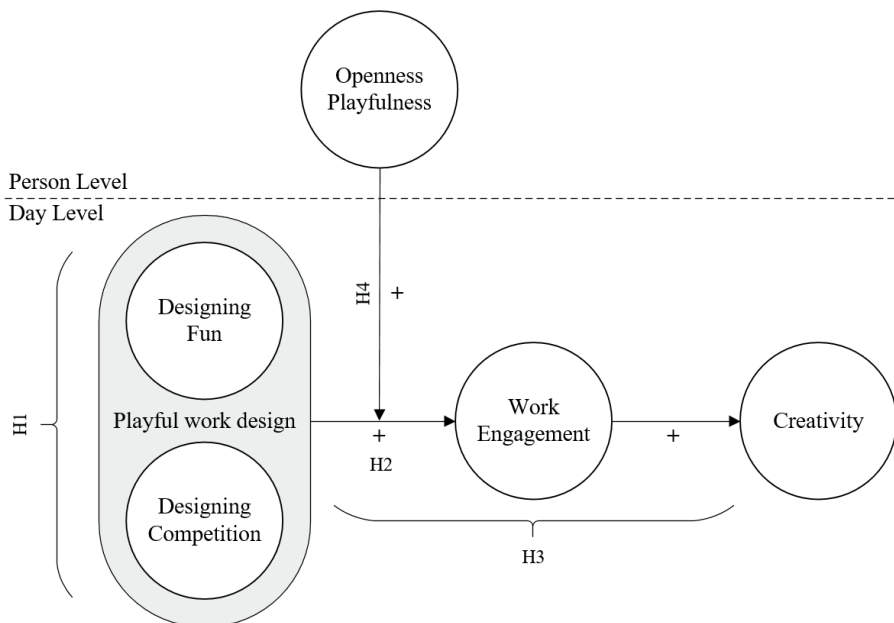
model in which individual differences in openness to experiences and playfulness influence the relationship of daily PWD with daily work engagement and creativity. We propose that the relationship of daily PWD with creativity through work engagement is stronger for employees with higher openness to experiences and playfulness because PWD satisfies their personal needs.

The current study makes three important contributions. First, we introduce daily PWD, a proactive cognitive-behavioral work orientation that employees may use on a daily basis to foster their work engagement. While the last decade has seen a surge in interest in how employees proactively manage their environment and themselves (Bakker, 2017; Parker, Bindl, & Strauss, 2010), little is known about the role of play as a proactive work strategy. The present study sheds light on how play may act as a work strategy (i.e., PWD) to foster daily optimal functioning at work. Second, scholars have called for instruments that reliably and validly capture the use of play at work (Petelczyc, Capezio, Wang, Restubog, & Aquino, 2018). We answer this call by proposing and establishing a valid measurement instrument to assess daily PWD, which may stimulate future research on PWD. Specifically, we perform multilevel confirmatory factor analyses to test whether PWD can be assessed with two related factors, namely, designing fun and designing competition. Finally, we contribute to the trait activation literature by testing the hypothesis that daily PWD boosts work engagement particularly for individuals who are open to experiences and playful, because such a proactive cognitive-behavioral work orientation fits well with their personal needs. Thus, we propose a moderated-indirect effects model in which daily fluctuations in proactive work behavior interact with personality to predict creativity (Figure 1). Employees are generally not consistently creative throughout the week but rather have creative "on" and "off" days (Binnewies & Wörnlein, 2011). The current study contributes to our understanding of what determines this variation in creativity and what employees can do themselves to manage their creativity throughout the week. Our study may also have important implications for practitioners because we highlight the role of employee personal initiative (Parker et al., 2010), which may

complement management interventions focused on shaping the work experience and fostering creativity at work. Moreover, we investigate for whom PWD works best, which may guide more tailored interventions.

Figure 1

The Conceptual Model of The Hypothesized Relationships



Overview

The present study introduces the measurement of daily PWD. The concept of playful work design was recently introduced by Anonymous (2018). In their study, the authors proposed an instrument to measure PWD at the trait level and presented evidence for its factor structure, reliability, and validity. In the current study, we use an adapted version of this scale to measure PWD at a day level, and examine its relation with daily employee engagement and creativity, moderated by individual differences in personality. As scholars have raised questions regarding the validity of adapted, multilevel versions of measurement instruments (Breevaart, Bakker, Demerouti, &

Hetland, 2012; Sonnentag, Dormann, & Demerouti, 2010), we decided to first examine whether the contextualized PWD instrument accurately describes and captures fluctuations in PWD (Phase 1) in our sample, before investigating how PWD is structurally related to work engagement and creativity on a daily basis in this sample (Phase 2; Figure 1).

Phase 1: The Measurement of Daily Playful Work Design

PWD refers to the proactive cognitive-behavioral work orientation that imposes the experiential qualities of play on work with play elements to design (1) fun and (2) competition (Anonymous, 2018). This definition integrates the literature on play (Barnett, 2007; Csikszentmihalyi, 1975a; Lieberman, 2014) and the literature on proactive work strategies (Bakker, 2017; Parker & Collins, 2010). Play can be defined as a behavioral orientation (Mainemelis & Ronson, 2006) that imposes the experiential qualities of play on an activity (Barnett, 2007; Csikszentmihalyi, 1975b; Huizinga, 1949; Roy, 1959) through the use of play elements (Caillois, 1961; Lieberman, 2014; Huizinga, 1949; Suits, 1990), whereas proactive work strategies refer to how employees manage their work experience and performance (Bakker, 2017; Parker & Collins, 2010). PWD merges these two lines of research, as it describes how employees proactively design their work experience with play elements to design (1) fun and (2) competition in their work activities.

The dimensionality of PWD is based on the conceptual distinction between two clusters of play elements: ludic and agonistic play elements (Anonymous, 2018). While ludic play elements, such as spontaneity, fantasy, and humor, mainly serve to create entertainment, amusement, and fun (Barnett, 2007; Caillois, 1961; Lieberman, 2014), agonistic play elements, such as goals, and rules, mainly serve to create challenge and competition (Caillois, 1961; Csikszentmihalyi, 1975a; Huizinga, 1949). Thus, when employees playfully design *fun* in their work, they employ ludic play elements. For instance, a project discussion with a colleague becomes more fun when it turns playful through the use of wit and humor. Likewise, a group meeting on how to improve

business solutions becomes more fun for everyone involved when playful and entertaining questions are used. In contrast, when employees playfully design *competition* in their work, they use agonistic play elements. For example, a journalist who needs to write a newspaper article may frame every paragraph as an exciting challenge and create self-set goals such as limiting the reuse of certain examples and conjunctive adverbs. In the same way, even responding to 25 e-mails may turn into an exciting competitive game when one wants to outperform yesterday's 30-minute record.

While we argue that some employees may be more inclined to use PWD than others, the use of PWD may also fluctuate from day to day within the same person. Thus, whereas personality may determine general levels of proactivity and the use of playful work design across time and situations, the daily enactment of PWD represents the intra-individual variation that may be the most proximal predictor of daily work engagement and creativity. This contention is in line with other findings showing that proactive work strategies such as self-management and job crafting fluctuate on a daily basis and can explain daily employee well-being and work behaviors (e.g., Breevaart, Bakker, & Demerouti, 2014; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012). To enable the study of daily PWD, we adjusted the general version of the PWD questionnaire (Anonymous, 2018) so that it refers to the daily enactment of PWD rather than the use of PWD in general. We conduct multilevel confirmatory factor analyses to investigate whether PWD manifests itself in a similar way on the within-person (i.e., day) level as it does on the between-person (i.e., trait) level (i.e., isomorphism). Therefore, we propose the following:

Hypothesis 1: The two-factor structure – including the two factors of designing fun and designing competition – accurately describes and captures daily fluctuations in PWD.

Phase 1: Method

Participants and Procedure

Participants were recruited through social media and the personal network of the researchers. We first informed participants of the study's general purpose and indicated that, as an incentive to return the surveys, they would enroll in a raffle to win one of several prizes. This raffle consisted of five gift vouchers of five euros each and a one-day trip to Paris for two. Employees who expressed consent to participate received a questionnaire at 4 PM every day over the course of five working days. In total, 102 persons agreed to participate in our study. Since we are interested in daily fluctuations in the use of PWD within the same person, we only analyzed the data of participants who filled out at least three daily diary surveys. Accordingly, we removed 14 persons, resulting in a final sample of 88 employees (response rate is 86%).

Participants completed the daily diary surveys for 4.44 days on average (total $N = 88 * 4.44 = 391$ observations). Men and women were almost equally represented (53% male and 47% female). On average, participants were 32.18 years of age ($SD = 11.13$, ranging from 18 to 63) and had been in their current occupation for 4.44 years ($SD = 5.24$). Most participants either completed higher vocational education (48.86%) or held a university degree (43.18%). A minority finished middle-level applied education (7.95%). Participants were employed in a wide variety of Dutch organizations focused on activities such as programming, administration, consultancy, research, design, teaching, accountancy, nutrition, therapy, and recruitment.

Measures

Daily playful work design was measured with an adapted version of the twelve-item Playful Work Design Scale (Anonymous, 2018). We adapted the time frame of the PWD items so that they specifically referred to the past day, which is common practice in diary studies (Ohly, Sonnentag, Nielsen, & Zapf, 2010). The scale includes two dimensions, i.e., designing fun and designing competition, measured by six items each (1 = never, 5 = very often). An example item for designing fun is "Today, I looked for

humor in the things I needed to do.” An example item for designing competition is “Today, I competed with myself at work – not because I had to, but because I enjoyed it” (See Table 1 for all items).

Strategy of Analysis

To test whether the two-factor structure accurately describes and captures daily PWD (Hypothesis 1), we conducted multilevel confirmatory factor analyses (MCFA) using Mplus software (Muthén & Muthén, 1998-2017) and followed the procedure developed by Muthén (1994). Whereas single-level CFA analyzes the total covariance matrix, MCFA divides this matrix into within- and between-person covariance matrices that are used to conduct factor analysis at both levels (Muthén, 1994). This procedure explicitly models the dependence of observations by accounting for the nested structure of days (Level 1; $N = 391$) within persons (Level 2; $N = 88$). Multilevel modeling is justified when sufficient variance is present at both levels, which is assessed with the intraclass correlation coefficient (ICC). In support of multilevel modeling, the 1-ICCs presented in Table 1 indicate that 37% to 52% of the variance in the items is explained at the within-person (i.e., day) level. We assessed model fit with the root mean square error of approximation (RMSEA), comparative fit index (CFI), and the standardized root mean square residual (SRMR). RMSEA values up to .08 and CFI values ranging between .90 and .95, as well as SRMR values up to .10, indicate acceptable fit (Schweizer, 2010).

Phase 1: Results

Descriptive Statistics

Table 1 presents the means, standard deviations, 1-ICCs, and factor loadings of the PWD items.

Multilevel Confirmatory Factor Analysis

Hypothesis 1 states that PWD can be assessed with two separate dimensions, namely, (1) designing fun and (2) designing competition. Thus, we expected that a two-factor structure would most accurately describe the data. In support of Hypothesis 1, Table 2 reveals that the two-factor model showed a good fit to the data, CFI = .96, RMSEA = .03, SRMR_{within} = .04, SRMR_{between} = .07. We also tested the fit of a one-factor solution. Table 2 reveals that the one-factor model showed a reasonable fit to the data (RMSEA = .05, SRMR_{within} = .06, and SRMR_{between} = .08), but the CFI of .89 was below the .90 cut-off score. Moreover, the two-factor model outperformed the one-factor model, as indicated by a significant decrease in χ^2 ($\Delta\chi^2(2) = 63.70, p < .001$). All factor loadings for the two-factor model were significant (p 's < .014). The results further revealed that the correlation between the latent factors of designing fun and designing competition was higher at the between-person level ($r = .87, p < .001$) than at the within-person level ($r = .68, p < .001$). Consistent with this finding, the factor loadings were generally higher at the between-person level than at the within-person level. The reason for this is that within-person variance is lost when variables are aggregated. That is, when aggregated scores are calculated, daily deviations are averaged out. For instance, the designing competition item "Today, I tried to set time records in my work tasks" had the lowest within-person factor loading, which suggests that responses to this item occasionally deviate from the responses to the other items measuring designing competition. However, when responses are aggregated across days, these deviations are averaged out, which makes the response pattern relatively more consistent with the other responses – which increases the factor loading.

Phase 1: Discussion

In line with our hypothesis, the findings indicate that similar to trait PWD, daily PWD consists of two dimensions, namely, (1) designing fun and (2) designing competition. The two-factor model revealed that designing fun and designing competition were interrelated, which reflects that they are part of the same latent construct (i.e., PWD).

Table 1

Descriptive Statistics For The PWD Instrument, Including Within- And Between-Person Factor Loadings of The Two-Factor Solution

	1-ICC	M	SD	λ_1	λ_0
<i>Designing fun</i> ($\alpha = .82 - .88$)					
1. Today, I approached my tasks creatively to make them more interesting.	.49	3.05	.97	.89	.62
2. Today, I approached my work in a playful way.	.49	2.73	1.07	.86	.59
3. Today, I looked for humor in the things I needed to do.	.43	3.04	1.16	.77	.51
4. Today, I looked for ways to make tasks more fun for everyone involved.	.46	3.03	1.13	.89	.56
5. Today, I used my imagination to make my job more interesting.	.37	2.45	1.14	.81	.43
6. Today, I looked for ways to make my work more fun.	.48	2.87	1.05	.84	.45
<i>Designing competition</i> ($\alpha = .72 - .81$)					
7. Today, I pushed myself to do better even when it wasn't expected.	.49	3.41	1.05	.75	.43
8. Today, I approached my job as a series of exciting challenges.	.45	2.64	1.16	.77	.76
9. Today, I competed with myself at work – not because I had to, but because I enjoyed it.	.50	2.60	1.19	.84	.38
10. Today, I tried to make my job a series of exciting challenges.	.47	2.46	1.08	.86	.60
11. Today, I tried to keep score in all kinds of work activities.	.40	2.71	1.20	.73	.38
12. Today, I tried to set time records in my work tasks.	.52	3.18	1.08	.39	.27

Note. PWD = playful work design. Λ_1 = between-person factor loadings; λ_0 = within-person factor loadings. All factor loadings are significant at $p < .001$, except item 12 ($p = .014$). Designing fun and Designing competition correlated positively at the between-person level ($r = .87, p < .001$) and the within-person level ($r = .68, p < .001$). These correlations differ slightly from those in Table 3, which are based on aggregate scores instead of latent variables.

Table 2*Model Fit For The 1-Factor And 2-Factor Solutions*

	χ^2	<i>df</i>	χ^2/df	CFI	RMSEA	SRMR
1-factor multilevel model	204.82	108	1.90	.890	.048	W = .055 B = .082
2-factor multilevel model	141.12	106	1.33	.960	.029	W = .043 B = .071
Null model	1013.77	132	7.68	–	.131	W = .206 B = .539

Note. *df* = degrees of freedom. CFI = comparative fit index, RMSEA = root mean square error of approximation, BIC = Bayesian information criterion, SRMR = standardized root mean square residual, W = within-person portion, B = between-person portion.

Interestingly, the factor loadings were generally higher at the between-person level than at the within-person level, suggesting that the enactment of the various *specific* PWD behaviors captured by the dimensions of (1) designing fun and (2) designing competition may vary from day to day – most likely as a function of the work activities on those days. This information is lost when daily measurement points are aggregated – which occurs at the between-person level. This may also explain why it is easier to discriminate between designing fun and designing competition at the within-person level than at the between-person level. Previous studies examining daily variations in self-management and daily job crafting have produced a similar multilevel factor-analytic pattern (e.g., Breevaart et al., 2012; Petrou et al., 2012).

The designing competition item that refers to the use of time limits showed the lowest factor loading, which suggests that setting time limits may not be possible on every single day. This finding is most likely a result of the different work activities employees face from day to day. For example, when answering e-mails, setting a time-record is an option. However, when tasks are more protocolled or interdependent in

nature (e.g., broadcasting live television as a newsreader or weatherman), this playful work design behavior may not be a realistic option. Nevertheless, the factor loading for this item (.27 at the day level, $p = .014$) was still significant and theoretically represents an important facet of agonistic play (i.e., Caillois, 1961; Csikszentmihalyi, 1975a; Suits, 1990). Taken together, the findings support (1) the validity of the *daily* version of the PWD scale – including the two factors of designing fun and designing competition – and (2) that we can empirically discriminate between designing fun and designing competition.

Phase 2: Daily Playful Work Design and Trait Activation

In support of the factorial validity of the daily PWD instrument, the two-factor structure most accurately described fluctuations in PWD (Phase 1). Therefore, we can investigate the structural relationship of daily PWD with daily work engagement and creativity (Figure 1).

Work Engagement

Work engagement is a positive and fulfilling work-related state of mind characterized by vigor, dedication, and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002) that fluctuates from day to day within the same person (Breevaart et al., 2012). Vigor refers to an individual's level of energy and willingness to work hard. Dedication reflects the meaningfulness and enthusiasm employees derive from their work. Finally, absorption means that employees are fully immersed in their work and forget everything else around them. Through playfully designing fun and competition, employees create meaning, challenge, and enjoyment in their work (Csikszentmihalyi, 1975a; Huizinga, 1949), which likely promotes work engagement. While play in general is theoretically and empirically associated with activated positive affect (e.g., Csikszentmihalyi, 1975b; Lieberman, 2014), to our knowledge, there are no quantitative studies that investigate the relationship between self-initiated, work-

related play (i.e., PWD) and work engagement. There are, however, anecdotal accounts that provide support that such a relationship exists.

Csikszentmihalyi (1975a) described how a sales representative and an assembly line worker playfully designed more competition in their work to proactively boost their work enjoyment. The sales representative framed work as a “clash of wits” and challenged himself to beat his opponent with “ruses and eloquence” (p. 47). The assembly line worker “approached his/her task in the same way an Olympic athlete approaches his/her match: How can I beat my record?” (p. 39). In a similar vein, Terkel (1974) describes how a supermarket checker and a restaurant server playfully designed more fun in their work to manage their work experience. The checker playfully danced while scanning groceries, which the checker viewed as “playing the piano” (p. 376), and the server served dishes as if (s)he was “a ballerina” (p. 394). These examples, taken together with research indicating that play and activated positive affect are interrelated (e.g., Guitard et al., 2005; Huizinga, 1949), suggest that employees are likely to become more engaged in their work when they use PWD. Therefore, we predict the following:

Hypothesis 2: Daily playful work design relates positively to daily work engagement.

Creativity

Creativity entails the production of novel and appropriate responses, products, or solutions (Amabile & Mueller, 2008). This creative process refers to an employee’s ability to use a nonrigid thinking style and think outside of the box (Amabile, 1983). This thinking style is tied with an individual’s emotional state. Whereas negative emotions narrow attentional focus and momentary thought-action repertoires, positive emotions broaden people’s cognitive scope (Fredrickson, 1998, 2001). Thus, individuals who experience intense fear channel all their attention and energy on a narrow set of behavioral options (e.g., fight or flight). In contrast, positive emotions such as joy and pride prompt people to explore, learn, and exhibit artistic behavior. In a similar vein, broadened cognition may promote creativity (Fredrickson & Branigan,

2005). Indeed, a lab study showed that students who watched a film inducing positive affect (i.e., funny film outtakes), compared to students who watched a film inducing negative affect (i.e., a short documentary about the Nazi's), produced more creative solutions to a problem-solving task (Isen, Daubman, & Nowicki, 1987). Additionally, a diary study among interior architects showed that creativity was highest on days characterized by positive affect (Binnewies & Wörnlein, 2011). Work engagement is a type of work-related activated positive affect (Bakker & Oerlemans, 2011) that fluctuates on a daily basis (Breevaart et al., 2012). Accordingly, considering that creativity is a direct consequence of broadened cognition (Fredrickson & Branigan, 2005), work engagement and creativity should fluctuate in relative harmony. Since we expect that PWD enables employees to proactively foster their work engagement on a daily basis, we suggest that daily PWD fosters the affective resources necessary for daily creativity. Therefore, we hypothesize the following:

Hypothesis 3: PWD is positively related to creativity through work engagement on a daily basis (indirect effect).

Trait Activation Theory

Trait activation theory (TAT) is a personality theory on employee functioning that integrates trait theory, situationism, and person-job fit theory (Tett & Guterman, 2000; Tett et al., 2013). TAT acts as the main theoretical foundation of the moderated-indirect effects model that we present in the current study (see Figure 1). TAT proposes that employees especially enjoy work that fits their personality because of need satisfaction (Tett, 2003). A central assumption is that employees have a tendency to show consistency in their thoughts, feelings, and actions, which originate from an employee's more stable personal needs. TAT suggests that employees intrinsically enjoy conditions at work that satisfy those needs and will therefore seek out these situations (Tett, 2003). We contribute to TAT by (1) investigating the intrinsic value of trait activation from a dynamic, within-person perspective among employees and (2) investigating whether employees may indeed proactively activate their own traits.

Accordingly, we employ a multilevel diary design to examine the intrinsic value of trait activation in terms of a cross-level moderation effect of personality on the relationship between daily PWD and work engagement. While we argue that the use of PWD is engaging to most employees, TAT suggests that PWD is especially likely to promote work engagement among employees with a personality that reflects a need for playful work, i.e., employees who are open to experiences and playful. Individuals who are open to experiences have an active imagination (Costa & McCrae, 1992) and a distaste for activities that lack challenge (Finn, 1997; Kraaykamp & Van Eijck, 2005). Moreover, open individuals have a tendency to enjoy affiliative and self-enhancing humor (Vernon, Martin, Schermer, & Mackie, 2008), which may stem from a need for variety and a strong need to enlarge their experiences (Costa & McCrae, 1997). In a similar vein, playful individuals have a tendency to reframe situations to seek entertainment, amusement, or stimulation (Barnett, 2007; Csikszentmihalyi, 1975a; Proyer, 2017). In addition, individuals who are playful have a strong motivation towards goal accomplishment (Hong et al., 2009), which may stem from a need for challenge (White, 1959; Csikszentmihalyi, 1975a).

In line with TAT, De Jong, Van der Velde, and Jansen (2001) showed that employees who were higher (vs. lower) in openness to experiences were especially satisfied with their job when their work offered them a variety of tasks and various ways to use their skills. In a similar vein, a study among graduate students showed that gamers who scored higher (vs. lower) on playfulness experienced more enjoyment and immersion when they were confronted with challenges in the game than their less playful counterparts (Jin, 2012). While these studies contribute to our understanding of trait activation, they focus on between-person differences, whereas the intrinsic value of trait activation is inherently a dynamic, within-person process. Hence, the present study extends previous research by investigating whether open and playful employees may proactively activate their traits on a daily basis. We argue that when employees use PWD, they use imagination, framing, self-set goals, and humor to create an enlarged, more entertaining, challenging, and stimulating work experience,

which fits the needs of employees who are open to experiences and playful. Accordingly, open and playful employees may be more effective in proactively fostering the affective resources necessary for daily creativity through daily PWD. Therefore, we expect that:

Hypothesis 4a: Openness to experiences moderates the indirect effect of daily playful work design on daily creativity through work engagement. Specifically, the indirect effect will be stronger for individuals who are higher (vs. lower) in openness to experience.

Hypothesis 4b: Playfulness moderates the indirect effect of daily playful work design on daily creativity through work engagement. Specifically, the indirect effect will be stronger for individuals who are higher (vs. lower) in playfulness.

Phase 2: Method

Participants and Procedure

For a complete description of participants and procedure, see Phase 1. Participants ($N = 88$) first received an e-mail with a link to an online survey with questions regarding their personality (i.e., openness, playfulness) and demographics. Roughly one week later, participants received a daily diary survey at 4 PM over the course of five days. These surveys contained questions regarding employees' playful work design, work engagement, and creativity during that day.

Measures

The time frame of the daily measures was adapted so that they specifically referred to the past day, which is common practice in research that employs a diary design (Ohly et al., 2010). Reliability was good for all instruments (see Table 3).

Openness to experiences was measured with the five-item openness scale from the Big Five Inventory (BFI; John, Donahue & Kentle, 1991). An example item is, "I am someone who is curious about many different things" (1 = strongly disagree, 5 = strongly agree).

Table 3

Means, Standard Deviations, Reliabilities (On The Diagonal Between Brackets), And Intercorrelations of The Study Variables

	Mean	SD	1-ICC	1.	2.	3.	4.	5.	6.
1. Openness to experience	3.97	.81	–	(.78)					
2. Playfulness	4.61	1.22	–	.16	(.86)				
3. Designing fun	2.86	.83	.30	.13	.44 ^{***}	(.82 - .88)	.65 ^{***}	.43 ^{***}	.60 ^{***}
4. Designing competition	2.82	.78	.34	.17	.21	.73 ^{***}	(.72 - .81)	.46 ^{***}	.45 ^{***}
5. Work engagement	4.40	1.24	.35	.20	.16	.46 ^{***}	.48 ^{***}	(.91 - .95)	.62 ^{***}
6. Creativity	3.49	1.36	.44	.30 ^{**}	.24 ^{**}	.67 ^{***}	.49 ^{***}	.61 ^{***}	(.87 - .94)

Note. Person-level data ($N = 88$) below the diagonal and day-level data above the diagonal ($N = 391$). Correlations between

person-level and day-level variables were calculated using the aggregate of the day-level. The 1-ICC refers to the within-person variance of the study variable. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Playfulness was measured with the five-item short measure of playfulness (Proyer, 2012). An example item is “Good friends would describe me as a playful person” (1 = strongly disagree, 7 = strongly agree).

Daily playful work design was measured with the twelve-item Playful Work Design Scale that was described in Study 1 (See Table 1 for the items).

Daily work engagement was measured with the nine-item Utrecht Work Engagement Scale (UWES; Breevaart et al., 2012; Schaufeli, Bakker, & Salanova, 2006). The UWES covers three dimensions, which are assessed with three items each (1 = never, 6 = always). Example items are “Today, I felt bursting with energy” (vigor), “Today, I was inspired by my job” (dedication), and “Today, I was immersed in my work” (absorption).

Daily creative work performance was measured with the four-item creativity scale developed by Miron, Erez, and Naveh (2004). An example item is, “Today, I had many creative ideas at work” (1 = totally disagree, 7 = totally agree).

Strategy of Analysis

Multilevel modeling is warranted, since the 1-ICCs presented in Table 1 indicate that 30% to 44% of the variance in PWD, work engagement, and creativity is explained by differences within persons. Models with continuous latent variables as dependent variables require numerical integration in their computations (Muthén & Muthén, 1998-2017). As a consequence, fit statistics such as chi-square, CFI, RMSEA, and SRMR were unavailable when we performed our analyses (Hypotheses 2 – 4). Hence, we used the chi-square difference test based on the log-likelihood values and scaling correction factors (Satorra & Bentler, 1999) to compare models. For the purpose of convergence, we limited the number of free parameters by using total scores. However, since work engagement has three dimensions, it was modeled as a latent variable with three indicators (i.e., the mean scores vigor, dedication, and absorption). Finally, we grand-mean centered level-2 variables (i.e., playfulness and openness) and person-mean centered level-1 variables (i.e., PWD, work engagement, and creativity). Thus, when a

level-1 x variable (e.g., daily PWD) positively covaries with a level-1 y variable (e.g., daily work engagement), this means that y is relatively higher on days where x is reported to be higher than a person's average score on x . In addition, when a level-2 z variable (e.g., openness) is a moderator, then the aforementioned level-1 relationship either weakens or strengthens when z decreases or increases relative to the sample's average on z (Ohly et al., 2010).

Phase 2: Results

Descriptive Statistics

Table 3 presents the means, standard deviations, reliabilities, 1-ICCs, and correlations of the study variables.

Multilevel Structural Equation Modeling

We hypothesized that PWD would foster work engagement on a daily basis (Hypothesis 2) and that daily work engagement would act as the underlying mechanism that explains the relationship between daily PWD and daily creativity (Hypothesis 3). In line with Hypothesis 2, Table 4 shows that daily designing fun ($b = .50$, $SE = .14$, $p = .001$, 95% CI[.22, .78]; Model 1) and competition ($b = .48$, $SE = .14$, $p = .001$, 95% CI[.21, .76]; Model 1) were both positively associated with daily work engagement. In other words, employees were especially engaged on the days they playfully designed their work.

Next, we tested whether daily PWD was associated with daily creativity through daily work engagement (Hypothesis 3). The direct effects model showed that work engagement was positively associated with creativity ($b = .68$, $SE = .12$, $p < .001$, 95% CI[.45, .90]; Model 2) and that while daily designing fun was positively associated with daily creativity ($b = .35$, $SE = .10$, $p = .001$, 95% CI[.15, .56]; Model 2), daily designing competition was not ($b = .22$, $SE = .05$, $p = .065$, 95% CI[.22, .78]; Model 2). The indirect effects model (Model 3), however, more accurately described the data than the direct effects model ($\Delta-2$ log likelihood = 119.65, $p < .001$). This model showed that while

Table 4

Multilevel Estimates For Models Estimating Daily Creativity As The Dependent Variable (N = 88, N = 391 Occasions)

Level and Variable	Direct effects model (Model 1)		Direct effects model (Model 2)		Indirect effects model (Model 3)	
	b^* (SE)	b (SE)	b^* (SE)	b (SE)	b (SE)	b (SE)
Level 1						
Intercept	—	—	4.90*** (.41)	4.51*** (.09)	—	4.40*** (.40)
Daily Designing fun	.32*** (.08)	.48*** (.14)	.17*** (.05)	.35*** (.10)	.32*** (.08)	.09 (.60)
Daily Designing competition	.31*** (.08)	.50*** (.14)	.11 (.06)	.22 (.12)	.30*** (.08)	.03 (.06)
Daily Work Engagement			.64*** (.07)	.68*** (.12)		.66*** (.08)
Variance Components						
Within-person variance (σ^2)	.71*** (.09)	.29* (.10)	.53*** (.07)	.37*** (.05)	.72*** (.09)	.47*** (.06)
Intercept variance (τ_{00})	.77*** (.11)	.52*** (.15)	.49*** (.08)	.42*** (.09)	.77*** (.11)	.40*** (.08)
Additional information						
-2 log likelihood		-1520.59		-2040.06		-1988.01
Scaling correction factor for MLR		2.31		2.12		1.92
Δ -2 log likelihood						119.65***
Degrees of freedom		16		21		25

Note. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. b^* = standardized coefficient; b = unstandardized coefficient. Comp. = Competition. L1 = Level 1; L2 = Level 2. MLR = maximum likelihood estimation with robust standard errors.

designing fun ($b = .20$, $SE = .13$, $p = .119$) and competition ($b = .07$, $SE = .13$, $p = .579$) were not directly related to creativity, daily designing fun (indirect $b = .45$, $SE = .15$, $p = .003$, 95% CI [.16, .75]) and competition (indirect $b = .43$, $SE = .13$, $p = .001$, 95% CI [.11, .68]) were each indirectly associated with daily creativity through daily work engagement. Thus, in support of Hypothesis 3, employees were most creative on the days they playfully designed their work more than usual (i.e., averaged over five workdays) because they were more engaged with their work.

Hypothesis 4 states that the relationship between daily playful work design and daily work engagement will be moderated by individual differences in (a) openness and (b) playfulness. Before testing these hypotheses, we first tested the amount of slope variance (τ_{11}) in the relationship between daily playful work design and daily work engagement (Table 5). While there was variation between employees in the relationship between daily designing fun and daily work engagement ($\tau_{11} = .34$, $SE = .15$, $p = .023$; Model 1), the amount of between-person variation in the relationship between daily designing competition and daily work engagement was not significant ($\tau_{11} = .08$, $SE = .13$, $p = .535$; Model 1). However, Lahuis and Ferguson (2009) “strongly recommend against using significant slope variance as a prerequisite for testing hypothesized cross-level interactions” because slope variance tests suffer from lower power (Snijders & Bosker, 1999) than the estimation of fixed effects (Hox, Moerbeek, & Van de Schoot, 2017). We therefore follow the recommendation to proceed to test the cross-level interactions (Aguinis, Gottfredson, & Cullpepper, 2013).

Next, we simultaneously tested the four cross-level interactions (Table 5; Model 2). Contrary to our expectations, openness to experiences did not moderate the relationship between daily designing competition and daily work engagement ($b = -.01$, $SE = .12$, $p = .979$; Model 2), and playfulness did not moderate the relationship between daily designing fun and daily work engagement ($b = -.04$, $SE = .08$, $p = .130$; Model 2). These interaction terms were therefore not retained in the final moderated-mediation model (Model 3). The final moderated-mediation model indicates that openness to experiences moderated the relationship between daily designing fun and

Table 5
Multilevel Estimates For Models Estimating Daily Creativity as The Dependent Variable (N = 88, N = 391 Occasions)

Level and Variable	Indirect effects model with random slope (Model 1)		Cross-level moderated-Indirect effect (Model 2)		Cross-level moderated-Indirect effect (Model 3)	
	Daily Work Engagement <i>b</i> (<i>SE</i>)	Daily Creativity <i>b</i> (<i>SE</i>)	Daily Work Engagement <i>b</i> (<i>SE</i>)	Daily Creativity <i>b</i> (<i>SE</i>)	Daily Work Engagement <i>b</i> (<i>SE</i>)	Daily Creativity <i>b</i> (<i>SE</i>)
Level 1						
Intercept	—	4.51*** (.09)	—	4.51*** (.09)	N/A	4.51*** (.09)
Daily Designing Fun	.46*** (.10)	.20 (.12)	.43*** (.10)	.17 (.13)	.43*** (.10)	.17 (.13)
Daily Designing Competition	.42*** (.11)	.06 (.13)	.43*** (.10)	.03 (.13)	.43*** (.10)	.03 (.13)
Daily Work Engagement		.90*** (.14)		.92*** (.14)		.92*** (.14)
Level 2						
Openness			.16 (.10)		.16 (.10)	
Playfulness			-.04 (.08)		-.03 (.08)	
Cross-level interaction						
Daily Designing Fun x Openness			.34** (.12)		.34** (.12)	
Daily Designing Fun x Playfulness			.02 (.09)		—	
Daily Designing Competition x Openness			-.01 (.12)		—	
Daily Designing Competition x Playfulness			.18* (.07)		.18* (.08)	
Variance Components						
Within-person variance (σ^2)	.18** (.06)	.36*** (.05)	.18** (.06)	.34*** (.05)	.18** (.06)	.34*** (.05)
Intercept variance (τ_{00})	.54*** (.14)	.42*** (.09)	.53*** (.15)	.43*** (.09)	.53*** (.15)	.43*** (.09)
Slope variance (τ_{11})	.34* (.15)		.27 (.14)		.27 (.14)	
Slope variance (τ_{12})	.08 (.13)		.06 (.10)		.06 (.10)	
Intercept-slope covariance (τ_{01})	-.20** (.08)		-.25*** (.08)		-.25*** (.08)	
Intercept-slope covariance (τ_{02})	-.06 (.05)		-.06 (.05)		-.04 (.05)	
Additional information						
-2 log likelihood		-1963.65		-1954.26		-1954.29
Scaling correction factor for MLR		1.52		1.42		1.45
Δ -2 log likelihood		180.44***		21.59**		-.07
Degrees of freedom		33		39		37

Note. $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. Comp. = Competition. L1 = Level 1; L2 = Level 2. MLR = maximum likelihood estimation with robust standard errors. Only unstandardized coefficients (*b*) are reported because Mplus does not provide standardized coefficients for models with random slopes.

daily work engagement ($b = .34, SE = .12, p = .006, 95\% CI [.10, .58]$; Model 3). The simple slope analysis revealed that daily designing fun fostered daily work engagement for employees higher (+1SD) in openness to experiences ($b = .71, SE = .14, p < .001, 95\% CI [.43, .99]$) but not for employees lower (-1SD) in openness to experiences ($b = .15, SE = .14, p = .262$), which is illustrated in Figure 2. In a similar vein, playfulness moderated the relationship between daily designing competition and work engagement ($b = .18, SE = .08, p = .019, 95\% CI [.03, .33]$; Model 3). The simple slope analysis revealed that daily designing competition fostered daily work engagement for employees higher (+1SD) in playfulness ($b = .65, SE = .13, p < .001, 95\% CI [.39, .91]$) but not for employees lower (-1SD) in playfulness ($b = .21, SE = .14, p = .114$), which is illustrated in Figure 3.

Figure 2

Openness to Experiences Moderates the Relationship Between Daily Designing Fun and Daily Work Engagement

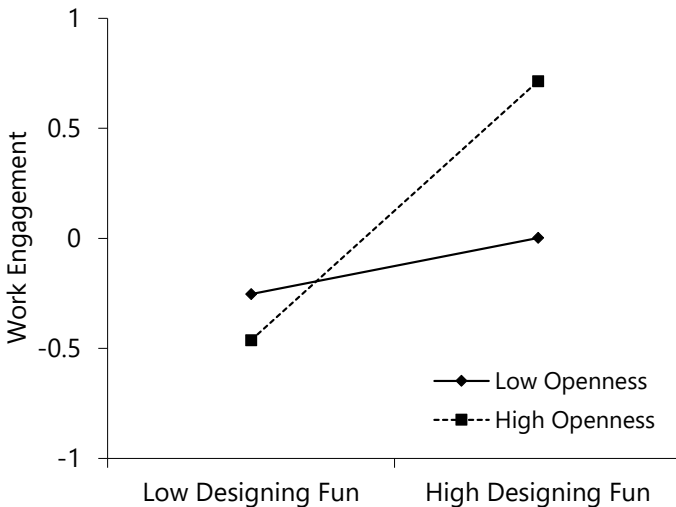
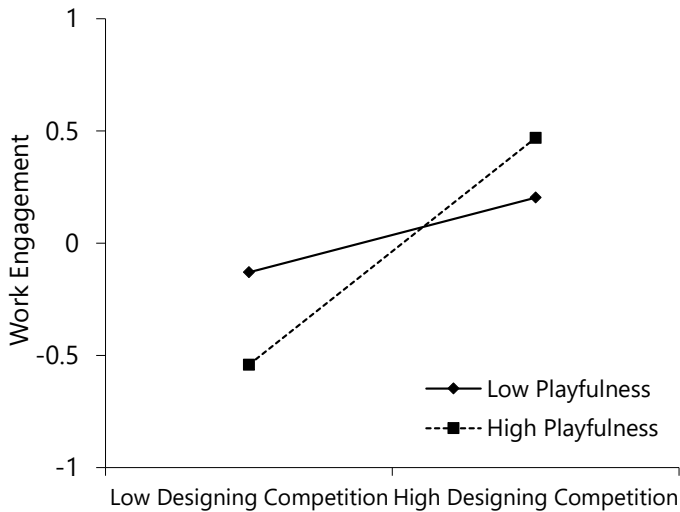


Figure 3

Playfulness Moderates the Relationship Between Daily Designing Competition and Daily Work Engagement



We found partial support for our proposed moderated-indirect effects model (Hypothesis 4). The moderated-indirect effects followed the pattern found for the cross-level interactions. Namely, while daily designing fun was indirectly associated with daily creativity through daily work engagement for employees higher in openness to experiences (indirect $b = .66$, $SE = .17$, $p < .001$, 95% CI [.32, .99]), it was not for employees lower in openness to experiences (indirect $b = .14$, $SE = .13$, $p = .276$). In a similar vein, while daily designing competition was indirectly associated with daily creativity through daily work engagement for employees who scored higher (+1SD) in playfulness (indirect $b = .60$, $SE = .13$, $p < .001$, 95% CI [.35, .85]), it was not for employees who scored lower (-1SD) in playfulness (indirect $b = .20$, $SE = .12$, $p = .112$). Hence, Hypothesis 4 was partially supported.

Power analyses

At this point, we would like to briefly reflect on the statistical power of our study. Since many different parameters determine the power to detect significant relationships among multilevel studies, it remains a controversial topic that enjoys a lot of debate (Hox et al., 2017; Mehl & Conner, 2011). We therefore conducted post hoc power analysis with Monte Carlo simulations following the procedure of Mathieu, Aguinis, Culpepper, and Chen (2012). The analyses revealed that the power to detect the hypothesized cross-level interactions was greater than .98, which is similar to other studies with similar parameters and sample sizes (e.g., Mabbe et al., 2018; Wickham, Williamson, Beard, Kobayashi, & Hirst, 2016). Hence, the power analysis indicates there is a high probability of achieving significance if the study is replicated.

Discussion

Our findings indicate that personality plays an important role in optimal functioning at work. Partially supporting trait activation theory (Tett et al., 2013), employees whose personalities matched with their proactively designed work environment were especially engaged and creative at work. That is, playfully designing fun from day to day fostered daily work engagement and creativity particularly for employees who were more (vs. less) open to experiences and playfully designing competition for employees who were more (vs. less) playful. From a TAT perspective, these findings suggest that daily designing fun and competition foster the volatile resources necessary for creative performance especially when they satisfy employees' personal needs.

General Discussion

The main goal of the current study was to investigate how individual differences affect the relationship of playful work design (PWD) with daily work engagement and creativity. For this purpose, we build on trait activation theory (TAT; Tett et al., 2013) to argue that PWD leads to daily work engagement and creativity particularly for

employees who are more (vs. less) open to experiences and playful. Our findings support the principle of trait activation for the trait of openness and the trait of playfulness when employees designed fun (e.g., by trying to see the humor in work events and using fantasy to frame work) and designed competition (e.g., by trying to set time records within tasks and competing with past performance), respectively.

Our study is unique in several ways. First, we introduced PWD as a new daily proactive cognitive-behavioral work orientation, which enables employees to proactively boost their well-being. Second, we proposed and validated the daily measurement of PWD. Third, we tested whether the predictions of TAT hold for work conditions that are proactively shaped by the employee. We showed that the interrelationship of play with positive affect (i.e., work engagement) and creativity also exists in the workplace on a daily basis and that this relationship is affected by individual differences in openness and playfulness. Taken together, these findings shed light on and stimulate further research into the role of PWD and personality in daily optimal functioning at work.

Theoretical Implications

While play is an essential component of human culture (Huizinga, 1949), little is known about how it affects work (Mainemelis & Ronson, 2006). The current study contributes to our understanding of work-related, self-initiated play defined as PWD. Our findings indicate that employees proactively foster their work engagement on a daily basis by making their experience of work more playful. That is, employees proactively fostered their daily energy, enthusiasm, and focus through integrating humor in tasks, using imagination to frame their work, approaching tasks as exciting challenges, and competing with themselves (i.e., designing fun and competition). Importantly, daily work engagement subsequently predicted daily creativity at work. The present study is therefore the first to directly investigate how employees may proactively alter their daily experience of work and boost their creativity by imposing experiential qualities of play on their tasks.

We introduced and validated the daily measurement of PWD. Research has called for valid instruments to capture play at work (Petelczyc et al., 2017). Our findings show that the adapted instrument adequately describes and captures fluctuations in PWD. The findings also revealed that the two PWD factors (i.e., designing fun and designing competition) were closely related, which supports the contention that they are part of the same latent construct (i.e., PWD). While the factors were interrelated at both the between- and within-person levels, the instrument distinguishes daily designing fun from daily designing competition. This is important because the dimensions of PWD may hold distinct associations with outcome variables. In support of this idea, our study shows that while openness to experiences only moderated the relationship between daily designing fun and work engagement, playfulness only moderated the relationship between daily designing competition and work engagement, which provides initial support for the discriminant validity of the two dimensions.

We showed that trait activation theory (TAT) is a suitable framework to study work that is proactively designed by employees themselves. The principle of trait activation was supported for employees with higher (vs. lower) openness to experiences who designed fun and employees with higher (vs. lower) playfulness who designed competition. Our findings make two major contributions to our understanding of the intrinsic value of trait expression (Tett et al., 2013). First, we extend previous research that investigates TAT from a between-person perspective (e.g., Christiansen, Sliter, & Frost, 2014; Hochwarter, Treadway & Ferris, 2006) by using a cross-level, daily diary design to show that the intrinsic value of trait activation is a dynamic, within-person process. Second, TAT suggests that employees will seek out situations that stimulate trait expression because these situations are intrinsically rewarding (Tett et al., 2013). The current study provides initial support for this claim by showing that employees proactively activate their traits on a daily basis.

Unexpectedly, however, there was no evidence of trait activation for employees higher (vs. lower) in openness to experiences who designed competition or for employees higher (vs. lower) in playfulness who designed fun. We can only speculate

as to why this was the case. Possibly, there is a mismatch in the main focus of designing fun and designing competition with the personal needs of open and playful employees, respectively. Namely, designing competition may not cater to the need for variety of employees higher in openness to experiences (Costa & McCrae) because it primarily focuses on a single skill – the task skill. For instance, a journalist who designs competition by challenging him/herself to avoid the reuse of certain adverbs stretches his/her task-skill (i.e., writing) to meet this goal but will not necessarily use a wider variety of skills. In a similar vein, it is possible that designing fun does not satisfy the need for challenge of employees high in playfulness (Csikszentmihalyi, 1975a) because it primarily makes the experience of work more entertaining by increasing the variation in cognition, skill use, and social interactions (Lieberman, 2014; Anonymous, 2018). For instance, when an accountant designs fun by using his/her fantasy to picture the information from each invoice as a movie, every invoice becomes a new, interesting, developing story. While this may make work more entertaining and varied, it does not necessarily make work more challenging.

Finally, our findings extend previous experimental and qualitative studies, as well as studies among students suggesting that play is interrelated with positive affect and creativity (e.g., Csikszentmihalyi, 1975a; Guitard et al., 2005; Lieberman, 2014; Russ et al., 1999; Vandenberg, 1980). Namely, we showed that these relationships persist on a daily basis in the context of work. Moreover, since we focused on *self-initiated* play, our findings suggest that employees may proactively stimulate their creativity on a daily basis by fostering work engagement with PWD. When employees experience positive emotions, their attention and thoughts become flexible, which promotes integration of, and openness to, new information – which is essential for creativity (Fredrickson, 2001; 2003). In other words, by fostering work engagement, PWD seems to enable a thinking style that is conducive to creativity. Importantly, our model considers personality as a boundary condition of this indirect relationship. Namely, employees who were more (vs. less) open and more (vs. less) playful were particularly apt to manage their creativity through designing fun and competition, respectively.

These findings contribute to a more dynamic understanding of the nomological net of daily creativity.

Practical Implications

While more research is needed on PWD and its boundary conditions, our findings have several implications for practice. PWD appears to be an accessible, effective method for employees to foster their daily work engagement and creativity. From the perspective of the employee, our findings suggest that employees should design their work to be playful particularly on days that would benefit from higher levels of work engagement or creativity. For instance, an employee who has a group meeting every Thursday that revolves around exchanging creative ideas may especially benefit from PWD on this weekday. Likewise, when a work day is characterized by a less engaging work activity such as answering e-mails, employees may ameliorate their work engagement by playfully designing their work by, for example, striving to create challenges or beat time records.

Employers may seek to promote PWD by providing (digital) training or workshops. Training may focus on building knowledge, practicing PWD, exchanging past PWD experiences, and goal-setting. Specifically, training should first promote conceptual knowledge of what PWD constitutes and how PWD is applied to work. To consolidate learning, trainees may subsequently (1) practice PWD (e.g., "How would you apply PWD to sending emails?") and (2) share personal PWD experiences (Bandura, 1989). Finally, to motivate actual PWD at work, trainees should set realistic, specific goals for the future (Gollwitzer, 1999). Importantly, our findings suggest that in these workshops, personality assessments may be used for a more tailored approach. While more research is needed on how personality influences the effectiveness of bottom-up initiatives, the current research suggests that personality may act as an important boundary condition for the effectiveness of proactive work behaviors aimed at enhancing person-job fit. Practitioners may therefore use personality assessments to guide more tailored bottom-up interventions.

PWD interventions may complement or act as an effective, low-cost alternative to top-down initiatives to promote employee work engagement and creativity for several reasons. First, top-down job redesign is a popular, but costly, method for enhancing work engagement and creativity, which implies that not all employers will have or use the financial resources for such job redesign. Second, top-down job redesign limits individualization by using a 'one-size fits all' approach. For instance, not everyone may enjoy an open plan office and it may even impede performance for some. PWD interventions avoid these pitfalls as they allow employees to choose whether they implement PWD as a work strategy and may therefore complement or act as a viable alternative to top-down work design initiatives.

Limitations and Implications for Future Research

Like most research, our study is not without limitations. First, all of our measures were self-reported measures, which may induce common method bias. However, through person-centering the level-1 predictors in our models, we controlled for some of the causes of common method bias, such as the participant's general response tendency and general affectivity (Podsakof, MacKenzie, Lee, & Podsakoff, 2003). Moreover, cross-level interactions become more difficult to detect when common method variance is an issue (Lai, Li, & Leung, 2013). Therefore, the cross-level moderation effects make the presence of common method variance bias less likely. Conceptually, positive affect may be considered a third variable explaining common method variance in the current study. Yet, positive mood is more likely a theoretically important contributing factor of the relationships that we find, rather than a contaminating factor. That is, positive affect that may result from PWD broadens the cognitive capacity to become more engaged and also to be more creative (i.e., broaden-and-build theory; Fredrickson, 1998, 2001). While behavior as idiosyncratic as PWD and states as personal as work engagement are best assessed through self-ratings, future research may replicate these findings using an objective measure of performance in creative jobs (e.g., art, writing, musical composition).

Second, the current study does not allow us to infer causality. However, research with students has shown that intrinsic motivation was highest in the condition that labeled tasks as play as opposed to work (Glynn, 1994). Furthermore, in a series of experimental studies, students were most creative in the conditions that induced positive affect (Isen et al., 1987). Taken together, these previous studies offer some evidence for the temporal ordering of our variables. Nevertheless, reversed causal relationships may simultaneously exist. This is in line with research that argues that energetic resources are a precondition for any goal-directed behavior (Hobfoll, 2002; Shirom, 2007)—such as play. Hence, future research may explore reciprocal relationships.

Third, while we did not measure cognitive capacity and job characteristics (e.g., task variety, workload), these factors may influence the initiation and effectiveness of PWD. On the one hand, PWD may act as additional cognitive load because it requires the employee to find opportunities for play in work. On the other hand, work-settings characterized by factors such as work underload may understimulate employees. These factors may determine to what extent an employee has ‘room’ for PWD and how beneficial PWD is. For instance, it is conceivable that especially individuals with a high cognitive capacity will strive for additional stimulation through PWD when they encounter unchallenging and unvaried work settings. Additionally, designing competition may be especially beneficial in unchallenging work settings, since it creates a more challenging work experience. Likewise, designing fun may especially benefit those working in a setting that lacks variation, since it creates a more varied work experience. Future research should therefore investigate to what extent cognitive capacity and job characteristics influence the effectiveness of playful work design.

Fourth, while the factor structure of the playful work design scale was previously explored and cross-validated in a cross-sectional design (Anonymous, 2018), the current study represents the first use of its adapted daily counterpart. Testing the factorial validity of a scale and answering content-related questions utilizing the same sample is not ideal. While this procedure is in accordance with previous research (e.g.,

Petrou et al., 2012), future research should aim to replicate the multilevel factorial structure of the PWD scale in independent samples.

Many forms of play represent goal-directed behavior (Csikszentmihalyi, 1997). Hence, playful work design as a concept bears resemblance with goal-setting (Locke & Latham, 1990)¹. Studying playful work design, and designing competition in particular, may therefore be a fruitful avenue for goal-setting theory researchers. For instance, daily designing competition may reflect the behavior that explains the association between the trait of conscientiousness and daily work performance.

While research on self-initiated work strategies is inherently individualistic, little is known about the role of individual differences. Understanding the role of personality, however, makes for more accurate theoretical and practical implications. To our knowledge, the current study is one of the few studies that investigate the cross-level influence of personality on daily proactive work strategies. Future research employing cross-level, diary designs is therefore crucial to extend our knowledge on which proactive work strategies work for which employees. Moreover, our findings raise the question of which proactive work strategies benefit employees who are less (vs. more) open and playful. Do these employees flourish when proactive behavior meets their need for less variety and challenge? Future research may build on the current methodology to answer these questions, which may help to increase our understanding of the role of personality in daily proactive work strategies.

Conclusion

The current study introduced and validated the daily measurement of playful work design (PWD). Our findings suggest that employees who playfully design their work foster their daily work engagement and creativity. In addition, in line with trait activation theory (TAT; Tett et al., 2013), we argued and found that PWD promotes creativity through work engagement particularly for employees whose personalities

¹ We thank one of the anonymous reviewers for raising this issue.

reflect a need for such bottom-up job design. While designing fun worked best for individuals higher (vs. lower) in openness, designing competition worked best for individuals higher (vs. lower) in playfulness. Thus, while people are generally “most human, whole, free, and creative when they play” (Csikszentmihalyi & Csikszentmihalyi, 1975, p. 42), personality plays an important role. Hence, if we want to effectively stimulate optimal functioning in the workplace, we need to match employees’ personalities with their behaviors.



Chapter 5

Using Playful Work Design to Deal with Hindrance Job Demands: A Quantitative Diary Study

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Abstract

All job demands are exhausting, but hindrance job demands are particularly stressful since they also impede personal growth and goal attainment. In the present study, we use the dual perspective model to distinguish between agency hindrance job demands (i.e., task-related stressors that cost energy and offer few opportunities for mastery and competence) and communion hindrance job demands (i.e., social stressors that cost energy and limit the probability of experiencing close relationships). We hypothesize that daily agency hindrance job demands and daily communion hindrance job demands have unique indirect and negative associations with daily job performance (i.e., in-role and extra-role performance behaviors) through daily work engagement. In addition, we used theories about proactivity and play to hypothesize that the association of both types of hindrance job demands with work engagement will be moderated by playful work design – the process of proactively creating conditions during work activities that foster competition or fun. Employees from various occupational backgrounds filled out an online questionnaire at the end of each workday ($N = 202 \times 5.61 \text{ days} = 1133 \text{ observations}$). The results of structural equation modeling analyses supported our mediation hypotheses. In addition, as predicted, the negative association between agency hindrance job demands and work engagement was buffered on days when employees designed competition, whereas the negative relation between communion hindrance job demands and work engagement was buffered on days when employees designed fun. We discuss the theoretical and practical implications of these findings.

Keywords: agency, communion, hindrance job demands, playful work design, work engagement

Using Playful Work Design to Deal with Hindrance Job Demands:

A Quantitative Diary Study

Effective job performance requires two fundamental modalities, namely agency and communion (Abele & Wojciszke, 2014). Agency refers to an individual's striving to master the environment and to experience competence, whereas communion refers to a person's desire to closely relate to and cooperate with others (Bakan, 1966). When employees take care of their own work-related goals as well as the interests of their co-workers, the organization as a whole can flourish. According to Deci and Ryan (2000), people inherently desire psychological growth and integration; they have a deep-seated need to experience mastery and connect with others. As a consequence, employees feel most engaged in their work (i.e., vigorous, dedicated, and immersed) on the days when they achieve their goals and experience affectionate, interpersonal relationships (Bakker & Oerlemans, 2019).

Unfortunately, from time to time, employees in various occupational settings face work activities that frustrate the experience of agency and communion (Ohly & Schmitt, 2015). This is for example the case when a retail worker has a quiet day without customers, when a flight attendant is confronted with disruptive and unruly passenger behavior, or when a programmer works in solitude on a new software application. Despite the substantial contribution of these so-called daily hindrance job demands to employees' daily subjective well-being and job performance (Mazzola & Disselhorst, 2019), little theory and research exists on how employees may proactively deal with such adverse work circumstances. For instance, while previous studies indicate that different circumstances necessitate different resources (de Jonge & Dormann, 2006), little is known about which behaviors fit certain types of hindrance job demands. To fill this gap, the current study aims to answer the following question: How can employees stay engaged and perform well when confronted with hindrance job demands that thwart agency and communion?

In this study, we propose playful work design (PWD) as an effective strategy to deal with hindrance job demands that impede agency (e.g., monotony, simplicity) and

communion (e.g., conflict, isolation). PWD refers to the process of proactively creating conditions during work activities that foster competition and fun (Bakker et al., 2020; Scharp et al., 2019). We propose that on days when hindrance job demands frustrate agency and communion, designing one's tasks to be more challenging and more fun, respectively, will help protect work engagement. This means that, for example, retail workers can stay engaged during work and maintain their performance on days when they lack agency (e.g., when working on simple, monotonous tasks such as folding clothes) by creating specific challenges such as striving to fold 10 shirts per minute. Similarly, flight attendants may sustain their engagement and performance levels on days when work thwarts communion (e.g., when work involves conflict or emotional demands) by proactively using humor and imagination, for example, imagining a funny reason for the disruptive behavior of a passenger.

We aim to make several theoretical contributions. First, we advance the literature on hindrance job demands (Cavanaugh et al., 2000) by differentiating between two types of hindrance job demands. Specifically, we distinguish daily agency hindrance job demands from daily communion hindrance job demands (Abele & Wojciszke, 2014; Ohly & Schmitt, 2015). By expanding the dimensionality of hindrance job demands, we enrich our conceptual understanding of *how* and *when* daily hindrance job demands impair daily engagement and daily performance. Second, we contribute to the literature on proactivity by examining a new form of proactive work behavior: the use of play as a strategy to transform the daily experience of work (i.e., PWD; Scharp et al., 2019). Using daily diary methodology, we investigate *when* employees may best use PWD to proactively foster their work engagement and performance. Accordingly, we respond to calls for research on the association of play during work with motivation and job performance (Bakker & Van Woerkom, 2017; Mainemelis & Ronson, 2006; Petelczyc, et al., 2018). Third, we contribute to the emerging literature on PWD, by showing how two different PWD strategies, designing competition and designing fun, are uniquely suited to deal with agency hindrance job demands and communion hindrance job demands,

respectively, from day to day. This analysis helps to establish the discriminant validity of the two PWD dimensions. Taken together, our findings may hold important implications for the job demands literature and reveal which bottom-up strategies employees may use on demanding workdays to maintain their enthusiasm and protect their job performance. We aim to offer practical knowledge about how and when employees may take initiatives to influence their subjective experience of work and job performance.

Theoretical Background

Agency Hindrance Job Demands versus Communion Hindrance Job Demands

Every day, employees face a wide variety of job demands—aspects of the job associated with certain physiological and psychological costs (Bakker & Demerouti, 2017). While all job demands are taxing, hindrance job demands especially frustrate employees as they impede personal growth and goal attainment (Cavanaugh et al., 2000; Mazzola & Disselhorst, 2019). We draw on the dual perspective model of agency and communion (Abele & Wojciszke, 2014) to advance our knowledge regarding the dimensionality of hindrance job demands. The distinction between agency and communion is similar to the dimensionality in research that investigates task-related and social stressors (e.g., Igic et al., 2017; Kamarck et al., 2005; Schaufel & Moos, 1993). We propose that the content of hindrance job demands may differ substantially in terms of agency and communion. More specifically, we define agency hindrance job demands as task-oriented job demands that limit opportunities for goal-achievement and task-functioning, for example, task simplicity and job monotony (deCharms, 1969; White, 1959). In contrast, we define communion hindrance job demands as social stressors that cost energy and impede relationships and social functioning such as interpersonal conflict and isolation (Baumeister & Leary, 1995). Since agency hindrance job demands and communion hindrance job demands undermine human functioning (Deci & Ryan, 2000; Ohly & Schmitt, 2015),

daily occurrences of these hindrance job demands may hold important implications for employees' job performance.

To proficiently perform daily primary work activities, it is vital that employees are engaged in their work – i.e., have a positive, work-related state of mind characterized by vigor, dedication, and absorption (Breevaart et al., 2012; Schaufeli & Bakker, 2010). As Bakker (2011) explained, engaged employees have the necessary energy and willingness to invest this energy into their work. Work engagement is equally important for daily work behaviors that are not formally required such as helping a colleague (i.e., extra-role performance; Borman & Motowidlo, 1997). The reason is that when employees are engaged with work, they experience an action tendency that promotes altruistic and helpful acts (Karatepe, 2013; Spector & Fox, 2002). Unsurprisingly, research indicates that employees' energy is drained on days when they encounter agency hindrance job demands and communion hindrance job demands (Breevaart & Bakker, 2018; Ohly & Schmitt, 2015). While agency hindrance job demands and communion hindrance job demands both drain energy, they may do so through different psychological mechanisms.

The sense of agency derives from the experience of causing meaningful results and believing in one's ability to produce such results (deCharms, 1969; White, 1959). These experiences and beliefs may be thwarted on days when employees are confronted with agency hindrance job demands. Examples of agency hindrance job demands include work underload and job monotony because these situations generally lack opportunities to produce meaningful results. For instance, in a study among educational professionals, Fernet et al. (2013) showed that employees who did not know what to do (i.e., an agency hindrance job demand) also reported feeling less competent and accomplished. Unlike agency, the sense of communion builds on the experience of close relationships and belonging to a group (Baumeister & Leary, 1995). The experience of daily communion hindrance job demands such as interpersonal conflict or social isolation may severely undermine the sense of communion because such events impair social bonds and intensify the feeling of not

belonging. To illustrate, in a study including various occupations, employees who had an abusive supervisor (i.e., a communion hindrance job demand) primarily felt less part of a group at work and less connected with their colleagues (Liu et al., 2019). When agency and communion are undermined, work engagement decreases due to a perceived lack of meaningful results and connection (Csikszentmihalyi, 1975; Sulea et al., 2012; van den Broeck et al., 2016). Hence, we predict that on days when employees are confronted with agency and communion hindrance job demands, they will be less willing and able to invest effort into in- and extra-role performance behaviors because their work engagement suffers.

Hypothesis 1: Daily agency hindrance job demands are negatively related to daily in-role job performance (H1a) and daily extra-role job performance (H1b) through daily work engagement.

Hypothesis 2: Daily communion hindrance job demands are negatively related to daily in-role job performance (H2a) and daily extra-role job performance (H2b) through daily work engagement.

Playfully Redesigning Hindrance Job Demands

While hindrance job demands often undermine psychological well-being, positive events that match the content of hindrance job demands in terms of agency and communion are proposed to buffer their negative effects (Ohly & Schmitt, 2015). This reasoning is consistent with the matching principle stating that the buffering potential of resourceful aspects of work increases when their content matches the stressor (de Jonge & Dormann, 2006). For example, research has shown that feeling efficacious and knowledgeable is particularly important when employees are confronted with agency hindrance job demands, for instance, when work is ambiguous and mentally exhausting (Panatik et al., 2011; de Jonge & Dormann, 2006). Similarly, previous studies have shown that colleague support is particularly important for well-being when employees are dealing with communion hindrance job demands including pupil misbehavior, emotional demands, and work-family

conflict (Bakker et al., 2007; de Jonge et al., 2008; Liu et al., 2015). Recent advances in our knowledge suggest that employees may use proactive strategies to foster positive work events (Bakker & Van Woerkom, 2017; Parker et al. 2006). These proactive strategies refer to self-initiated behavior that aims to improve the situation or oneself (Parker et al. 2006). Building on the matching principle, such proactive behavior may prove especially beneficial when the behavior matches the content of the hindrance job demands in terms of agency and communion.

Playful work design (PWD) is one of the proactive behavioral strategies employees may use to foster positive agency events and positive communion events during work. PWD is the proactive, cognitive-behavioral orientation that employees engage in to design competition and design fun during work activities (Bakker et al., 2020; Scharp et al., 2019). PWD integrates (a) research that describes proactive behavior as self-starting behavior focused on changing the self and the environment (Parker et al., 2006); (b) literature that conceptualizes play as a behavioral orientation to an activity (Mainemelis & Ronson, 2006); and (c) recent advances in research on 'work design' (Parker et al., 2014; 2017). While the literature on 'job design' mainly focused on how the constellation of assigned job components determine the experience of one's occupation (Hackman & Oldham, 1980), 'work design' ascribes to a more dynamic perspective that includes how employees initiate changes to how they approach and perform their tasks to alter the content and organization of their work activities (Parker et al., 2014; 2017; Zhang & Parker, 2019). Self-initiated changes to the organization and performance of one's work activities may have a relatively short-term or long-term focus. Daily PWD represents a proactive strategy with a relatively transient and proximal focus that transforms the organization and experience of task elements during work activities and work episodes, which may especially be important when activities are characterized by daily hindrance job demands.

Designing competition revolves around pleasure derived from stretching one's skills (e.g., excitement, exhilaration), and comprises strategies such as setting goals and rules to make work activities more competitive and challenging (e.g.,

scanning articles as fast as possible; framing work as a puzzle that needs to be solved). Designing fun focuses on lighthearted pleasure (e.g., cheerfulness, amusement), and refers to strategies that include the use of fantasy and humor to make activities more entertaining and fun (e.g., exchanging jokes with a customer; imagining the story of a passenger). Finally, designing competition mainly consists of intraindividual behavior such as stretching personal skills and pushing beyond personal records (Howe, 2008), whereas designing fun also comprises interpersonal behaviors such as integrating humor into communication with clients or colleagues. The content of these behaviors can be classified in terms of agency and communion (Abele & Wojciszke, 2014). Namely, while designing competition mainly comprises agency-focused tactics, designing fun includes strategies that are more communion-oriented. Several previous findings indicate that the PWD dimensions indeed reflect two different and independent ways to playfully design work. For instance, in a daily diary study, multilevel confirmatory factor analyses showed that daily designing competition can be empirically distinguished from daily designing fun (Scharp et al., 2019). Moreover, the results of that study showed that daily changes in designing competition and designing fun uniquely interacted with trait playfulness and trait openness to predict daily fluctuations in work engagement. Finally, in two cross-sectional studies with a heterogeneous sample, (1) the two-factor structure emerged in exploratory factor analyses and was confirmed in confirmatory factor analyses, and (2) designing competition correlated more strongly with a goal-oriented mindset and a desire to outperform others, whereas designing fun was more strongly associated with a sense of humor and tendency to reframe situations in such a way to provide oneself with amusement and entertainment (Scharp et al., 2018). Based on the different agentic and communal qualities of designing competition and designing fun, respectively, we argue they may ameliorate different adverse situations. That is, while designing competition may especially benefit work with agency hindrance job demands, designing fun may especially help employees deal with communion hindrance job demands.

Playfully Redesigning Agency Hindrance Job Demands

Agency hindrance job demands such as repetitiveness and simplicity may impede work engagement because they limit opportunities to feel efficacious and competent (Fernet et al., 2013). According to Csikszentmihalyi (1975), individuals disengage when tasks lack action opportunities because such activities do not sufficiently stretch skills and do not provide meaning. In turn, attention is diverted to “the passage of time itself” (Eastwood et al., 2012; James, 1890/1913). Complementary to job redesign, individuals may proactively create action opportunities within tasks themselves to enhance engagement (Hamilton et al., 1984; Fisherl, 1993). We propose that employees may deal with agency hindrance job demands by restructuring their work with challenges and competition to maintain their work engagement. For instance, experimental studies suggest that setting specific and difficult goals during simplistic and repetitive tasks promotes engagement (Bryan & Locke, 1967; Mossholder, 1980), because such goals give a sense of achievement and competence (Locke & Latham, 2002). Other experimental evidence indicates that individuals may spontaneously introduce variation into their tasks to maintain an optimal level of activation (Hill, 1975). Building on these theoretical insights and findings, we argue that on days when employees encounter agency hindrance job demands they may maintain their engagement, and therefore their performance, by designing competition in their tasks.

Hypothesis 3: Designing competition moderates the negative indirect association between agency hindrance job demands and job performance through work engagement (all on the day level). This indirect association is less strong on the days when designing competition is high (vs. low)

Playfully Redesigning Communion Hindrance Job Demands

Communion hindrance job demands such as interpersonal conflict and isolation are detrimental to work engagement since such situations potentially undermine warmth, harmony, and trust (Bogaerts et al., 2006; Peterson & Behfar, 2003). Engagement levels drop when individuals are confronted with conflict and

isolation because of a perceived lack of support and connection (Deci & Ryan, 2000; Sulea et al., 2012). On days when work activities impede employees' sense of communion, employees may manage their emotional response to accommodate to the thwarting experience without feeling overwhelmed and/ or change their interpersonal style to promote close relationships (Revenson, 1981). Hence, we propose that employees may deal with such hindrance job demands by designing fun through fantasy and humor. Research suggests that individuals use fantasy to deal with loneliness and aversive situations because it provides them with companionship and entertainment (Logan, 1985; Lynn & Rhue, 1988; Rhue & Lynn, 1987; Wilson & Barber, 1982). Indeed, findings indicate that individuals may use imagination to produce interpersonal and entertaining scenarios to increase feelings of connection and shift attention away from aversive conditions such as isolation and conflict (Honeycutt & Keaton, 2012; Lang, 1995; Poerio et al., 2016; Worthen & Deschamps, 2008). Similarly, the active use of humor helps individuals alleviate tension when their sense of connection is undermined (Robert, 2017; Tucker et al., 2013). Indeed, meta-analytic evidence suggests humor can mitigate the negative impact of stressful situations by promoting relaxation, reducing tension, stimulating positive reinterpretations, and lubricating social interactions (Mesmer-Magnus & Glew, 2012). Taken together, this suggests that employees may reduce the negative association between communion hindrance job demands and work engagement, and consequently sustain their performance, by playfully designing their work to be more fun.

Hypothesis 4: Designing fun moderates the negative indirect association between communion hindrance job demands and job performance through work engagement (all on the day level). This indirect association is less strong on the days when designing fun is high (vs. low)

Method

Procedure and Participants

Participants were recruited by bachelor and master students as part of their theses, which increased the heterogeneity of our sample and as such, the generalizability of our findings (Demerouti & Rispens, 2014). Participants first received information regarding informed consent, the study's general purpose, and the research design. Employees who agreed to participate received an e-mail with a link to the general survey which contained demographic questions (e.g., gender, age). The participants who filled out the general survey received an email at the end of each working day at 4 PM in the subsequent two weeks with a link to the daily survey. In line with other research that used a within-person differences design, we only included the data of participants who filled out more than two daily diary surveys (e.g., Breevaart & Bakker, 2018). As an incentive to participate, one of the respondents could win a €50 gift voucher in a raffle if they filled out five daily diary questionnaires.

Two hundred and two out of the 281 employees who agreed to participate filled out the general questionnaire and at least three diary surveys (response rate = 68.8%). These 202 respondents returned 5.61 diary surveys on average (Total $N = 202 \times 5.61 = 1133$ data points). The sample consisted of 110 men (54.5%) and 92 women (45.5%). Most participants were either cohabiting or married (61.4%), and 43.6% lived with children at home. On average, participants were 40.01 years old ($SD = 14.04$), had 18.31 years of work experience ($SD = 14.30$), and 9.55 years of organizational tenure ($SD = 10.53$). Participants held a degree from a university (39.6%), completed professional education (29.2%), or finished high school (31.2%). Most participants were employed full-time (62.9%). Participants worked in a wide variety of settings such as health and welfare (18.8%) business and finance (18.3%), government (17.3%), education (6.9%), trade (6.9%), and industry (6.9%).

Drop-out Analysis

To examine the potential presence of selection bias, we conducted a drop-out analysis. Specifically, we compared the group selected for analysis ($N = 202$) with

the excluded participants ($N = 79$). The groups did not differ in terms of gender ($\chi^2 = .15, p = .699$), education level ($U = 7570.0, p = .485$), relationship status ($\chi^2 = 5.52, p = .238$), or occupational background ($\chi^2 = 5.36, p = .912$). Furthermore, the two groups also did not differ in terms of age, work experience, and tenure, nor in overall work underload, work monotony, task simplicity, interpersonal conflict, social isolation, emotional demands, work engagement, in-role performance, extra-role performance, designing competition, and designing fun ($F(14,231) = .89, p = .572$).

Measures

Following recommendations for daily diary research to enhance validity and minimize participant burden (Beal, 2015; Ohly et al., 2010), the length of existing scales was reduced and responses for all constructs were given on a 7-point scale (1 = *not true at all* to 7 = *totally true*). We used validated short versions of the original scales. If validated short versions of the scales were unavailable, we used the original scale but deleted items that referred to behaviors that were unlikely to occur on a daily basis. We reformulated items such that they referred to the workday. To accurately capture the daily experience of agency hindrance job demands and communion hindrance job demands, potential measures were evaluated in terms of validity, distinctiveness, and sensitivity. First, we screened the literature and collected a sample of potential measures that pertained to (1) the sense of efficacy and competence or (2) the experience of communion and belongingness (Van den Broeck et al., 2016; Morgeson & Humphrey, 2006; Ohly & Schmitt, 2015). Second, we evaluated potential measures regarding their agency-communion distinctiveness. We removed measures that conflated agency with communion to enhance conceptual clarity (e.g., task conflict). Third, we evaluated the sensitivity of the measure to daily fluctuations. That is, we removed items and instruments that are relatively stable and show little daily variation (Ohly et al., 2010). Three measures were selected for agency hindrance job demands and three other measures were

selected for communion hindrance job demands. All scales were sufficiently reliable (Table 1).

Daily Agency Hindrance Job Demands

We measured three daily agency hindrance job demands. First, the daily work underload scale was based on the three-item workload scale developed by Bakker et al. (2003). An example statement is "Today, I had little work to do". The average Cronbach's alpha was acceptable (.77). Daily work monotony was assessed with the four-item routine job conditions monotony scale (Lennon, 1994). A sample item is, "Today, my work was repetitive". The average Cronbach's alpha was good ($\alpha = .84$). Finally, daily task simplicity was measured with the four-item job complexity subscale from the Work Design Questionnaire (Morgeson & Humphrey, 2006). The scale includes the following item: "Today, the tasks on the job were simple and uncomplicated" (mean $\alpha = .75$).

Daily Communion Hindrance Job Demands

We measured three daily communion hindrance job demands. First, interpersonal conflict was measured with the daily version (Sanz-Vergel et al., 2015) of the four-item Interpersonal Conflict at Work Scale (Spector & Jex, 1998). An example item is, "Today, I got into arguments with someone at work" (mean $\alpha = .87$). Social isolation at work was assessed by contextualizing the daily version (Arpin & Mohr, 2019) of the three-item revised-UCLA loneliness scale to work (Hughes et al., 2004), including "Today, I felt isolated from others at work" (mean $\alpha = .83$). Daily emotional demands were measured with three items from the Emotional Demands Scale (Xanthopoulou et al., 2013), including, "Today, my work was emotionally demanding" (mean $\alpha = .86$).

Daily Work Engagement

We assessed daily work engagement with the daily version (Breevaart et al., 2012) of the 3-item Utrecht Work Engagement Scale (Schaufeli et al., 2017). The scale includes items for the assessment of vigor, dedication, and absorption. The items are, "Today, I felt bursting with energy" (i.e., vigor), "Today, I was inspired by my job (i.e.,

dedication), and “Today, I was immersed in my work (i.e., absorption). The mean Cronbach’s α was .80.

Daily In-Role Performance

We measured daily in-role performance with the daily, three-item version (Reina-Tamayo et al., 2018) of the in-role performance scale developed by Casimir et al. (2006), including the following item: “Today, I produced work of a high standard” (mean $\alpha = .78$).

Daily Extra-Role Performance

Daily extra-role performance was measured with four items from the daily OCB towards coworkers scale developed by Dalal et al. (2009). An example item is, “Today, I tried to help a coworker”. The average Cronbach’s alpha was .81.

Daily Playful Work Design

We used the two-dimensional, daily PWD instrument to measure daily playful work design behaviors (Scharp et al., 2019; Scharp et al., 2018). The scale measures each dimension with six items. An example item of the daily designing competition subscale is: “Today, I tried to make my job a series of exciting challenges” (mean $\alpha = .82$). The daily designing fun subscale includes the item: “Today, I used my imagination to make my job more interesting”. The average internal consistency of the scale was excellent ($\alpha = .91$).

Strategy of Analysis

The data consists of two levels where daily observations ($N = 1133$) are nested in individuals ($N = 202$), which implies we have sufficient power to detect the hypothesized associations (Maas & Hox, 2004; Scherbaum & Ferreter, 2009). The intraclass coefficients (ICC) indicate that 32.3% to 67.1% of the variance is explained by differences within individuals (i.e., the day-level; Table 1). Hence, to appropriately model the multilevel structure of the data, we tested our hypotheses by conducting structural equation modeling using Mplus (Muthén & Muthén, 1998-2017). Given that all hypotheses specify level-1 associations, we conducted our analyses using the Mplus

Table 1

Means, Standard Deviations, Intercorrelations, Intraclass Coefficients, and Reliabilities (On the Diagonal Between Brackets) of the Study Variables

	M	SD	1-ICC	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Daily work underload	3.65	1.43	64.5%	(.77)	.41 ^{***}	.62 ^{***}	-.13	-.01	-.23 ^{**}	-.19 ^{**}	-.34 ^{***}	-.10	.03	.09
2. Daily work monotony	2.89	1.17	42.9%	.34 ^{**}	(.75)	.64 ^{**}	.00	.13	-.15 [*]	-.28 ^{***}	-.18 ^{**}	-.09	.02	-.04
3. Daily task simplicity	3.35	1.40	51.0%	.49 ^{***}	.49 ^{***}	(.84)	-.01	.12	-.18 [*]	-.28 ^{***}	-.26 ^{***}	-.11	-.17 [*]	-.17 [*]
4. Daily interpersonal conflict	1.64	.98	67.1%	-.14 ^{***}	-.03	-.05	(.87)	.59 ^{***}	.50 ^{***}	-.20 ^{**}	-.02	.10	.20 ^{**}	.14
5. Daily social isolation	1.87	1.06	54.9%	-.02	.09 ^{**}	.08 ^{**}	.46 ^{***}	(.83)	.43 ^{***}	-.38 ^{***}	-.21 ^{**}	-.05	-.02	-.03
6. Daily emotional demands	2.22	1.39	47.4%	-.19 ^{***}	-.11 ^{***}	-.15 ^{***}	.43 ^{***}	.36 ^{***}	(.86)	-.08	.02	.14	.11	.18 [*]
7. Daily work engagement	4.81	1.18	57.8%	-.08 ^{**}	-.16 ^{***}	-.17 ^{***}	-.11 ^{***}	-.28 ^{***}	-.05	(.80)	.61 ^{***}	.20 ^{**}	.36 ^{***}	.29 ^{***}
8. Daily in-role performance	5.11	1.05	62.8%	-.24 ^{***}	-.11 ^{***}	-.23 ^{**}	.00	-.14 ^{***}	.02	.58 ^{**}	(.78)	.27 ^{***}	.23 ^{***}	.16 [*]
9. Daily extra-role performance	5.05	1.24	43.7%	-.06	-.07 [*]	-.10 ^{***}	.07 [*]	-.05	.12 ^{***}	.21 ^{***}	.23 ^{***}	(.81)	.28 ^{***}	.36 ^{***}
10. Daily designing competition	3.42	1.06	32.3%	-.02	-.01	-.18 ^{***}	.14 ^{***}	-.03	.11 ^{***}	.36 ^{***}	.27 ^{***}	.25 ^{***}	(.82)	.74 ^{***}
11. Daily designing fun	3.75	1.15	37.4%	.05	-.04	-.17 ^{***}	.09 ^{**}	-.05	.15 ^{***}	.34 ^{***}	.21 ^{***}	.32 ^{***}	.72 ^{***}	(.91)

Note. ^{*} $p < .05$; ^{**} $p < .01$; ^{***} $p < .001$. ICC = intraclass coefficient. Correlations above the diagonal are based on between-person averages ($N = 202$), whereas correlations below the diagonal are based on within-person data ($N = 1133$).

"TYPE=COMPLEX" option to account for the nested structure of the data. To test our hypotheses, we created two latent variables with the hindrance job demands with content related to agency (i.e., work underload, monotony, simplicity) and communion (i.e., interpersonal conflict, social isolation, emotional demands). Similar to previous studies on hindrance job demands, this approach allows us to model the associations and interactions between PWD and the hindrance job demands in a parsimonious way (e.g., LePine et al., 2004). We used the Latent Moderated Structural Equations approach to test our moderated-mediation hypotheses. This approach accounts for the non-normality of interaction effects, which provides an unbiased and more efficient estimation of parameters and standard errors than alternative approaches (Klein & Moosbrugger, 2000). This analysis implies we only provide regular fit statistics for our first hypothesis since Mplus does not compute these indices for moderated latent structural equation models. Instead, we provide the log-likelihood and Bayesian Criterion Index for our moderation-mediation model. Finally, we control for the autoregressive effects of employees' engagement and performance levels. As a result, the path coefficients represent the unique 'changes' in daily work engagement, daily in-role performance, and daily extra-role performance. This procedure provides a less biased estimate of the path coefficients (Wilkins, 2018).

Results

Descriptive Statistics

Table 1 presents the means, standard deviations, ICC's, and correlations of the study variables.

Measurement Models

We first specified a measurement model to assess the construct validity of our measures. The measurement model consisted of 11 latent factors: daily work underload (3 items), daily work monotony (4 items), daily task simplicity (4 items), daily interpersonal conflict (4 items), daily social isolation (3 items), daily emotional demands (3 items), daily work engagement (3 items), daily in-role performance (3

items), daily extra-role performance (4 items), daily designing fun (6 items), daily designing competition (6 items). The model fit of the model was good ($\chi^2(805) = 2495.73$, RMSEA = .04, CFI = .90, and SRMR = .04). The standardized factor loadings ranged from .39 to .96 and were all significant ($p < .001$).

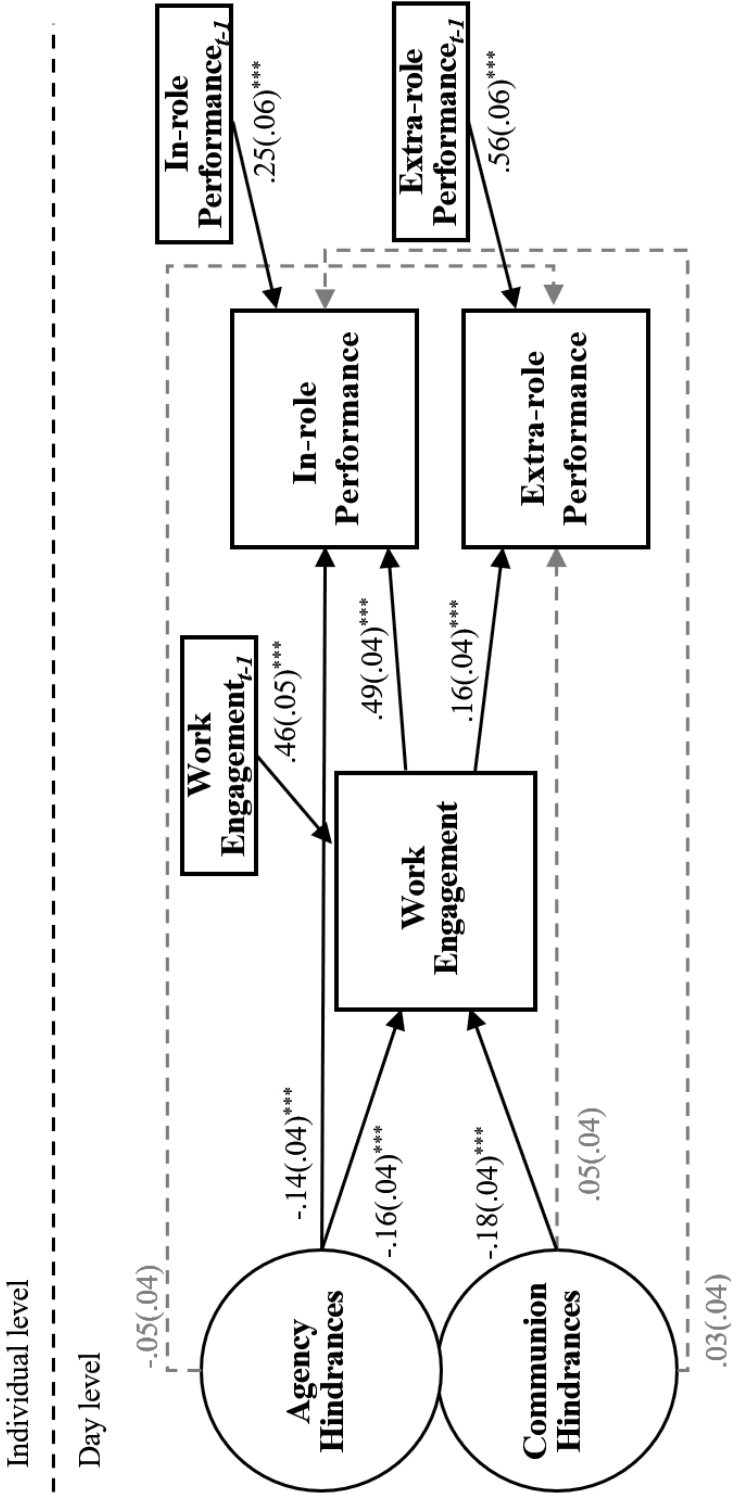
We further conducted a confirmatory factor analysis to verify that we can accurately distinguish between agency and communion hindrance job demands. Hence, we compared a one-factor model in which all job demands loaded on a single factor with a two-factor model in which work underload, work monotony, and task simplicity loaded on one latent factor (i.e., agency hindrance job demands); and in which interpersonal conflict, social isolation, and emotional demands loaded on a second latent factor (i.e., communion hindrance job demands). The results showed that the one-factor structure fit rather poorly to the data (RMSEA = .53, CFI = .00, SRMR = .15), whereas the two-factor structure fitted the data well (RMSEA = .07, CFI = .92, and SRMR = .06). The difference in model fit was indeed substantial, $\Delta\chi^2(1) = 53.10$, $p < .001$; $\Delta\text{BIC} = 600.71$. All standardized factor loadings of the two-factor model were significant and ranged from .58 to .75 ($p < .001$). In support of their divergent validity, the two latent variables were only weakly and non-significantly correlated ($r = -.11$, $p = .221$). Hence, we proceed to test our hypotheses.

Mediation Hypotheses

We tested Hypothesis 1 and 2 simultaneously in a single structural model. Hypothesis 1 states that the association of daily agency hindrance job demands with daily in-role performance (H1a) and daily extra-role performance (H1b) is explained by daily work engagement. Figure 1 displays the estimated standardized path coefficients for the hypothesized mediation model. In support of the indirect associations, the mediation model was a better fit to the data than the direct associations model ($\Delta\chi^2(2) = 31.85$, $p < .001$; $\Delta\text{BIC} = 26.51$). Specifically, the mediation model showed a more acceptable fit to the data (RMSEA = .05, CFI = .89, SRMR = .05) than the direct effects model (RMSEA = .05, CFI = .87, SRMR = .06). In line with Hypothesis 1a and Hypothesis

Figure 1

Standardized Estimated Effects for the Hypothesized Mediation Model



Note. * $p < .05$; ** $p < .01$; *** $p < .001$. Fit indices are: $\chi^2(38) = 177.30$, $-2\text{Log Likelihood} = 20133.73$, $\text{BIC} = 40654.71$, $\text{RMSEA} = .05$, $\text{CFI} = .89$, $\text{SRMR} = .05$.

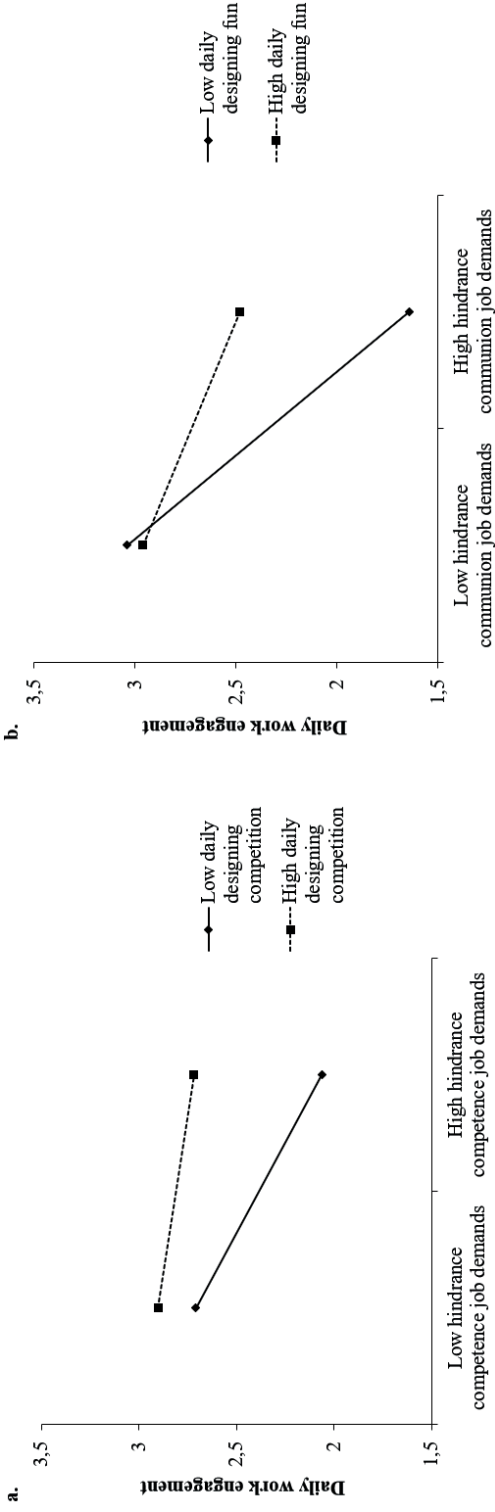
1b, daily agency hindrance job demands were indirectly related to daily in-role performance ($ab = -.10$, $SE = .03$, $z = 3.62$, $p < .001$, 95% CI[-.15, -.04]) and daily extra-role performance ($ab = -.04$, $SE = .01$, $z = 3.03$, $p < .01$, 95% CI[-.06, -.01]). Supporting Hypothesis 2a and Hypothesis 2b, daily communion hindrance job demands were indirectly associated with daily in-role performance ($ab = -.13$, $SE = .04$, $z = 3.13$, $p < .01$, 95% CI [-.21, -.05]) and daily extra-role performance ($ab = -.05$, $SE = .02$, $z = 2.70$, $p < .01$, 95% CI [-.08, -.01]). Unexpectedly, daily agency hindrance job demands were directly, negatively associated with daily in-role performance ($b^* = -.14$, $SE = .04$, $z = 3.39$, $p < .01$, 95% CI [-.21, -.06]). However, agency hindrance job demands were not associated with daily extra-role performance ($b^* = -.05$, $SE = .04$, $z = 1.26$, *ns*, 95% CI [-.12, .03]), and daily communion hindrance job demands were neither associated with daily in-role performance ($b^* = .03$, $SE = .04$, $z = .81$, *ns*, 95% CI [-.05, .12]) nor with daily extra-role performance ($b^* = .05$, $SE = .04$, $z = 1.23$, *ns*, 95% CI [-.03, .12]). The mediation model explained 30.2% of the within-person variance in daily work engagement, 42.5% of the within-person variance in daily in-role performance, and 36.8% of the within-person variance in daily extra-role performance. These results suggest that on days when employees encounter communion hindrance job demands and agency hindrance job demands, they are less able to help colleagues and work proficiently because they are less engaged with work.

Moderated Mediation Hypotheses

Hypothesis 3 and 4 suggest that designing competition and designing fun buffer the negative, indirect associations of agency hindrance job demands and communion hindrance job demands, respectively, with daily in-role performance and daily extra-role performance. Prior to testing the moderated-mediated associations, we assessed the hypothesized interactions. The results of Latent Moderated Structural Equations analyses showed that daily designing competition moderated the negative association between daily agency hindrance job demands and daily work engagement ($b = .11$, $SE = .04$, $z = 2.59$, $p < .01$, 95% CI [.03, .19]). That is, as illustrated in Figure 2a,

Figure 2

Figures depicting the interaction (a) between daily designing competition and daily agency hindrances influencing daily work engagement and (b) between daily designing fun and daily communion hindrances influencing daily work engagement



the association between daily agency hindrance job demands and daily work engagement was weaker on days when daily designing competition was high (+1SD; $b = -.47$, $SE = .14$, $z = 3.41$, $p < .01$, 95% CI [-.74, -.20]) in comparison to days when daily designing competition was low (-1SD; $b = -.70$, $SE = .22$, $z = 3.16$, $p < .01$, 95% CI [-1.13, -.27]). Similarly, the interaction between daily designing fun and daily communion hindrance job demands was positively associated with daily work engagement ($b = .20$, $SE = .06$, $z = 3.70$, $p < .001$, 95% CI [.10, .31]). Specifically, as depicted in Figure 2b, the strength of the relation between daily communion hindrance job demands and daily work engagement was weaker on days when daily designing fun was high (+1SD; $b = -1.00$, $SE = .22$, $z = 4.64$, $p < .001$, 95% CI [-1.42, -.58]) than on days when daily designing fun was low (-1SD; $b = -1.47$, $SE = .34$, $z = 4.33$, $p < .001$, 95% CI [-2.13, -.80]).

Finally, structural equation analyses support the hypothesized moderated-mediation model. Figure 3 shows the estimated unstandardized path coefficients for the hypothesized moderated-mediation model. In support of the moderated-mediation model, the model showed a better fit to the data than the model that excluded the hypothesized interaction effects ($\Delta\chi^2(2) = 20.01$, $p < .001$; $\Delta BIC = 21.81$). Table 2 summarizes the hypothesized moderated-mediated associations. The indirect associations of daily agency hindrance job demands with daily in-role performance and daily extra-role performance were buffered on days when employees showed high (vs. low) daily designing competition (See Table 2). For instance, the indirect association between daily agency hindrance job demands and in-role performance was weaker on days when daily designing competition was high (+1SD; $b = -.21$, $SE = .06$, $z = 3.27$, $p < .01$, 95% CI [-.34, -.08]) than on days when daily designing competition was low (-1SD; $b = -.32$, $SE = .10$, $z = 3.03$, $p < .01$, 95% CI [-.52, -.11]). Likewise, the indirect associations of daily communion hindrance job demands with daily in-role performance and daily extra-role performance were attenuated on days when employees showed high (vs. low) daily designing fun (See Table 2). For example, the indirect association between daily communion hindrance job demands and extra-role

Table 2

Moderated Indirect Effects of Communion and Agency Hindrances on Extra-Role and In-Role Performance through Daily Work Engagement

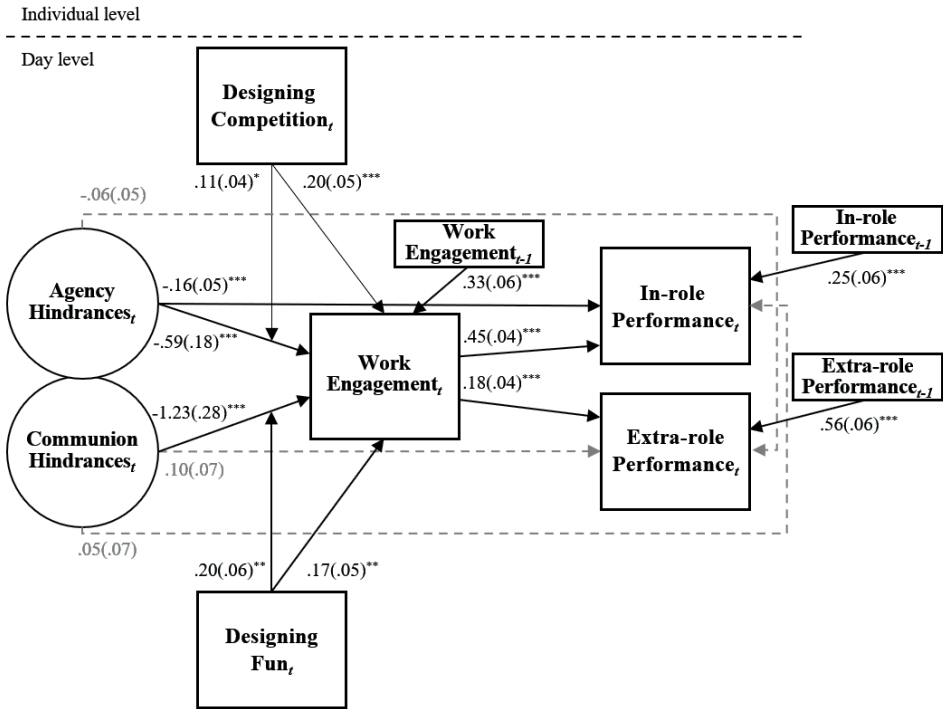
Predictors	Indirect effect					
	Daily in-role performance			Daily extra-role performance		
	<i>ab</i>	<i>SE</i>	95% <i>CI</i>	<i>ab</i>	<i>SE</i>	95% <i>CI</i>
Daily agency hindrances × low (-1SD) daily designing competition	-.32**	.10	-.52, -.11	-.13**	.05	-.22, -.03
Daily agency hindrances × high (+1SD) daily designing competition	-.21**	.06	-.34, -.08	-.08**	.03	-.14, -.02
Daily communion hindrances × low (-1SD) daily designing fun	-.66***	.17	-.99, -.32	-.26**	.09	-.44, -.08
Daily communion hindrances × high (+1SD) daily designing fun	-.45***	.11	-.66, -.23	-.18**	.06	-.51, -.06

Note. **p* < .05; ***p* < .01; ****p* < .001. *ab* = unstandardized coefficient of the indirect effect.

performance was lower on days when daily designing fun was high (+1SD; *b* = -.18, *SE* = .06, *z* = 2.94, *p* < .01, 95% *CI* [-.30, -.06]) than on days when daily designing fun was low (-1SD; *b* = -.26 *SE* = .09, *z* = 2.86, *p* < .01, 95% *CI* [-.44, -.08]). The moderated-mediation model was able to explain 40.1% of the variance in daily work engagement, 42.5% of the variance in daily in-role performance, and 36.5% of the variance in daily extra-role performance. Taken together, these results suggest that the negative association of agency hindrance job demands and communion hindrance job demands with employees’ work engagement and performance outcomes is less unfavorable on days when employees playfully design their work activities.

Figure 3

Unstandardized Estimated Effects for the Hypothesized Moderated-Mediation Model



Note. * $p < .05$; ** $p < .01$; *** $p < .001$. Fit indices are: $-2\text{Log Likelihood} = 17460.75$, $\text{BIC} = 35315.32$

Additional Analysis: Matching Assumption

The matching principle suggests that matching interactions (i.e., agency hindrance job demands × designing competition, communion hindrance job demands × designing fun) best capture fluctuations in daily work engagement. To further test the validity of the matching principle, we regressed daily work engagement on the ‘non-matching’ interaction terms (i.e., agency hindrance job demands × designing fun, communion hindrance job demands × designing competition) and compared model fit. The non-matching interaction terms of daily agency hindrance job demands × daily designing fun ($b = .06$, $SE = .07$, $z = .82$, ns , 95% CI [.08, .19]) and of daily communion hindrance job demands × daily designing competition ($b = .02$, $SE = .08$, $z = .23$, ns ,

95% CI [.14, .18]) did not predict daily work engagement. In support of the matching principle, the results indicate that the addition of these non-significant interaction terms did not improve model fit ($\Delta\chi^2 = 1.789$, $\Delta df = 2$; $p > .05$; $\Delta BIC = 12.52$).

Discussion

Advances in the job demands literature revealed it is imperative to distinguish different types of job demands if we want to understand their mechanisms and consequences (Breevaart & Bakker, 2018; Cavanaugh et al., 2000; Mazzola & Disselhorst, 2019). The present study aimed to extend the seminal work on job stressors by Cavanaugh et al. (2000). We built on the dual perspective model of social cognition (Abele & Wojciszke, 2014; Ohly & Schmitt, 2015) to advance our knowledge regarding hindrance job demands, their possible impact, and how to deal with them. Utilizing daily diary methodology, we found support for the two-dimensional structure that captures agency as well as communion in daily hindrance job demands. Moreover, our findings indicate that on days when employees encounter agency hindrance job demands and communion hindrance job demands during work, they may partially negate their negative associations by designing their tasks to be more competitive and more fun, respectively. Taken together, our findings answer calls for further research on the dimensionality of stressors (Cavanaugh et al., 2000) and play during work (Mainemelis & Ronson, 2006; Petelczyc et al., 2018).

Theoretical Implications

The findings of the present study advance the literatures on job demands and PWD in several ways. First, we built on previous research that defined hindrance job demands as work situations that limit psychological growth and goal attainment (Cavanaugh et al., 2000) and the dual perspective model of social cognition (Abele & Wojciszke, 2014; Bakan, 1966) to further distinguish two types of hindrance job demands. Our findings advance the literature on hindrance job demands by demonstrating that the dual perspective model improves our understanding of the

dimensionality of daily hindrance job demands. We found empirical support for two distinct clusters of daily hindrance job demands: (1) agency hindrance job demands such as underload and monotony that are task-oriented and limit opportunities for the experience of goal-achievement and competence (deCharms, 1969; White, 1959); and (2) communion hindrance job demands such as conflict and isolation with content that is interpersonal and limit the probability of experiencing affiliation (Baumeister & Leary, 1995). In support of the utility of the agency-communion hindrance job demands distinction, we found unique correlational and interaction patterns between the two types of hindrance job demands, PWD behaviors, and performance outcomes. On days with more agency and communion hindrance job demands, employees showed lower in-role and extra-role performance, because they experienced lower levels of work engagement (mediation effects). In addition, (unexpectedly) daily agency hindrance job demands were *directly* negatively related to daily in-role performance but did not relate directly to daily extra-role performance. The direct, negative association between daily agency hindrance job demands and in-role performance indicates that when work lacks complexity or goals are absent, it is hard to perform proficiently (Locke & Latham, 2002). Finally, daily designing competition and daily designing fun uniquely attenuated the indirect association of daily agency hindrance job demands and daily communion hindrance job demands with job performance. These findings provide evidence for the importance of distinguishing between agency hindrance job demands and communion hindrance job demands. Taken together, these distinct associations support the assertion by Cavanaugh et al. (2000) that there is “a need for further consideration of the categorizations of self-reported work stress” (p. 70), and may explain inconsistent findings between work stressors and other variables (Mazzola & Disselhorst, 2019). That is, when affect and motivation are considered, agency and communion stressors may particularly correlate with outcome variables that match their content in terms of agency and communion.

The second contribution of the current study lies in demonstrating how PWD interacts with job conditions. While scholars frequently speculated about play as a way to cope with adversities (e.g., Petelczyc et al., 2018), little is known about the role of play during work (Mainemelis & Ronson, 2006). The present study utilized daily diary methodology to investigate how and when employees playfully design daily work activities to deal with daily agency hindrance job demands and daily communion hindrance job demands. Therefore, this study answers calls for more research on the role of play in organizations (Bakker & Van Woerkom, 2017; Mainemelis & Ronson, 2006; Petelczyc et al., 2018) and intraindividual research that evaluates the efficacy of dealing with stressors (Lazarus, 2000). That is, the study indicates how daily PWD attenuates the extent to which daily hindrance job demands undermine employees' daily enthusiasm and vigor during work. These within-person interactions offer unique insight into the effectiveness of proactive coping efforts (Lazarus, 2000), since many studies on coping utilize between-subjects designs that focus on the main effects of coping strategies (e.g., Kaiseler et al., 2014). When studies utilize a between-subjects design and focus on main effects, they do not reveal whether a certain strategy actually minimizes the costs associated with the stressor.

In support of the matching principle (de Jonge & Dormann, 2006), we showed that on days when employees were confronted with agency hindrance job demands and communion hindrance job demands, they were able to maintain their work engagement by designing competition and designing fun, respectively. Moreover, additional analyses revealed that the 'non-matching' interactions (i.e., daily agency hindrance job demands \times daily designing fun, daily communion hindrance job demands \times daily designing competition) failed to predict daily work engagement. When employees design competition during work activities that lack opportunities to stretch skills in a meaningful way, they proactively create opportunities for agency that the activity lacked. These action opportunities are what fuels work engagement and sustains performance outcomes (Csikszentmihalyi, 1975). Our findings also

provide evidence for the importance of humor and imagination when activities lack communion (Mesmer-Magnus & Glew, 2012; Rhue & Lynn, 1987; Wilson & Barber, 1982). When employees design fun while confronted with work that limits interpersonal support and connection, they proactively use imagination and humor to provide themselves with the companionship that the activity lacked, which maintains their performance levels. Our findings expand the literature on the matching principle by showing the relevance of matching proactive behaviors with stressors. Although previous research has shown that resourceful aspects of work may buffer demanding aspects of work when their content is similar (i.e., both cognitive, both emotional, or both physical; de Jonge & Dormann, 2006), we show that – additionally – employees may take initiative to mobilize the necessary, appropriate resources to deal with stressors. These findings support the proposition that PWD represents an effective proactive strategy to foster optimal experiences and performance (Bakker & Van Woerkom, 2017), which is especially important when activities lack stimulation and companionship.

Two important considerations should be noted regarding the moderation of the association between daily hindrance job demands and daily work engagement by PWD. First, further inspection of the interaction figures also indicates that on days when agency and communion hindrance job demands were low (vs. high), the contribution of PWD to work engagement was significantly lower than on days when hindrance job demands were high (vs. low). This observation further underscores the importance of the context in which employees take initiative (Lazarus, 2000). Since PWD is a proactive strategy aimed at making work activities more intrinsically rewarding (Bakker et al., 2020; Scharp et al., 2018), PWD might have diminished complementary value on days when work is already highly intrinsically rewarding. For instance, during highly complex and difficult activities such as firefighting rescue operations, creating additional action opportunities might have little additional value for work engagement. Furthermore, it should be noted that PWD reflects a short-term strategy enacted during an activity to foster work engagement. Thus, while the

results indicate that employees may stay engaged despite daily hindrance job demands due to PWD, these findings may not apply to contexts in which employees are exposed to hindrance job demands during the longer term (and at the between-level of analysis). That is, the use of PWD to mitigate the effects of chronic exposure to unstimulating and emotionally demanding work is likely less effective and might even be harmful since stressors are not removed (Tuckey et al., 2015). Hence, PWD should always be complemented by structural human resource practices to ensure employee well-being (Bakker & Van Woerkom, 2017).

Practical Implications

Our findings also have practical implications for organizations and employees that aim to foster employee well-being and performance. While contemporary work design perspectives shifted towards, and emphasize, the optimization of job resources and job demands (e.g., Bakker & Demerouti, 2017), Tayloristic work design approaches remain pervasive in practice due to factors such as a lack of knowledge regarding work design (for extensive reviews, see Parker et al., 2014; 2017). The results suggest organizations may utilize the agency-communion hindrance job demands distinction to design interventions to help employees deal with daily hindrance job demands. Specifically, organizations may strive to design more structural opportunities to experience agency and communion when work is characterized by simplicity, monotony, conflict, or isolation to protect employees' work engagement and performance behaviors. When hindrance job demands are present (e.g., monotonous tasks that need to be done; conflicts between colleagues), individuals may use daily PWD to complement top-down job design initiatives and deal directly with daily hindrance job demands. Specifically, to maintain employees' well-being and performance levels, on days when agency hindrance job demands are prevalent, organizations should especially foster designing competition, whereas when communion hindrance job demands are high the focus should shift to encouraging designing fun (Ohly & Schmitt, 2015). Organizations may stimulate

PWD by (1) by providing autonomy and support for play (Scharp et al., 2018) and (2) offering training to employees (Proyer et al., 2020).

PWD training may particularly be important before agency hindrance job demands and communion hindrance job demands are high since it is difficult for employees to initiate changes while enduring adverse circumstances without outside help (Bakker & de Vries, 2020; Bakker & Costa, 2014). Organizations that wish to cultivate PWD effectively through training can build on play theory and the current findings. First, since intrinsic motivation is a key aspect of play (Mainemelis & Ronson, 2006; Petelczyc et al., 2018), participation in PWD interventions should be voluntary. Additionally, intrinsic motivation should be stimulated throughout the intervention by designing challenging and fun training activities. Second, since play can be considered a skill (Csikszentmihalyi, 1975), interventions should increase trainees' (a) knowledge regarding the principles of PWD, and (b) skills through interactive lectures and exercises. Moreover, to enhance retention of the newly learned knowledge and skills, trainees should set specific goals regarding when and where they will playfully design work activities. Finally, while both daily designing competition and daily designing fun promote daily work engagement (Scharp et al., 2019), the present findings suggest PWD interventions should teach trainees about which PWD behaviors fit which context. For instance, interventions may teach employees that when they encounter communion hindrance job demands, the best way to employ PWD is to design these activities to be more fun.

Strengths, Limitations, and Future Research

Certain limitations should be kept in mind while interpreting the findings. The present study relied on self-report measures, which may increase common method variance (Podsakoff et al., 2003). However, the presence of common method variance does not necessarily undermine the validity of our findings for several reasons. First, we rule out substantial method effects by using validated measures and by demonstrating construct validity in terms of appropriate reliability coefficients and

factor structure (Conway & Lance, 2010). Second, Conway and Lance argue that the use of self-report measures is appropriate, and sometimes even superior to other types of measures when constructs concern private experiences such as work engagement. This reasoning also applies to the experience of daily agency hindrance job demands and daily communion hindrance job demands, because it is a difficult and cumbersome task for others to judge whether someone's day contained activities that were unstimulating or lacked companionship. Similarly, the validity of other-ratings of in-role and extra-role performance is undermined when others lack knowledge regarding respondents' behaviors (Vazire & Mehl, 2008). For instance, while a supervisor may accurately rate employees' weekly performance levels based on weekly observations (e.g., weekly deadlines, help offered to colleagues during meetings), an employee may more accurately rate their daily performance behaviors since they might be relatively covert for supervisors (e.g., calls with clients, emails). Third, interaction effects cannot be artifacts of common method variance and the presence of common method variance makes real interactions harder to detect (Siemsen et al., 2010). Hence, the presence of interaction effects and additional analysis suggests common method variance was not a major concern in our study. Fourth, since we analyze within-person deviations from respondents' baseline scores, our centering procedure partially negates self-report bias. Namely, person-mean centering implies that between-person differences such as social desirability or response tendencies cannot explain our findings (Gabriel et al., 2019). Finally, we controlled for the autoregressive effects of our outcome variables, which provides more accurate path coefficients (Wilkins, 2018). Future research may investigate the association between PWD and daily other-ratings of performance within an occupational setting where performance behaviors are (1) objectively recorded or (2) overt to colleagues or supervisors (e.g., Bakker, Hetland, 2020).

While the quantitative daily diary design is a strength of the present study, this design also implies that we cannot make causal inferences. Following our theoretical arguments, we modeled work engagement as an outcome of the interaction between

hindrance job demands and PWD. However, activated positive affect is considered to be an important consequence and antecedent of both play and proactivity (e.g., Bakker & Demerouti, 2017; Bakker & van Woerkom, 2017; Mainemelis & Ronson, 2006; Parker et al., 2006). Hence, PWD and work engagement are likely reciprocally related. To further study the causal relations between PWD and work engagement, future research should utilize a research design that does justice to the transient nature of daily PWD. That is, play is a phenomenon that concludes “within certain limits of time and place” (Huizinga, 1949, p. 9). One way to study PWD within the temporal context it takes place and at the same time increase the confidence of causal inferences is to utilize an episodic diary design. Specifically, future research may investigate the reciprocal associations between these variables by assessing PWD and work engagement multiple times a day during different work episodes of one or two hours.

The present study focused on the agency-communion distinction in daily hindrance job demands. Future research could further explore these findings in two ways. First, while the findings suggest that PWD is an effective way to deal with daily occurrences of agency hindrance job demands and communion hindrance job demands, these results may not apply when individuals are chronically exposed to these hindrance job demands. Future research may therefore explore whether the effectiveness of PWD diminishes over time when employees are continuously exposed to (chronic) hindrance job demands. Second, future research may investigate whether the agency-communion distinction also applies to challenge job demands such as job complexity and work pressure (i.e., agency challenge job demands), and networking and building trust with a client (i.e., communion challenge job demands). As with daily hindrance job demands, it is conceivable that on days when employees encounter agency challenge job demands and communion challenge job demands, they may profit most from proactive agency behaviors and proactive communion behaviors that mobilize agency resources and communion resources, respectively. For example, by designing competition and designing fun employees may create the necessary agency

resources and communion resources for meeting a deadline or a negotiation by, for example, fostering interpersonal respect and perseverance.

Conclusion

In conclusion, this study shows that the agency-communion distinction is important for understanding how hindrance job demands undermine performance outcomes and how to deal with these hindrance job demands. Work engagement and performance outcomes were lower on days when agency hindrance job demands and communion hindrance job demands were high. However, on days when employees designed competition or fun in their work activities, the negative associations of hindrance job demands with work engagement and performance were substantially attenuated. In conclusion, the present study highlights the significance of employee initiatives during work and suggests that it pays to play.



Chapter 6

Playful Work Design and Employee Work Engagement: A Self- Determination Perspective

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Abstract

Drawing on self-determination and play theories, we develop a process model that proposes that daily playful work design (PWD; designing fun, designing competition) positively relates to employees' daily work engagement through basic psychological need satisfaction. A total of 162 Dutch employees filled out short surveys at the end of each workday for 2–5 days (603 observations). As hypothesized, employees were more engaged on the days they designed their work to be more playful, which was explained by the satisfaction of their needs for autonomy, relatedness, and competence. Moreover, as expected, designing fun and designing competition differed in how and why they related to work engagement. In addition, we found that daily PWD was related to same-day, but not next-day need satisfaction and work engagement. Most path coefficients were statistically invariant across levels of analysis (between- vs. within-person levels), suggesting their meaning and function is equivalent across levels. However, additional analyses revealed synergetic effects between overall use of designing fun and designing competition. These findings expand self-determination and play theories by revealing how and why a proactive and playful approach to work activities and relationships fosters work engagement.

Keywords: playful work design, proactivity, self-determination theory, basic need satisfaction, work engagement, play at work

Playful Work Design and Employee Work Engagement: A Self-Determination Perspective

Play is a universally enjoyable phenomenon enacted in various domains (Huizinga, 1949). Perhaps reflecting the current Zeitgeist in positive organizational psychology (Bakker & Schaufeli, 2008; Donaldson et al., 2019), interest in play at work to enhance employee engagement and performance is gaining momentum (e.g., Celestine & Yeo, 2020; Petelczyc et al., 2018). Imagine a programmer who frames coding tasks as exciting puzzles, a service employee who exchanges humor with clients, or a bus driver who challenges him/herself to drive with the least number of sudden decelerations. Through play, a difficult programming task such as optimizing code no longer represents a long, tedious task but instead becomes an interesting, novel deciphering challenge. Similarly, playfully approaching and performing conversations with clients or bus rides may change their performative nature and instead shift focus to – and create – intrinsically enjoyable qualities. These instances exemplify “playful work design”. By approaching and performing their tasks as opportunities for play, these employees transform the experiential qualities of their work activities.

Playful work design (PWD) offers a bottom-up perspective on the integration of play with work. When employees playfully design their work, they use play during tasks to make their work activities more fun or more competitive (Bakker, Scharp et al., 2020; Scharp et al., 2019). Recently, research has revealed that on days when employees playfully design work, they tend to engage more with their work, have more creative ideas, and perform better (Bakker, Hetland et al., 2020; Scharp et al., 2019). Moreover, when employees design their work to be more playful, they are more effective in dealing with adverse conditions such as hindrance stressors and rumination about the COVID-19 crisis (Bakker & van Wingerden, 2021; Scharp et al., 2021).

While a growing body of evidence shows that PWD relates to enhanced well-being, the goal of the present study is to explain *how*, *why*, and *when* PWD promotes and protects well-being. We build on self-determination theory (SDT; Deci & Ryan,

2000; Deci et al., 2017) and multilevel theories (Chen et al., 2005; Xanthopoulou & Bakker, 2021) to develop an intra- and interindividual process model to elucidate why PWD fosters vigor, enthusiasm, and absorption (i.e., work engagement). We propose that PWD promotes need satisfaction and work engagement across levels of analysis (Deci & Ryan, 2000; Deci et al., 2017). Moreover, our research highlights that the specific dimensions of PWD, designing fun and designing competition, differ in how and why they foster work engagement. We argue that designing fun and designing competition both instill a sense of volition and ownership (i.e., satisfy the need for autonomy), but that designing fun specifically fosters a sense of belongingness and connectedness (i.e., relatedness), whereas designing competition specifically promotes the experience of achievement and efficacy (i.e., competence). Furthermore, we investigate the transient nature of daily PWD by examining whether the associations with need satisfaction and work engagement pertain to the same as well as the next workday. Finally, we assess whether PWD manifests itself in equivalent ways when we compare situations (differences between days) with individuals (differences between persons). By testing intra- and interindividual processes simultaneously in a multilevel model, findings may reveal equivalence or discrepancies between associations across levels of analysis. For instance, an individual may feel relatively more autonomous on days they design fun in comparison with other weekdays (within-person differences) but may not differ from their less playful counterpart in their average level of satisfaction of the need for autonomy (between-person differences). While multilevel investigations regarding the generalizability of processes across levels are rare (Xanthopoulou & Bakker, 2021), this example illustrates we cannot assume equivalence of coefficients across levels of analysis. Indeed, “scholars must consider how research generalizes across levels” (Chen et al., 2005, p. 375).

Our research contributes to the literature in four significant ways. First, we expand the literature on SDT. Although SDT postulates that individuals may proactively satisfy their psychological needs, previous research has mainly studied how the environment nurtures the satisfaction of basic needs (cf. Bakker & van Woerkom,

2017). That is, research has mainly considered how certain environmental conditions such as job characteristics satisfy employees' basic needs. Thus, while ample research has been dedicated to studying how external factors cultivate basic need satisfaction (van den Broeck et al., 2016), scant research has studied what employees can actually do themselves to nurture their basic needs (Bakker & van Woerkom, 2017; Bakker & Oerlemans, 2019).

Second, we contribute to the literature on PWD by developing an understanding of how and why designing fun and designing competition foster work engagement across levels. Therefore, the present study may elucidate the mechanisms that explain previous findings such as why PWD especially benefits well-being for certain individuals (Scharp et al., 2019), reduces the negative consequences of certain hindrance job demands (Scharp et al., 2021), benefits in-role performance when time pressure is low (Bakker, Hetland et al., 2020), and mitigates the impact of rumination about COVID-19 on depressive symptoms (Bakker & Van Wingerden, 2021).

Third, while theory suggests play is a transient phenomenon that operates within a specific timeframe (Huizinga, 1949; Mainemelis & Ronson, 2006), scant empirical research investigated the temporality of play. Indeed, in a review of the literature, Petelczyc and colleagues (2018) argue "Although a variety of outcomes have been examined as consequences of play, little attention has focused on whether these outcomes occur immediately or are more delayed and occur in the long term" (p. 179). We investigate to what extent PWD predicts same-day as well as next-day need satisfaction and work engagement, which advances knowledge about the day-to-day dynamics of play.

Finally, by developing a two-level process model and assessing the equivalence of the proposed associations across levels of analysis, we answer calls for multilevel research on play, need satisfaction, and work engagement (Brown & Ryan, 2007; Petelczyc et al., 2018; Xanthopoulou & Bakker, 2021). The findings may add to the parsimony in theory regarding how the processes operate or reveal that additional theorizing is warranted.

Theoretical Background

Self-Determination Theory

SDT is a macro theory about the drivers of human motivation (Deci & Ryan, 2000; Deci et al., 2017). This theory is rooted in the premise that humans have a natural inclination towards psychological growth, integration, and well-being (Deci & Vansteenkiste, 2004). Whether individuals actualize their natural inclinations depends on the satisfaction of the basic psychological needs for autonomy, relatedness, and competence. Individuals are motivated by, and drawn to, experiences of self-determination, volition (autonomy), a sense of belonging, genuine connection (relatedness), feeling capable, and achieving success (competence; Deci & Ryan, 2000). The SDT conceptualizations of the need for autonomy and competence differ from related concepts in the organizational psychology literature. Namely, while job autonomy is often equated to decision latitude and job competence to proficiency (Hackman & Oldham, 1976; Morgeson & Humphrey, 2006; Sandberg, 2000), SDT defines the satisfaction of the need for autonomy and competence as essential psychological nutrients for ongoing psychological growth and well-being (Deci & Ryan, 2000). Thus, while these constructs are related, they are distinct. For instance, meta-analytic analyses indicate that job autonomy overlaps modestly with the satisfaction of the need for autonomy ($r = .38$; Broeck et al., 2016; Cohen, 1998).

The alluring and motivational potential of basic needs derives from their Broadening and essential nature. That is, while basic need satisfaction advances psychological growth and integration, their frustration will foster developmental deficits and fragmentation (Vansteenkiste & Ryan, 2013). In accordance with these principles, numerous studies revealed that organizations can foster employees' motivation by designing a work environment that nurtures the basic needs for autonomy, relatedness, and competence (van den Broeck et al., 2016). However, the proposition by SDT that individuals may proactively seek or create situations to satisfy their basic needs themselves received relatively little attention (Deci & Ryan, 1980; Deci & Vansteenkiste, 2004).

Playful Work Design

To foster research on how employees satisfy their needs, Bakker and van Woerkom (2017) called for research on 'self-determination strategies'. Self-determination strategies concern proactive behaviors that satisfy basic needs and facilitate optimal experiences during work. Playful work design (PWD) represents a self-determination strategy that refers to the use of play during work (Bakker, Scharp et al., 2020; Scharp et al., 2019). PWD is defined as the proactive cognitive-behavioral orientation to work activities that employees utilize to (1) design fun and (2) design competition (Scharp et al., 2019). PWD builds on the notion that "play" is not an activity, but rather an approach to performing an activity (Mainemelis & Ronson, 2006). Thus, PWD represents an individual work design strategy – a self-initiated strategy to organize one's work tasks and activities (Parker et al., 2017). That is, when individuals design their work to be playful, they cognitively and behaviorally reorganize their activities through play. For instance, approaching and performing work activities with a playful narrative or as exciting competitions may provide employees with meaning, fun, and challenge by creating surprises and complexities (e.g., what will I discover?; will I beat my record?) and resolving them (e.g., I found an amusing explanatory narrative; I beat my record).

PWD differs from other bottom-up work design strategies such as job crafting because of its focus on changing the experience of work by approaching and performing activities in a playful fashion rather than altering one's occupational role through expansion and contraction (Lazazzara et al., 2020). That is, job crafting can be conceptualized as self-initiated expansion (promotion/approach-oriented) and contraction (prevention/avoidance-oriented) of the scope of the job (Laurence, 2010; Wrzesniewski & Dutton, 2001; Zhang & Parker, 2019). Building on this framework, Bindl et al. (2019) discuss task, relational, skill, and cognitive crafting. To illustrate, a criminal defense attorney may try to get to know certain colleagues in the firm while avoiding others (relational crafting), participate in courses to advance or maintain expertise (skill crafting), take on additional tasks or hire an assistant to work on certain tasks (task

crafting), and reflect on how their work maintains justice or avoid thinking about clients that were guilty (cognitive crafting). In contrast with these examples, PWD does not change the scope of one's job but instead focuses on changing the experience of work activities by approaching and performing them in a playful fashion. For instance, the lawyer may aim to make meetings with their colleague regarding a case more fun by integrating humor (designing fun) or more challenging by trying to predict their opinion (designing competition). In support of the distinction between PWD and job crafting, a recent daily diary study revealed that PWD incrementally predicts other-rated job performance beyond job crafting (Bakker, Hetland et al., 2020).

Designing fun encompasses ludic play strategies such as the use of humor and fantasy that focus on light-hearted pleasure (i.e., amusement, fun). Designing competition comprises agonistic play strategies such as the use of goals and rules that focus on the pleasure derived from stretching one's skill (i.e., diligence, challenge). The dimensions of PWD reflect the duality described in the play literature that characterizes play in terms such as unstructured or structured, imaginary or real, playful or serious, arbitrary or rule-bound, and irrational or rational (Kolb & Kolb, 2010). When individuals design work to be more playful, they tend to report more optimal experiences such as work engagement – an affective-motivational work-related state of well-being characterized by vigor, dedication, and absorption (Schaufeli et al., 2002; Scharp et al., 2019; Scharp et al., 2021). While these studies indicate that PWD relates to work engagement, the mechanism that explains this association remains elusive. Building on SDT, we argue that the self-determined satisfaction of the need for autonomy, relatedness, and competence may explain the association between PWD and employee engagement.

Playful Work Design and the Need for Autonomy

The need for autonomy describes the need for experiences of volition, self-direction, and choice (deCharms, 1968; Deci & Ryan, 2000). Such agency experiences emerge when behavior is self-endorsed and an expression of the self. Proactive

behaviors like PWD nurture autonomy experiences due to their self-starting nature (Strauss & Parker, 2014). That is, individuals *choose* to engage in proactive behaviors, which fosters a sense of autonomy. Moreover, quasi-experimental and observational research suggests that the use of humor and fantasy — core components of designing fun — may promote autonomy experiences by enabling employees to take control of their situation and internal state (Crawford & Caltabiano, 2011; Honeycutt et al., 1989). To illustrate, on days when cashiers exchange jokes with customers or imagine funny narratives, they may actively direct the situation and their emotions; creating a sense of control where others may experience heteronomy (i.e., sense of being controlled). Similarly, when employees design competition during work, they create personal goals; taking control of direction and focus. For instance, on days when retail sales workers create personal challenges such as folding items within a time limit or closing more sales than yesterday, they take control of how they perform their work. Research suggests that such personally formulated goals promote a sense of self-direction and volition (Patall et al., 2008). Taken together, we propose:

Hypothesis 1: On days when employees (a) design fun and (b) design competition, they feel more engaged with work because they satisfy their need for autonomy.

Designing Fun and the Need for Relatedness

The need for relatedness refers to experiences of interpersonal affiliation, belongingness, and unity (Baumeister & Leary, 1995). Situations that cause employees to perceive themselves as part of a group, care for others, or develop affiliative relationships with colleagues, satisfy the need for relatedness (Deci & Ryan, 2000). Employees may stimulate experiences of relatedness through designing fun because this behavior implies fostering lighthearted interactions with others and making activities fun for all parties involved such as colleagues or clients (Scharp et al., 2019). For instance, theoretical and empirical literature suggests that the use of humor creates social closeness and intimacy in relationships by fostering harmony, collegiality, and

trust (Mesmer-Magnus et al., 2012). Similarly, the use of imagination to produce entertaining and interpersonal scenarios relates to feelings of connectedness and belongingness (Honeycutt & Keaton, 2012; Poerio et al., 2016). Finally, in a recent diary study, Scharp et al. (2021) showed that on days when employees faced work conditions that thwarted relatedness experiences (e.g., isolation and conflict), they could sustain their work engagement by designing fun during their workday. The authors argued that designing fun may have buffered the negative consequences of such conditions by directly promoting interpersonal affiliation, belongingness, and unity. The present study tests these assertions and therefore develops new insights regarding the processes that may explain these findings. Hence, we expect:

Hypothesis 2: On days when employees design fun, they feel more engaged with work because they satisfy their need for relatedness.

Designing Competition and the Need for Competence

The need for competence describes the need to develop, feel effective in producing results, and feel proficient in terms of skills (Deci & Ryan, 2000; White, 1959). Competence builds on positive feedback, developing capacities, and conquering challenges. On days when employees design competition, they may proactively create such conditions. Namely, when employees design their work tasks to be more competitive, they strive to make their work more challenging through play. These strategies may include reframing work activities as puzzles, monitoring performance, creating additional action opportunities through segmentation (e.g., "levels"), and setting personal goals during tasks (Scharp et al., 2019). While research on designing competition is scarce, goal-setting research suggests that setting specific and difficult goals during tasks promotes motivation and engagement, because goal-setting creates a sense of achievement and competence (Locke & Latham, 2019). In line with this reasoning, a recent diary study showed that on days when employees designed competition, they maintained their work engagement despite hindrance job demands such as simplicity and underload, which undermine the sense of competence (Scharp

et al., 2021). The authors explained this finding by arguing that on days when employees design competition, they proactively create opportunities to feel competent. By testing these assumptions, we advance new knowledge regarding why designing competition especially benefits certain job conditions. Therefore, we propose:

Hypothesis 3: On days when employees design competition they feel more engaged with work because they satisfy their need for competence.

Day-to-Day Dynamics of Playful Work Design

Time shapes most phenomena, tightening or diminishing their associations (Kozlowski & Klein, 2000). Indeed, the proposed processes are “interrelated in a dynamic manner and do not occur in a temporal vacuum” (Chan, 1998, p. 242). However, we are unaware of any quantitative research on the day-to-day dynamics of play during work (Celestine & Yeo, 2021; Petelczyc et al., 2018). Theoretically, Huizinga (1949) argued that play takes place “within certain limits of space and time” (p. 9). The boundaries in space and time separate play from “normal” life and describe how individuals *temporally* suspend reality and superimpose the experiential qualities of play on an activity (Csikszentmihalyi, 1975; Mainemelis & Ronson, 2006; Scharp et al., 2019). To illustrate, imagine a security officer in a retail store who monitors customers. When the security officer predicts where certain customers will walk to next, positive feedback may generate a *momentary* sense of competence and work engagement that dissipates over time. In other words, such behaviors are unlikely to stimulate a sense of efficacy on the subsequent day incrementally to the PWD behaviors of that next day. Moreover, other factors in-between measurement points may represent more important determinants of need satisfaction and work engagement such as daily job conditions (Wang et al., 2020), detachment from work during the evening (Sonnentag & Kühnel, 2016), as well as morning home demands (Dettmers et al., 2020). Thus, the findings may position personal psychological resources and work engagement as

short-term as opposed to delayed consequences of PWD. Taken together, we expect that:

Hypothesis 4: The proposed associations of PWD with satisfaction, and work engagement are stronger during the same time interval than with next-day need satisfaction and work engagement.

Equivalence of Path Coefficients Across Levels

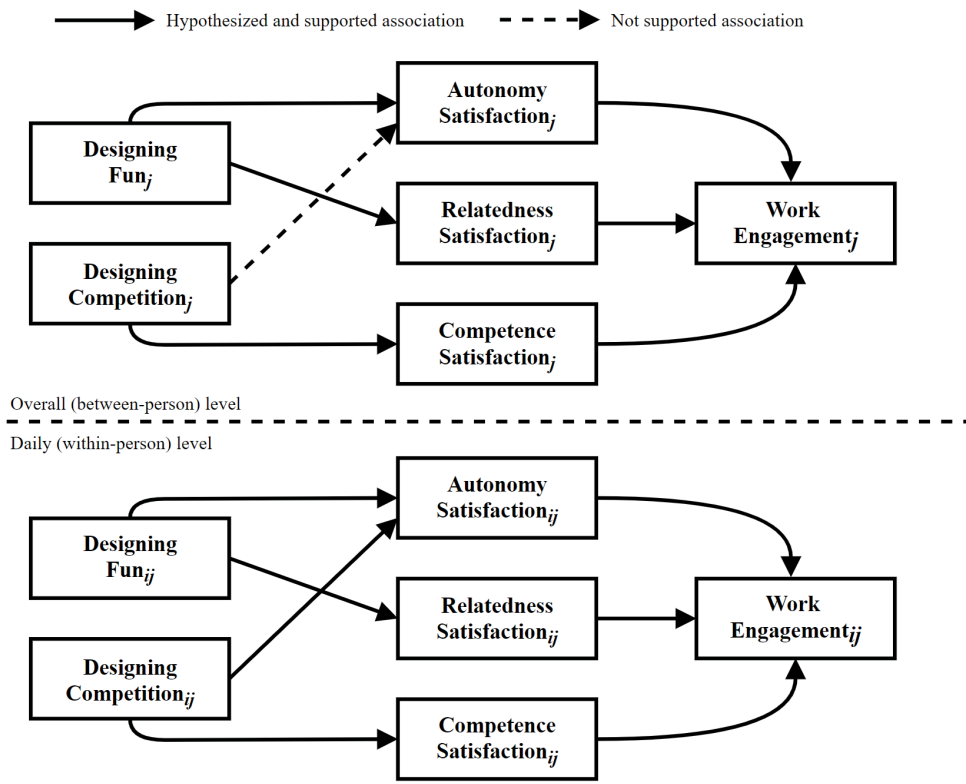
Brown and Ryan (2007) stress the importance of investigating intra- and interindividual variability of the proposed motivational processes. Namely, the theoretical interpretation of phenomena may differ across levels of analysis (Ohly et al., 2010). While the equivalence of associations across levels of analysis adds to the parsimony of theories, discrepancies signal the need to refine theories (Chen et al., 2005). Typically, researchers employ a single-level design to indirectly examine how associations generalize to other levels of analysis instead of explicitly testing the invariance of associations in a single model with the same participants. Therefore, Gabriel et al. (2019) argue researchers should simultaneously examine relations by aggregating within-person measures to a higher level. While PWD does have a momentary focus (level-1), employees may design work to be more playful over an extensive time period (level-2). The question remains whether daily PWD and general PWD have equivalent meaning and consequences in terms of need satisfaction and work engagement, which limits our understanding of when PWD is beneficial. For instance, while aiming to outperform oneself might be exciting, doing this every day might become mundane. Thus far, previous research seems to indicate that PWD manifests itself equivalently across levels (Scharp et al., 2019). In other words, the meaning of PWD seems to be equivalent across within and between levels of analysis. This suggests that the function of PWD – fostering engagement with work through stimulating personal psychological resources – may operate in a similar fashion. Based on these preliminary findings, we predict that the hypothesized processes operate similarly at the daily and general levels of analysis in terms of configural (i.e., have

similar patterns of significance across levels of analysis) and metric invariance (i.e., have an equivalent magnitude of coefficients across levels of analysis; Chen et al., 2005; Muthén & Muthén, 1998-2017).

Hypothesis 5: The associations in the process model show (a) configural and (b) metric invariance.

Figure 1

Path Diagram Identifying the Proposed and Detected Relations Between the Variables of the Mediation Model



Note. j = individual; i = daily.

Method

Procedure and Participants

Participants were recruited in The Netherlands by psychology students via network sampling as part of their thesis requirements. Students utilized their social network to contact companies and professionals, and made use of snowball sampling (i.e., existing participants recruit other respondents from their personal circle). This sampling strategy may enhance the external validity of the findings by increasing the heterogeneity of the sample (Demerouti & Rispens, 2014). The participants did not receive any compensation for their participation. Prior to data collection, we informed respondents about the general purpose of the study, research design, voluntary participation, and confidentiality of their responses. Individuals who consented to participate first filled out a general survey (i.e., demographics). In the subsequent week, participants received an email at the end of each workday at 4 PM with a link to the daily questionnaire. To reduce recall bias, participants were only able to fill-out surveys until midnight. Following Nezlek's (2011) recommendations, we only analyzed the data of participants from the original sample ($N = 234$) who filled out at least two daily diary surveys ($N = 162$; response rate = 69.23%). The mean of returned daily surveys per respondent was 3.72 ($n = 162 \text{ persons} \times 3.72 = 603 \text{ observations}$). The sample comprised 84 women (51.9%) and 78 men (48.1%). On average, individuals were 39.60 years of age ($SD = 13.63$), had 17.61 years of work experience ($SD = 13.54$), and 8.75 years of organizational tenure ($SD = 9.61$). Most participants were permanently employed (69.1%), either cohabiting or married (65.4%), and lived without children at home (56.1%). The sample consisted of respondents who received a degree from a university of applied sciences (39.5%), an academic university (24.1%), or a vocational school (17.3%). Participants worked in a variety of occupational sectors such as government (19.1%), health (17.3%), business and finance (11.1%), industry (9.3%), education (5.6%), or trade (5.8%).

Measures

Using multilevel confirmatory factor analyses, we computed within- and between-person reliabilities (Geldhof et al., 2014). All scales were sufficiently reliable (see Table 1) and rated on the same 7-point scale (1 = *not true at all* to 7 = *totally true*). Reliabilities equal to or greater than .70 are considered to be acceptable, whereas values that exceed .80 are indicative of good reliability (Cortina, 1993; Taber, 2017).

Playful Work Design

We measured PWD with the daily version of the two-dimensional PWD instrument (Scharp et al., 2019; Scharp et al., 2022). The instrument measures designing fun and designing competition with six items each. The daily designing fun subscale includes the items: "Today, I looked for ways to make tasks more fun for everyone involved", "Today, I used humor to make my work more fun", and "Today, I used my imagination to make my job more interesting". Example statements of the daily designing competition subscale are: "Today, I competed with myself at work – not because I had to, but because I enjoyed it", "Today, I approached my job as a series of exciting challenges", and "Today, I tried to set time records in my work tasks".

Basic Need Satisfaction

We assessed the satisfaction of basic needs with the daily version (van Hooff & Geurts, 2015) of the work-related need satisfaction scale (van den Broeck et al., 2010). The scale measures the satisfaction of the need for autonomy (3 items), relatedness (3 items), and competence (4 items). Example items are: "Today, I felt free to do my job the way I think it could best be done" (autonomy), "Today, I felt part of a group" (relatedness), and "Today, I felt competent at my job" (competence).

Work Engagement

We measured work engagement with the daily version (Breevaart et al., 2012) of the 9-item Utrecht Work Engagement Scale (Schaufeli et al., 2002). The scale measures the three dimensions of work engagement with three items each. Sample items are: "Today, I felt bursting with energy" (i.e., vigor), "Today, I was inspired by my job" (i.e., dedication), and "Today, I was immersed in my work" (i.e., absorption).

Analytical Procedure

The diary data has a two-level structure where daily observations ($n = 603$) are nested in individuals ($N = 162$). Indeed, the intraclass coefficients (ICC) justify multilevel modeling since within-person differences explain 30.8% to 61.8% of the variance and differences between individuals 38.2% to 69.2% of the variance (see Table 1). Accordingly, multilevel analyses were conducted using Mplus 8.5 (Muthén & Muthén, 1998-2017). First, we conducted a multilevel confirmatory factor analysis to assess the equivalence of the constructs across the levels of analysis. For model convergence, we computed parcels for constructs with more than five indicators according to the balanced item-to-construct approach (Little et al., 2002). Model fit was assessed by computing the root mean square error of approximation (RMSEA), comparative fit index (CFI), and the standardized root mean square residual (SRMR) using the robust maximum likelihood (MLR) estimator. Acceptable fit values range up to .08 for the RMSEA, above .90 for the CFI, and below .10 for the SRMR (Schweizer, 2010). To assess the mediation hypotheses, we conducted multilevel analyses to estimate the path coefficients on both levels of analysis simultaneously. Level-1 variables consisted of daily observations (person-mean centered), whereas level-2 variables were computed by averaging the level-1 observations (grand-mean centered). We included lagged variables to test the links between PWD and next-day need satisfaction and next-day work engagement. Additionally, we included the cross-lagged and autoregressive effects of the focal variables. Hence, the coefficients represent unique “changes” in daily observations of PWD, need satisfaction, and work engagement. Moreover, this procedure yields more accurate parameter estimates (Wilkins, 2018). Finally, we assessed the equivalence of the associations in terms of configural similarity (i.e., a similar pattern of significance across levels of analysis) and metric similarity by constraining the estimates to be equal (i.e., a similar magnitude of the path coefficients across levels of analysis; Chen et al., 2005; Muthén & Muthén, 1998-2017).

Results

Descriptive Statistics

Table 1 presents the means, standard deviations, ICC's, and correlations of the study variables.

Isomorphism of the Study Variables

To assess whether the constructs are similar across levels, we conducted a multilevel confirmatory factor analysis. The measurement model included six latent factors at the between- and within-person levels of analysis: designing fun (3 parcels), designing competition (3 parcels), autonomy satisfaction (3 items), relatedness satisfaction (3 items), competence satisfaction (4 items), and work engagement (3 subscales). The model showed an acceptable fit to the data ($\chi^2(274) = 505.62$, RMSEA = .037, CFI = .954, and SRMR_{within} = .047, SRMR_{between} = .098). All standardized factor loadings ranged from .52 to .99 on the between-person level ($p < .001$) and from .62 to .89 on the within-person level ($p < .001$). The pattern of significance and number of dimensions was similar across levels of analysis. In addition, constraining the factor loadings to be equal did not change model fit ($\Delta\chi^2(13) = 18.66$, $p = .134$). In other words, the factor loadings are equivalent across levels of analysis. These findings indicate that the variables are conceptually similar across levels. Hence, we proceed to test our hypotheses.

Mediation Hypotheses

We test the hypothesized mediations across the levels of analysis in a single model as opposed to different models for two reasons. First, merely estimating level-1 associations without specifying their level-2 counterparts may bias results and lead to faulty interpretations (Antonakis et al., 2021; King & Roberts, 2015). Second, testing indirect effects in a piecemeal fashion biases results, because this approach does not estimate all parameters of interest simultaneously (Preacher et al., 2007; see Table 2).

Table 1

Means, Standard Deviations, Intercorrelations, Intraclass Coefficients, and Reliabilities of the Study Variables

	M	SD	ICC	1.	2.	3.	4.	5.	6.
1. Designing fun	4.09	1.23	62.9%	.97(.79)	.71**	.37**	.44**	.37**	.56**
2. Designing competition	3.88	1.99	69.2%	.68**	.91(.70)	.29**	.35**	.41**	.56**
3. Satisfaction of the need for autonomy	5.48	1.04	41.3%	.36**	.28**	.90(.73)	.50**	.75**	.72**
4. Satisfaction of the need for relatedness	4.76	1.26	47.4%	.43**	.32**	.43**	.86(.71)	.48**	.54**
5. Satisfaction of the need for competence	5.32	.96	38.2%	.39**	.38**	.66**	.47**	.93(.82)	.72**
6. Work engagement	4.77	1.10	46.7%	.52**	.52**	.68**	.51**	.69**	.95(.92)

Note. * $p < .05$; ** $p < .01$; ICC = Intraclass coefficient. The coefficients on the diagonal without brackets represent between-person

reliabilities, whereas the coefficients between brackets represent within-person reliabilities. Correlations above the diagonal are

based on between-person averages ($N = 162$), whereas correlations below the diagonal are based on daily observations ($n = 603$).

Table 3 presents the indirect associations between PWD and work engagement via need satisfaction. We expected that on days when employees (H1a) design fun and (H1b) design competition, they feel more engaged because of satisfaction of the need for autonomy. As predicted, daily designing fun ($ab = .06, SE = .02, p < .05$) was indirectly related to daily work engagement via daily autonomy satisfaction, whereas the association for daily designing competition was not significant ($ab = .08, SE = .04, p = .054$). Hypothesis 2 states that daily designing fun is indirectly associated with daily work engagement through daily relatedness experiences. Unexpectedly, on days when employees designed fun, they did not feel more engaged because they satisfied their need for relatedness ($ab = .04, SE = .03, p = .144$). Finally, we hypothesized that daily designing competition would promote daily work engagement through daily competence satisfaction (Hypothesis 3). Indeed, the proposed indirect effect of daily designing competition was significant ($ab = .08, SE = .04, p < .05$). In further support of the hypothesized indirect effects, the proposed mediation model showed a more accurate fit to the data than the direct effects model that omits the associations between PWD and need satisfaction ($\Delta\chi^2(12) = 96.01, p < .001$). Taken together, the results provide partial support for the proposed intra- and interindividual process model.

Playful Work Design From Day-to-Day

To investigate the day-to-day dynamics of PWD, we explored the lagged associations of PWD. We regressed need satisfaction and work engagement on designing fun and designing competition of the previous day. The lagged effects were neither associated with need satisfaction nor work engagement. Specifically, designing fun ($b^* = -.06, SE = .07, p = .431$) and designing competition ($b^* = .04, SE = .09, p = .695$) were not related to autonomy satisfaction on the next day; designing fun ($b^* = .12, SE = .09, p = .183$) and designing competition ($b^* = .02, SE = .08, p = .777$) were not associated with next-day relatedness satisfaction; and, designing fun ($b^* = .05, SE = .07, p = .486$) and designing competition ($b^* = .06, SE = .08, p = .399$) were not

Table 2
Standardized Estimated Effects for the Indirect Effects Model

Level 2	Designing fun (X)		Designing competition (X)		Autonomy satisfaction (M)		Relatedness satisfaction (M)		Competence satisfaction (M)		Work engagement (Y)			
	b*	SE	b*	SE	b*	SE	b*	SE	b*	SE	b*	SE		
Designing fun (Y ₀₁)					.32**	.12					.17	.11	.13	.07
Designing competition (Y ₀₂)					.06	.13			.38**	.12	.29*	.12	.22**	.06
Satisfaction of the need for autonomy (Y ₀₃)									.08	.12			.35**	.07
Satisfaction of the need for relatedness (Y ₀₄)													.11*	.05
Satisfaction of the need for competence (Y ₀₅)													.27**	.07
Between-person variance explained (R ₂ ²)					.14**	.05	.19**	.06	.18**	.06	.69**	.05		
<i>Level 1</i>														
Designing fun (Y ₁₀)					.20**	.08			.38**	.10	.30**	.09	.15	.08
Designing competition (Y ₂₀)					.22**	.08			.01	.10	.23**	.09	.21**	.08
Satisfaction of the need for autonomy (Y ₃₀)													.30**	.08
Satisfaction of the need for relatedness (Y ₄₀)													.10	.07
Satisfaction of the need for competence (Y ₅₀)													.29**	.07
Lagged designing fun (Y ₆₀)	-.18*	.08			.06	.07			.12	.09	.05	.07	.04	.07
Lagged designing competition (Y ₇₀)													.11	.07
Lagged autonomy satisfaction (Y ₈₀)	-.10	.09							.02	.08	.06	.08	.14*	.07
Lagged relatedness satisfaction (Y ₉₀)	.04	.08											.06	.05
Lagged competence satisfaction (Y ₁₀₀)	.06	.10											-.01	.08
Lagged work engagement (Y ₁₁₀)	.20	.14											-.16*	.07
Within-person variance explained (R ₁ ²)	.04	.03	.02	.02	.18**	.05	.18*	.08	.19**	.07	.49**	.05		

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

Table 3
Unstandardized Estimated Indirect Effects of Designing Fun and Designing Competition on Work Engagement Through Need Satisfaction

<i>Predictor</i>	<i>Mediator</i>	Indirect effect					
		General			Daily		
		<i>ab</i>	<i>SE</i>	<i>95% CI</i>	<i>ab</i>	<i>SE</i>	<i>95% CI</i>
Designing fun	Autonomy	.10*	.04	.01, .18	.06**	.03	.01, .11
	Relatedness	.04	.02	-.01, .08	.04	.03	-.01, .09
	Competence	.04	.03	-.02, .09	.09**	.03	.02, .15
Designing competition	Autonomy	.02	.04	-.06, .09	.08	.04	-.01, .15
	Relatedness	.01	.01	-.01, .03	.01	.01	-.02, .02
	Competence	.06*	.03	.01, .12	.08*	.03	.01, .16

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

associated with competence satisfaction on the next day. Finally, designing fun ($b^* = .04$, $SE = .07$, $p = .588$) and designing competition ($b^* = .11$, $SE = .07$, $p = .129$) were also unrelated to next-day work engagement. Thus, in support of Hypothesis 4, the findings suggest that the effects of daily designing fun and daily designing competition only occur during the same time interval.

Path Coefficients Across Levels

Hypothesis 5 proposes that the coefficients of the mediation model show (a) configural and (b) metric similarity. In partial support of Hypothesis 5a, nine out of eleven (81.81%) associations showed the same level of significance across levels (i.e., configural equivalence; see Table 2). Two associations differed in terms of their significance when we compared between- with within-person differences. The association between designing competition and the need for autonomy was significant on the within-person level ($b^* = .22$, $SE = .08$, $p < .01$), but was nonsignificant on the between-person level ($b^* = .06$, $SE = .13$, $p = .637$). In addition, on days when employees designed fun, they felt more competent ($b^* = .38$, $SE = .10$, $p < .01$); however, at the general level, results showed that employees who are generally inclined to design fun during work do not feel more competent in general ($b^* = .17$, $SE = .11$, $p = .130$). Next, we examined the metric invariance of the configurally similar coefficients by constraining their magnitudes to be equal across the levels of analysis. In support of metric invariance (H5b), the addition of the constraints did not change model fit ($\Delta\chi^2(9) = 3.97$, $p = .913$). In other words, these between-person coefficients are equivalent to their within-person counterparts.

Additional Analyses

Since designing fun and designing competition represent dimensions of a latent construct (i.e., playful work design), the interrelation may influence results. Hence, to examine the effect of the interdependence between designing fun and designing competition, we included their interaction on the between- and within-

person level of analysis (Table 4). While none of the interaction effects reached significance on the within-person level, the between-person interactions between designing fun and designing competition related positively to overall autonomy ($b^* = .24, SE = .06, p < .001$) and competence satisfaction ($b^* = .18, SE = .06, p < .01$), and work engagement ($b^* = .11, SE = .04, p < .01$) but not to the satisfaction of the need for relatedness ($b^* = .04, SE = .09, p = .509$). To probe the conditional effects, we calculated the slopes of designing fun at lower ($-1SD$ from the mean) and higher ($+SD$ from the mean) values of designing competition. The pattern of the slopes of all three significant interactions reveals that the combined overall use of PWD strategies has synergetic effects (Figure 2). Namely, while the association between designing fun and autonomy satisfaction is amplified when designing competition is higher ($+1SD: b = .42, SE = .09, p < .001$), the relation disappears when designing competition is lower ($-1SD: b = .13, SE = .09, p = .146$). A similar pattern was found for competence satisfaction ($+1SD: b = .23, SE = .08, p < .01$; $-1SD: b = .04, SE = .08, p = .644$) and work engagement ($+1SD: b = .20, SE = .07, p < .01$; $-1SD: b = .06, SE = .06, p = .296$). Finally, conditional indirect effect analyses revealed that the effects of the interaction term on need satisfaction extent to work engagement (see Table 5). The results suggest that while the effects of designing fun and designing competition operate relatively independently across situations (within-person), they amplify each other's effects on the between-person level. Employees who have the tendency to alternate between and/or combine designing fun and designing competition during the week experience higher levels of work engagement than employees who have the tendency to only utilize a single PWD strategy throughout the week.

Discussion

Using SDT (Deci & Ryan, 2000; Deci et al., 2017), we developed and tested a multilevel process model that sheds light on the underlying mechanisms that explain why PWD and work engagement coincide. We predicted and found that when employees design fun and design competition, they feel energized, dedicated, and

Table 4
Standardized Estimated Effects for the Conditional Indirect Effects Model

	Desiging fun (X)		Desiging competition (X)		Autonomy satisfaction (M)		Relatedness satisfaction (M)		Competence satisfaction (M)		Work engagement (Y)	
	b*	SE	b*	SE	b*	SE	b*	SE	b*	SE	b*	SE
<i>Level 2</i>												
Desiging fun (Y ₀₁)												
Desiging competition (Y ₀₂)			.36**	.11	.39**	.12	.20	.11	.15*	.07		
Satisfaction of the need for autonomy (Y ₀₃)			.05	.09	.08	.12	.28**	.06	.21**	.06		
Satisfaction of the need for relatedness (Y ₀₄)											.12*	.05
Satisfaction of the need for competence (Y ₀₅)											.26**	.06
Desiging fun × desiging competition (Y ₀₆)					.24**	.04	.06	.08	.18**	.06	.11**	.04
Between-person variance explained (R ₂ ²)					.19**	.05	.20**	.06	.21**	.05	.71**	.05
<i>Level 1</i>												
Desiging fun (Y ₁₀)												
Desiging competition (Y ₂₀)			.20**	.08	.38**	.10	.28**	.09	.17*	.08		
Satisfaction of the need for autonomy (Y ₃₀)			.22**	.09	.02	.10	.24**	.09	.19*	.08		
Satisfaction of the need for relatedness (Y ₄₀)											.10	.07
Satisfaction of the need for competence (Y ₅₀)											.30**	.07
Lagged desiging fun (Y ₆₀)	-.18*	.08					.12	.09	.06	.07	.03	.07
Lagged desiging competition (Y ₇₀)				.09			.02	.08	.06	.08	.11	.07
Lagged autonomy satisfaction (Y ₈₀)	-.10	.09		.07							.14*	.07
Lagged relatedness satisfaction (Y ₉₀)	.04	.08		.08							.05	.05
Lagged competence satisfaction (Y ₁₀₀)	.06	.10		.09							-.30**	.08
Lagged work engagement (Y ₁₁₀)	.20	.14		.12							.16	.11
Desiging fun × desiging competition (Y ₁₂₀)											-.15*	.07
Within-person variance explained (R ₂ ²)			.04	.03	.02	.02	.18**	.07	.19**	.06	.50**	.06

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

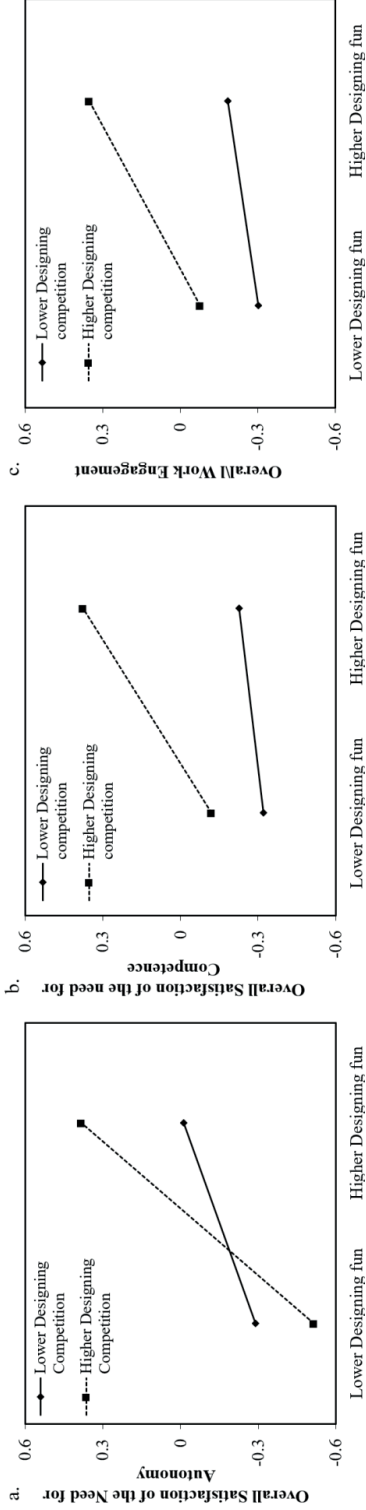
Table 5
Unstandardized Estimated Conditional Indirect Effects of Designing Fun and Designing Competition on Work Engagement Through Need Satisfaction

<i>Predictor</i>	<i>Designing Competition</i>	<i>Mediator</i>	Conditional Indirect effect					
			General			Daily		
			<i>work engagement</i>	<i>SE</i>	<i>95% CI</i>	<i>work engagement</i>	<i>SE</i>	<i>95% CI</i>
Designing Fun	-1SD	Autonomy	-.05	.05	-.15, .06	.06	.03	-.01, .12
	+1SD		.24**	.05	.14, .35	.06	.03	-.01, .11
	-1SD	Relatedness	-.01	.07	-.14, .13	.05	.03	-.01, .11
	+1SD		.08	.07	-.05, .21	.02	.03	-.04, .08
	-1SD	Competence	-.05	.04	-.14, .03	.13**	.03	.07, .19
	+1SD		.14**	.04	.07, .21	.03	.05	-.07, .13

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

Figure 2

Interactions Between General Tendency of Designing Fun, Designing Competition and the Satisfaction of the Need for Autonomy (a), Competence (b), and Work Engagement (c)



absorbed, because they experience agency, belongingness, and competency. As hypothesized, the results revealed that the associations of PWD only occurred during the same time interval, which suggests that the effects of PWD are immediate and momentary as opposed to delayed. Finally, the process was largely equivalent across levels. However, the synergy between the use of designing fun and designing competition was only present when we considered differences between individuals. These findings provide an intricate account of the similarities and discrepancies between daily PWD (within-person differences) and overall PWD (between-person differences).

Theoretical Implications

The present research offers four central contributions to the literature on SDT and PWD. First, despite the name of *Self-Determination Theory* (Deci & Ryan, 2000; Deci et al., 2017), research utilizing SDT has predominantly investigated how the *provision* of certain job conditions satisfies employees' basic needs (van den Broeck et al., 2016). These studies inform us that when organizations provide employees with, for instance, opportunities to make decisions, access to social support, and feedback, employees feel more motivated because these conditions satisfy their basic needs. However, they do not reveal how employees *self-determine* the satisfaction of the needs for autonomy, relatedness, and competence (Bakker & van Woerkom, 2017). By stressing the role of the employee, our study crucially complements existing research that has mainly examined how a supportive environment promotes basic need satisfaction. The present study reveals that employees may proactively satisfy their needs by using PWD. Thus, to self-determine the experience of agency, belongingness, and competence, employees may design fun and design competition during work activities.

Second, our findings advance our understanding of how and why PWD relates to work engagement. While previous research revealed that more frequent use of PWD tends to correspond to higher work engagement, the possible underlying mechanisms

were unclear. The present study is the first to explore *why* work engagement accompanies PWD (see Bakker, Hetland et al., 2020; Bakker, Scharp et al., 2020; Scharp et al., 2019; Scharp et al., 2021; Bakker & van Wingerden, 2021). Employees felt more autonomous, connected, and competent when they integrated humor and fantasy (designing fun), and goals and rules (designing competition) with their activities, which partially translated into higher work engagement. Moreover, the present study predicted and found differences in how designing fun and designing competition relate to work engagement through satisfying needs (see Table 2 and Table 3). These results are important because they help explain previous findings and may guide future research with theorizing about PWD. For instance, in a daily diary study, findings revealed that on days when employees designed fun and designed competition, they limited the negative consequences of hindrances that limit opportunities to feel connected and competent, respectively (Scharp et al., 2021). The present findings suggest designing fun and designing competition limited the associated consequences of these hindrances by fostering relatedness and competence experiences.

Third, the present study contributes to play theory by investigating the day-to-day dynamics of play. While various scholars proposed that play represents a phenomenon that is short-term and transient in nature, studies that investigated the temporal nature of play empirically are scarce. Indeed, after an integrative review, Petelczyc et al. (2018) concluded that “little is known about the influence of time in determining the consequences of play” (p. 180). The present findings converge with the theoretical propositions of play scholars that argued that play is enacted and “played out” within certain limits in time and space (Huizinga, 1949; Mainemelis & Ronson, 2006). We found that the associations of PWD with basic need satisfaction and work engagement only occurred during the same time interval but did not predict these experiences on the next day. In other words, daily PWD appears to foster short-term changes in employees’ well-being and motivation, which dissipate over time. Since the findings suggest PWD predominantly fosters changes in well-being *while*

PWD is enacted, PWD may particularly serve as a strategy to raise momentary motivation and deal with immediate need thwarting. Nonetheless, the present findings do not rule out the possibility of delayed long-term effects on other variables such as task knowledge. Future research may examine such patterns over time by employing richer datasets in terms of average cluster size (i.e. average observations per individual), and conducting growth curve modeling.

Fourth, our study answers calls for multilevel research on play (Petelczyc et al., 2018), basic need satisfaction (Brown & Ryan, 2007), and work engagement (Xanthopoulou & Bakker, 2020). Most research implicitly assumes that constructs and their consequences are isomorphic (i.e., have equivalent meaning across levels; Chen et al., 2005). However, daily (within-person) constructs may differ substantially from their general (between-person) counterparts in meaning and nomological net (Ohly et al., 2010). The present study revealed that the proposed mechanism (i.e., basic need satisfaction) between PWD and work engagement accounted for intra- and interindividual variability in a largely equivalent fashion across levels of analysis. The findings add to the parsimony of theory regarding the direct effects that constitute the processes across the levels of analysis, whereas they highlight an important difference between the two levels of analysis regarding the multiplicative effects of the two dimensions. This synergy only manifested at the between-person level. Thus, on days when individuals design fun and/or design competition, individuals feel more engaged than on days they show relatively less designing fun and designing competition behaviors; the effects are additive and relatively independent. However, individuals who oscillate between, or combine, designing fun and designing competition throughout the week feel more autonomous, competent, and engaged than individuals who rely on either designing fun or designing competition. These differences might be considered in light of the example described in the introduction: "For instance, while aiming to outperform yourself might spark excitement, doing this every day might become mundane".

The multilevel model advances our knowledge on PWD by revealing a few discrepancies between situations (days) and individuals (general). The associations between (1) designing fun and competence experiences, (2) designing competition and autonomy experiences, and (3) relatedness experiences and work engagement, were not isomorphic. First, when we compared differences between situations, designing fun related positively to competence experiences (within-person). Contrastingly, when we compared differences between individuals, designing fun was not related to feeling competent (between-person level). Possibly, using humor and fantasy generated positive feedback, which stimulated competence experiences (Mesmer-Magnus et al., 2012); however, individuals may only feel more competent compared to others when they actually develop skills and conquer challenges. Second, while daily designing competition was positively associated with daily volition experiences, general designing competition did not relate to autonomy experiences in general. It is possible that designing competition is enacted for different reasons across levels. SDT suggests general designing competition may represent a form of extrinsically motivated behavior that is internalized, because employees deem the behavior important for self-worth (Deci & Ryan, 2000). Consistently designing competition may reflect a strategy to cope with chronic, high levels of job demands. In this respect, designing competition is done for instrumental reasons and becomes a necessity to maintain performance as opposed to behavior done for the sake of challenge, which would undermine the experience of volition. Indeed, the overall use of designing competition was related to the satisfaction of autonomy when it was used in combination with designing fun, which may reflect a more lighthearted attitude to the self-imposed challenges. Finally, designing fun was not indirectly related to work engagement through relatedness on the between- and within-person level of analysis. This converges with previous propositions that the sense of belongingness plays a relatively distal role in fostering intrinsic motivation compared to volition and competence experiences (Deci & Ryan, 2000). The findings underscore the value of

utilizing a multilevel approach when investigating PWD, need satisfaction, and work engagement.

Strengths, Limitations, and Avenues for Future Research

While the multilevel process model offers an intricate account of the association between PWD and work engagement, several limitations should be acknowledged. First, we measured our focal variables at the same time using self-reports with the same scale anchors, which may raise concerns in terms of common method bias and limits inferences regarding causality (Podsakoff et al., 2003). However, since the variables of our study mainly concern private experiences, self-report measures are more appropriate than other types of measures such as ratings by others (Conway & Lance, 2010). Namely, a third party may have a hard time rating how autonomous or connected an individual feels during a certain workday. Moreover, Beal (2015) argued that alternating scale anchors between measures in daily diary surveys may increase participant burden. We did try to limit method effects in several ways. Namely, we used validated measures and provided evidence for the construct validity of the variables in terms of high reliability coefficients and appropriate factor structures (Conway & Lance, 2010). Additionally, by person-mean centering the within-person variables, we partially corrected for common sources of method bias such as consistency motives, leniency bias, and acquiescence bias (Beal, 2015; Podsakoff et al., 2003). Finally, we included the lagged associations between variables, which removes the possibility that transient states biased the within-person relationships (Gabriel et al., 2019). Future research may further alleviate common method bias by temporally separating measures and collecting other-source data (Beal, 2015). For instance, future research may investigate to what extent PWD manifests in observable (other-rated) work engagement.

Second, while we predicted and found that PWD fluctuates in harmony with need satisfaction and work engagement across days, the present study was unable to demonstrate causal relations. To help disentangle the causal relations between the

focal variables, future research may utilize an experimental design and assign participants to three conditions, providing them with training in the use of (1) designing fun, (2) designing competition, or (3) an unassociated strategy. Subsequently, all three groups should perform a set of tasks that vary in terms of their latitude, interpersonal characteristics, and contextual features. This set-up may reveal how designing fun and designing competition strategies cause experiences of autonomy, relatedness, and competence independent of work characteristics. In a similar vein, micro interventions with repeated, daily measurements might be a promising avenue for future research. For instance, research may strengthen causal inferences regarding the associations between PWD, need satisfaction, and work engagement by comparing a group that receives daily reminders or “nudges” to playfully design work activities with a control group that receives no nudges (Weintraub et al., 2021). Moreover, such research designs also partially alleviate concerns regarding common method bias.

Although basic need satisfaction fully explained the association between designing fun and work engagement, designing competition was also *directly* related to work engagement — equivalently across levels. These associations suggest the presence of another mechanism. Designing competition refers to the process of cognitively and behaviorally restructuring activities using agonistic play elements such as goals and rules (Scharp et al., 2019). Through restructuring an activity, employees may reduce the informational quantity and complexity of the activity and thereby promote effort and immersion (Locke & Latham, 2019; Rheinberg & Engeser, 2018). For instance, striving to beat the clock during an activity or segmenting an activity into several “levels”, provides a form of structure that enables employees to allocate their cognitive resources to the task at hand — enabling employees to channel their energies and attention. Preliminary support for this proposition comes from daily diary research that shows when activities lack structure or goals such as when there is little work to do, employees may still create engagement and promote performance by

designing competition (Scharp et al., 2021; Bakker, Hetland et al., 2020). This proposition warrants further scrutiny.

In a daily diary study, Scharp et al. (2021) showed on days when employees designed fun and designed competition, they limited the negative consequences of conditions that impede the satisfaction of the needs for relatedness and competence, respectively. The present findings explain these results by revealing that designing fun and designing competition promote relatedness and competence experiences. Taken together, our research suggests employees may also initiate PWD to deal with conditions that increase feelings of heteronomy (i.e., sense of being controlled). In other words, on days when work impedes the satisfaction of the need for autonomy, employees may protect their sense of volition by designing fun and designing competition. However, the present findings suggest that when we compare individuals (between-person level), designing fun may represent a more effective strategy to protect the experience of volition and self-direction than designing competition. Therefore, future research may investigate how PWD interacts with conditions that increase a sense of heteronomy.

Finally, the present study investigated PWD, i.e., a bottom-up approach to use play to redesign work activities. Future research may investigate how PWD is influenced by top-down play initiatives (e.g., gamification, playful leadership) that aim to integrate play with work. Top-down initiatives that aim to harness the power of play such as gamification (i.e., integrating game elements with non-game contexts; Deterding et al., 2011) differ from PWD in terms of the agent of change and how they achieve change. PWD is self-initiated and describes employees promoting change by approaching and performing their work in a playful fashion, whereas top-down play initiatives are introduced by others and generally promote change by modifying the work environment. For instance, organizations may gamify human resource systems (Silic et al., 2020) or introduce playful cues during meetings (West et al., 2016). Since intrinsic motivation is a core component of play, we predict that the perceived authenticity of these initiatives determines to what extent they will amplify or

undermine the motivational potential of PWD. Specifically, top-down play initiatives may especially be effective when they are considered genuine and involve voluntary participation, whereas initiatives that are considered to be unauthentic and exploitive may undermine PWD and instead foster cynicism (Fleming, 2005).

Practical Implications

The present findings suggest employees may proactively satisfy their basic needs and cultivate work engagement by playfully designing work activities. Although organizations may facilitate this process by implementing interventions that teach employees to identify and act on play opportunities during work, it is important to note that PWD is a complementary technique to enhance well-being. Therefore, top-down job design initiatives remain an essential approach to fostering need satisfaction and work engagement. Moreover, when organizations sanction play, they may undermine the potential benefits of PWD (Fleming, 2005). Indeed, play theory suggests that intrinsic motivation represents a fundamental component of play (Huizinga, 1949; Mainemelis & Ronson, 2006). Hence, organizations should foster PWD complementary to top-down initiatives to optimize job conditions and participation in PWD courses or workshops should be voluntary.

Interventions that aim to facilitate the use of PWD may focus on creating knowledge and awareness of PWD to develop their "skill" in playfully designing work in several ways. First, interventions may include lectures or reading material about PWD. Exposure to such lectures and material may help participants recognize and act on potential play opportunities during work. Second, participants should have the opportunity to exchange past PWD experiences. By exchanging past experiences, participants reflect on their own experiences and learn from others' examples. Third, to consolidate the newly learned knowledge, interventions should provide PWD exercises such as identifying and mapping work activities that thwart or nurture basic needs and developing PWD strategies accordingly. For instance, research suggests that employees may especially benefit from specific forms of PWD during certain

circumstances (Scharp et al., 2021). Finally, participants may formulate specific goals regarding when, where, and how to implement PWD. Formulating such plans may increase the probability of moving from theory to practice.

Conclusion

The present study provides an analysis of how playful work design promotes work engagement and underscores the multilevel nature of this process. We expanded SDT by arguing and finding that designing fun and designing competition relate to work engagement through satisfying the need for autonomy, relatedness, and competence. In addition, we revealed how this mechanism differs for designing fun and designing competition, and between individuals and across days. These findings suggest that employees may proactively satisfy their needs and foster work engagement through playful work design. In other words, when employees play during work, they may “self-determine” their functioning and well-being.



Chapter 7

General Discussion

GENERAL DISCUSSION

Play is a phenomenon known by all. Yet, knowledge regarding its manifestation, consequences, and boundary conditions during work activities is limited. Research on play in the occupational domain is gaining momentum, but issues regarding its measurement, mechanisms, and organizational implications remain unresolved. The nascent literature on play at work has mainly relied on qualitative accounts (Celestine & Yeo, 2021), non-contextualized measures of playfulness, and cross-sectional studies to examine differences between individuals (Petelczyc et al., 2018). Consequently, the field has struggled to synthesize knowledge, and provide insight into the inter- and intraindividual processes associated with play at work.

The chapters included in this dissertation aimed to complement and expand existing research on play at work and proactivity by synthesizing their core tenets (Celestine & Yeo, 2021; Parker et al., 2006; Petelczyc et al., 2018; see **Chapter 3** for an overview). I developed (1) a novel understanding of what play during work activities may entail, i.e., playful work design (PWD); (2) instruments to measure PWD across levels of analysis; (3) knowledge regarding how inter- and intraindividual differences in PWD relate to well-being and performance; and (4) insight regarding the individual and situational differences that attenuate the effectiveness of PWD in promoting well-being and performance.

By providing an in-depth examination of PWD, my dissertation contributes to the literature on play at work and individual work design strategies in several ways. First, by developing a nuanced, two-dimensional conceptualization and measurement instrument of general and daily PWD, this dissertation sets the stage for systematic research on different forms of proactive play by employees in organizations across levels of analysis. Second, we provide preliminary insights regarding the nomological net of PWD, which offers a more refined understanding of play at work. Indeed, the findings included in this dissertation refute traditional,

negative conceptions of play at work. Finally, by considering for whom and when PWD works is most beneficial, I provide insight into the contextualized value of PWD as well as its limitations.

INTRODUCING PLAYFUL WORK DESIGN

Conceptualizing Playful Work Design

The first aim of this dissertation was to develop a conceptualization and measurement instrument of PWD. Predominantly, scholars have considered play as a quality of an individual or the situation focused on fun (Celestine & Yeo, 2021; Day & Murray, 1978; Petelczyc et al., 2018). In contrast, the conceptualization of PWD presented in **Chapter 2** expands the one-dimensional view of play by including agonistic play, i.e., play focused on deriving challenge. Specifically, I built on the duality often found in play research (Huizinga, 1949; Kolb and Kolb, 2010) to define PWD as a proactive cognitive-behavioral orientation aimed at (a) designing fun and (b) designing competition during work activities. The two-dimensional view has important implications for developing knowledge regarding play during work activities because the antecedents, consequences, and boundary conditions of ludic play and agonistic play may vary vastly (see **Chapter 2, 4, 5, and 6**).

In addition, the conceptualization of PWD built on the core qualities of play I derived from a narrative review of the literature on play presented in **Chapter 2**. This narrative review synthesized knowledge from various streams of research on play (i.e., play-as-personality, play-as-activity, and play-as-orientation), which provides a framework for interpreting findings of play research in general. My review of the play literature indicated that play comprises five fundamental interdependent components: (1) cognitive recategorization of work activities as opportunities for play, (2) a process-orientation described by a momentary focus on the behavior or activity, (3) a sense of freedom and volition, (4) interactive involvement in terms of seeking, finding, and resolving surprises and complexities, and (5) focused on deriving autotelic states, i.e., fun and optimal challenge. Play at work where any of

these components are absent will most likely yield fewer benefits and more negative consequences than initiatives where they prevail in unison (cf. Fleming, 2005).

Furthermore, I conceptualized PWD as play-as-engagement with work activities as opposed to proactive play-as-diversion during work activities (Mainemelis & Ronson, 2006). Hence, PWD focuses on how employees proactively impose the core experiential qualities associated with play onto work activities. Play as diversion differs from PWD in where resources are allocated. For instance, play as diversion from work activities may include fantasizing about fun scenarios during a meeting with a client or playing a video game at work. While play as diversion enables employees to recuperate; peers or supervisors may evaluate such behavior negatively. The distinction between these two forms of play was crucial to the conceptualization of PWD. Namely, individuals who dislike non-seriousness during work (e.g., protestant work ethic) may consider play-as-diversion to be counterproductive work behavior (i.e., misuse of time and resources; Gruys & Sacket, 2003). In other words, this explicit differentiation represents an essential explanation for why PWD mainly relates to positive evaluations.

Finally, the conceptualization of PWD contributes to research on proactive behaviors (Parker et al., 2010). While research on proactive behaviors has flourished in the past decade (Lichtenhaler & Fischbach, 2019; Rudolph et al., 2017), how individuals proactively change the momentary experience of existing work activities remains uncharted territory. Predominantly, the existing literature has studied initiatives by employees aimed at improving the internal organization environment (i.e., proactive work behavior; e.g., problem prevention; voice), the fit of the organization with the external environment (i.e., proactive strategic behavior; e.g., issue selling), and the fit of the self with the environment (i.e., proactive person-environment fit behavior; e.g., career initiative, job crafting; Parker et al., 2010; Tims & Bakker, 2010). In particular, the latter category witnessed a steep rise in studies that revealed how individuals could achieve a greater fit with by changing the environment (Tims et al., 2012; Wrzesniewski & Dutton, 2001). However, little is

known regarding how individuals can achieve a greater fit with work activities and promote engagement without changing role. Therefore, PWD complements existing research on employee proactivity by focusing on how self-initiated changes in approaching and performing work activities promote well-being and performance. PWD is a unique proactive strategy that is nested in activities.

Developing the Measurement of Playful Work Design

The lack of contextualized measures of play is a critical omission in the current literature on play at work that hampers the field. Currently, most organizational researchers have used instruments that measure playfulness as a personal quality unrelated to work (Petelczyc et al., 2018). While these studies evidence that playfulness as a trait relates to various beneficial outcomes, they limit our understanding of the manifestation of play at work and obscure the intraindividual processes that coincide with play. To address these issues, I first developed and validated a two-dimensional instrument that measures PWD in three studies ($N = 1213$ observations) presented in **Chapter 2**. The findings provide evidence for the instrument's psychometric quality, construct validity, and predictive validity. Indeed, PWD correlated with measures indicative of proactivity, play, and approach-oriented tendencies but diverged from constructs that reflect an avoidance-orientation. The development of the instrument crucially contributes to the literature by setting the stage for systematic research on play during work activities.

While play during activities may differ between individuals, even the most playful individuals may fluctuate in their use of PWD across situations. Hence, in **Chapter 4**, I construed the daily measurement of PWD ($N = 88$ individuals, $n = 391$ days). The findings showed the instrument is psychometrically sound and further supported the two-dimensional nature of the PWD instrument. Notably, the results revealed that differences *within* individuals in PWD represent meaningful variation. **Chapter 5** and **Chapter 6** corroborated this finding. Given the exclusive between-person focus of the literature on play at work (Celestine & Yeo, 2021; Petelczyc et al.,

2018), our results stress that a within-person approach to studying play at work is imperative. The daily measurement of PWD enables research on the intraindividual processes that stimulate work engagement and performance behaviors.

Differentiating Playful Work Design from Related Constructs

By building on the conceptualization and measurement of PWD, I delineated how PWD differs from related constructs in **Chapter 2**. First, PWD differed from other play initiatives such as fun activities at work and gamification in the agent of change. The latter initiatives are introduced by the organization and consider employees as recipients (Deterding et al., 2011; Michel et al., 2019; Tews et al., 2014). Contrastingly, PWD positions employees as the active designers of their experience of work activities. Second, PWD differs from other proactive concepts such as personal initiative and job crafting in temporality, focus, and change mechanism. While personal initiative has a long-term orientation focused on solving problems consistent with the mission of the organization (Frese et al., 1997), PWD has a momentary focus on creating autotelic experiences independent of the organization's mission. Finally, while job crafting and PWD converge in their aim to optimize person-job fit, they differ in their change mechanism. Job crafting fosters change by expanding or contracting the job's boundaries (Bindl et al., 2019; Tims et al., 2012; Wrzesniewski & Dutton, 2001; Zhang & Parker, 2019), whereas employees enact PWD within existing work activities. Job crafting may concern actively seeking (or avoiding) tasks and people, whereas PWD would refer to approaching and performing existing tasks or meetings with people playfully. Indeed, the studies presented in **Chapter 2** indicated overlap between PWD and related constructs is limited, confirmatory analyses revealed PWD is distinct from job crafting, and PWD had predictive power beyond fun activities, personal initiative, and job crafting. Similarly, in a diary study, Bakker, Hetland et al. (2020) showed that differences between days in PWD as well as job crafting both uniquely predict ratings by supervisors of in-role job performance. The differentiation of PWD from related

constructs is an important contribution of this dissertation because this ensures that researchers do not waste resources on old wine in new bottles.

WHO PLAYS DURING WORK ACTIVITIES AND WHEN?

The antecedents of play at work are rarely studied and poorly understood (Celestine & Yeo, 2021). To address this, I built on the play-as-personality and play-as-activity literatures in **Chapter 2** (e.g., Caillois, 2001; Csikszentmihalyi, 1975; Day, 1981; Proyer, 2017). In three studies, I investigated how personal tendencies and situational characteristics related to PWD. Personal initiative, job crafting, situational characteristics, and traits such as openness, curiosity, and behavioral activation, correlated similarly to both dimensions of PWD. However, ludic traits (e.g., humor and playfulness) were more strongly related to designing fun, whereas agonistic traits (e.g., achievement striving and competitiveness) correlated more strongly with designing competition. These findings are indicative of the latent core of PWD, while also emphasizing that the dimensions of PWD are unique. However, considering the cross-sectional nature of the correlations presented in **Chapter 2**, future research may continue to develop knowledge about which traits and situations promote PWD.

THE PURPOSE OF PLAYFUL WORK DESIGN

The Benefits of Playful Work Design: In the Eye of the Beholder?

A pressing issue in the literature on play at work is the lack of research on *why* people play at work and how this may relate to performance behaviors. I adopted the perspective that individuals play to gain autotelic experiences - experiences worthwhile in their own right (Csikszentmihalyi, 1975; Dewey, 1913; Hamilton, 1984; Peterson & Seligman, 2004; Proyer et al., 2020; Singer, 1973; Mesmer-Magnus et al., 2012). In **Chapter 1**, I proposed that PWD enables employees to regulate their psychological resources and minimize resource consumption by proactively creating autotelic experiences. Moreover, I diverged from traditional negative contentions regarding play at work by highlighting that these processes may facilitate

performance. Indeed, **Chapter 2** revealed that employees who use PWD also score higher on self-ratings of work engagement two weeks later than their less playful counterparts. Moreover, their colleagues also evaluated them higher on work engagement, job effort, informal learning, and creative performance. These findings advance the field of play at work as they indicate that the benefits of PWD are appreciated beyond the perspective of the individual who initiated play during work activities. Refuting that PWD is discursive to work, the findings emphasize that PWD may contribute to organizational functioning.

The Intraindividual Processes Related to Playful Work Design

Thus far, the literature on play has only adopted cross-sectional designs to investigate between-person differences (Celestine & Yeo, 2021; Petelczyc et al., 2021), which has hampered the field from developing knowledge regarding intraindividual processes related to play at work. I addressed this gap in the literature in three daily diary studies presented in **Chapter 4**, **Chapter 5**, and **Chapter 6**; see **Chapter 3** for an overview). **Chapter 4** includes a daily diary study ($N = 88$, $n = 391$ days) that suggests that on days when employees design fun and competition, they are more creative because they experience more vigor, dedication, and absorption. Similarly, the daily diary study ($N = 202$, $n = 1133$) presented in **Chapter 5** indicates that daily fluctuations in PWD coincide with in-role and extra-role job performance due to higher work engagement. Finally, in **Chapter 6**, I used daily diary methodology ($N = 162$, $n = 603$) to investigate how PWD promotes work engagement across levels of analysis, which revealed that satisfaction of basic psychological needs is an important mediating mechanism (cf. Bakker, Breevaart et al., 2021). Taken together, I contribute to the literature on play by developing knowledge regarding *how* PWD promotes work engagement and performance behaviors.

THE BOUNDARY CONDITIONS OF 'EFFECTIVE' PLAYFUL WORK DESIGN

Interest in integrating play with work has witnessed a steep rise in recent years. In part, this interest has been propelled by the alleged benefits of play in terms of morale and productivity. Yet, we know little regarding the potential boundary conditions of the 'effective' play at work (Celestine & Yeo, 2021; Petelczyc et al., 2018). A common property of 'fads' concerns the promise of great results irrespective of complexities, limitations, and evidence (Miller et al., 2004). Therefore, it is vital for the literature on play at work to advance a nuanced understanding as opposed to presenting play at work as a 'cure for all'. I built on the tenets of Trait Activation Theory (TAT; Tett et al., 2013; 2021) and Conservation of Resources (COR) theory (Hobfoll, 1998) to elucidate for whom and when PWD works best.

Personal Boundary Conditions

TAT argues that traits reflect internal, latent propensities activated by trait-relevant information (Tett et al., 2013; 2021). In other words, traits represent a sensitivity to act upon certain environmental cues. TAT suggests that individuals prefer situations that enable trait expression (i.e., behavior) because this satisfies intrinsic needs. In **Chapter 4**, I built on this principle to argue that PWD particularly relates to work engagement when individuals possess traits indicative of a desire for play. Indeed, in the daily diary study described in **Chapter 4** ($N = 88$, $n = 391$), the daily association of designing fun and designing competition with work engagement was particularly strong for individuals who scored high in openness to experience and playfulness, respectively. Moreover, work engagement mediated the positive effects of the interactions on creative performance.

The findings advance the literature in two ways. First, the findings suggest that a fit between the employees' traits and play at work is an important consideration for future research and practitioners. Indeed, stimulating PWD for employees who lack openness to new experiences may have limited effects. By extension, top-down play initiatives may especially foster work engagement and productivity when they

tailor to employees' traits and needs. Second, we contribute to TAT by showing that individuals may proactively derive intrinsic satisfaction by acting according to their traits. Research on TAT has mainly investigated the interaction between traits and situations as opposed to behaviors (Tett et al., 2013; 2021). Testing how traits and behaviors interact to predict work engagement represents a direct test of one of the fundamental principles of TAT (i.e., trait expression promotes intrinsic motivation).

Situational Boundary Conditions

In addition to personal dispositions, the organizational context represents an important boundary condition determining when proactive strategies are most effective. A central proposition of COR theory is that resources are most effective when they match what is lost (De Jonge & Dormann, 2006; Hobfoll, 1998). For this purpose, I built on the dual perspective model of social cognition to differentiate two types of job hindrance demands in **Chapter 5**. First, agency hindrance job demands reflect task-oriented demands that limit opportunities for goal-achievement and task functioning (e.g., work monotony, task simplicity). Second, communion hindrance job demands represent relational-oriented demands that undermine relationships and social functioning (e.g., interpersonal conflict, social isolation). The daily diary study ($N = 202$, $n = 1133$) showed that on days when agency hindrance job demands were high, designing competition was able to buffer the indirect negative association with in-role and extra-role performance through work engagement. Designing fun fulfilled a similar role on days when communion hindrance job demands were high.

These findings contribute to the literature in two ways. First, the results further develop knowledge regarding the contextualized value of PWD and play at work. Moreover, they support the energy management perspective of play by Celestine and Yeo (2021). That is, PWD enabled employees to proactively regulate their energetic resources and minimize resource consumption when dealing with adverse circumstances. Second, the differentiation between agency and communion hindrance job demands contributes to the literature on job demands (Cavanaugh et

al., 2000; LePine et al., 2005), which may explain inconsistent findings regarding, as well as small correlations between, hindrance job demands and other constructs (Mazzola & Disselhorst, 2019).

Finally, in **Chapter 6**, I conducted exploratory analyses to investigate how designing fun and designing competition interact ($N = 162$, $n = 603$). The literature on play at work has mainly examined play from a unidimensional, ludic perspective (Petelczyc et al., 2018). This research approach constricts our understanding of the multiplicative effects of different play forms. Indeed, the results suggest that individuals who used both designing fun and designing competition throughout the week experienced more volition, competence, and work engagement than individuals who mainly relied on a single form of play. While this finding is derived from exploratory analyses, they suggest that the combined use of other forms of play bolsters the effectiveness of play initiatives. Indeed, gamification initiatives have been criticized for relying on points, badges, and leaderboards (Robertson, 2010). In light of the findings of **Chapter 6**, this resonates with a reliance on agonistic play elements without introducing ludic play elements.

Implications for Proactivity Research

The studies included in **Chapter 4**, **Chapter 5**, and **Chapter 6** also advance the field of proactivity in several ways. First, the finding that the daily relation between PWD and work engagement is stronger when individuals possess certain traits (**Chapter 4**) may suggest that individual differences also represent an important boundary condition of person-environment fit initiatives. To illustrate, individuals who have a dispositional resistance to change “devalue change generally, and [...] find change aversive across diverse contexts and types of change” (Oreg, 2003, p. 680). For these individuals, self-initiated change initiatives such as job crafting may undermine their vigor, enthusiasm, and absorption. Similarly, prevention-oriented job crafting tends to relate to dysfunctional outcomes (Lichtenthaler & Fischbach, 2016). However, individuals who prefer solitude (Burger, 1995) may benefit from

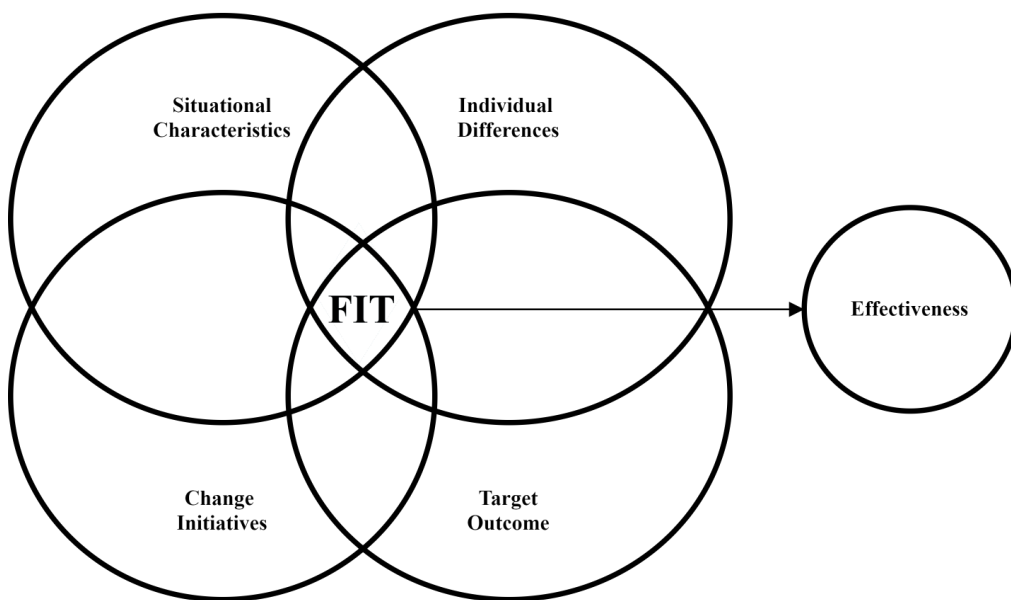
prevention-oriented relationship crafting, i.e., limiting interactions with others (Bindl et al., 2019). Hence, future research on proactive strategies may build on the tenets of TAT to develop novel insights.

Second, while job characteristics are generally considered to be antecedents or outcomes of proactivity research (Parker et al., 2010; Tims & Bakker, 2010), the daily diary presented in **Chapter 5** suggests job characteristics represent a moderator of proactive change initiatives as well. Based on this finding and COR theory (Hobfoll, 1998), future research may investigate situational characteristics as boundary conditions of the effectiveness of proactive behavior. For instance, when individuals increase their structural job resources, they develop their capabilities and professional skills (Tims et al., 2012). While this generally translates into higher job performance, increasing structural job resources may produce fewer benefits for jobs with relatively less knowledge characteristics. Hence, future research may investigate how the fit between the change initiative, individual, situation, and target outcome relates to effectiveness (see Figure 1).

Finally, the literature on proactive strategies rarely examines the multiplicative effects of initiatives. The synergistic effects of designing fun and designing competition on well-being presented in **Chapter 6** highlight that using multiple proactive strategies may bolster the benefits. For instance, when individuals take personal initiative, they aim to prevent the reoccurrence of problems in the future (Frese et al., 1998). This implies they need to reflect on future tasks and demands, which may require the expenditure of mental and physical energy. Hence, high-quality solutions resulting from personal initiative may depend on individuals' proactive vitality management (i.e., proactively managing one's physical and psychological energies; Op den Kamp et al., 2018). Hence, future research may investigate how proactive work strategies complement each other.

Figure 1

Proposed Effectiveness as Result of Fit Between Situational Characteristics, Individual Differences, Change Initiatives, and the Target Outcome



LOOKING FORWARD: LIMITATIONS AND RESEARCH IMPLICATIONS

The findings presented in this dissertation provide a foundation for several future research opportunities.

The Antecedents of Playful Work Design

The understanding of when and for whom playful work design arises is still rudimentary. Indeed, the studies included in **Chapter 2** indicate that differences between individuals in their tendencies and work environment relate to PWD. However, I propose that an intra-interindividual process more accurately captures the determinants of PWD. TAT suggests differences between individuals determine how individuals interpret environmental cues (Tett et al., 2013; 2021). To illustrate,

PWD implies creating, seeking, and finding opportunities for play during work activities. Hence, environmental cues may activate behavioral tendencies to play and give rise to PWD. I suggest two avenues for research. First, the findings presented in **Chapter 5** indicate that PWD enables employees to cope with job hindrance demands. Hence, when individuals who have experience with PWD encounter hindrances, the situation may activate their tendency to use PWD. Second, in addition to providing employees with autonomy and signaling that play is encouraged, future research may investigate specific cues that stimulate PWD. For instance, at the check-ins at airports, providing the average customer rating over the past 15 minutes may encourage employees to design fun and competition. The task feedback may help individuals find play opportunities.

The Dark Side of Playful Work Design

In **Chapter 2**, we investigated the association of PWD with self-rated overcommitment and perceived loafing by colleagues. However, none of these associations reached significance. This finding does not necessarily mean there are no negative consequences of PWD. Instead, the detrimental consequences of PWD may only occur under specific circumstances. Hence, I suggest future research to focus on boundary conditions such as the following. First, PWD may only promote excessive commitment for individuals who are workaholics or have an obsessive passion for their work. Second, negative evaluations of employees who use PWD might depend on the values of the rater. For instance, observers with a Protestant work ethic (i.e., value seriousness at work) may evaluate employees who use PWD as loafers in contrast to colleagues who value fun at work. Third, PWD reflects a strategy that fosters fun and challenge during an activity, which implies PWD represents an emotion-focused strategy instead of a problem-focused one. The extended use of a short-term emotion-focused strategy may obscure structural problems that necessitate a solution (Bakker & De Vries, 2020). For instance, individuals who 'always' design fun to cope with interpersonal conflict, emotional demands, and

social isolation may still develop burnout over time. Namely, by not tackling the issues, individuals repeatedly expose themselves to adverse circumstances, which may lead to the accumulation of exhaustion. Finally, there is a possibility that a curvilinear effect reflects the association between PWD and performance. Excessive PWD where the main focus becomes play instead of the task might divert resources from the work activity and may undermine performance.

Demonstrating Causality: Time for Experimentation

Since the studies presented in this dissertation consisted of survey studies, more research is needed on the causal ordering of PWD, work engagement, and performance. Hence, future research may adopt experimental designs to study the causal effects of PWD on work engagement and (objective) performance. For instance, future research may provide PWD training to the treatment group and let them subsequently perform the same tasks as the control group. While such an experimental approach limits the ecological validity of the findings, experiments enable the most robust causal inferences. Additionally, future research may conduct field experiments that include workshops, training, or coaching regarding PWD. Field experiments benefit from superior ecological validity compared to laboratory experiments.

Taking a Closer Look at Playful Work Design

In **Chapter 2**, I conducted a narrative review that resulted in two generic dimensions of play: Ludic and agonistic play. Future research may adopt qualitative methodologies such as interviews, case studies, and focus groups to develop a taxonomy of more specific clusters of play under the umbrella of ludic, agonistic, and ludic-agonistic play. The interviews may reveal novel information about the reasons and other antecedents that prompt PWD. Individuals may only use certain 'work hacks' during work activities with specific characteristics. For instance, in a similar vein as in games, individuals may especially play during work activities when they

encounter a sweet spot of predictability. When work activities are novel and disorganized, individuals may find difficulties in reorganizing their cognition and behavior in relation to the activity. In contrast, interviews may reveal that individuals especially use PWD when the activity has a degree of familiarity and structure. Such information may benefit the development of interventions. When workshops and coaches provide more detailed information and examples of play, participants may more easily integrate play with their work activities.

Playful Work Hacks

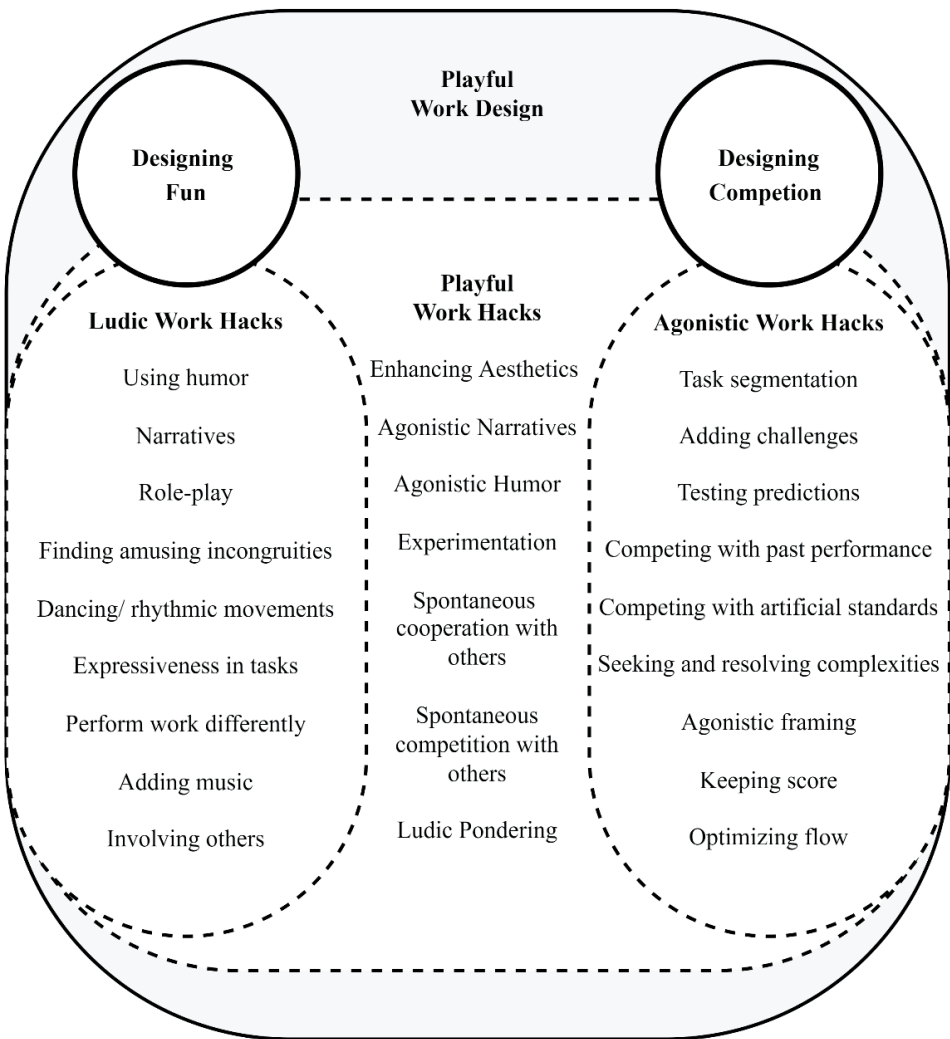
When we shift the level of analysis to the episodic level, play may consist of distinct categories of 'work hacks'. Hacking used to be understood as an act of discovering and exploiting vulnerabilities of computer systems using innovative strategies (Erickson, 2001). However, in recent years the act of 'hacking' has been popularized as a self-management strategy focused on discovering opportunities to utilize the structure of work activities to facilitate goal achievement (i.e., productivity hacks; cf. Bloom & Sliwa, 2022). For instance, administrative employees may create templates for tasks that are similar, mute notifications during certain tasks, or do certain parts of the activity before others. However, individuals may also strive to discover opportunities to utilize the structure of a work activity to create fun and challenge, i.e., "playful work hacks". Thus, while PWD concerns self-initiating play across different work activities (e.g., day, week, afternoon), playful work hacks focus on initiating play during a specific work episode.

To illustrate, based on chapters included in the present dissertation, we may delineate three distinct categories of 'work hacks'. First, ludic play work hacks may consist of (1) using humor, (2) developing fun imaginary narratives/stories about the task, (3) role-play that comprises narratives about the self, (4) finding amusing incongruities, or (5) addition of music during work activities. Second, agonistic play work hacks may focus on (1) segmenting tasks into smaller components, (2) self-monitoring of performance, (3) the addition of challenges, (4) testing predictions, (5) and creating feedback loops. Finally, the integration of ludic and agonistic elements

may yield unique work hack categories such as (1) enhancing esthetics, (2) agonistic narratives, e.g., approaching a work activity as an athlete or a competitive game-show, and (3) agonistic humor, e.g., challenging oneself to make others laugh. Information regarding work hack clusters may help participants in the envisioning and planning phase of proactivity (Parker et al., 2010; see Figure 2).

Figure 2

Proposed Work Hacks Nested in Designing Fun and Designing Competition



The Role of Culture

Research on playful work design at work has predominantly sampled Dutch employees (see Bakker, Hetland et al., 2020 for an exception). Since geographical areas tend to be associated with specific beliefs and values, the question remains to what extent the present findings generalize to other cultures. For instance, collectivistic cultures value obedience and conformity (Hofstede, 2001), which diverge from the individualistic and creative nature of play. Indeed, Oishi and Diener (2009) found pursuing goals for fun and enjoyment promotes subjective well-being for Europeans and Americans but not for Asian Americans. Hence, while Western culture generally values play, Asian culture may see play at work as relatively frivolous and less productive (Barnett, 2017). This may influence how other parties evaluate play initiatives by employees as well as how individuals value their own play initiatives. Indeed, in a quasi-experiment, Barnett (2017) found that the Chinese students who experienced the culture of the United States for a short time differed significantly in their appreciation of playfulness from their peers who resided in the United States for a more extended time. They were less familiar and appreciative of playfulness. Hence, cross-cultural differences in the antecedents and consequences of PWD represent an essential avenue for research.

Other Forms of Proactive Play

In **Chapter 2**, PWD was defined as self-initiated ludic and agonistic play as engagement with work activities to create fun and challenge. We can derive several other forms of proactive play from this conceptualization that may advance the field of play at work. First, self-initiated ludic and agonistic play as a diversion from work activities to foster momentary fun and challenge may represent the prevention-oriented counterpart of PWD. While this form of play may enable employees to recuperate resources by taking a break from work, play as a diversion may actively undermine work engagement and performance. In contrast to PWD, self-initiated play as a diversion from work activities may strongly correlate with procrastination,

job boredom, and cynicism. Second, PWD is nested in work activities. However, individuals may also use play to engage with study, home, and sporting activities. Hence, the cross-over processes of play between domains represent a fruitful research opportunity. Finally, in contrast with PWD, other parties may also initiate PWD, such as colleagues or leaders (Celestine & Yeo, 2021). Hence, future research may also investigate how perceived play by others influences employees' tendencies to play. For instance, an interesting avenue represents the extent to which PWD is contagious.

PRACTICAL IMPLICATIONS

I tentatively suggest that employees and organizations may use the PWD instrument in several ways. First, free online programs, booklets, the scale, or other materials should be made available online. By offering materials such as the PWD scale without further obligations, employees may learn about PWD on their own accord, which respects one of the core components of play: Volition. When individuals use the PWD instrument to self-assess their tendency to play during work activities, the scores may serve as a basis for further PWD self-development.

Second, organizations may use the PWD instrument as a selection tool. Employees who can regulate their work experience may represent valuable assets for organizations: They can take care of their well-being and performance. In particular, such employees may be necessary for organizations where employees have to work in a monotonous or emotionally demanding work environment, and top-down initiatives are not viable. In addition, the PWD tool may facilitate organizations in achieving long-term goals such as creating a playful culture. Organizations will create a playful workforce over time by selecting employees with a general tendency to design fun and competition.

Third, organizations, as well as practitioners, may utilize the PWD instrument as a development tool. Namely, by assessing employees' PWD levels, organizations gain insight into the prevalence of PWD, and which employees most extensively design fun and design competition. The stories and ideas about PWD of these

employees may inspire others. Relatedly, organizations may evaluate the effectiveness of PWD interventions with the PWD instrument. Namely, by comparing pre- and post-intervention scores on the PWD scale, organizations gain insight into employees' growth in PWD.

Organizations may also actively stimulate PWD through interventions including workshops, training, and coaching. Interventions may build on the four-stage learning cycle described by experiential learning theory (Kolb & Kolb, 2010; cf. Dubbelt et al., 2019). The first stage may consist of *concrete experiences* such as an immediate small exercise to playfully approach and perform an activity. In addition, interventions should offer participants opportunities to share personal experiences. The information provided by the concrete experiences and other participants enables individuals to reflect in the second phase. Participants may reflect on what changed, how, and why during the second phase (*reflective observation*). Through reflection, participants start to understand and organize information. The third phase concerns *abstract conceptualization*. To facilitate this process, participants may receive information as a lecture or text that enables them to further think about and analyze PWD (e.g., fitting designing fun and designing competition with individual traits and situations). During the fourth phase, participants should *actively experiment* with PWD at work, which serves as a continuation of the four learning stages (i.e., concrete experience, reflective observation, abstract conceptualization, active experimentation).

CONCLUSION

As we move to an increasingly dynamic workplace, employees' proactive role in sustaining their well-being and performance is becoming more important than ever. The present dissertation included various studies investigating how employees may proactively cultivate their own well-being and facilitate their performance by designing their work to be playful. Importantly, this dissertation conceptualized playful work design as a two-dimensional cognitive-behavioral strategy to create autotelic

experiences during work activities. The two-dimensional conceptualization of playful work design enables a more nuanced understanding of play during work activities. Indeed, the findings included in this dissertation provide unique insights regarding how self-initiated play during work activities relate to personality traits, the work environment, employee well-being, and job performance behaviors. In light of the findings, this dissertation sets the stage and may inspire research on playful work design and, more generally, on play in organizations. In contrast to what Henry Ford believed, this dissertation evidences that play can come before the work is done.



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Summary in Dutch

Nederlandse Samenvatting

“Als het werk gedaan is, kan het spel komen, maar niet eerder” was de filosofie van zakenmagnaat Henry Ford (2007). Hier ben ik het niet mee eens. Vrijwel iedereen is bekend met spellen en spelen. Het is een belangrijk fenomeen dat verweven is met ons leven en onze cultuur. Een potje schaken, kaartspel, toneel of een woordgrap, weinig mensen kunnen stellen dat ze niet bekend zijn met het *spelen* van *spellen*. Vrijwel iedereen heeft een beeld van wat spelen is. Ondanks de prevalentie van het fenomeen, is het onderwerp zelden systematisch onderzocht in organisaties (Petelczyc et al., 2018). Moeten we luisteren naar de Amerikaanse zakenmagnaat en spel verbannen uit organisaties? Hoe manifesteert spel zich tijdens het werk? Wat zijn de gevolgen van het integreren van spel met werk? Had Henry Ford gelijk wat betreft het gevaar van het vermengen van spel met werk? Om deze vragen te beantwoorden conceptualiseerde en onderzocht ik in mijn proefschrift getiteld “Playful Work Design: Homo Ludens Faber” proactief speels gedrag tijdens werkactiviteiten (i.e., playful work design; PWD).

Homo Ludens and *Homo Faber* vertalen naar de spelende mens en werkende mens ofwel mens de architect. Deze concepten onderstrepen de spelende en zelfsturende aard van mensen. Mensen zijn in staat de omgeving en de ervaring naar hun hand te zetten ofwel te *designen*. “Design” is afgeleid van het Latijnse voorvoegsel en respectievelijk het werkwoord *de* en *signare*, wat zich vertaalt naar ‘betekenis geven’ of ‘de relatie met andere dingen aanduiden’. Met andere woorden, dingen begrijpen (Krippendorff, 1989). Deze concepten illustreren de kernideeën van dit proefschrift. Hoewel spel vroeger werd beschouwd als de antithese van werk of op zijn minst ondermijnd voor het serieuze karakter van arbeid (Kavanagh, 2011), lijkt het tij te keren. De aandacht is verschoven naar de potentiële positieve consequenties van spel op het werk. Steeds meer organisaties herkennen dat de combinatie van spel met werk wel degelijk harmonieus kan samenhangen met productiviteit (Petelczyc et al., 2018).

Dit proefschrift beoogt bij te dragen aan de verschuiving in de discussie omtrent spel en werk. Recent onderzoek toont aan dat spelinitiatieven door de organisatie het welzijn en prestatie van werknemers bevorderen (e.g., Fourie et al.,

2020; Silic et al., 2020; West et al., 2016). Desondanks kan het moeilijk en onpraktisch zijn om spelelementen te introduceren voor alle werkactiviteiten en iedereen op een passende manier (*'one-size-fits-all'*). Niet elke werknemer houdt van competitie en niet elke taak leent zich ervoor. De proactieve rol van werknemers zelf is daarom een cruciale aanvulling op initiatief vanuit de organisatie. Daarom probeerde ik de volgende vragen te beantwoorden: Hoe uit PWD zich en hoe meten we dit fenomeen? Hoe hangt PWD samen met verschillen tussen individuen en situaties? Wat is het nut van PWD tijdens werkactiviteiten? Tenslotte, wat zijn de randvoorwaarden voor effectief PWD? De antwoorden op deze vragen geven meer inzicht in de betekenis van proactief spelen tijdens werkactiviteiten en de gevolgen ervan.

DE INTRODUCTIE VAN PLAYFUL WORK DESIGN

De conceptualisatie van *playful work design* bouwt voort op een literatuuronderzoek over werk en spel gepresenteerd in **Hoofdstuk 2**.

Van Organisatie Naar Werknemer

Onderzoekers verrichten al decennia onderzoek naar hoe organisaties werknemers kunnen motiveren om beter te presteren (Oldham & Hackman, 1976). Het ontwerpen van een optimale werkomgeving is een belangrijk thema in dit onderzoek. Hoewel baanversimpeling voorheen de focus in de organisatiepsychologie was (Parker, 2001), richt huidig onderzoek zich meer op het verrijken van banen met aspecten zoals autonomie en variatie (Bakker & Demerouti, 2017). Dit blijkt een succesvolle aanpak. Onderzoek toont aan dat 'verrijkte' banen bevlogenheid stimuleren (Halbesleben, 2010). Dit suggereert dat organisaties het welzijn en de productiviteit van werknemers positief kunnen beïnvloeden door de werkomgeving aan te passen (Schaufeli et al., 2009).

Naast initiatieven vanuit de organisaties toont recent onderzoek aan dat werknemers ook zelf de inhoud en organisatie van hun werktaken beïnvloeden (Parker, 2014). Dit perspectief stelt dat werknemers proactief hun werkbeleving vormgeven.

Een populair voorbeeld van deze benadering is job crafting (Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001). Dit gedrag gaat om proactief de baaninhoud veranderen door het uitbreiden of krimpen van de rol (Bindl et al., 2019; Tims et al., 2012; Zhang & Parker, 2019). Uit onderzoek blijkt dat het uitbreiden van de baaninhoud een succesvolle strategie is voor meer bevlogenheid en beter presteren (Lichtenthaler & Fischbach, 2016). De studies in dit proefschrift proberen kennis te vergaren over hoe individuen spel kunnen inzetten om proactief hun welbevinden *tijdens* werkactiviteiten te verbeteren.

Perspectieven: Speelsheid, Spellen, Spelen

Uit het literatuuronderzoek (**Hoofdstuk 2**) bleek dat we drie stromingen kunnen onderscheiden: (1) spel-als-persoonlijkheid, (2) spel-als-activiteit en (3) spel-als-benadering. Het spel-als-persoonlijkheid paradigma onderzoekt voornamelijk verschillen tussen individuen en hoe die zich verhouden tot speelsheid. Deze stroming beschrijft vaak karakteristieken die horen bij speelse individuen (Barnett, 1990; Lieberman, 2014; Proyer, 2012; 2017). In tegenstelling tot dit perspectief stelt de spel-als-activiteit literatuur dat het gaat om verschillen tussen situaties. Studies in deze traditie beschrijven vaak kenmerken van speelse activiteiten zoals spellen en beoordelen activiteiten in de mate aan speelsheid (e.g., Day & Murray, 1978). Tenslotte beschrijft het spel-als-benadering paradigma dat spelen gaat om de organisatie van cognitie en gedrag ten opzichte van een activiteit (Csikszentmihalyi, 1975; Cheng et al., 2021; Logan, 1988; Miller, 1973). Dit kan ofwel de betrokkenheid of terugtrekking van een individu tijdens een activiteit faciliteren (spelen-als-toewijding vs. spelen-als-afleiding).

Uit mijn literatuuronderzoek bleek dat de drie stromingen convergeren in de beschrijving van de kerncomponenten van speelsheid, spel en spelen: (1) cognitieve categorisatie van gedrag of activiteiten als 'spel(en)'; (2) een focus op het hier en nu in de uitvoering van het gedrag of de activiteit; (3) een gevoel van vrijheid en vrijwilligheid; (4) interactieve betrokkenheid met de activiteit door het zoeken, vinden

en oplossen van verrassingen en complexiteit; (5) het uitvoeren van het gedrag voor het verkrijgen van positieve ervaringen zoals lol en optimale uitdaging (Andersen and Roepstorff, 2021; Bateson, 1972; Csikszentmihalyi, 1975; Proyer, 2017; Van Vleet and Feeney, 2015). Het ontbreken van één van de componenten ondermijnt het bestaan van de andere componenten. De samenhang tussen componenten wijst op een overkoepelend fenomeen: spel(en). Tenslotte blijkt dat de literatuur over spel gekenmerkt wordt door dualiteit: ludiek en agonistisch spel (Huizinga, 1949). Terwijl ludiek spel zich richt op lol en vermaak, richt agonistisch spel zich op uitdaging en competitie.

Het literatuuronderzoek draagt op verschillende manieren bij aan de literatuur over spel. Ten eerste bestaat nog veel onduidelijk over wat spel(en) precies inhoudt. De literatuur gebruikt spellen en spelen vaak als synoniemen, terwijl dit gaat om verschillende fenomenen. Dit komt overeen met een organisatorische of job crafting aanpak met betrekking tot het vormgeven van werk. De focus kan bij beiden liggen op aspecten van werk die energie geven (e.g., sociale steun, feedback, variatie), maar het initiatief van het ontwerp ligt bij de ander (de organisatie) of het individu. Ten tweede, de kerncomponenten geven wetenschappers en organisaties handvatten om de effectiviteit van spelinterventies te evalueren. Het ontbreken van de kerncomponenten ondermijnt waarschijnlijk het succes van de interventie. Ten derde biedt de differentiatie tussen spel-als-toewijding en spel-als-afleiding een verklaring voor positieve en negatieve evaluaties door anderen van spel. Tenslotte zorgt het onderscheid tussen ludiek en agonistisch spel voor een meer genuanceerd beeld van spel. De voorspellers en consequenties van ludiek en agonistisch spel kunnen namelijk sterk verschillen.

De Betekenis van Playful Work Design

In **Hoofdstuk 2** definieerde ik playful work design (PWD) als het proactief ontwerpen van werkactiviteiten door middel van spelen tijdens werkactiviteiten om (1) *fun* en (2) uitdaging te creëren. Het gaat om het herstructureren van cognitie en

gedrag ten opzichte van werkactiviteiten om toewijding te verhogen (spel-als-toewijding). Hierdoor kunnen werknemers op eigen initiatief ervaringen creëren tijdens werkactiviteiten die normaal gesproken geassocieerd worden met spel(en). Terwijl het ontwerpen van fun gaat om het gebruik van ludieke spelstrategieën zoals humor en fantasie, gaat het ontwerpen van uitdaging om het gebruik van agonistische spelstrategieën zoals competitie en regels. De conceptualisatie draagt bij aan de literatuur over spel op het werk door het onderscheid met spel-als-afleiding expliciet te maken en te focussen op zowel proactief ludiek als agonistisch spelen tijdens werkactiviteiten. De conceptualisatie van PWD draagt tevens bij aan de literatuur over proactief gedrag van werknemers. Hoewel steeds meer bekend is over het proactief aanpassen van een baan door werknemers (Lichtenhaler & Fischbach, 2019; Rudolph et al., 2017), is weinig bekend over hoe werknemers proactief de ervaring van bestaande werkactiviteiten kunnen aanpassen. PWD is een unieke vorm van initiatief dat plaatsvindt *binnen bestaande* werkactiviteiten.

Playful Work Design, Een Begrip Gemeten

Gecontextualiseerde instrumenten die spelen meten tijdens het werk ontbreken in de literatuur over spel op het werk. Dit beperkt de ontwikkeling van kennis over hoe en waarom spelen tijdens het werk samenhangt met andere constructen. Vaak wordt spel op het werk onderzocht met instrumenten die speelsheid meten als een individuele eigenschap, waarna de samenhang met werkuitkomsten bekeken wordt (Petelczyc et al., 2018). Hoewel dit kennis oplevert over speelsheid in het algemeen, blijft het onduidelijk hoe spelen tijdens werkactiviteiten eruitziet en welke mechanismen gerelateerd zijn met spel op het werk. Om robuust onderzoek naar spelen tijdens werk te faciliteren ontwikkelde ik een meetinstrument aan de hand van drie empirische studies ($N = 1213$ observaties) die beschreven zijn in **Hoofdstuk 2**. Het instrument maakt onderscheid tussen ludiek (*designing fun*) en agonistisch spelen (*designing competition*). De resultaten leveren bewijs voor de psychometrische kwaliteit, constructvaliditeit en voorspellende validiteit van de PWD-schaal. PWD

correleerde inderdaad met constructen die te maken hebben met proactiviteit, spel en een doeloriëntatie, maar week af van eigenschappen die een vermijdingsoriëntatie weerspiegelen.

De mate aan PWD verschilt niet alleen per individu, maar ook per dag. Daarom bekeek ik ook de factorstructuur van PWD in een dagboekstudie (N = 88 personen, n = 391 dagen; **Hoofdstuk 4**). De resultaten toonden aan dat het instrument psychometrisch degelijk is en ondersteunde verder de tweedimensionale aard van het PWD-instrument. Een belangrijke bevinding van dit onderzoek is dat verschillen *binnen* individuen in PWD betekenisvolle implicaties hebben. Gezien de exclusieve focus op verschillen *tussen* personen in de literatuur over spel op het werk (Celestine & Yeo, 2021; Petelczyc et al., 2018), benadrukt deze bevinding dat onderzoek naar de verschillen binnen personen in PWD cruciaal is. De ontwikkeling van de meetinstrumenten levert een belangrijke bijdrage aan de literatuur door de weg vrij te maken voor systematisch onderzoek naar spel tijdens werkactiviteiten op zowel individueel als dagelijks niveau.

PLAYFUL WORK DESIGN: WIE EN WANNEER?

De antecedenten van spel op het werk worden zelden bestudeerd en zijn daarom slecht begrepen (Celestine & Yeo, 2021). Daarom bouwde ik voort op de literatuur over spel-als-persoonlijkheid en spel-als-activiteit in **Hoofdstuk 2** (bijv. Caillois, 2001; Csikszentmihalyi, 1975; Proyer, 2017). In drie onderzoeken onderzocht ik hoe persoonlijke eigenschappen en situationele kenmerken zich verhouden tot PWD. Beide dimensies van PWD correleerden op dezelfde manier met persoonlijk initiatief, job crafting, situationele kenmerken en persoonlijke eigenschappen zoals: openheid, nieuwsgierigheid en gedragsactivering. Het ontwerpen van plezier was echter sterker gerelateerd aan ludieke eigenschappen (bijvoorbeeld humor en speelsheid), terwijl het ontwerpen van competitie sterker correleerde met agonistische eigenschappen (bijvoorbeeld prestatiegerichtheid en concurrentievermogen). Deze bevindingen benadrukken dat de dimensies van PWD uniek zijn en het belang van

persoonlijke eigenschappen in de manifestatie van PWD. Gezien de cross-sectionele aard van de correlaties is meer onderzoek nodig naar eigenschappen en situaties die PWD bevorderen.

HET NUT VAN PLAYFUL WORK DESIGN

Wat is het nut van spel? Heeft het wel nut? Niet iedereen is het daarover eens. In de onderzoeken in deze dissertatie bouwde ik voort op de theoretische verankering van PWD. De conceptualisatie van PWD als 'spel-als-toewijding' aan werkactiviteiten suggereert dat deze vorm van spelen voornamelijk samenhangt met positieve consequenties voor het welbevinden en prestatie op het werk. Dit bleek inderdaad uit de onderzoeken beschreven in **Hoofdstuk 2**. Werknemers die PWD gebruikten waren ook twee weken later meer bevlogen dan werknemers die minder PWD gebruikten. Daarnaast gaven collega's ook twee weken later hogere beoordelingen qua werkbevlogenheid, inspanning, informeel leren en creativiteit aan deze werknemers. Deze bevindingen zijn belangrijk voor de literatuur over spel op het werk. Ze tonen namelijk aan dat PWD niet alleen samenhangt met hogere zelfbeoordelingen, maar ook met beoordelingen van anderen. In andere woorden: PWD hangt niet enkel samen met een positieve zelfperceptie, maar ook met wat collega's zien. Bovendien weerleggen deze bevindingen het idee dat spelen tijdens het werk voornamelijk negatief is. In tegendeel, de resultaten benadrukken dat PWD kan bijdragen aan organisatiedoelen.

De literatuur over spel bevat weinig kennis over de intra-individuele processen. Dit komt voornamelijk door het ontbreken van een meetinstrument dat spelen tijdens werk meet als een dagelijks fenomeen (Celestine & Yeo, 2021; Petelczyc et al., 2021). Ik voerde daarom drie dagboekonderzoeken uit met de dagelijkse versie van de PWD schaal om te onderzoeken hoe PWD leidt tot welzijn en prestatiegedragingen (zie **Hoofdstuk 3** voor een overzicht). Het dagboekonderzoek ($N = 88$, $n = 391$ dagen) in **Hoofdstuk 4** toonde aan dat op dagen wanneer werknemers plezier en uitdaging ontwierpen, ze creatiever waren omdat ze meer energie, toewijding en absorptie ervaarden. Daarnaast bevat **Hoofdstuk 5** een dagboekonderzoek ($N = 202$, $n = 1133$)

dat aantoonde dat fluctuaties in PWD samenhangen met in-rol en extra-rol werkprestatiegedragingen als gevolg van hogere werkbevoegenheid. Tenslotte liet het dagboekonderzoek ($N = 162$, $n = 603$) in **Hoofdstuk 6** zien dat de bevrediging van psychologische basisbehoeften grotendeels de samenhang tussen PWD en bevoegenheid verklaart op zowel individueel als dagelijks niveau. De bevindingen in deze hoofdstukken bieden inzicht in hoe en waarom PWD samenhangt met welzijn en prestatie.

RANDVOORWAARDEN VAN PLAYFUL WORK DESIGN

Hoewel de belangstelling en onderzoek naar spel op het werk de afgelopen jaren sterk toenam, is nog steeds weinig bekend over de randvoorwaarden van 'effectief' spel op het werk. Op basis van de Trait Activation Theory (TAT; Tett et al., 2013; 2021) en de Conservation of Resources (COR)-theorie (Hobfoll, 1998) onderzocht ik daarom voor wie en wanneer PWD vooral effectief is.

Persoonlijke Randvoorwaarden

TAT stelt dat individuele eigenschappen interne, latente neigingen weerspiegelen die worden geactiveerd door relevante informatie (Tett et al., 2013; 2021). Daarnaast suggereert TAT dat individuen situaties die de expressie van eigenschappen (d.w.z. gedrag) mogelijk maken prefereren, omdat persoonlijke eigenschappen intrinsieke behoeften reflecteren. Dit onderzocht ik op een directe manier in het dagboekonderzoek ($N = 88$, $n = 391$) van **Hoofdstuk 4**. Ik keek namelijk of PWD vooral dagelijks samenhang met bevoegenheid voor individuen die open en speels zijn. Inderdaad, de dagelijkse associatie van *designing fun* en *designing competition* met werkbevoegenheid was sterker voor individuen die hoog (vs. laag) scoorden op respectievelijk openheid en speelsheid. Bovendien medieerde bevoegenheid de positieve effecten van de interacties op creatieve werkprestatie. De bevindingen bevorderen de literatuur door te laten zien dat een fit tussen de persoonlijkheid van de werknemers en het spel op het werk belangrijk is. Ten tweede dragen we bij aan TAT door te laten zien dat individuen ook intrinsieke bevrediging

kunnen ontlenen door proactief te handelen volgens hun eigenschappen. Ten derde draagt het bij aan de literatuur over proactiviteit door aan te tonen dat individuele eigenschappen belangrijk zijn voor het succes van proactiviteit.

Situationele randvoorwaarden

Conservation of Resources (COR) theorie stelt dat hulpbronnen het meest effectief zijn als ze overeenkomen met wat verloren gaat (De Jonge & Dormann, 2006; Hobfoll, 1998). Voortbouwend op de theoretische verankering van PWD stelde ik daarom dat *designing fun* en *designing competition* de negatieve, dagelijkse samenhang van baankarakteristieken—die een gevoel van saamhorigheid en uitdaging belemmeren—met bevlogenheid vermindert. Dit bleek het geval te zijn in het dagboekonderzoek in **Hoofdstuk 5** ($N = 202$, $n = 1133$). De bevindingen dragen op twee manieren bij aan de literatuur. Ten eerste wijzen de resultaten erop dat de waarde van PWD afhankelijk is van de context. Ten tweede draagt het onderzoek bij aan de literatuur over belemmeringen op het werk (Cavanaugh et al., 2000; LePine et al., 2005). Het onderscheid tussen relationele en taak belemmeringen verklaart namelijk mogelijk inconsistente bevindingen over de samenhang tussen belemmerende werkeisen en andere constructen (Mazzola & Disselhorst, 2019).

Ten slotte heb ik in **Hoofdstuk 6** verkennende analyses uitgevoerd om te onderzoeken hoe *designing fun* en *designing competition* op elkaar inwerken ($N = 162$, $n = 603$). De resultaten suggereren dat individuen die gedurende de week zowel *designing fun* als *designing competition* gebruikten, meer wilskracht, competentie en bevlogenheid ervoeren dan individuen die voornamelijk afhankelijk waren van een enkele vorm van spel. Dit suggereert dat het gecombineerde gebruik van andere vormen van spel de effectiviteit versterkt. Dit draagt bij aan zowel de literatuur over spel als de literatuur over proactiviteit. Gamificatie-initiatieven zijn bijvoorbeeld bekritiseerd omdat ze enkel punten, badges en leaderboards gebruiken (Robertson, 2010). De bevindingen in **Hoofdstuk 6** suggereren dat het gebruik van enkel agonistische spelelementen of ludieke spelelementen de mogelijke voordelen vermindert. Ook dragen de resultaten bij aan de literatuur over proactiviteit door aan

te tonen dat de situatie een belangrijke moderator is: het gedrag moet passen bij de situatie.

CONCLUSIE

Dit proefschrift bevat verschillende onderzoeken naar hoe werknemers proactief hun welzijn en prestaties verbeteren door hun werk speels te ontwerpen voor meer fun en/of uitdaging. De tweedimensionale conceptualisering van PWD maakt een meer genuanceerd begrip van spel tijdens werkactiviteiten mogelijk. De bevindingen in dit proefschrift bieden unieke inzichten over hoe zelf-geïnitieerd spelen tijdens werkactiviteiten samenhangt met persoonlijkheidskenmerken, de werkomgeving, het welzijn van werknemers en prestatiegedragingen op het werk. De bevindingen in dit proefschrift vormen een fundament, en hopelijk inspiratie, voor vervolgonderzoek naar spel in organisaties.



Curriculum Vitae

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Yuri S. Scharp was born on April 25th, 1992 in Tilburg (the Netherlands). He studied psychology at the Erasmus University Rotterdam and worked as a research assistant in organizational behavior. In 2017, he obtained his Master's degree in Positive Organizational Psychology with distinction (cum laude). He was awarded the David van Lennep (1st place), Tsuru Employee Wellness, and BA&O paper award for his master's thesis. The same year, he started his Ph.D. project at the Center of Excellence for Positive Organizational Psychology at the Erasmus University Rotterdam, which resulted in the chapters included in this dissertation. In December 2021, he started working as a post-doctoral researcher for the Organizational Dynamics department at the Erasmus University Rotterdam. In August 2022, he began his current position as an assistant professor at the Human Resource Management department of Tilburg University.

Research**2022**

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