The moderating effects of playful work design on work engagement and perceived autonomy

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Abstract

Organizations have become increasingly aware of how valuable employee well-being is. Especially in times when employees are faced with various demands, it is imperative to facilitate resources. This study pursued to examine the link between work engagement, perceived autonomy and playful work design among individuals. Our direct analysis of these variables is unprecedented and original. Our data was collected in four weeks through an online questionnaire. In total 70 respondents, including employees and students participated in our study. The results showed a significant positive relationship between work engagement and perceived autonomy. Contrary to our hypothesis, we found that playful work design significantly moderated this relationship in a negative way. Subsequently, we performed exploratory analyses to further investigate our hypotheses and playful work design operated as a negative moderator in various instances. This study underlines the value of initiatives aimed at enhancing work outcomes like engagement. Top down and bottom-up interventions may provide positive changes for employees and organizations. Processes that precede playful work design usage may be studied in a novel way through qualitative measures.

Keywords: organizations, playful work design, interventions

Playful Work Design, Work Engagement and Perceived Autonomy in Individuals

Successful organizations have realized that employee well-being is one of their biggest assets as it has been linked to enhanced performance and job retention (Harter et al. 2002; Warr, 1999). Consequently, various organizational activities such as workshops, company holidays and personal development programs are provided to facilitate employee engagement. These activities align with the innate desire to connect with coworkers and extract joy and satisfaction from work (Avolio & Sosik, 1999; Wrzesniewski et al., 1997). In addition, these activities not only aim to increase physical and mental well-being as well as hedonic (joy, enthusiasm) and eudaimonic (achieving long-term goals, work engagement) desires (Page & Vella-Brodrick, 2009). As a result of high demands and expectations, employees are increasingly confronted with undesirable health consequences like excessive stress and ultimately burnout (Bakker & Demerouti, 2007). Hence, organizations should do the best they can to maintain a healthy workforce.

The Job Demands and Resources Model (JD-R) is a framework which outlines demands (energy-depleting processes) and resources (stimulating processes)(Demerouti et al., 2001). According to the model, problems arise when work demands outweigh the employees' capacities, if this imbalance remains over time increases in work withdrawal, lower general health and sleeping problems may occur (Demerouti et al., 2001; Halbesleben & Buckley, 2004). Facilitating job resources is a powerful and proven tool to arm against the adverse impact of job demands. For instance, previous research has shown that job resources, referring to psychological, social and organizational job aspects have positive links with goal achievement, temper the negative effects of job demands and accelerate learning processes (Bakker & Demerouti, 2007). This raises the question of how companies can facilitate job resources.

One job resource that has been identified as a contributor to employee well-being is work autonomy, shown to increase work creativity and goal achievement (Bauer, 2004; Knudsen et al., 2011; Ryan & Deci, 2000). Also, Sia and Appu (2015) argued that employees can evaluate their own performances and make necessary changes to their existing shortcomings, when provided with the freedom to select the performance criteria for their tasks. Subsequently, employees possibly understand their performances better through self-reflection, and this may amplify their intrinsic motivation for future performance.

Second, job crafting tools like playful work design (PWD) can also be utilized as a job resource. Scharp et al. (2022a) described playful work design (PWD) as a cognitive strategy that instills challenge and excitement in work tasks. Also, PWD enables workers to maximize their individual work experience (Bakker et al., 2021). Scharp et al. (2019) outlined two pathways to attain this optimal work experience. Starting with job redesign that adds humor into work tasks, e.g. creating an amusing imaginary scenario (Barnett, 2007). In addition, employees instill competition by trying to complete tasks faster than the allotted time (Miller, 1973).

The present study aims to test the relationship between the job resources work engagement and work autonomy. More specifically, their presumed direct and reciprocal relationship will be tested. Also, the influence of job crafting tool PWD on this relationship will be analyzed. Although, it is not possible to identify causal relationships between these variables, we can discover whether our predictors significantly contribute to our outcome variables. Besides, this study aims to discover if our reasoning aligns with existing literature. Theoretically, this study will broaden understanding on what specific elements within a job resource (e.g. engagement) are most valuable in predicting changes in other job resources. Furthermore, the mechanisms behind overall PWD and its subscales will be studied. Our study distinguishes itself by our combination of variables, these specific effects have not often

been studied directly, thus we provide novel insight into these relationships. Practically, this study promotes the usefulness of investments aimed at improving and maintaining employee well-being.

Work Engagement

The interest in employee engagement can be traced back to the end of the 20th century when Kahn (1990) outlined an image of an engaged employee. This engaged employee would be committed in numerous ways, emotionally, physically and mentally, and would require meaning and resources for optimal performances. Remarkably, burnout has been a catalyst to work engagement research (Bakker et al., 2008). Contrary to burnout, engagement is characterized as a lively and effective work approach. For instance, work tasks are positively approached as a series of challenges instead of overwhelming and draining processes. Previous literature conceptualized engagement in two distinct ways.

On the one hand, engagement is predominantly seen as the counterpart of burnout. The scores on the MBI-GS, the first organizational burnout scale, reflected the distinction between burnout and engagement. The transition from engagement to burnout was analyzed and concluded: energized employees become exhausted, being involved in work turns into cynicism and efficacy becomes ineffectiveness. An engaged employee typically displays low levels of exhaustion and cynicism and higher scores on efficacy (Maslach & Leiter, 1997).

On the other hand, engagement is grouped as an autonomous concept. Work engagement is defined as a consistent, positive and fulfilling mental state that is linked to affective and motivational states of work-related well-being, unrelated to a specific person, object or event (Bakker et al., 2008; Schaufeli et al., 2002). Work engagement includes vigor, dedication and absorption (Schaufeli et al., 2002). We agree with this definition of work engagement since it provides a thorough understanding of the concept. In summary, vigor is characterized by high levels of energy and mental resilience while working, the willingness to

invest effort in one's work, and persistence even when faced with difficulties. Dedication encompasses a sense of enthusiasm, significance, pride and challenge while working. Absorption is characterized by a state of deep concentration, where time passes rapidly and disengaging from work is difficult (Schaufeli et al., 2002).

The JD-R model explains the occurrence of burnout by outlining two processes, respectively exhaustion and disengagement. When exposed to job hazards such as loud machinery and excessive workload, employees resort to biological reserves to maintain their performances. These reserves include sympathetic changes (e.g. increased heart rate) when the body is physically strained, but also heightened cognitive efforts. In the case of prolonged maximal efforts, exhaustion may occur (Hockey, 1993).

Second, organizational environments lacking in providing job resources like supervisor support and job control, fail to provide employees with sufficient resources. Therefore, job demands (e.g. high stress, excessive workload) may pose a more serious threat, just as being unable to successfully meet work goals. In this case, the employee can disengage from work tasks to prevent future frustration when organizational demands and goals are not met (Demerouti et al., 2001).

In short, job resources encompass tools that (1) counter job demands and their accompanying stress or discomfort, (2) are useful in guiding the individual towards completing their work-related goals or (3) provide opportunities for individuals to grow and develop (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). For example, Bakker et al. (2004) discovered a positive link between increased dedication amongst human service professionals and job resources. Also, Barbier et al. (2013) reported that greater personal and job resources are associated with increased work engagement at later time points. Thereby, Barbier et al. (2013) outlined a cyclical pattern whereby resources drive work engagement, which in turn drives the acquisition of additional resources. Third, Herr et al. (2021) studied

JD-R theory and the relationship with mental health and work engagement. They concluded that job resources were positively linked to work engagement. However, the strength of this relationship varied across Big Five personality types. Overall, the JD-R model has been studied extensively across the past decade and received unmistakable support (see Bakker & Demerouti, 2017).

The distinction between work engagement and related concepts such as job satisfaction are due to their underlying nature. For instance, Rich et al. (2010) reported that the heightened performances of engaged versus satisfied workers may be explained by the activation component of engagement. In comparison to, satisfaction which is more contentment-based and incorporates elements like peace and serenity (Schaufeli, 2012). In summary, employees actively alter their behavior if they lack resources from the environment or when exposed to high demands.

Work engagement can be stimulated through multiple interventions. Knight et al. (2016) conducted a meta-analysis that targeted the usefulness of work engagement interventions. Their analysis included four types of interventions: personal resource building, job resource building, leadership training and health promoting interventions.

First, personal resource building intends to broaden employees' personal resources through emphasis on strengths; for instance, focusing on positive mental states such as aspirations and hope (Ouweneel et al., 2013; Vuori et al., 2012). According to the JD-R model personal resources are indirectly and directly linked to increased work engagement (Bakker & Demerouti, 2007).

Second, job resource building is focused on resources provided by the organization, namely interaction with colleagues and autonomy (Naruse et al., 2014). Then, leadership training which targets employees with managerial positions, managers are provided with knowledge to detect useful resources for employees (Rigotti, 2014; Knight et al., 2016).

Lastly, health-promoting interventions provide employees with advice and suggestions to strengthen their vitality. Interventions as regular exercise and mindfulness training are identified as major contributors to well-being. Active employees tend to experience less stress, feel more engaged and are less absent (Strijk et al., 2013). In addition, mindfulness exercises focused on awareness and acceptance may promote self-esteem (Van Berkel et al., 2014).

Work engagement and all three sub-components, vigor, dedication and absorption were positively impacted in a small but significant way according to the meta-analytic results. This shows that in line, with the JD-R model, interventions focused on enhancing well-being and augmenting resources in the workplace may improve worker's engagement. This effect was widespread across corporate environments, nations and individual attributes. Therefore, it implies the generalizability of work engagement interventions (Knight et al., 2016).

However, enhancing job resources may be applied on a larger scale as peer feedback and autonomy are also targeted (Naruse et al., 2014). Autonomy has been identified as a major job resource, Bakker and Demerouti (2017) acknowledged this and stated that work engagement derives from autonomy. Malinowska et al. (2018) reasoned a possible indirect relationship where intrinsic regulation, derived from work autonomy may account for increases in work engagement. In summary, direct or indirectly, work autonomy has been identified as a key job resource and has received considerable attention from scholars.

Perceived Autonomy

As previously discussed, autonomy is also seen as an important job resource. Work autonomy (also known as job autonomy) is explained as the freedom employees experience to decide how, where and when work tasks are done (Dettmers & Bredehöft, 2020). Our study focuses on perceived autonomy, which translates to experienced employee work autonomy.

We decided to focus on perceived autonomy since it provides a more tangible way of studying work autonomy.

Breaugh (1985) addressed a contemporary struggle among researchers, specifying a satisfactory definition of job autonomy. Job autonomy was measured similarly to other related characteristics like job interdependence, and this hindered the independence of job autonomy. Kiggundu (1983), Fahr and Scott (1983) supported independence of job autonomy.

Work autonomy has been identified as a key resource and plays a central role in multiple job design models (e.g. Bakker & Demerouti, 2007; Gagné & Deci, 2005; Hacker, 2003; Hackman & Oldham, 1976). Our main interest is the role of work autonomy within the JD-R model. In accordance with JD-R theory, autonomy serves as a job-related resource, enabling enhancements in both task-related and contextual performance by activating various motivational pathways such as higher levels of work engagement, dedication and overall well-being (Bakker & Demerouti, 2017). Multiple scholars agreed and recognized the importance of utilizing various skills in work, frequent interaction with colleagues and managers, and work autonomy as they are all positively linked to work engagement. (Bakker & Demerouti, 2008; Halbesleben, in press; Schaufeli & Salanova, 2007).

Following prior research, the relationship between work autonomy and work engagement is well documented. Consequently, we are gazing into the future to explore how these job resources can be facilitated in work contexts. First, organizations should take stock of the level of perceived autonomy within their organization. Using relatively simple actions like feedback sessions and (anonymous) surveys managers may gain valuable insight into employees' experiences. If dissatisfaction among employees is reported, then suitable steps should be taken to address this. Starting with, bottom-up interventions, Hornung et al. (2010) explain that bottom-up interventions are instigated by employees to bring about changes that directly impact the employee and their work environment. Moreover, more and more

academics contend that as working life becomes more dynamic and organizations are increasingly more time constrained in their ability to shape resourceful work environments for their employees, they must depend more and more on proactive behavior of their workforce to fill this void (e.g., Grant & Ashford, 2008; Bakker et al., 2012; Bakker, 2017).

Bakker (2017) discussed several bottom-up strategies; employing one's strengths, job crafting and enhancing ego resources. Job crafting, which will be discussed in greater detail later on, is seen as "a specific form of proactive behaviour in which the employee initiates changes in the level of job demands and job resources to make their own job more meaningful, engaging and satisfying" (Demerouti & Bakker, 2013, p.415). In contrast, employing one's strengths and enhancing ego resources target employee's innate abilities and seek to implement them in work (Björk et al., 2021).

That being said, the studies of Bakker (2017) and Björk et al. (2021) focused on bottom-up interventions specifically meant for improving work engagement. However, we argue that work autonomy can be facilitated similarly, since these concepts are strongly related and, in some cases, even depend on each other.

Hypothesis 1. Perceived autonomy has a significant positive relationship with work engagement.

Job Crafting

Since increased organizational innovations (e.g. self-managing teams) gained traction, professional jobs have become more complex. Also, technological developments have paved the way for flexible work environments (e.g. remote working). Because of these advancements, highly specialized jobs with somewhat different working conditions are present within many organizations (Demerouti, 2014). Expectedly, top-down company interventions provided to employees intended to boost motivation and performance are hardly effective (Biron et al., 2012).

Companies have realized that successful interventions are contingent upon employees, as mentioned earlier, bottom-up initiatives start with the employee's input and rise into the organization. Job crafting, the process of employees in charge of their own job design is an example of this. "Job crafting can be seen as a specific form of proactive behaviour in which the employee initiates changes in the level of job demands and job resources to make their own job more meaningful, engaging and satisfying" (Demerouti & Bakker, 2013, p.415).

Play at work is part of job crafting, its importance is explained later. First, we discuss the importance of play. Van Vleet and Feeney (2015) mentioned three main characteristics of play. Play starts with the intrinsic motivation of having fun and enjoying oneself (Csikszentmihalyi, 1975; Mainemelis & Ronson, 2006; Petelczyc et al., 2018). Second, individuals engaging in play often experience absorption in the activity or game they are playing. Provided that, they are fully present and able to immerse in the game or activity (Csikszentmihalyi, 1975; Huizinga, 1949). Finally, play is social and in connection with others; it is interactive. For example, playing soccer with friends includes social connection and interplay with others (van Vleet & Feeney, 2015). In summary, play provides individuals with multiple benefits like enjoyment, a temporary escape and social connection.

These benefits are also transferrable to the workplace. Play at work is similar to regular play and can be seen as a resource since it provides employees a fun stress-relief. For instance; play provides pleasurable stimulation different from standard work tasks (Petelczyc et al., 2018). Also, play might dampen the negative effects of job demands by providing the employee with an outlet (Bakker et al., 2020; Descamp & Thomas, 1993. Furthermore, mental restructuring of work tasks as playful activities can positively influence employee's work experience (Webster & Martocchio, 1993).

Playful Work Design as a moderator

A way to instill play at work is through playful work design. PWD entails crafting work activities that include pleasant elements such as fun and challenge without changing actual work tasks (Bakker & Van Woerkom, 2017). Scharp et al. (2022b) describe PWD as a construct, divided into two distinct categories: ludic play, known as “designing fun” and agonistic play, commonly described as “designing competition”. Designing fun translates to incorporating humor into work tasks (Scharp et al., 2022b). Examples include playing a character, joking around with colleagues, and using imagination. Imagination is used when individuals can “attribute their own meanings to objects and behaviors” (Tegano, 1990, p.1049). Such as, a cashier imagines being a comedian and asks every customer a humorous question.

On the other hand, designing competition adds serious elements into work tasks, through challenges and goals that require serious effort to accomplish (Scharp et al., 2022b). Like, an office secretary who tries to send as much emails as possible within one hour.

According to Scharp et al. (2022b), employees engaging in designing fun and competition report higher levels of engagement, energy and dedication, accounted for by sufficient levels of autonomy, competence and belonging. Too, playful work design usage has positive links with flow at work (Liu et al., 2022).

However, literature also reports that playful work design indirectly influences other work processes. Dishon-Berkovits et al. (2023) reported that PWD had a significant positive relationship with organizational performance accounted for by work engagement. And, Bakker and Van Wingerden (2021), discussed the negative relationship between COVID-19 and reported well-being. Designing fun, part of PWD weakened this relationship.

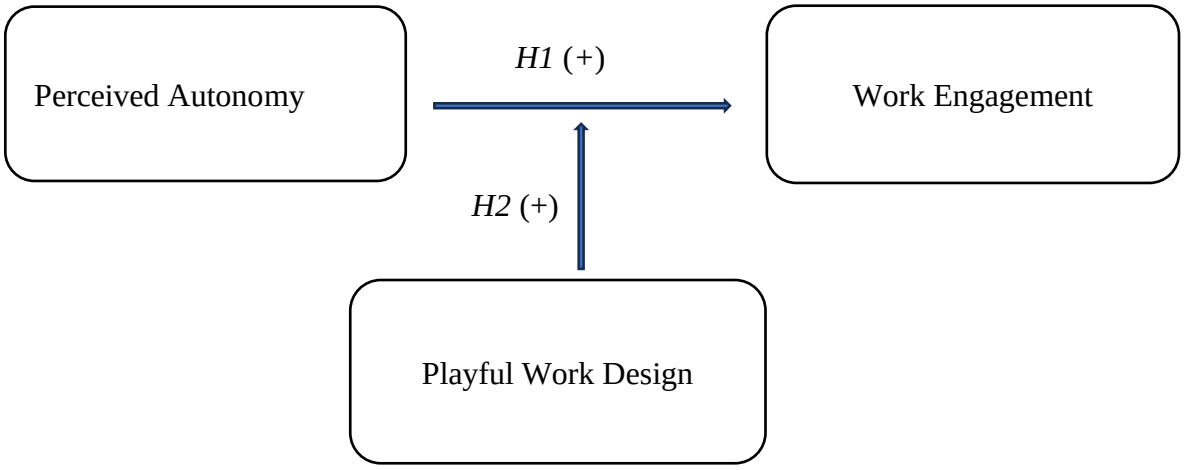
We propose that playful work design positively moderates our main variables perceived autonomy and work engagement, because we expect that employees who use job

crafting strategies likely experience increased levels of autonomy and engagement in their work. Figure 1 outlines our conceptual model.

Hypothesis 2. Playful work design moderates the relationship between perceived autonomy and work engagement, use of PWD will strengthen this existing relationship.

Figure 1

Conceptual Model of the Effects of Perceived Autonomy on Work Engagement Moderated by Playful Work Design



Method

Participants

The target population were Dutch employees and students over 18 years. This age interval made it possible to attract as many qualified individuals as possible. In total 112 participants took part in this study and after data filtering**,** a final sample of *N*= 70 remained. The sample age ranged from 20 to 73 (*M = 35.2, SD* = 15.9). The main reasons for study exclusion were insufficient answers, meaning substantial amounts of missing data or questionnaire completion within an unrealistic timeframe (e.g. one minute). The gender distribution was 50% male, 47.1% female and 2.9% other. The distribution of full-time employment was 40% compared to 17.1% full-time students. Part-time employment or part-

time studying was 32.9 % and 2.9%, respectively. A large majority of our sample had obtained an HBO or University degree (80%).

Procedure and Research Design

Participants were recruited through a combination of the personal networks of the researchers and social media platforms like Whatsapp and Linkedin. Before data collection began, the Ethics Committee of Psychology (ECP) at University of Groningen approved this study. Furthermore, the ECP exempted this study from full ethical review.

Participants were given instruction to complete our questionnaire within Qualtrics, a software program used to collect research data. The questionnaire started with a few demographic-related questions (e.g. age, gender, occupation). After completing the introductory questions, the questionnaire focused on our variables of interest; work engagement, perceived autonomy and playful work design. Participation was completely voluntary, and participants could end their participation at any time without any negative consequences. The personal data of the participants was guaranteed by anonymity (no traceable links to participants) and safe data storage as the dataset was only accessible to the researchers.

Measures

The measures used in this study are briefly discussed below.

Work Engagement

Work engagement was measured with the 9-item version of the Utrecht Work Engagement Scale (UWES-9) (Schaufeli et al., 2006; Breevaart et al., 2012). Similarly to the PWD scale, we choose to adapt the scale to a weekly timeframe. The scale incorporated three sub-dimensions of work engagement: vigor, dedication, and absorption. These dimensions were equally tested, each dimension consisted of three items. An example of a vigor item is: “This week, I felt bursting with energy”. An example of a dedication item is: “This week, my job inspired me”. An example of an absorption item is: “This week, I was immersed in my

work". Answers were rated on a 5-point scale (1= *strongly disagree*, 5 = *strongly agree*). Higher scores indicated increased work engagement attained in employment. The mean score for this scale was 3.7 (*SD* = .7). Overall consistency of the scale is α = .93. Unfortunately, no specific Cronbach alpha scores for the three sub-dimensions were provided in any literature. However, the ranges of the Cronbach alpha scores were provided, all scores reported satisfactory alpha levels. Vigor reported α = .81 to .85, dedication scores were α = .83 to .87, and absorption was α = .75 to .83 (Seppälä et al., 2008).

Perceived Autonomy

Perceived Autonomy was measured through the Work-related Basic Need Satisfaction scale (Van den Broeck et al., 2010). Perceived Autonomy is part of three needs which derive from the Self-Determination Theory. In line with the other measures this scale was also adjusted to a weekly timeframe. Example items are: "This week, I felt free to express my ideas and opinions in this job" and "This week, I felt free to do my job the way I thought it could best be done". Higher scores translated to increased feeling of autonomy at work or during studies. The mean score was 3.3 (*SD* = *.5*). Answers were rated on a 5-point scale (1= *totally disagree*, 5= *totally agree*). The Cronbach alpha-coefficient of this scale is α = .81.

Playful Work Design

Playful work design was measured using the Playful Work Design scale (PWD) scale (Scharp et al., 2023). We adapted the timeframe to weekly instead of daily because we thought it would provide a more detailed overview of to what extent people use PWD strategies at work. The scale made a distinction between two play components: ludic play which incorporates fun at work, e.g. imagining a humorous situation (Logan, 1985; Robert & Wilbanks, 2012; Peterson & Seligman, 2004) and agonistic which adds a competition element into work tasks, e.g. trying to get as much work done in one hour (Bakker et al., 2020). These components were included in the scale as *'designing fun'* and *'designing competition'*. An

example of '*designing fun*' is: "This week, I approached my tasks creatively to make them more interesting". An example of *'designing competition'* is: "This week, I pushed myself to do better even when it wasn't expected". Participants were asked to assess their own level of playful work design, so called self-monitoring. Answers were rated on a 5-point scale (1= *never*, 5 = *very often)*. Higher scores meant that participants used PWD more often in their work or studies. The mean score was 2.5 (*SD* = *.7*). The two components had satisfactory Cronbach alpha levels of α = .75 for *'Designing fun'* and α = .73 for '*Designing competition'*.

Data analysis

Prior to data analysis the data set was checked. Data cleaning began by deleting irrelevant information, e.g., the participant's IP address and the start and end date of the survey. The next step was evaluating which responses were valid or incomplete and thus had to be removed. Minimal data requirements were a completion rate of at least 70% and a realistic duration of survey completion, this meant that participants who completed the survey in less than three minutes were considered irrelevant. Eventually N = 70 participants remained and were included in the analyses.

The relationship between perceived autonomy and work engagement was analyzed through simple linear regression. Subsequently, the moderator playful work design was added and analyzed by using PROCESS macro for SPSS (Hayes, 2022). PROCESS model 1 which uses one moderator variable was used for all other regression analyses. After the first moderation analysis, multiple exploratory analyses followed. The exploratory analyses were conducted to gain a more comprehensive understanding of our proposed conceptual model and hypotheses. Starting with the division of the playful work design scale, designing fun and competition were separately entered as moderator variables. Also, our dependent variable work engagement was divided into vigor, dedication and absorption and subsequently analyzed.

Results

Descriptives

Multiple bright correlations were reported in Table 1 (located on the next page), this table summarizes correlations and descriptive statistics of variables included in our study. Perceived autonomy had a significant positive correlation with work engagement ($r = .49$, $p < .001$). Furthermore, perceived autonomy had a significant positive correlation with playful work design ($r = .29$, $p < .05$). Work engagement had a significant positive correlation with playful work design ($r = .53$, $p < .001$). The subscales of work engagement (vigor, dedication and absorption) and playful work design (designing fun and designing competition) are also included in Table 1. These correlations are not discussed in detail for the sake of brevity. Briefly said, all three subscales of work engagement report significant positive correlations with all our study variables. Regarding the playful work design subscales, only designing fun did not have a significant positive relationship with perceived autonomy.

Assumption checks for the linear regression analyses were conducted in SPSS. Linearity and homoscedasticity were checked through scatterplots. Independence of errors were analyzed by inspecting possible relationships between residuals and the dependent y-variable in the residual's scatterplots. Normality was analyzed through normal probability plots and histograms which showed normally distributed data. No violations or outliers were detected assumptions or outliers were present in the dataset.

Table 1

Descriptive Statistics and Correlations for Study Variables

Variable	*N*	*M*	*SD*	1	2	3	4	5	6	7	8
1. Perceived Autonomy	70	3.28	.47	-							
2. Work Engagement	70	3.71	.74	.49**	-						
3. Playful Work Design	70	2.48	.65	.29*	.53**	-					
4. Vigor (ENG)	70	3.74	.87	.40**	.86**	.44**	-				
5. Dedication (ENG)	70	3.77	.82	.42**	.90**	.44**	.70**	-			
6. Absorption (ENG)	70	3.63	.86	.46**	.85**	.51**	.55**	.67**	-		
7. Designing Fun (PWD)	70	2.53	.73	.18	.49**	.87**	-	-	-	-	-
8. Designing Competition (PWD)	70	2.44	.75	.33**	.44**	.88*	-	-	-	.54**	-

Note. $*p < .05$, $**p < .01$. Correlations between the subscales of Work Engagement and Playful Work Design were not calculated, because this was not relevant.

Hypothesis Testing

Hypothesis 1 stated that perceived autonomy has a significant positive relationship with work autonomy. The simple linear regression analysis expectedly revealed a positive statistically significant effect, ($b = .78$, $SE = .17$, $p < .001$). Hypothesis 2 stated that playful

work design moderates the relationship between perceived autonomy and work engagement, and that use of playful work design will strengthen this relationship. This hypothesis was tested using a moderation analysis with centered variables, calculation was done using model l of the PROCESS macro for SPSS (Hayes, 2022).

The results of the moderation analysis are presented in Table 2 (see Appendix A). The model revealed a negative, significant moderating effect of playful work design on the relationship between perceived autonomy and work engagement (b = -.50, SE = .21, p = .02, 95% CI [-.929, -.076]). The simple slopes analysis, shown in Figure 2 (see Appendix B), displays the significant interaction between perceived autonomy and playful work design. The relationship between perceived autonomy and work engagement is stronger for individuals low on PWD, and weaker for individuals who scored higher on PWD. Thus, playful work design significantly moderated the relationship between perceived autonomy and work engagement in a negative way.

Exploratory Analysis

Simple Linear Regressions

The negative moderation effect of playful work design gave rise to exploratory analyses in which we further analyzed our variables. Besides our exploratory analysis of PWD, we also analyzed the subscales of work engagement and their relationship with perceived autonomy. We wanted to analyze this positive relationship in greater detail, hence we performed additional analyses. All three subscales posed significant relations with perceived autonomy and each other. simple linear regressions between perceived autonomy and the work engagement subscales proved significant. Perceived autonomy and vigor reported (b =.75, SE =.21, $p < .001$), dedication reported (b =.74, SE =.20, $p < .001$) and absorption reported (b =.85, SE =.20, $p < .001$).

Moderation Analyses

The results of the moderation analyses are presented in Table 2 (see next page). PROCESS macro for SPSS (Hayes, 2022) model 1 was used when performing the moderation analyses. We found that individuals who design competition in their work significantly experience less perceived autonomy and work engagement (b = -.43, SE = .20, p = .03, 95% CI [-.821, -.034]). Figure 3 (see Appendix C) displays this moderation effect. By contrast, designing fun did not significantly impact the relationship between perceived autonomy and work engagement.

Furthermore, we performed moderation analyses for the subscales of work engagement. These results are not shown in our regression table (Table 2) since work engagement and its subscales serve as our dependent variable. Significant negative moderation effects of playful work design on dedication (b = -.60, SE = .26, p = .02, 95% CI [-1.121, -.082]) and absorption (b = -.66, SE = .25, p = .01, 95% CI [-1.166, -.154]) were found. This implies that, individuals with higher PWD usage tend to report lower levels of dedication, absorption and perceived autonomy. Figures 4 and 5 (see appendices D and E) display these moderation effects graphically.

Table 2

Moderation Analyses for Perceived Autonomy and Playful Work Design Subscales

			95% CI		
Variable	*b*	*SE*	*LL*	*UL*	*p*
Constant	3.74	.07	3.60	3.87	.00***
Perceived autonomy	.69	.15	.39	.99	.00***
Designing fun	.40	.10	.21	.59	.00***
Interaction effect (Aut x PWD Fun)	-.35	.18	-.72	.01	.06
Constant	3.76	.08	3.61	3.91	.00***
Perceived autonomy	.56	.17	.22	.89	.00**
Designing competition	.34	.10	.13	.54	.00**
Interaction effect (Aut x PWD Comp)	-.43	.20	-.82	-.03	.03*

*Note. *p < .05, **p < .01, ***p <.001*

Discussion

The well-being of employees within organizations has increasingly become more important. Organizations became aware that excessive job demands are a burden for maintaining a healthy workforce. Organizational interventions that harness the vitality of employees through improving work engagement and perceived autonomy can be useful. Following existing job-demands resources (JDR)(Demerouti et al., 2001) literature, this study provides further understanding of engagement, autonomy and playful work design in a novel way.

Our first hypothesis was confirmed, we found a significant positive relationship between perceived autonomy and work engagement. In order words, employees who experience freedom in their work approach also tend to have a consistent positive mindset towards work tasks. This result corroborates earlier studies which stated a positive relationship between work autonomy and work engagement (De Spiegelaere et al., 2014; Bakker & Demerouti, 2017).

Our second hypothesis was not confirmed, we found that PWD usage negatively moderates the relationship between perceived autonomy and work engagement. Contrary to our hypothesis, this meant that increased PWD usage is linked to lower levels of autonomy and engagement in work. We were surprised by this result since we have not identified prior literature that mentions negative effects of playful work design usage. Also, we argued that job crafting can be seen as a job resource and thus strengthens the relationship of other job resources.

The unexpected negative moderation effect of PWD gave unmistakable reason for exploratory analyses. Our curiosity and desire to understand this effect better led us to disentangle the two components of PWD by analyzing their separate impact as moderators. Our results reported that designing competition did significantly moderate the relationship between work engagement and perceived autonomy in a negative way. However, designing fun did not significantly alter this relationship. Implying that instilling goals and a sense of competition into work is more impactful compared to having fun at work.

Besides, a more comprehensive analysis of PWD, we also disentangled work engagement. We performed simple linear regression and moderation analyses for vigor, dedication and absorption. All three subscales were positively related to work autonomy in a significant way, when examining our moderation analyses, we found that PWD significantly impacted dedication and absorption in a negative way. Our findings are contrary to prior

research, which concluded that designing fun and designing competition are positively linked to dedication and engagement (Scharp et al., 2022). Also, Petelczyc et al. (2018) argued that employees that design competition transfer desirable processes like vigor and engagement into work.

Our simple slopes are closely related to each other, as they all show a similar pattern. A steep increase in work engagement and perceived autonomy is visible for lower levels of PWD. As a matter of fact, a slight decrease in work engagement and perceived autonomy is only seen for dedication and absorption. Perhaps, employees that used PWD strategies noticed that it hampered their focus and responded negatively.

Theoretical Implications

Our study extends current literature on PWD, specifically the moderating effect it had on our variables perceived autonomy and work engagement. As far as we know, we are one of the first studies that analyzed this relationship directly. Although, Dishon-Berkovits et al. (2023) also used vigor, dedication and absorption in their study, their focus was solely on performance. The significant effect of designing competition, but not designing fun might be explained by our limited sample size. Possibly a larger sample size would alter these results, since designing fun was barely insignificant.

Furthermore, our study highlights the powerful effect of PWD usage, even though it is different from our expectations. Current knowledge on the benefits of play in work environments is limited (Celestine & Yeo, 2021) and maybe this was also reflected in our sample. We tried to extend the knowledge of play in work environments by our diverse sample which included various ages and work forces.

Dishon-Berkovits et al. (2023) concluded that solely designing competition and not designing fun proved valuable for facilitating ongoing work engagement. This study aligns with our findings demonstrating the unique contribution of designing competition whilst

simultaneously showcasing the indistinct value of designing fun. We suggest that challenging ourselves instead of increasing fun may activate and motivate employees to work towards these challenges. Designing fun potentially serves as a powerful stress-release but may fall short in increasing work-related motivation.

Practical Implications

Our study can benefit human resource initiatives within organizations. Bakker et al. (2023) concluded that a combination of top-down and bottom-up initiatives provides maximal results for employees and organizations. Starting at the top, organizations can promote play at work and stimulate employees to experiment with job crafting strategies like PWD. This would provide opportunities for employees to discover creative and rewarding work strategies. Scharp et al. (2019) discussed how PWD can be stimulated as a bottom-up approach. They argue that employees should familiarize PWD in their work, starting with information on the concept of PWD. Subsequently, trainings with other colleagues allows for interaction and knowledge sharing. Dishon-Berkovits et al. (2023) emphasized the importance of incorporating designing fun elements into work. They argue that most jobs inherently contain activities that are experienced as tedious and dull. Designing fun can be used to instill amusement and excitement and possibly contribute to a more favorable work experience.

Limitations and Future Directions

Our study, like other studies inherently includes limitations. Our first limitation stemmed from our cross-sectional study design; this design does not involve any manipulation which makes establishing causation not possible. However, our angle for this study was exploratory and therefore we did not expect to identify causality.

Second, we gathered data by using a questionnaire, a self-report instrument. Self-report instruments are not impeccable since they may be subject to common method variance. This entails possible exaggeration of identified relationships between variables. Conversely,

some academics argue that the occurrence of common method variance in self-report measures is overstated (Crampton & Wagner, 1994; Spector, 2006). Future research could use qualitative measures like interviews to address this limitation. Interviews are more direct and allow elaboration on questions. However, since interviews are more personal compared to online questionnaires, they might encourage socially desirable responses.

Following our research, we conclude that the positive relationship between perceived autonomy and work engagement is solidified amongst employees. In contrast with, the moderating role of PWD. Since we expected that PWD positively amplified perceived autonomy and work engagement we argue that future studies should focus on preceding factors for PWD usage. Also, future studies could focus on a different sample like students. Just as work, studies pose demands and expectations on students. Most students also encounter tedious and unfulfilling tasks that can be experienced as draining. Hence, students possibly benefit from job crafting strategies like PWD to incorporate challenges and amusement into their study tasks.

Conclusion

This study, conducted among 70 individuals, concluded that our results align with prior research on job resources. We identified a clear positive relationship between perceived autonomy and work engagement. Furthermore, we outlined multiple interventions, supported by other scholars that could support organizations in their pursuit of combining well-being with performance. Unlike our prediction, overall playful work design and its subscales significantly weakened the positive relationship between perceived autonomy and work engagement. Our exploratory analyses expanded on this negative effect by demonstrating it in various ways. Our findings suggest that organizations can positively contribute to employees' work experiences through top down and bottom-up interventions. Job crafting strategies like PWD may positively impact employees in the foreseeable future, if employees are able and

willing to incorporate them. Future research could consider using qualitative measures like interviews to study autonomy, engagement and playful work design differently.

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Appendix A

Table 2

Regression Model Perceived Autonomy, Work Engagement and Interaction Effect of Playful Work Design

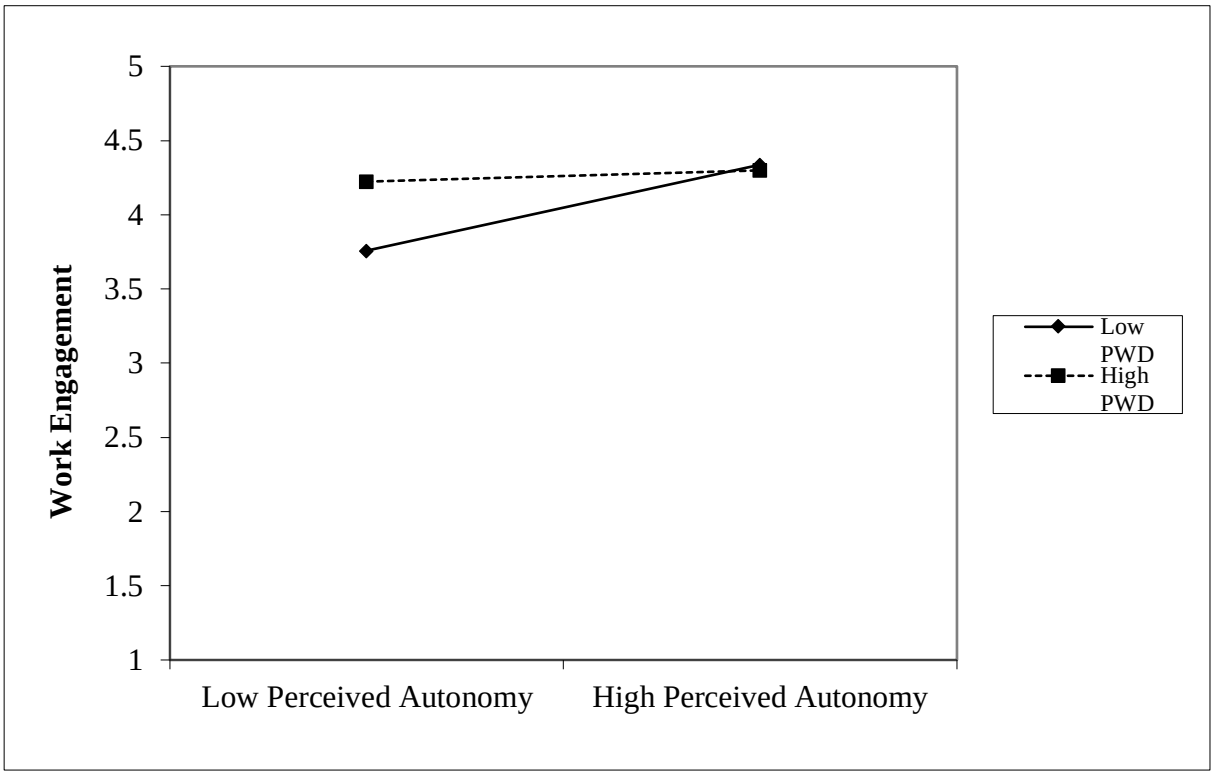
			95% CI		
Variable	Estimate	*SE*	*LL*	*UL*	*p*
Constant	3.75	.06	3.61	3.89	.00***
Perceived Autonomy	.57	.15	.27	.88	.00***
Playful Work Design	.46	.10	.24	.68	.00***
Interaction (Aut x PWD)	-.50	.21	-.92	-.07	.02**

Note. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. *N* = 70. **$p < .01$, ***$p < .001$

Appendix B

Figure 2

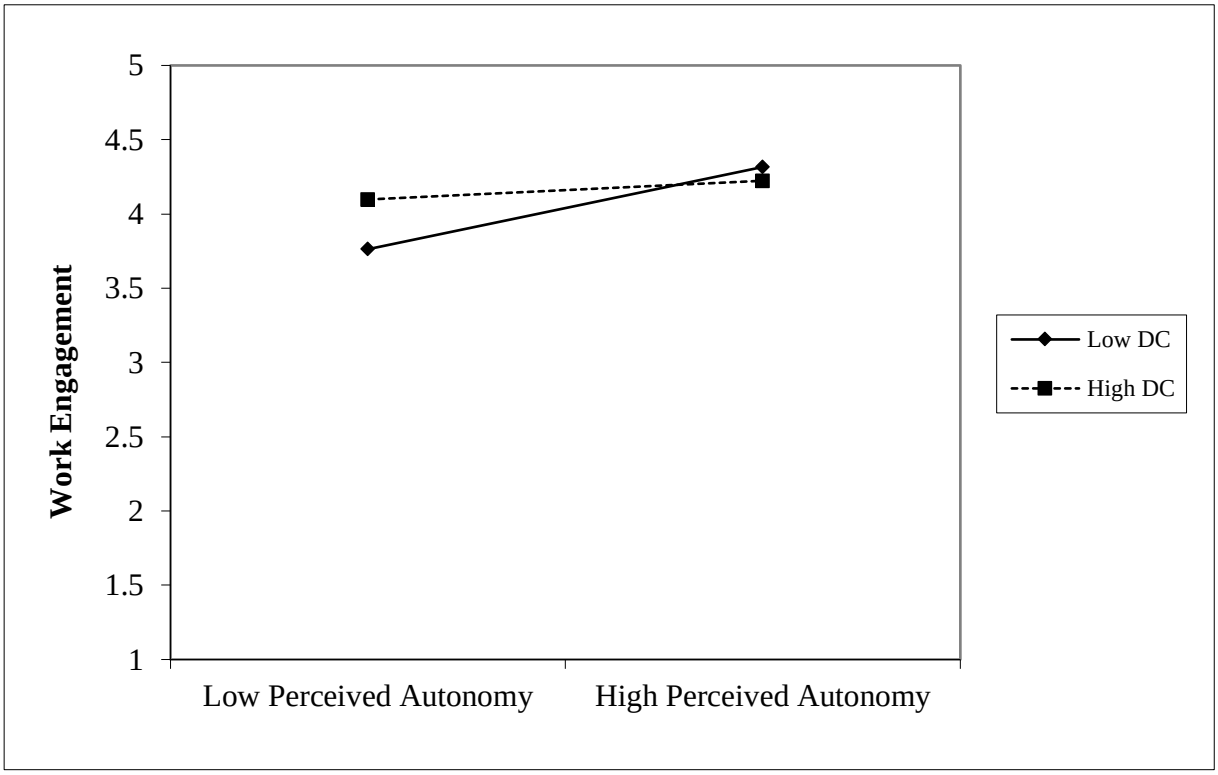
Visualizing the Moderating Effect of Playful Work Design on the Relationship between Perceived Autonomy and Work Engagement



Appendix C

Figure 3

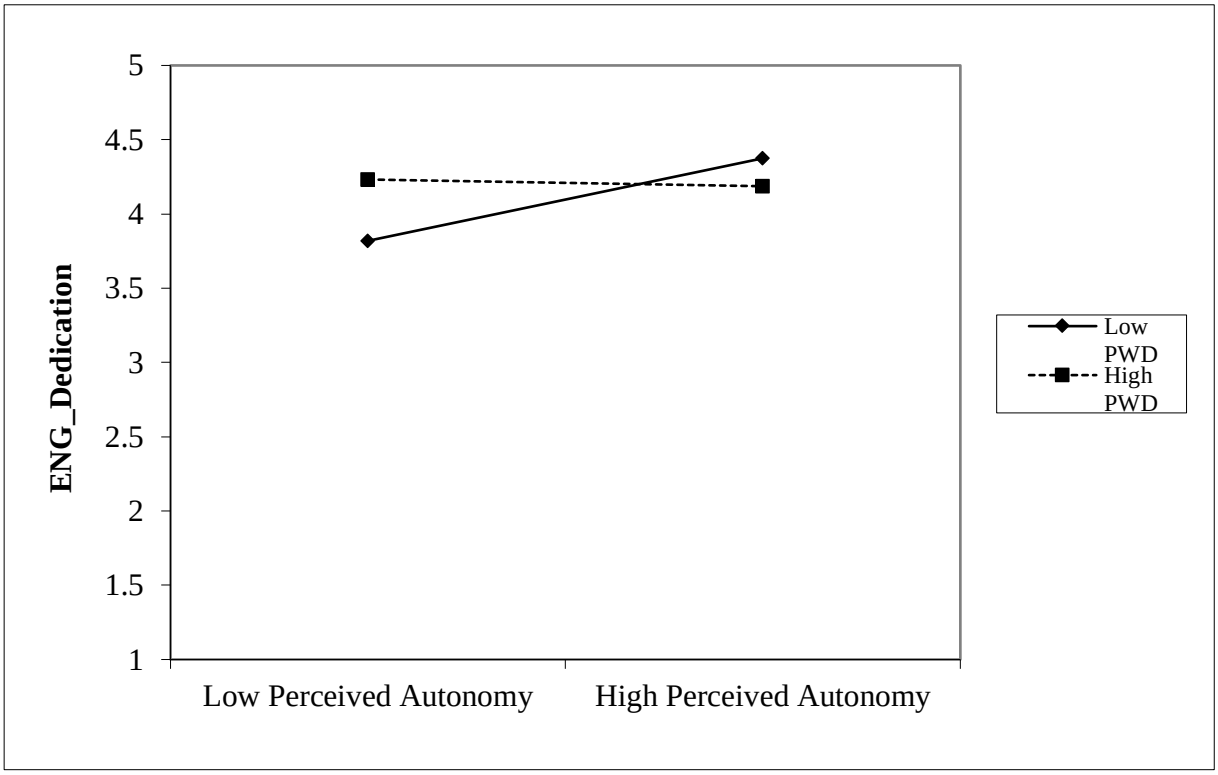
Visualizing the Moderating Effect of Designing Competition on the Relationship between Perceived Autonomy and Work Engagement



Appendix D

Figure 4

Visualizing the Moderating Effect of Playful Work Design on the Relationship between Perceived Autonomy and Dedication



Appendix E

Figure 5

Visualizing the Moderating Effect of Playful Work Design on the Relationship between Perceived Autonomy and Absorption