Journal of Business and Psychology
https://doi.org/10.1007/s10869-025-10091-y

ORIGINAL PAPER

The Bright and Dark Side of Playful Work Design: Navigating Work Engagement and Workaholism

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Received: 15 July 2024 / Revised: 18 November 2025 / Accepted: 19 November 2025

Abstract

Play often equates to positive experiences, but could there also be drawbacks? To answer this question, we built on the energy management perspective of play to investigate the direct, configurational, and multiplicative effects of playful work design (consisting of designing fun and designing competition) on work engagement and workaholism. We proposed that playful work design represents an effective energy management strategy for work engagement, but may also increase workaholism when designing competition overshadows designing fun. We tested our hypotheses and replicated our findings in two heterogeneous samples. Specifically, we conducted a cross-sectional (Study 1; $N = 1262$) and daily diary study (Study 2; $N = 742$ individuals, $n = 2774$ days). As hypothesized, designing fun and designing competition promote work engagement, while designing fun decreases workaholism, and designing competition increases it. We also found support for the configurational hypotheses. Namely, work engagement is especially high when employees enact playful work design congruently, and workaholism decreases when employees design fun more often than they design competition. Taken together, these findings underscore the paradoxical nature of playful work design: the same strategies that energize employees can also either fuel or prevent maladaptive overinvestment, depending on how they are orchestrated. The findings have important implications for research and practice.

Keywords Playful work design · Playfulness · Proactivity · Work engagement · Workaholism

Work hard, play hard? For most people, play evokes spontaneity, joy, and intrinsic motivation (Csikszentmihalyi & Bennett, 1971). This motivation is precisely why scholars and organizations have become increasingly interested in bringing play into the workplace (Smith et al., 2022). Playful behaviors at work can infuse tasks with energy, foster creativity, and fuel motivation (Bakker & Scharp, 2025; Petelczyc et al., 2018; Van Vleet & Feeney, 2015). Indeed, research has documented numerous benefits of play at work, from enhanced task performance and learning to greater authenticity and creativity (Cellar & Barrett, 1987; Garrett, 2024; Glynn, 1994; Kolb & Kolb, 2010; West et al., 2017). Yet the very qualities that make play energizing may also render it risky. When employees channel their vitality into play, they *invest* additional time, effort, and emotion in their work through play. While this can build and replenish resources, therefore fostering work engagement (Celestine & Yeo, 2021), it also implies the possibility of overinvestment, blurred boundaries, and compulsive striving. This paradox of play has been well documented in other domains, such as gaming and gambling (Kardefelt-Winther, 2014; Raylu & Oei, 2002). What begins as a source of pleasure can tip into exhaustion and dependence. Might similar dynamics unfold when play becomes part of work?

Arianna Costantini and Yuri S. Scharp share first authorship. Additional supplementary materials may be found here by searching on article title https://osf.io/collections/jbp/discover.

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Published online: 03 December 2025

Despite the growing enthusiasm surrounding play at work, little is known about what shapes its paradoxical nature, whereby strategies that are intrinsically energizing can also foster maladaptive overinvestment. Indeed, a recent review noted the absence of research examining the "dark side" of work-embedded play (Celestine & Yeo, 2021), limiting our understanding of when and why play may shift from being resourceful to depleting. We argue that the lack of differentiation between forms of play may explain why insights into play's potential for gains and drawbacks have remained rudimentary. Namely, the *configuration* of different play forms may fundamentally transform their respective experiences. As Lieberman (2014) cautioned, "the spirit of play" may be lost when agonistic elements overshadow spontaneous joy. While some theorizing has occurred, empirical evidence to substantiate these claims remains scarce. What happens when initiatives lose the "spirit of play"? Understanding these nuances is essential for developing a comprehensive understanding of different blends of play at work as well as for informing practitioners.

We aim to contribute to discourse on the bright and dark sides of play. To this end, we draw on and advance the energy-management framework of play (Celestine & Yeo, 2021) to examine the proactive integration of play with work activities by employees, known as playful work design (PWD; Bakker et al., 2020a, 2020b; Scharp et al., 2023). Importantly, PWD differentiates two fundamental types of play described as ludic and agonistic play during work tasks, as (1) designing fun and (2) designing competition (Huizinga, 1938; Kolb & Kolb, 2010). Designing fun refers to the integration of ludic play strategies, such as humor, imagination, and creativity, into work activities to create amusement, entertainment, and fun. Designing competition concerns the use of agonistic play strategies, such as micro-objectives, segmentation, and striving during work to facilitate experiences of drive, achievement, and pleasure derived from stretching one's skills. We argue that these two play dimensions operate differently in terms of energy management at work, and that different blends of designing fun and designing competition have important implications for work-related well-being and motivation (Bakker & Junker, 2025; Bakker & Scharp, 2025).

Taken together, we aim to make three contributions to the literature. First, we advance the literature on PWD. Research has previously shown that designing fun and designing competition promote well-being and performance (e.g., Bakker et al., 2020a, 2020b; Scharp et al., 2023). We extend and nuance these findings by investigating how *configurations* of designing fun and designing competition, i.e., how they are combined and balanced, shape employee outcomes, highlighting the joint influence of resource-replenishing and resource-building play (see Fig. 1). This nuanced understanding enables further theorizing regarding when and why specific forms of play are effective in unison or in isolation (cf. Scharp et al., 2022).

Second, we elucidate the paradoxical nature of PWD. While the joint influence of the two dimensions of PWD on work engagement suggests that individuals should maximize both designing fun and designing competition (high-high configuration), the implications for maladaptive overinvestment tell a different tale. To protect against workaholism, an incongruent configuration is necessary, where designing fun exceeds designing competition (fun surplus). In contrast, configurations where designing competition exceeds designing fun (competition surplus) may foster workaholism. This paradox elucidates the dual potential of play at work as both energizing and risky, depending on how strategies are orchestrated. These findings answer several calls for research on the dark side of play and extend the implications of the energy management perspective of play at work (Celestine & Yeo, 2021; Petelczyc et al., 2018). Moreover, these findings may explain adverse consequences and resource overinvestment in play found in other domains (e.g., gaming and gambling; Kardefelt-Winther, 2014; Raylu & Oei, 2002).

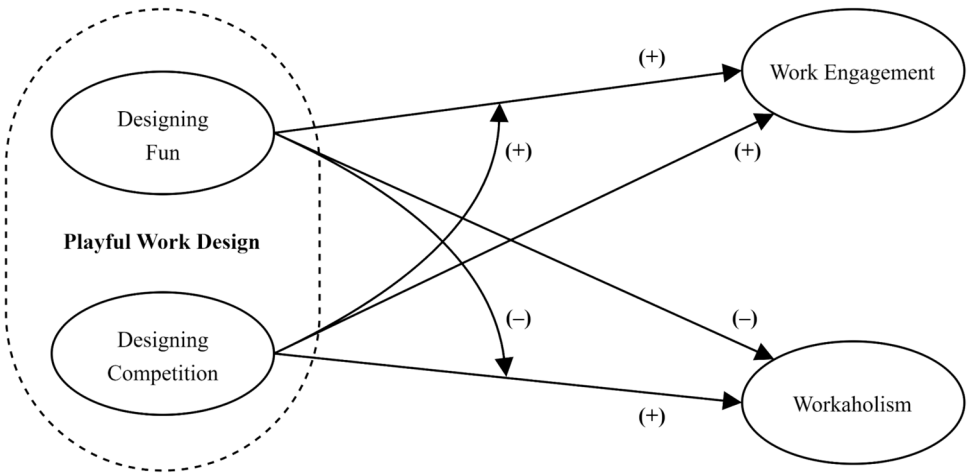

Fig. 1 Conceptual model of the hypothesized relationships of designing fun and designing competition on work engagement and workaholism. *Note:* Straight arrows represent the direct and multiplicative effects of designing fun and designing competition on the outcomes. Curved arrows represent the expected linear congruence and incongruence effects on work engagement and workaholism, respectively

Finally, we contribute to and answer calls for multilevel theorizing in organizational psychology (Zacher & Rudolph, 2020), specifically regarding play at work (Petelczyc et al., 2018). The current study shows that the associations between configurations of PWD and work-related outcomes are mostly homologous across levels of analysis. By recognizing homologous relationships across individual tendencies and daily behaviors, we can better predict and promote work engagement while mitigating workaholism through targeted interventions that promote balanced resource investment and replenishment in the workplace.

Theoretical Framework

The Energy Management Perspective of Playful Work Design

We build our theorizing on the energy-management perspective of play at work, which specifically focuses on how individuals dynamically regulate their energy through play (Celestine & Yeo, 2021). The central proposition of this framework is that play enhances work functioning through two complementary pathways (Bakker, 2022; Quinn et al., 2012). First, play *builds* resources by investing energy via upward cycles (i.e., resource-building pathway). Second, play *replenishes* resources by creating a context where resources are restored and conserved (i.e., resource-replenishing pathway). When play is self-initiated, employees experience autonomy and control that fuel motivation, making work-embedded play a self-regulatory strategy through which individuals orchestrate investment and restoration to manage work-related energy. These principles explain why play can sometimes be energizing yet at other times depleting, depending on the extent to which each pathway is activated, and thus provide a useful lens for theorizing about the implications of different play configurations for enthusiasm and overinvestment in work.

PWD is defined as "the proactive cognitive-behavioral orientation aimed at fostering fun and challenge during work activities through creating, seeking, and resolving surprises and complexities" (Scharp et al., 2023, p. 515). PWD builds on the notion that play is not necessarily a set of activities but rather a way of approaching and performing an activity (Mainemelis & Ronson, 2006). Designing fun corresponds to ludic play strategies that infuse tasks with enjoyment and thereby build and replenish energy. Designing competition corresponds to agonistic play strategies that activate drive and thereby build energy (Bakker et al., 2020a, 2020b). PWD can be enacted across diverse occupations, although its specific manifestations vary by job and task. For example, an employee might use humor and creativity to make ordinary tasks enjoyable (designing fun) or set personal micro-challenges to complete tasks more quickly or effectively (designing competition). While both strategies can serve as energy-management mechanisms, they differ in how they regulate resources, a logic that is fundamental to our reasoning about the bright and dark sides of PWD.

To set the stage for our configurational reasoning, we first examine the separate links between designing fun and designing competition with work engagement and workaholism. These baseline relationships clarify how each PWD dimension contributes to positive and negative forms of investment at work when considered in isolation. We then build on this foundation to propose that the joint configuration of these dimensions is key to understanding whether and how play becomes a source of sustainable energy or excessive striving.

The Bright Side of Playful Work Design

Work-embedded play is theorized to benefit motivation and well-being through resource investment (Celestine & Yeo, 2021). Evidence of the "bright" side of PWD is burgeoning (see Bakker et al., 2023a, 2023b; Bakker & Van Wingerden, 2021; Caracuzzo et al., 2022, 2024; Dishon-Berkovits et al., 2024; Hoang & Le, 2024; Khan, 2023; Liu et al., 2023), with most research concentrating on its positive associations with work engagement. For instance, several daily diary studies have shown that designing fun and designing competition fluctuate in harmony with work engagement throughout the week (Scharp et al., 2019, 2021, 2022). Moreover, these effects extend beyond self-perceptions, as employees who engage in PWD are perceived by colleagues as more work engaged than their non-playful counterparts (Scharp et al., 2023). These individual effects have been consistently demonstrated in prior research and underscore PWD as a proactive strategy for energy management that benefits work engagement. Therefore, in the present study, we treat the associations between PWD and work engagement as baseline checks rather than novel hypotheses.

A Dark Side of Playful Work Design?

While existing research has predominantly focused on the positive effects of PWD, we build on the energy management perspective of play to propose that PWD may also have unfavorable consequences, particularly in the form of workaholism. Workaholism is defined as an unpleasant, activated work-related state of mind encompassing an uncontrollable compulsion to work, intrusive thoughts about work, distress when unable to work, and working excessively beyond what is necessary (Bakker & Oerlemans, 2011; Clark et al., 2020). Importantly, workaholism does not preclude the experience of work enjoyment (Taris et al., 2015; Spence & Robbins, 1992). Indeed, workaholics often report high

levels of enjoyment (McMillan et al., 2003; Peiperl & Jones, 2001), even when the phenomenon is linked to impaired social functioning and poor health (Schaufeli et al., 2008). At its core, workaholism reflects difficulty in disengaging from work, leading to maladaptive patterns of overwork and sustained resource depletion (Van Wijhe et al., 2011).

The energy-management perspective of play explains why the enactment of PWD can also entail potential drawbacks (Celestine & Yeo, 2021). This framework proposes that work-embedded play is characterized by resource-building through investment, whereas resource-replenishing play occurs when attention is diverted away from work to create a context in which resources are conserved. We argue that both designing fun and designing competition constitute forms of work-embedded play that build resources through investment. Yet, we posit that designing fun also creates a context where individuals can conserve and *replenish* their resources. The theoretical differences between designing fun and designing competition in resource regulation suggest that they are inversely related to workaholism. That is, designing fun is expected to relate negatively to workaholism, whereas designing competition may relate positively.

Designing fun involves ludic play strategies, such as humor, imagination, and creativity, to make work tasks enjoyable and entertaining (Lieberman, 2014; Proyer, 2017); Scharp et al., 2023). While this entails the investment of resources to "build" new ones, this lightheartedness may also create a social and emotional context where individuals can conserve and "replenish" their resources. By transforming ordinary tasks into enjoyable activities, designing fun fosters positive emotions, reduces stress, and enhances recovery. For instance, research shows that on days when employees designed fun, they reported greater social connectedness and belonging (Scharp et al., 2022), and their work engagement suffered less from stressful interpersonal events such as social isolation, emotional demands, and interpersonal conflicts (Petelczyc et al., 2018; Scharp et al., 2021). Therefore, we argue that designing fun not only concerns investing resources to "build" new ones but also creates the social and emotional context to "replenish" and conserve resources (Hobfoll, 2011). Thus, we expect designing fun to counteract the excessive investment and compulsion that are fundamental to workaholism.

Hypothesis 1a Designing fun is negatively associated with workaholism.

Designing competition involves agonistic play, such as setting personal records or creating micro-objectives, which can enhance focus and performance (Scharp et al., 2023). From the energy-management perspective, designing competition prioritizes the investment of energy to heighten activation, increase intensity, and promote performance drive, with fewer opportunities for resource replenishment, which may foster a compulsive orientation to work. Namely, competition often triggers ego involvement, where individuals seek to validate their self-worth through achievements (Vansteenkiste & Deci, 2003). In the absence of intrinsic motivation, this can lead to introjected regulation, a controlled form of motivation driven by self-imposed pressure, guilt, or the need for external validation (Sepehr & Head, 2018). Such controlled motivation aligns with workaholism, where compulsive effort stems from internalized pressures rather than genuine interest (Deci & Ryan, 2000). Consequently, employees who redesign their work to be more competitive may enter a reinforcing loop of striving and reward, in which achieving milestones fuels continued overinvestment.

Several studies and examples from practice support our reasoning. Namely, while competition enables employees to balance challenges with skill development and fosters a sense of autonomy (Scharp et al., 2023; Sepehr & Head, 2018), it also carries risks similar to those observed in gaming and gambling research. Specifically, the motivation for achievement that keeps gamers engaged can also lead to compulsive overinvestment (Wang et al., 2021). Competitive game elements fulfill the need for achievement but can also drive excessive engagement, fostering dependency-like behaviors (Chang et al., 2018; Xu et al., 2012). When the pursuit of mastery and achievement shifts from a functional goal to an automatic, habitual behavior, it can contribute to compulsive tendencies similar to addiction (Kuss, 2013; Robinson & Berridge, 2003), ultimately leading to exhaustion (Kardefelt-Winther, 2014; Raylu & Oei, 2002). A notable example from practice is Microsoft's "Language Quality Game," which utilized leaderboards and point systems that generated high levels of enjoyment but also reports of overcommitment and excessive engagement extending beyond work responsibilities (Werbach & Hunter, 2012). These findings underscore the potential drawbacks of designing competition in terms of workaholic tendencies.

Hypothesis 1b Designing competition is positively associated with workaholism.

Playful Work Design Configurations: Different Blends of Designing Fun and Designing Competition

From an energy management perspective, configurations of designing fun and designing competition have distinct implications for work engagement and workaholism (Celestine & Yeo, 2021). Building on the idea that different blends of proactive work behaviors can reinforce or attenuate benefits (Bakker & Junker, 2025; Bakker & Scharp, 2025), we argue that PWD configurations matter because resource-building through investment and resource-replenishing through

conservation can combine in ways that reinforce or attenuate different outcomes.

We distinguish four configurations (see Fig. 2). First, the high-high congruence configuration refers to when designing fun and designing competition are matched at higher levels. Second, the low-low congruence configuration specifies that the dimensions of PWD are matched at lower levels. Third, the fun-surplus configuration refers to cases where designing fun exceeds designing competition. Finally, the competition-surplus configuration refers to when designing competition outweighs designing fun. Thus, PWD can be (1) congruent at higher or lower levels of enactment, or (2) incongruent, where one dimension dominates the other. Importantly, these configurations allow us to theorize on both the bright and dark sides of PWD, illustrating how different outcomes have different optimal configurations: while congruence at high levels may optimize engagement, certain forms of incongruence may protect against maladaptive overinvestment.

To test our configurational hypotheses, we use polynomial regression analyses with response surface methodology (Edwards, 1994, 2002; Edwards & Parry, 1993; Shanock et al., 2010; Yao & Ma, 2023). This approach is suited because our predictions concern the *configuration* of designing fun and designing competition, rather than whether the effect of one strategy depends on the level of the other, which is the focus of moderation analyses. Hence, this approach allows us to examine how specific blends of designing fun and designing competition jointly relate to outcomes. Traditional moderation analyses test whether the relationship between one variable depends on another, but they cannot determine whether outcomes differ when the two are aligned (e.g., both high or both low) or when imbalances occur (e.g., fun > competition or competition > fun). Response surface analyses overcome this limitation by estimating the effects of congruence and incongruence in the dimensions of PWD. Here, the polynomial terms explicitly quantify how joint and differential levels of designing fun and designing competition relate to the outcomes.

Practically, this is achieved by positioning designing fun and designing competition on perpendicular axes, with the outcome (e.g., work engagement or workaholism) represented as the height of the surface. The three-dimensional response surface is defined by congruence and incongruence

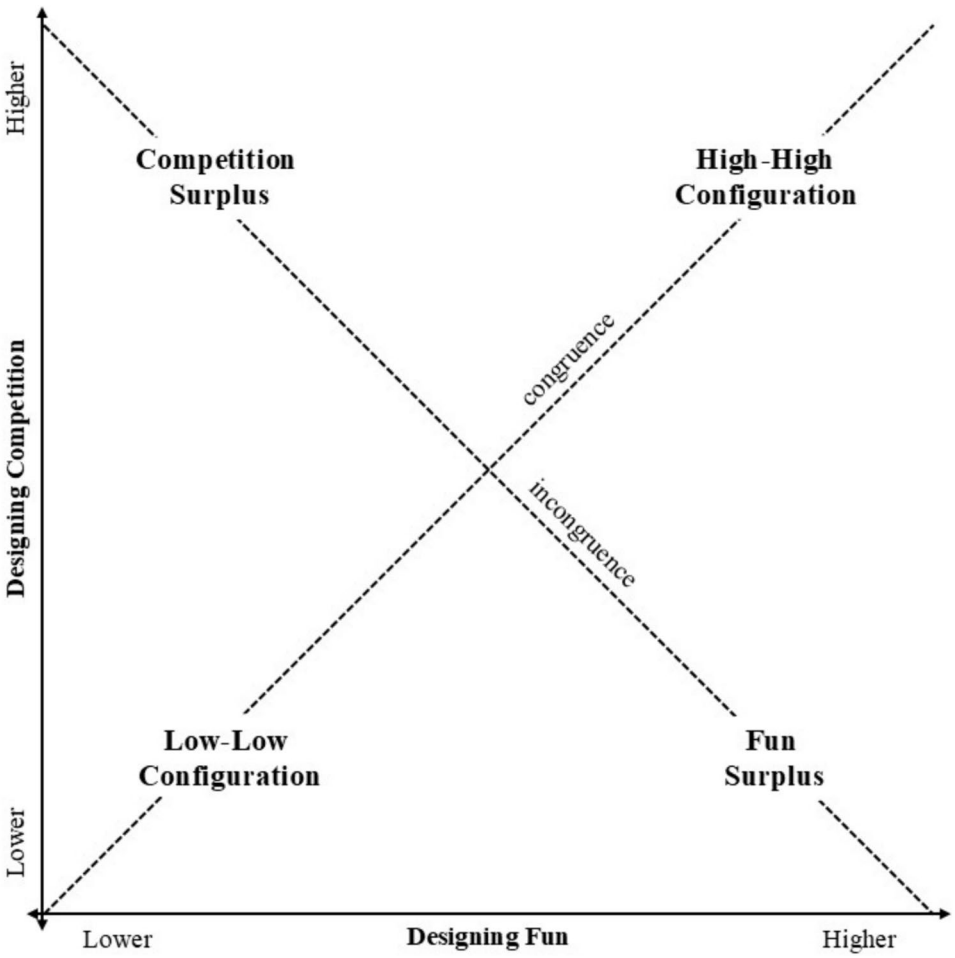

Fig. 2 Playful work design configurations

components. Along the line of congruence (LOC; designing fun equals designing competition), linear *congruence* indicates whether the outcome is higher (or lower) at matched high levels of both strategies (high-high configuration) than at matched low levels (low-low configuration). Along the line of *incongruence* (LOIC; designing fun exceeds designing competition), linear effects indicate whether the outcome is higher (or lower) when designing fun exceeds designing competition (fun surplus). These effects clarify to what extent the PWD dimensions operate best in tandem at higher levels and whether, as well as when, other blends are important.

Importantly, the energy-management perspective implies that these two strategies are not merely additive but may combine to create distinct energetic configurations. Balanced configurations may sustain work engagement by enabling employees to build and replenish resources simultaneously. However, when this balance is disrupted, configurations in which designing fun exceeds designing competition may serve as a protective buffer, reducing the risk of maladaptive overinvestment. This highlights the paradox of PWD: the same strategies that energize employees can also become problematic unless configured in ways that preserve opportunities for restoration. By explicitly theorizing this paradox, our study integrates the bright and dark sides of PWD with a method that can capture these nuanced configurations.

The Joint Influence of Designing Fun and Designing Competition on Work Engagement

Research on PWD has primarily examined the independent effects of designing fun and designing competition (Bakker & Scharp, 2025). Yet, rather than enacting these strategies in isolation, employees often engage in them concurrently. Building on the energy management perspective of play (Celestine & Yeo, 2021), we propose that *configurations* of designing fun and designing competition have distinct implications for work engagement. Specifically, combining both strategies at higher levels (a high-high configuration) should yield greater work engagement than when both are enacted at lower levels (a low-low configuration). Namely, designing fun and designing competition each build unique resources that complement one another. While designing fun invests energy in accruing resources like social connection and lightheartedness that also replenish resources, designing competition builds resources such as determination and pride. Existing studies have shown that each strategy yields unique consequences for organizational functioning (Bakker & Van Wingerden, 2021; Elsayed et al., 2025; Scharp et al., 2022, 2023). Building on this evidence, we propose that when employees enact both strategies together, they may complement each other, simultaneously fostering restoration (via designing fun) and resource investment (via designing competition). Thus, we expect that higher congruence in these strategies, particularly at high levels, will be associated with greater work engagement.

Hypothesis 2 Work engagement increases as designing fun and designing competition increase together.

The Joint Influence of Designing Fun and Designing Competition on Workaholism

We argue that the configuration of designing fun and designing competition in PWD also has important implications for workaholism. From an energy management perspective (Celestine & Yeo, 2021), designing competition builds resources such as achievement and focus, but can also heighten internal pressure and overinvestment in work, which are hallmarks of workaholism (Clark et al., 2020; Van Wijhe et al., 2011). In contrast, designing fun serves a replenishing function that generates positive affect, emotional relief, and social connection, thereby offsetting the resource-draining tendencies of competitive striving. Therefore, we propose that incongruence, where designing fun exceeds designing competition, acts as a key buffer against workaholism. When designing fun exceeds designing competition, the lightheartedness and flexibility involved in designing fun may take precedence, alleviating the performance focus typically associated with designing competition, and instead reframing work-related achievement goals as intrinsically enjoyable rather than merely a means to achieve external goals. For example, an employee working toward competitive sales targets may intentionally reframe the situation by creating humorous mini-challenges with colleagues, sharing jokes during progress check-ins, and celebrating even small wins with playful rituals. In this case, the playful dimension becomes the primary source of motivation and energy: the employee remains engaged not only because of the competitive pressure to outperform others, but because the self-created fun turns the task into something intrinsically enjoyable and socially rewarding. The competitive target remains in the background, while designing fun takes the lead. This reflects a surplus of designing fun over designing competition: by shifting the motivational focus from pressure to intrinsic enjoyment, this configuration is likely to weaken compulsive overinvestment.

Hypothesis 3 Workaholism decreases when designing fun exceeds designing competition.

Study 1: Method

Procedure and Participants

Participants were recruited by bachelor's students as a part of a course requirement in Italy between February and March 2023. This procedure increases sample heterogeneity and, therefore, the generalizability of our findings (Demerouti & Rispens, 2014). Participants were asked to complete an anonymous, web-based survey. They were informed about the study aims, that responses were anonymous, and that participation was voluntary. Individuals could participate if their work experience exceeded six months, they worked at least 20 hours per week, and were employed (as opposed to self-employed). Out of 1404 participants who opted to participate, 139 did not meet the inclusion criteria or stopped the survey without providing data on our focal variables. The final sample consisted of 1265 employees (58% women; $M_{age} = 41.30$; $SD_{age} = 13.69$; $M_{tenure} = 11.04$; $SD_{tenure} = 11.13$). Fifty-three percent of the participants held a high-school diploma, whereas 41% held a bachelor's degree or higher. Thirty-six percent of the participants held administrative positions; 9% worked in education and research, 8% in wholesale and tourism, and 7% in healthcare; 46.9% reported having at least one child, whereas 53.1% reported having no children.

Measures

All measures were administered in Italian. Scales not available in Italian were translated using back-translation (Brislin, 1970). In addition to Cronbach's alpha and composite reliability (CR), McDonald's omega (ω) was calculated based on maximum likelihood estimation of factor loadings and error variances (Hayes & Coutts, 2020) (see Table 1) as it provides a more robust estimate of internal consistency, particularly when the assumption of equal factor loadings across indicators (i.e., tau-equivalence) is not justified (Geldhof et al., 2014; McNeish, 2018).

PWD was measured with the two-dimensional, 12-item instrument developed by Scharp et al. (2023). Each dimension is measured with six items evaluated on a 5-point scale (1 = *never*, 5 = *very often*). Example statements of the designing fun subscale are "I approach my work in a playful way" and "I look for humor in the things I need to do." The designing competition subscale includes "I try to make my job a series of exciting challenges" and "I compete with myself at work, not because I have to, but because I enjoy it."

Work engagement was measured with the Italian version (Balducci et al., 2010) of the short form of the Utrecht Work Engagement Scale (Schaufeli et al., 2006). The scale captures each dimension of work engagement with three items. Participants evaluated statements such as: "At my work, I feel bursting with energy" (*vigor*), "I am enthusiastic about my job" (*dedication*), and "I feel happy when I am working intensely" (*absorption*) on a 7-point scale (1 = *never*, 7 = *always*).

Workaholism was assessed using the Multidimensional Workaholism Scale developed by Clark et al. (2020). This scale comprises four subscales with four items each that are evaluated on a 5-point scale (1 = *never*, 5 = *always*). Example statements include: "I always have an inner pressure inside of me that drives me to work" (*motivational workaholism*), "I feel like I cannot stop myself from thinking about working" (*cognitive workaholism*), "I am almost always frustrated when I am not able to work" (*emotional workaholism*), and "I tend to work beyond my job's requirements" (*behavioral workaholism*).

Strategy of Analysis

To test our hypotheses, we conducted two structural analyses. The first focused on the independent effects of PWD components, while the second investigated the interplay between these components to examine their combined influence on work engagement and workaholism. All predictors were grand-mean-centered to facilitate interpretation and reduce potential multicollinearity among interaction terms. In the first analysis, we specified a main effects model to test the baseline replication check and Hypotheses 1, which predict how the individual components of PWD, designing fun and designing competition, relate to work engagement and workaholism. In this model, designing fun and designing competition were included as predictors, and work engagement and workaholism were specified as outcomes.

For the second analysis, we applied polynomial regression with response surface analysis (RSA) to test Hypotheses

Table 1 Means, standard deviations, reliabilities, and correlations of the study variables in study 1 ($N = 1265$)

	Mean	*SD*	*ω (α)*	AVE	CR	1	2	3
1. Designing Fun	3.27	.90	.88 (.88)	.55	.88			
2. Designing Competition	3.43	.77	.78 (.76)	.41	.77	.43**		
3. Work Engagement	3.56	1.21	.93 (.93)	.75	.90	.43**	.50**	
4. Workaholism	2.44	.74	.89 (.90)	.50	.80	.06*	.28**	.25**

*$p < .05$. **$p < .01$. *AVE* average variance extracted, *CR* composite reliability

2 and 3. RSA is particularly suitable for examining the congruence and incongruence effects of designing fun and designing competition on work engagement and workaholism (Yao & Ma, 2023). This approach allowed us to model how designing fun and designing competition work together in influencing work engagement and workaholism, and visualize it in a three-dimensional space. Specifically, RSA enabled us to assess whether the alignment of the two predictors (congruence) positively relates to work engagement and whether misalignment between them (incongruence) relates to workaholism. These response surface parameters allow us to capture the dynamic interplay between fun and competition and how they may complement or counteract each other depending on their levels, thereby affecting work engagement and workaholism. This aligns with our hypotheses that high congruence in designing fun and competition might foster an optimal level of stimulation and motivation, enhancing work engagement, while significant misalignment could highlight the risks of excessive competition or insufficient fun, which may lead to workaholism.

To achieve these insights, RSA uses the coefficients from polynomial regression to compute congruence and incongruence parameters. Specifically, the polynomial regression includes first-order terms for designing fun (b_1) and designing competition (b_2), as well as second-order terms for designing fun^2 (b_3), capturing the curvilinear effect of designing fun on the outcomes, designing fun × designing competition (b_4), accounting for the combined influence of fun and competition, and designing competition^2 (b_5), capturing the curvilinear effect of competition on the outcomes (Edwards, 1994, 2002; Edwards & Parry, 1993). Importantly, these coefficients are used to calculate response surface parameters to provide a more holistic view of how the congruence and incongruence between designing fun and designing competition influence the outcomes (Rosing & Zacher, 2017; Shanock et al., 2010; Yao & Ma, 2023).

The congruence parameter focuses on situations where the levels of designing fun and designing competition align (DF = DC). In our study, this congruence is expected to have a positive linear effect on work engagement (Hypothesis 2), represented by the linear slope ($a_1 = b_1 + b_2$), signaling that work engagement increases as designing fun and designing competition rise together. In contrast, the incongruence parameter focuses on the discrepancies between designing fun and designing competition (DF = -DC). This parameter assesses how workaholism is influenced when designing fun exceeds designing competition. Hypothesis 3 predicts a negative incongruence effect ($a_3 = b_1 - b_2$) on workaholism, reflecting that workaholism decreases when designing fun outweighs designing competition. In our analyses, Bayesian estimation was employed for the polynomial regression and RSA. This method is particularly advantageous in accommodating non-linear effects and distributions that deviate from normality, ensuring robust and reliable parameter estimates (Zyphur & Oswald, 2015).

Results

Descriptive Statistics

Table 1 displays the means, standard deviations, reliabilities, and correlations of the study variables.

Validity and Reliability

Prior to testing our hypotheses, we conducted a confirmatory factor analysis to assess the construct and discriminant validity of the study variables. To accommodate the higher-order factor structure of workaholism and work engagement, we specified both lower- and higher-order factor structures. Namely, we included seven lower-order factors: designing fun (6 items), designing competition (6 items), vigor (3 items), dedication (3 items), absorption (3 items), motivational workaholism (4 items), cognitive workaholism (4 items), emotional workaholism (4 items), and behavioral workaholism (4 items); and two higher-order factors: work engagement (vigor, dedication, absorption) and workaholism (motivational, cognitive, emotional, and behavioral workaholism). Taken together, the model fit was acceptable: χ^2 (616) = 3489.69, CFI = .901, TLI = .893, RMSEA = .060, SRMR = .079. Convergent validity was evaluated using the average variance extracted (AVE), which represents the average amount of variance explained by each construct in its indicators relative to the overall variance of its indicators (Fornell & Larcker, 1981), as reported in Table 1. For all constructs, the AVE met or exceeded the threshold of 0.50, except for designing competition, which had an AVE slightly below the recommended threshold. However, composite reliability was well above the acceptable level. Additionally, the model fit of the measurement model was acceptable, suggesting good construct validity and supporting convergent validity. Discriminant validity was assessed using the Fornell-Larcker criterion, where the square root of the AVE for each construct was greater than its correlations with other constructs. Specifically, for designing fun (.74), designing competition (.64), work engagement (.87), and workaholism (.71), the results indicated satisfactory discriminant validity.

Hypothesis Testing

We tested Hypothesis 1 and the baseline checks in a single structural model (see Table 2). Hypothesis 1 posited that (a) designing fun would negatively relate to workaholism, while (b) designing competition would positively relate to workaholism. The results aligned with these predictions.

Designing fun was negatively associated with workaholism ($b = -.06$, $SD = .02$, $p < .05$; 95% CI [−.11, −.01]), indicating that individuals who incorporated fun into their work design were less prone to workaholism. Conversely, designing competition was positively related to workaholism ($b = .30$, $SD = .03$, $p < .01$; 95% CI [.24, .36]), indicating that fostering competition in work design may contribute to higher workaholism levels. Thus, Hypotheses 1a and 1b were supported. Moreover, the baseline replication checks revealed that individuals who engaged in designing fun and competition were more engaged in their work.

Hypotheses 2 and 3 were tested using polynomial regression with RSA (see Table 3). Hypothesis 2 focused on the effects of linear congruence between designing fun and designing competition on work engagement. In support of Hypothesis 2, the slope of the congruence line was positive ($a_1 = .97$, $SD = .04$, $p < .01$, 95% CI [.90, 1.06]), suggesting that work engagement improved as both dimensions increased together. Notably, incongruent PWD, where designing fun exceeded designing competition, was negatively associated with work engagement ($a_3 = -.23$, $SD = .06$, $p < .01$, 95% CI [−.33, −.09]), indicating that mismatched PWD, where fun is emphasized over competition, reduces work engagement. Figure 3a illustrates these effects. Overall, Hypothesis 2 was supported.

Hypothesis 3 examined the effects of incongruence between designing fun and designing competition on workaholism, specifically when designing fun exceeded competition. Supporting Hypothesis 3, the results (see Fig. 3b) indicated that incongruence between designing fun and designing competition, with fun outweighing competition, was associated with lower workaholism ($a_3 = -.35$, $SD = .05$, $p < .01$, 95% CI [−.46, −.25]). Interestingly, unanticipated findings revealed that individuals who designed both fun and competition at higher levels experienced increased workaholism ($a_1 = .24$, $SD = .03$, $p < .01$, 95% CI [.19, .28]). These results suggest that balancing high levels of fun and competition may inadvertently elevate workaholism. Overall, Hypothesis

Table 2 Unstandardized estimates from the hypothesized path models in study 1

	Main Effects Model		Polynomial Model	
	Work Engagement *b(SD)*	Workaholism *b(SD)*	Work Engagement *b(SD)*	Workaholism *b(SD)*
Intercept	3.56(.03)**	2.45(.03)**	3.55(.05)**	2.48(.03)**
Designing Fun	.36(.04)**	-.06(.02)*	.37(.04)**	-.06(.02)**
Designing Competition	.62(.04)**	.30(.03)**	.60(.04)**	.29(.03)**
Designing Fun^2			.07(.04)	-.02(.02)
Designing Fun × Competition			-.06(.05)	.02(.03)
Designing Competition^2			-.02(.04)	-.04(.03)
R^2	.30(.02)**	.08(.01)**	.31(.02)**	.08(.02)**
Congruence line (DF = DC)				
a_1: slope along X = Y			.97(.04)**	.24(.03)**
a_2: curvature along X = Y			-.02(.05)	-.04(.03)
Incongruence line (DF = -DC)				
a_3: slope along X = -Y			-.23(.06)**	-.35(.05)**
a_4: curvature along X = -Y			.09(.10)	-.09(.06)

*$p < .05$. **$p < .01$. *DF* designing fun, *DC* designing competition

Table 3 Means, standard deviations, reliabilities, and correlations of the study variables in study 2 ($N = 742$ individuals, $n = 2774$ days)

		M	SD_b	SD_w	*ICC*	CR_b	CR_w	$\omega\ (\alpha)_b$	$\omega\ (\alpha)_w$	1	2	3	4	5
1.	Designing Fun	2.76	.56	.71	61.7%	.98	.86	.98 (.98)	.86 (.86)		.65**	.50**	.06	.17**
2.	Designing Competition	2.95	.44	.56	62.2%	.93	.70	.88 (.88)	.69 (.69)	.43**		.62**	.43**	.26**
3.	Work Engagement	3.25	.46	.52	56.3%	.79	.54	.81 (.74)	.55 (.50)	.28**	.32**		.27**	.07
4.	Workaholism	2.56	.63	.72	56.9%	.88	.62	.89 (.88)	.62 (.60)	.01	.18**	.15**		.27**
5.	Competitive Climate	1.98	.85	.91	53.3%	.92	.66	.91 (.91)	.67 (.66)	.07**	.09**	.03	.08**	

*$p < .05$. **$p < .01$. *b subscript* between-level, *w subscript* within-level, *ICC* intraclass coefficient. Coefficients below the diagonal are within, above the diagonal are between-level

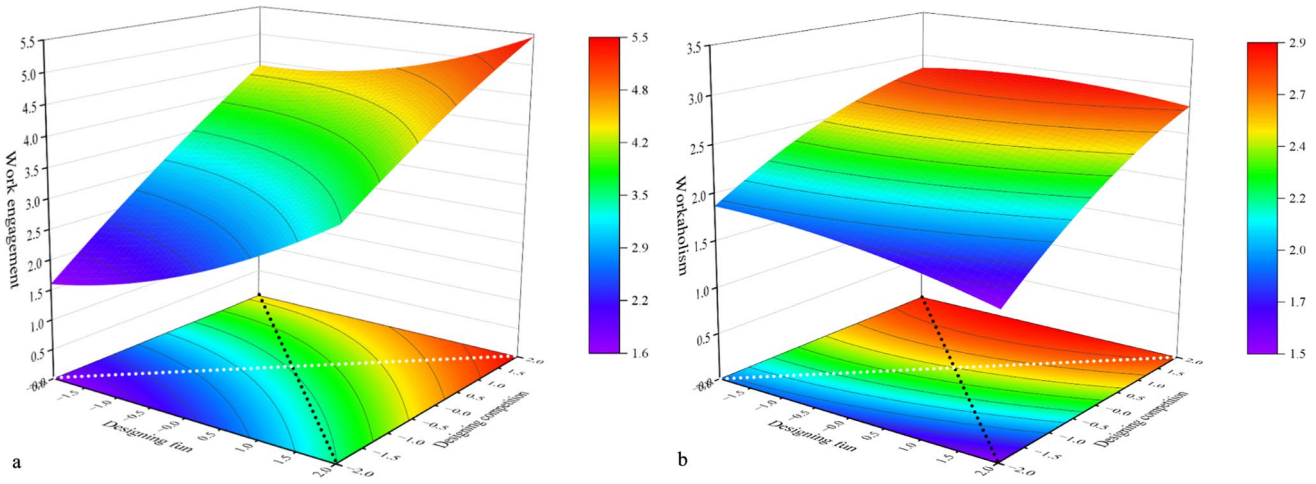

Fig. 3 Response surfaces of designing fun and designing competition with **a** work engagement and **b** workaholism in Study 1. *Note*. The white dotted line represents the line of congruence, where the levels of designing fun and designing competition are congruent. Along this line: Toward the right, both designing fun and competition are high; toward the left, both are low. The black dotted line represents the line of incongruence, where designing fun and designing competition are mismatched: At the rear corner, designing competition is high while designing fun is low; at the front corner, designing competition is low while designing fun is high. The surfaces are linear along the line of congruence and the line of incongruence

3 was supported. The response surfaces in Fig. 3b demonstrate that workaholism was especially low among employees who designed fun more often than they designed competition. In contrast, workaholism increased as the level of designing fun approached the level of designing competition.

Discussion

Study 1 provided an important initial test of our hypotheses. As expected, designing fun and designing competition promoted work engagement, whereas designing fun related to less, and designing competition to more, workaholism. The results also revealed that congruent PWD, where designing fun and competition align, enhances work engagement. Additionally, incongruent PWD, where designing fun exceeds competition, was associated with less workaholism. Unexpectedly, we found that incongruent PWD, where designing fun exceeds designing competition, decreased work engagement in addition to workaholism. While emergent, these findings converge with our theoretical framework, which posits that designing competition has a stronger focus on mobilizing and investing resources into work activities than designing fun. This may explain why competition contributes to both greater work engagement and elevated workaholism, reflecting a trade-off between increased investment in work and the potential for overwork.

While Study 1 makes important contributions to the literature, it has several limitations. First, the cross-sectional design may have constrained our ability to fully capture the dynamic and episodic nature of PWD, which tends to fluctuate from day to day (Scharp et al., 2022). A daily perspective may reveal within-person patterns that remain obscured when relying solely on between-person data. Second, the associations observed could be influenced by third variables, such as competitive psychological climate, i.e., the degree to which employees perceive organizational rewards to be contingent on comparing their performance against that of peers (Brown et al., 1998), which may simultaneously drive engagement and workaholism. Third, we found that both incongruent and congruent PWD predicted work engagement and workaholism, respectively. While these emergent findings are interesting, they were not hypothesized. Hence, they necessitate replication.

To address these concerns, we conducted a daily diary study. In Study 2, we aim to (1) capture the dynamic, within-person effects of PWD (in)congruence that may not emerge in a cross-sectional design, given that playful behaviors fluctuate across days, (2) test whether the findings generalize across levels of analysis, expecting homologous relationships because the resource investment mechanisms by which PWD relates to work engagement and workaholism remain similar whether considering individual differences or daily variations, (3) confirm the emergent effects of congruent and incongruent PWD, and (4) control for the potential influence of competitive psychological climate.

Study 2: Method

Procedure and Participants

We recruited participants in Italy in 2024 using a similar sampling procedure described in Study 1. In addition,

respondents were invited to a four-day diary study at the end of each workday from Tuesday to Friday. Individuals were eligible to participate if they were employed for more than six months, worked without night shifts, and worked an office job. We informed participants of the study's objectives and assured them that responses were anonymous. Participants were instructed to create a unique code so we could match responses. In total, 1114 employees agreed to participate. Before proceeding with data analysis, a thorough data cleansing process was carried out. Initially, we checked the timestamps of the survey responses to confirm that participants completed the surveys at the designated times. Days without participant responses were explicitly marked with missing values to reflect the lack of data on those days. Moreover, we removed 154 individuals whose responses were indicative of carelessness (i.e., failed attention checks; Huang et al., 2012) and 218 respondents who filled out less than three surveys to ensure the data were representative of daily fluctuations. The final dataset was built by matching participants' entries across the different days using the personal codes they created. For the analyses, missing values were coded as −99,999 and explicitly declared using the MISSING command in M*plus*. We employed a Bayesian estimation approach (estimator = bayes) to handle the missing data within a multilevel framework, which ensures that missing values do not bias the parameter estimates but are handled appropriately under the missing-at-random assumption (Ma & Chen, 2018). The final sample comprised 742 respondents and 2774 measurement occasions ($\bar{x} = 3.74$ daily surveys). On average, respondents were 44.07 years old ($SD = 13.50$). Most participants were female (50.8%), had a permanent contract (73.5%), and had an organizational tenure of more than 20 years (27.0%) or between 1 and 3 years (19.8%).

Measures

The questionnaires were administered in Italian. All scales originally in English were translated into Italian by three of the authors using back-translation (Brislin, 1970). Upon comparing the back-translated versions with the original English scales, we ensured that the process resulted in satisfactory alignment between the items in the two languages. Unless otherwise stated, all items were rated on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*).

Daily PWD was measured with the daily version (Scharp et al., 2019) of the 12-item instrument used in Study 1 (Scharp et al., 2023). Example statements include, "Today, I looked for ways to make my work more fun" (*designing fun*) and "Today, I tried to set time records in my work tasks" (*designing competition*).

Daily Work Engagement was assessed with the daily version (Breevaart et al., 2012) of the ultra-short work engagement scale (Schaufeli et al., 2019) using one item for each dimension: "Today, during work, I felt bursting with energy" (*vigor*), "Today, I was enthusiastic during work" (*dedication*), and "Today, I was totally absorbed in my work" (*absorption*).

Daily Workaholism was measured using the three-item scale developed by Clark et al. (2021), which consisted of the following items: "Today, I felt an internal pressure to work hard" (*compulsive feelings*), "Today, I often found myself thinking about work even when I was at home" (*compulsive thoughts*), and "Today, I found myself continuing to work even after coming home" (*compulsive behaviors*).

Control Variables

Daily Competitive Climate was evaluated by adapting the three-item scale developed by Sahadev et al. (2024) to the day level. The statements are: "Today, my manager frequently compared my performance with that of my coworkers," and "Today, the amount of recognition I got in my job depended on how I performed compared to others."

Lagged Work Engagement and Workaholism were included to control for potential carry-over effects from the previous days. Additionally, this procedure yields less biased estimates (Wilkins, 2018).

Strategy of Analysis

The data consists of daily observations ($n = 2774$) nested in individuals ($N = 742$). Substantial variation existed at each level of analysis (ICC: 53.3%—62.2%; Marcoulides & Schumacker, 2001). To accommodate the hierarchical nature of the data, we conducted multilevel analyses. Similarly to Study 1, we specified two structural models to test the main and polynomial effects. We created unbiased estimates using person-mean centering level-1 predictors and included grand-mean centered level-2 predictor averages (Raudenbush & Bryk, 2002). We used the same procedure described in Study 1 to derive the five polynomial terms (b_1, b_2, b_3, b_4, b_5), the four second-order regression coefficients (a_1, a_2, a_3, a_4), and response surfaces at the between- and within-person level of analysis (Shanock et al., 2010). As per the procedure in Study 1, the second-order regression coefficients are used to compute response surface coefficients and interpret the effects of congruence and incongruence in the dimensions of PWD on work engagement and workaholism. a_1 captures the combined effect when fun and competition are aligned, while a_3 reflects the effects of designing fun exceeding designing competition on the considered outcomes. Similarly to Study 1, we used Bayesian estimation to calculate the parameters (Zyphur & Oswald, 2015).

Results

Descriptive Statistics

The means, standard deviations, intraclass coefficients, reliabilities, and correlations of the study variables are reported in Table 3.

Validity and Reliability

We conducted a multilevel confirmatory factor analysis to assess the validity of our measures. To accommodate the multilevel factor structure, we specified five latent factors at the between- and within-person level: designing fun (6 items), designing competition (6 items), work engagement (3 items), workaholism (3 items), and competitive climate (3 items). The results indicate that the fit of the five-factor model was acceptable: $\chi^2 = 2019.07$, $df = 358$, CFI = .901, TLI = .893, RMSEA = .041, $SRMR_{between} = .099$, $SRMR_{within} = .045$. Level-specific composite reliabilities were assessed using Cronbach's alphas and McDonald's omegas (ω; Geldhof et al., 2014; see Table 3). Convergent validity was supported, as the AVE values exceeded the recommended threshold of 0.50 for all constructs, except for within-level competitive climate (AVE = .40) and designing competition (AVE = .31). However, composite reliability (CR) met the recommended thresholds for within-level estimates (Yang et al., 2022), indicating acceptable internal consistency at the within-person level. Discriminant validity was confirmed using the Fornell-Larcker criterion, where the square root of the AVE for each construct was greater than its correlations with other constructs. Specifically, the square roots of the AVE were as follows: designing fun (.72), designing competition (.56), work engagement (.73), workaholism (.77), and competitive psychological climate (.63), indicating satisfactory discriminant validity.

Hypothesis Testing

To test the baseline replication checks and Hypothesis 1, we specified a multilevel structural model (Table 4). The baseline replication checks confirmed that on days when employees designed fun and designed competition, they were more work engaged. Hypothesis 1 posited that (a) designing fun would negatively relate to workaholism, while (b) designing competition would positively relate to workaholism. The results supported these predictions: Employees were less workaholic on days when they engaged in designing fun ($b = -.12$, $SD = .04$, $p < .01$, 95% CI [−.18, −.06]), whereas designing competition was positively associated with workaholism ($b = .30$, $SD = .04$, $p < .01$, 95% CI [.24, .39]). Furthermore, these associations were consistent at the between-person level (Table 2). Thus, Hypotheses 1a and 1b were supported.

Hypothesis 2 examined the effects of congruence and incongruence in PWD on work engagement. Specifically, it proposed a linear congruence effect of designing fun and designing competition on work engagement, and, based on findings from Study 1, a linear incongruence effect where work engagement decreases as the incongruence between designing fun and designing competition increases. Multilevel polynomial analyses (Table 4) revealed that work engagement was higher on days when employees aligned their levels of designing fun and designing competition ($a_1 = .43$, $SD = .03$, $p < .01$, 95% CI [.37, .50]). Furthermore, consistent with Study 1, work engagement was lower when designing fun exceeded designing competition ($a_3 = -.10$, $SD = .05$, $p < .05$, 95% CI [−.19, −.02]). The coefficients were homologous to those found in Study 1 (see Table 2). Figures 4a and 5a illustrate that work engagement was higher when designing fun and designing competition were congruent at higher levels, and work engagement benefited more from situations where designing competition exceeded designing fun than vice versa. Overall, the results primarily supported Hypothesis 2.

Hypothesis 3 specified the effects of incongruence in PWD on workaholism, proposing that workaholism would decrease on days when designing fun exceeded designing competition, and, based on findings from Study 1, that workaholism would increase as both designing fun and designing competition increased together. Our findings largely supported Hypothesis 3. Specifically, on days when employees designed fun more frequently than competition, they experienced lower workaholism ($a_3 = -.43$, $SD = .06$, $p < .01$, 95% CI [−.57, −.28]). Conversely, congruent PWD (i.e., designing fun and designing competition aligned) was associated with higher workaholism ($a_1 = .19$, $SD = .04$, $p < .01$, 95% CI [.09, .26]). The associations were homologous at both levels of analysis. Response surface plots (Figs. 4b and 5b) revealed that workaholism decreased when employees prioritized designing fun over competition, but increased when designing fun and designing competition converged (Fig. 5). Thus, Hypothesis 3 was supported.

Finally, with regard to the potential confounding effect of competitive psychological climate, we observed that the effects of congruence and incongruence in the dimensions of PWD were consistent with those of Study 1.[1] For

[1] Based on a reviewer's suggestion, we explored the role of competitive psychological climate in moderating the effects of congruence and incongruence on workaholism and work engagement. Results showed that the response surface coefficients remained stable, and adding competitive psychological climate as a moderator did not substantially explain more variance. This suggests that competitive psychological climate does not meaningfully moderate the effects of the different combinations of DF and DC on workaholism or work engagement.

Table 4 Unstandardized estimates from the hypothesized multilevel path models in study 2

	Main Effects Model		Polynomial Model	
	Work Engagement *b(SD)*	Workaholism *b(SD)*	Work Engagement *b(SD)*	Workaholism *b(SD)*
Level 2				
Intercept	3.22(.02)**	2.53(.03)**	3.18(.03)**	2.49(.04)**
Designing Fun	.12(.03)**	-.32(.05)**	.14(.03)**	-.30(.05)**
Designing Competition	.46(.04)**	.71(.06)**	.46(.04)**	.68(.06)**
Competitive Climate	-.05(.02)*	.14(.03)**	-.04(.02)*	.14(.03)**
Designing Fun^2			.07(.04)	.15(.05)**
Designing Fun x Competition			-.14(.07)	-.09(.10)
Designing Competition^2			.11(.07)	-.07(.08)
	.36(.03)**	.23(.03)**	.37(.03)**	.24(.03)**
Congruence line (DF = DC)				
a_1: slope along X = Y			.59(.03)**	.39(.04)**
a_2: curvature along X = Y			.04(.04)	-.03(.05)
Incongruence line (DF = -DC				
a_3: slope along X = -Y			-.32(.06)**	-.98(.11)**
a_4: curvature along X = -Y			.32(.15)	.17(.20)
Level 1				
Designing Fun	.15(.03)**	-.12(.04)**	.17(.02)**	-.12(.03)**
Designing Competition	.27(.03)**	.30(.04)**	.26(.03)**	.31(.05)**
Competitive Climate	.02(.02)	.07(.02)**	.02(.02)	.07(.02)**
Lagged outcome	-.27(.03)**	-.30(.03)**	-.27(.02)**	-.30(.02)**
Designing Fun^2			-.00(.04)	.01(.08)
Designing Fun x Competition			-.07(.07)	-.10(.13)
Designing Competition^2			.05(.07)	.16(.09)
	.13(.01)**	.07(.01)**	.14(.01)**	.08(.01)**
Congruence line (DF = DC)				
a_1: slope along X = Y			.43(.03)**	.19(.04)**
a_2: curvature along X = Y			-.03(.05)	.12(.09)
Incongruence line (DF = -DC)				
a_3: slope along X = -Y			-.10(.05)*	-.43(.06)**
a_4: curvature along X = -Y			.12(.14)	.29(.23)

*$p < .05$. **$p < .01$. *DF* designing fun, *DC* designing competition

descriptive purposes, we found that on days when employees perceived a higher competitive climate, they reported higher workaholism (*estimate*: .07, $p < .001$), while competitive climate had no effect on daily work engagement (*estimate*: .02, $p = .12$). At a general level, employees who reported a higher competitive psychological climate reported lower work engagement (*estimate*: −.04, $p = .02$) and higher workaholism (*estimate*: .14, $p < .001$).

Replicating findings from Study 1, across both outcomes, the response surfaces were linear, indicating monotonic effects rather than curvilinear or accelerating ones. Thus, the findings reflect proportional benefits of alignment for work engagement and linear asymmetries for workaholism, rather than exponential fit or misfit dynamics.

General Discussion

The bright side of play at work received ample support (Petelczyc et al., 2018). In contrast, the potential dark side of play at work has not been recognized. This is a notable oversight because it impedes the ability to theorize about consequences and formulate nuanced directions for practice. Therefore, we built and extended the energy management framework of play at work (Celestine & Yeo, 2021) to examine when designing fun and designing competition promote work engagement and workaholism. Consistent with our expectations, we found that designing fun and designing competition promote work engagement, especially when enacted congruently and when designing

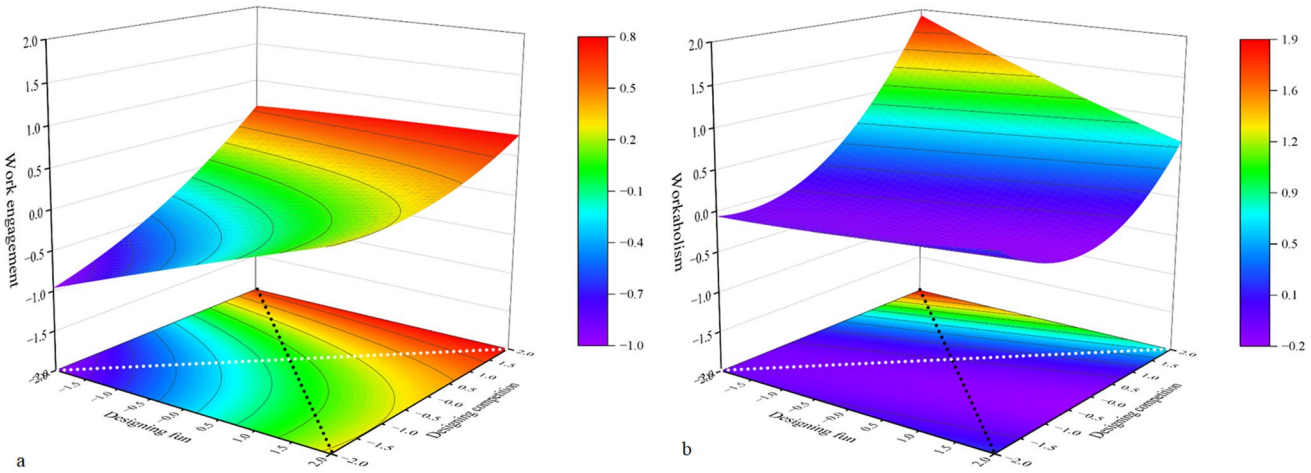

Fig. 4 Within-person response surfaces of designing fun and designing competition with **a** work engagement and **b** workaholism in Study 2. *Note*. The white dotted line represents the line of congruence, where the levels of designing fun and designing competition are congruent. Along this line: Toward the right, both designing fun and competition are high; toward the left, both are low. The black dotted line represents the line of incongruence, where designing fun and designing competition are mismatched: At the rear corner, designing competition is high while designing fun is low; at the front corner, designing competition is low while designing fun is high. The surfaces are linear along the line of congruence and the line of incongruence

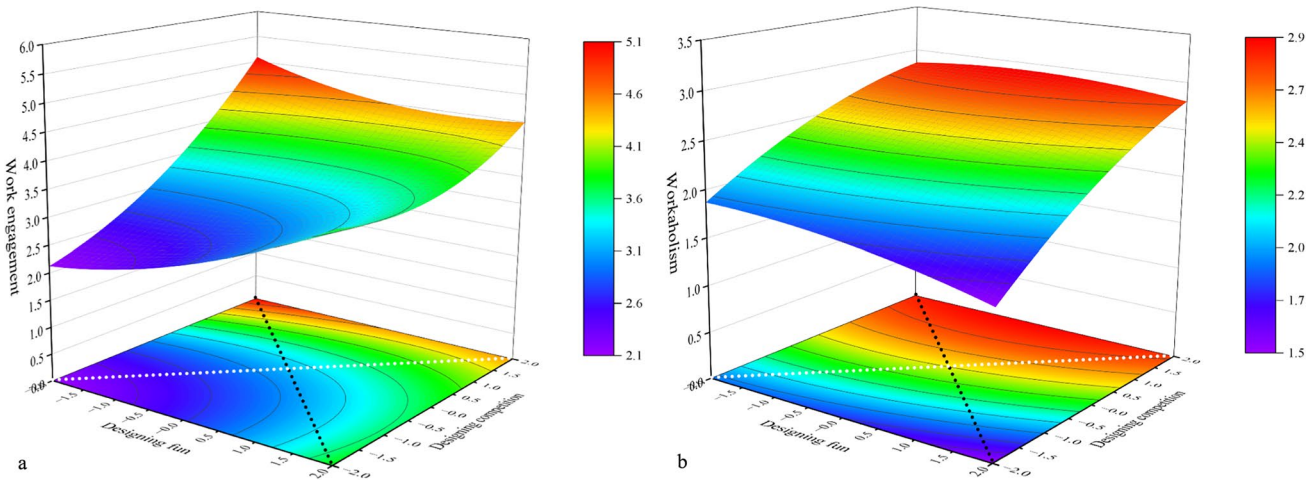

Fig. 5 Between-person response surfaces of designing fun and designing competition with **a** work engagement and **b** workaholism in Study 2. *Note*. The white dotted line represents the line of congruence, where the levels of designing fun and designing competition are congruent. Along this line: Toward the right, both designing fun and competition are high; toward the left, both are low. The black dotted line represents the line of incongruence, where designing fun and designing competition are mismatched: At the rear corner, designing competition is high while designing fun is low; at the front corner, designing competition is low while designing fun is high. The surfaces are linear along the line of congruence and the line of incongruence

competition exceeded designing fun. Furthermore, designing fun decreased, whereas designing competition promoted workaholism. Additionally, we found that incongruent PWD decreased workaholism when designing fun exceeded designing competition. Unexpectedly, congruent PWD increased workaholism. Importantly, all findings were replicated across two studies and when controlling for the potential confounding role of competitive psychological climate.

Theoretical Implications

Our work makes several significant theoretical contributions. First, we advance the literature on the bright side of PWD (Bakker & Scharp, 2025) and, more broadly, the play-at-work literature (Petelczyc et al., 2018). Building on the energy management perspective of play at work (Celestine & Yeo, 2021), we argued that designing fun and designing competition serve distinct but complementary roles in

fostering work engagement by "replenishing" and "building" energies. We predicted and found that both play strategies enhance work engagement, with higher levels occurring when employees co-enacted both strategies simultaneously. From an energy management perspective, the joint positive influence of designing fun and designing competition on work engagement is explained by both dimensions building a unique set of resources through resource investment (Celestine & Yeo, 2021). Moreover, our findings revealed that work engagement was higher when designing competition exceeded designing fun, suggesting that a certain level of challenge or mastery-building elements is more important for increasing work engagement. While designing fun replenishes resources by offering hedonic relief, it may lack the structural goals and challenges needed to foster deeper, sustained work engagement. When fun dominates without the presence of performance-oriented goals, employees may experience a lack of investment, leading to reduced competence satisfaction and lower work engagement. These findings advance our understanding of the interplay between employee-initiated play strategies and call for further research on how different configurations of PWD relate to workplace outcomes (Bakker & Junker, 2025; Scharp & Bakker, 2025).

Second, we make an important theoretical contribution to the play-at-work literature by shedding light on its potential dark side. While previous research has theorized about the risks associated with play at work (Lieberman, 2014; Petelczyc et al., 2018), there is limited empirical research to substantiate these claims. We built on and extended the energy management perspective of play to address this (Celestine & Yeo, 2021). This framework suggests that individuals initiate play to (1) create a context where they can conserve or replenish resources and (2) invest resources to generate upward cycles of resource gain (see Bakker & Oerlemans, 2019). However, these positive effects are contingent on the intrinsic motivation underlying play activities (Celestine & Yeo, 2021). When play is intrinsically motivated, that is, when employees engage in playful activities because they find them enjoyable or fulfilling, it is more likely to result in energy replenishment and increased work engagement. Conversely, when play is externally regulated (e.g., as part of a competitive framework focused on achieving outcomes), it may lead to pressure, stress, and, ultimately, workaholism. Specifically, while designing fun (ludic play) fosters resource replenishment in addition to resource building, designing competition (agonistic play) may fuel externally regulated behaviors due to its focus on resource building through resource investment. Consistent with this reasoning, we found that, unlike designing fun, designing competition is positively associated with workaholism, suggesting that when playful activities at work are primarily driven by external regulation, they may fail to deliver their intended benefits. Furthermore, we found that workaholism is lower when employees engage in designing fun more frequently than in designing competition, suggesting that the replenishing benefits of designing fun offset the resource investment of designing competition. These findings directly address recent calls for research on the dark side of play-at-work (Celestine & Yeo, 2021; Petelczyc et al., 2018) and emphasize the importance of maintaining a balance between designing fun and designing competition to maximize the benefits of play while mitigating its potential drawbacks.

Third, we contribute to the multilevel perspective of play at work. In their review, Celestine and Yeo (2021) noted a gap in studies examining play at work from a multilevel perspective, which impedes our ability to develop a robust multilevel theory of PWD (see also Petelczyc et al., (2018). While various studies conducted on PWD take a multilevel approach (Liu et al., 2023; Scharp et al., 2019, 2021), research that specifies hypotheses at both levels of analysis is scarce (cf. Scharp et al., 2022). This is problematic because it impedes our ability to construe a multilevel theory of play at work. Namely, differences may exist at each level of analysis (Zacher & Rudolph, 2020). Hence, "scholars must consider how research generalizes across levels" (Chen et al., 2005, p. 375). The current study demonstrates that the associations between PWD, work engagement, and workaholism are consistent at both the between- and within-person levels. This finding reinforces the relevance of PWD as a daily, self-initiated strategy, yet it does not imply that PWD can or should substitute for structural job design interventions. As Bakker et al. (2023a, 2023b) emphasize, PWD is most effective when it *complements*, rather than replaces, top-down initiatives aimed at improving work environments. For instance, PWD is not an appropriate response to chronic and harmful stressors such as workplace bullying; such issues require organizational policies and leadership action. However, there are situations in which stressful or demanding tasks are unavoidable. Consider a physician who must explain a complex medical procedure to a child patient: the emotional labor inherent in this interaction cannot be eliminated. In such cases, designing fun may help the physician transform the task into a more positive experience for both themselves and the child (Scharp et al., 2021). Thus, while PWD cannot solve all workplace challenges, it can play a meaningful role in helping employees adjust to the demands of irremovable tasks.

Strengths, Limitations, and Future Directions

Despite several strengths of the current research, such as using a multi-study design to replicate our findings across samples and levels of analysis, several limitations merit consideration. First, both studies relied on student-recruited convenience samples within Italy. Although the samples were

heterogeneous in terms of occupations and sectors, they do not constitute representative samples of the broader working population. Therefore, the extent to which our findings generalize to other countries, industries, or organizational contexts remains uncertain. Future research should replicate these results using probability-based or organizationally sourced samples, ideally across diverse cultural settings, to establish external validity more firmly. Also, we cannot infer causality based on our methodology. As such, it is unclear whether PWD precedes the experience of work engagement and workaholism or vice versa. Yet, we predict these associations to be reciprocal. Future research may use intensive longitudinal modeling with multiple measurement occasions each day to disentangle these relations and strengthen the validity of causal claims.

Second, although we examined configurations of different components of PWD in a linear way, we did not address the possibility of curvilinear effects. Such effects would capture whether congruence or incongruence between PWD components produces accelerating or decelerating patterns in the outcomes considered. For instance, when employees combine high levels of both designing fun and designing competition, the energizing benefits may interact in a way that creates an intensified experiential state in which enjoyment and mastery reinforce one another, resulting in engagement levels that exceed the additive effect of each component alone, reflecting an accelerating rather than merely proportional effect on work engagement. Conversely, when designing fun substantially outweighs designing competition, employees may reach a point at which lighthearted experiences not only replenish but amplify resource restoration, producing a nonlinear deceleration in workaholic tendencies. Such mechanisms are likely to unfold on a moment-to-moment basis, involving fluctuations in affect, motivation, and self-regulatory effort, which call for research designs that can capture these fine-grained temporal dynamics. Accordingly, future studies could employ intensive longitudinal or experience-sampling methods with higher-frequency assessments to examine whether and how such resource amplification (or depletion) processes accelerate over time.

Third, the variables were measured with self-reports, which may increase common method bias (Podsakoff et al., 2003). However, self-reports are more appropriate than other ratings since our variables mostly consist of private experiences and behaviors (Conway & Lance, 2010). For instance, while a colleague or supervisor may consider an individual to be highly engaged and low in workaholism, the individual may privately ruminate about their job and work excessively beyond what is required. Furthermore, we partially remedied common method bias in Study 2. Namely, by person-mean centering our predictors, we attenuate common method sources that exist at the between-person level (Podsakoff et al., 2003). Also, the within-person reliability of some variables in Study 2 fell below the commonly used criteria for between-person reliability reported in conventional research. However, it is important to note that researchers recommend different cutoff values for within-person reliability. Specifically, a range of 0.50–0.70 is considered acceptable for studies that investigate both within- and between-person variations (Fisher et al., 2016; Yang et al., 2022). In addition, the low AVE for daily designing competition fell below recommended thresholds, suggesting low shared variance between different statements at the within-person level of analysis. This merits consideration while interpreting our findings, as it may have attenuated the associations of designing competition. Research is needed to understand why this occurred and explore avenues to improve the measurement of designing competition in daily diary designs.

Finally, we call for more research on the multiplicative and configurational effects and antecedents of PWD (Bakker & Scharp, 2025). For instance, designing fun may promote favorable performance ratings by managers, especially when employees also incorporate designing competition. Similarly, due to the intrapersonal nature of designing competition, it may undermine interpersonal learning in the absence of designing fun. When we consider the antecedents, the combination of individual traits may synergize in predicting PWD. Specifically, individuals with a proactive personality may invest their energies into a number of different strategies, with traits that indicate a capacity and desire for play guiding these efforts toward PWD. Similarly, PWD may only cross over between colleagues when there is psychological safety and the organization has a playful climate. These may represent ecological conditions where individuals can adopt a playful approach to work without fear of repercussions. Finally, we suggest research on other play initiatives, such as gamification (i.e., the introduction of play elements in work tasks by organizations), to consider the interplay between ludic and agonistic play elements. We argue that purely agonistic play initiatives at work can be criticized for being hollow and exploitative. Furthermore, we expect that PWD partially mediates the positive effects of gamification on wellbeing and performance.

Practical Implications

From a practical standpoint, our findings indicate that organizations should move beyond the traditional view that treats play as frivolous or oppositional to work (Dandridge, 1986; Kavanagh, 2011) and instead actively support employees in engaging in PWD. Yet our results also reveal a central paradox: while balancing designing fun and designing competition is most beneficial for work engagement, fun-dominant configurations (i.e., more fun than competition) appear to protect against workaholism. This means that organizations should not simply introduce more play but

must be intentional about how different forms of play are encouraged and sequenced. This insight is especially relevant for coaching programs, leadership development, and HR-led interventions that aim to encourage PWD. Given that designing fun appears to be more difficult to cultivate than designing competition (Walsken et al., 2025; cf. Costantini et al., 2025), organizations may unintentionally encourage self-competitive, effort-intensifying behaviors if they stimulate challenge or performance-based play without first cultivating shared enjoyment. Therefore, organizations should aim to foster a playful climate that is challenging while also being lighthearted. This provides organizations an opportunity to directly address the paradox of play — they can aim to optimize work engagement while minimizing workaholism. Practically, this may involve developing playful leadership behaviors (e.g., humor, reframing, storytelling), integrating playful norms into team routines (e.g., rituals, micro-breaks, collaborative challenges), celebrating visible examples of playful behavior to legitimize it socially (cf. Pap et al., 2025), and designing tasks that include elements of curiosity, autonomy, and shared exploration before introducing competitive elements such as points, rankings, or performance dashboards. Importantly, sequencing matters: cultivating and promoting resources linked to fun, such as positive social connection, shared enjoyment, and psychological safety, provides a buffer that prevents competitive play from turning into overinvestment and potential workaholism. Thus, organizations should prioritize designing fun as a foundation, and only then layer competitive elements selectively and purposefully, rather than implementing competition as the default mode of play.

In short, organizations should not just "add play" to work, but intentionally structure how play is introduced to reap engagement benefits without fueling workaholism. Finally, we cautiously argue that these principles extend to other play initiatives as well. Therefore, we suggest that organizations avoid top-down play initiatives solely employing agonistic play elements (i.e., points, badges), as such initiatives may stimulate individuals to overinvest their resources into play (Werbach & Hunter, 2012), which may result in workaholism and ensuing burnout in the long run.

Conclusion

Our study sets the stage for understanding the importance of balancing designing fun and designing competition. In particular, we show that the extent to which employees enact designing fun and designing competition (in)congruently significantly predicts their work engagement and workaholism. While both designing fun and designing competition are important for fostering work engagement, an imbalance where designing competition overshadows designing fun may increase workaholism. Therefore, we propose updating the old adage "work hard, play hard" to "work hard, but play harder."

Funding Open access funding provided by Università degli Studi di Roma Tor Vergata within the CRUI-CARE Agreement.

Data Availability The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The research was approved by the Ethics Committee of the University of Trento – Ethics approval number: 2023-009.

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The authors declare no competing interests.

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