Humanitas: Indonesian Psychological Journal
Vol. 23 (1), February 2026, 109-119
ISSN: 2598-6368(online); 1693-7236(print)

Promoting creativity: the role of proactive vitality management and playful work design

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ARTICLE INFO

Article history
Received: 8 January 2025
Revised: 11 April 2026
Accepted: 12 April 2025

Keywords
Creative Work Performance
Job Demands-Resources
Playful Work Design
Proactive Personality
Proactive Vitality Management

ABSTRACT

Grounded in the Job Demands–Resources (JD-R) theory, this study examines the role of proactive strategies in enhancing employee creativity. According to the Indonesian Employment Outlook 2024 report, amid increasing workforce demands driven by technological advancement, creativity, initiative, and originality have become essential competencies. This study investigates the relationship between Proactive Vitality Management (PVM), Playful Work Design (PWD), and Creative Work Performance (CWP). A survey was conducted with 329 Indonesian workers, and the data were analyzed using Hayes' PROCESS Model 4. The results indicate that PVM has a significant positive effect on CWP both directly and indirectly through PWD as a mediator. PVM enables individuals to maintain physical and mental energy, while PWD reflects individuals' proactive efforts to create more enjoyable and challenging work experiences that foster creativity. Hypothesis testing showed that PVM significantly affects CWP (B=1.269, p<0.001), with PWD partially mediating this relationship (B=0.56, p<0.001). These findings highlight the importance of proactive personal strategies in promoting creative work performance. Organizations are encouraged to support employees in managing their energy and engaging in proactive work design. Future research may explore potential boundary conditions influencing these relationships.

Introduction

Grounded in the Job Demands–Resources (JD-R) theory, which explains how personal and job resources support employee performance and motivation (Bakker & Demerouti, 2007, 2017), creativity has become a critical competency for organizations to remain competitive in the era of economic transformation and digitalization. The Indonesia Employment Outlook 2024 report, summarized by the Indonesian Ministry of Manpower, highlights that creativity, initiative, and originality are essential competencies required for the future workforce to adapt to technological developments (Muhyiddin, 2023). In this context, creativity becomes a key element that transforms workforce potential into organizational competitiveness.

Workforce creativity, manifested in Creative Work Performance (CWP), creates innovation, finds new solutions, and maintains organizational relevance amidst rapid economic and technological change. To achieve this, an HR management strategy that encourages individual creativity is vital to making a tangible impact on the development of

ISSN 2598-6368 (online) / ISSN 1693-7236 (print)

the Indonesian industry and economy. CWP is defined as an individual's ability to generate new ideas, insights, or solutions that are innovative and useful in the work context (Oldham & Cummings, 1996). CWP involves idea generation, promotion, and implementation, allowing individuals not only to create novel ideas but also to develop and apply them to solve problems and create added value for the organization.

Various factors, both personal and contextual, support creativity in work performance. From a personal perspective, openness to new experiences, a learning orientation, and optimal physical and mental energy are crucial for fostering individual creativity (Hirst et al., 2009; Xu et al., 2014). Among these factors, energy plays a central role, as creativity requires sustained cognitive effort and flexibility. When individuals have sufficient physical and mental energy, they are better able to engage in cognitive flexibility, which supports idea generation and problem-solving (De Dreu et al., 2012).

In everyday life, energy is not always available and must be managed proactively. In this regard, Proactive Vitality Management (PVM) has emerged as an essential approach. Proactive Vitality Management is an individual's behavior in managing physical and mental energy to achieve optimal functioning at work (Op den Kamp et al., 2018). Within the JD-R framework, PVM can be understood as a personal resource that enables individuals to maintain energy and sustain performance under job demands. PVM is very important in supporting creative performance. With PVM, individuals can prepare themselves for work challenges that require creativity. PVM involves proactive efforts such as maintaining sufficient rest time, talking to inspiring colleagues, or engaging in other refreshing activities to increase physical and mental energy (Bălăceanu et al., 2022).

Previous studies have shown that PVM is positively related to creative performance because it helps individuals maintain vitality and cognitive flexibility, which supports the emergence of innovative ideas (Bălăceanu et al., 2022; De Dreu et al., 2012). In addition, PVM is also associated with decreased fatigue and increased work engagement, making it an effective strategy for improving individual performance at work (Lavrusheva, 2020; Op den Kamp et al., 2018). Therefore, through PVM, individuals can prepare to face work challenges, including tasks requiring high creativity (Lavrusheva, 2020; Ryan & Frederick, 1997).

In addition to managing energy, individuals may also proactively shape how they experience their work. Playful Work Design (PWD) is a proactive approach that involves individuals' efforts to create fun and challenging work experiences without altering the boundaries of the work itself (Bakker & van Wingerden, 2021; Scharp et al., 2019). PWD should be understood as a proactive individual strategy rather than an environmental factor. PWD has two main aspects: playful design, which makes work more interesting through humor and imagination, and competitive design, which adds challenges by setting personal goals or creating rules for completing tasks. Through PWD, individuals proactively create fun and challenging work experiences, which can increase work engagement and encourage creative ideas.

Thus, PVM contributes to CWP both directly and indirectly through PWD, which serves as a mechanism that translates individuals' energy into creative work behaviors. Although various studies have explored factors that support CWP, such as individual characteristics (Dul et al., 2011) and work context (Oldham & Cummings, 1996; Unsworth & Parker, 2002) further understanding of the relationship between proactive strategies, such as PVM, PWD, and CWP, is still needed, as previous studies have not been able to fully explain how the combination of these strategies interacts to promote optimal conditions for creativity, especially in different organizational and cultural contexts.

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Building on the JD-R framework, PVM acts as a personal resource, while PWD represents proactive behavior that enhances the motivational process leading to positive outcomes such as creativity. Previous studies prove that PVM has a positive relationship with CWP through increasing energy and work engagement (Op den Kamp et al., 2018; Tisu & Vîrgă, 2022). PWD contributes to increased creativity through enjoyable and motivating work experiences (Bakker & van Woerkom, 2017; Csikszentmihalyi, 1997). PWD mediates the relationship between PVM and CWP by enabling individuals to channel their energy into more engaging and stimulating work activities.

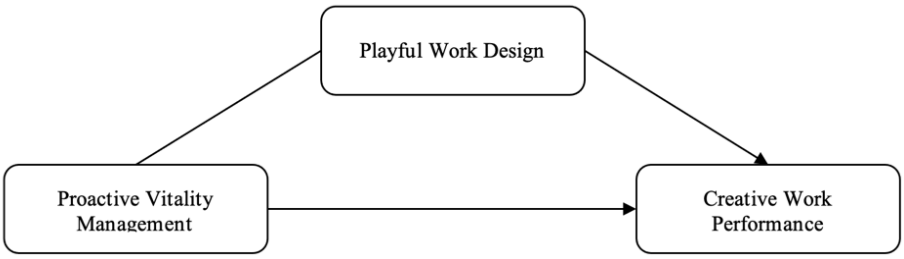
This study aims to examine the relationships among Proactive Vitality Management (PVM), Playful Work Design (PWD), and Creative Work Performance (CWP), with PWD as a mediator. The proposed model is shown in Figure 1. Based on the results of previous studies, this study explores the relationship between PVM, PWD, and CWP:

H1: PVM has a positive effect on CWP.

H2: PWD mediates the relationship between PVM and CWP.

Figure 1

Research Model



Method

Participants

The initial participants comprised 406 respondents who met the criteria of being employees from various industries and job roles in Indonesia and voluntarily agreed to complete the questionnaire. Participants in this study were selected using a convenience sampling technique, which considered the availability and willingness of respondents to participate as research subjects. The sample met the research criteria by considering the availability and accessibility of respondents (Sugiyono, 2013). After screening for item validity and eliminating unreasonable or invalid responses, the final sample size was reduced to 329 participants. The sample size was determined using GPower power analysis software, which yielded a minimum of 107 participants for two predictors, a significance level of 0.05, an assumed medium effect size of 0.15, and a standard power of 0.95.

ISSN 2598-6368 (online) / ISSN 1693-7236 (print)

As shown in Table 1, the sample was predominantly female, with most participants aged between 25 and 34 years. The majority had 1–3 years of work experience and held a bachelor's degree.

Table 1
The Distribution of Study Participants

	Frequency	Percentage
Gender		
Male	80	24.3
Female	249	75.7
Age		
18 - 24	87	26.4
25 - 34	201	61.1
35 - 44	32	9.7
45 - 54	9	2.7
Tenure		
1 - 3 years	161	48.9
3 - 5 years	103	31.3
5 - 10 years	42	12.8
10 - 20 years	11	3.3
>20 years	12	3.6
Education		
High school or equivalent	122	37.1
Diploma (D1/D2/D3)	54	16.4
Bachelor's degree (D4/S1)	133	40.3
Master's degree (S2/S3)	20	6.1

Instruments

The instruments used in this study measured three variables: PVM as the independent variable, PWD as The instruments used in this study measured three variables: PVM as the independent variable, PWD as the mediator, and CWP as the dependent variable, all adapted from established scales in previous studies. These instruments were translated into Indonesian by a certified sworn translation agency. They underwent an adaptation process following the procedure by Beaton et al. (2000). Face validity was ensured through the expert judgment of trusted professionals, who confirmed the appropriateness and relevance of the instruments.

A pilot study involving 30 participants assessed the instrument's reliability. Reliability was tested using Cronbach's alpha coefficient to verify the instrument's consistency in measuring the intended construct. The results showed that all scales had acceptable reliability (Cronbach's alpha ≥ 0.70) and used a 6-point Likert scale ranging from "strongly disagree" to "strongly agree," indicating that the instrument is reliable and appropriate for achieving the study objectives.

Proactive Vitality Management. Proactive Vitality Management was measured using the Proactive Vitality Management Scale developed by Op den Kamp et al. (2018), which consists of 8 items and reports a Cronbach's alpha of 0.88 (Op den Kamp et al., 2018). This unidimensional scale is designed to assess individuals' proactive efforts in regulating their physical and mental energy to maintain optimal functioning at work. An example item is, "Today, I ensure that I stay energized while working." In this study, Cronbach's alpha was 0.92, and convergent validity was supported by loadings ranging from 0.72 to 0.79.

Playful Work Design. Playful Work Design was measured using the Playful Work Design Scale from Scharp et al. (2019), which includes 12 items divided into two dimensions: Designing Fun (6 items) and Designing Competition (6 items) (Scharp et al.,

2019). An example item is, "Today, I approach my work with enthusiasm and joy." This study has a Cronbach's alpha of 0.91 and convergent validity, with loadings ranging from 0.46 to 0.75.

Creative Work Performance Scale. Creative Work Performance was assessed using the Creative Work Performance Scale (CWP, Zhou & George, 2001), initially designed for supervisors to evaluate employees' creative behaviors and later adapted to measure individual perceptions (Zhou & George, 2001). This 13-item scale, with a Cronbach's alpha of 0.96 in its original use, reported a reliability coefficient of 0.95 in this study, and convergent validity showed loadings ranging from 0.57 to 0.83. An example item is, "I frequently generate new and practical ideas to enhance work performance." All instruments demonstrated high reliability and good content validity, making them suitable for this study.

Several steps have been implemented to minimize bias. First, anonymity and confidentiality reduce the possibility of biased responses due to social pressure or concerns about identity disclosure. Second, the measuring instrument underwent adaptation following Beaton et al. (2000) procedure and a preliminary study to ensure its validity and reliability in the research context (Beaton et al., 2000). Third, the questionnaire was carefully designed in clear, neutral language to avoid framing effects or undue influence on participants' responses.

Lastly, the authors used the Harman single-factor test to assess the potential for standard method bias (CMB). CMB is indicated if the variance score exceeds 50% of the total variance. This indicates that more than half of the measured phenomenon is influenced by the bias that occurs, which can be caused by data collection for each variable being done simultaneously, with each individual evaluating the variable from their perspective, without involving reciprocal assessment between individuals within the population, along with other limitations present in this study. As outlined in Table 2, the Harman single-factor test accounts for only 47.63% of the total variance (eigenvalue = 15.72) (below the 50% threshold). Thus, this study is free of bias from the standard method.

Procedures

This research employed a cross-sectional, non-experimental quantitative approach using the survey method. Data were collected online via Google Forms and distributed through social media platforms, and the study was carried out in October - November 2024. The questionnaire included an informed consent form and a demographic data section at the end. The Committee on Research Ethics at the Faculty of Psychology, Universitas Indonesia, granted ethical approval for this study under approval number 110/FPsi.Komite Etik/PDP.04.00/2024, issued on August 12, 2024.

Data Analysis

Data were analyzed using IBM SPSS version 30 and SPSS Macro PROCESS by Hayes version 4. Data Analysis was used to examine the effects of mediation and test the proposed hypotheses. This method was chosen for its robust statistical capabilities and suitability for analyzing mediation models with smaller sample sizes. Descriptive statistics and correlation analysis were conducted to explore the research model. A descriptive analysis was conducted for each research variable before the mediation analysis to test the current research hypothesis.

Spearman’s Rank Coefficient was also used to interpret the correlation analysis. Spearman’s rank correlation was used to see the relationship between continuous variables. Bootstrapping was used to handle violations of normality. The mediating role of PWD (M)

ISSN 2598-6368 (online) / ISSN 1693-7236 (print)

in the relationship between PVM (X) and CWP (Y) was tested using Hayes's Process Model 4, with 5000 bootstrap samples (Preacher & Hayes, 2008). The indirect effect was significant if the 95% CI coefficient did not include zero. Prior to hypothesis testing, assumption checks were conducted to ensure the adequacy of the data. Given the use of bootstrapping in PROCESS analysis, strict normality assumptions were not required. The results indicated no multicollinearity issues, and the data were deemed suitable for further analysis.

Results

The results of the study highlight several significant relationships among demographic variables and the key constructs of PVM, PWD, and CWP, as shown in Table 3. The mean age of the respondents was 27.98 years (*SD* = 5.82), indicating that the sample predominantly consisted of young adults. The mean tenure was 1.81 years (*SD* = 1.02). Meanwhile, for education level, the average score was 2.16 (*SD* = 0.99).

Table 3
Descriptive Statistics of The Research Variables

Var	Mean	Std.Dev	Age	Sex	Edu	Tenure	PVM	PWD	CWP
Age	27.98	5.82	-	-0.15*	0.20*	0.63**	0.12*	0.04	0.08
Sex	1.76	0.43	-0.15**	-	-0.00	-0.16**	0.06	0.05	-0.01
Edu	2.16	0.99	0.20**	-0.00	-	0.17*	-0.12*	-0.12*	-0.07
Tenure	1.81	1.02	0.63**	-0.17**	0.62**	-	0.12*	0.03	0.09
PVM	43.34	5.09	0.12*	0.06	-0.12*	0.12*	-	0.62**	0.67**
PWD	60.46	9.02	0.04	0.05	-0.12*	0.03	0.62**	-	0.71**
CWP	66.75	9.63	0.08	-0.01	-0.07	0.09	0.67**	0.71**	-

Note: EDU: Education Level (High school = 1; Diploma (D1/D2/D3) = 2; Undergraduate (D4/S1) = 3; Master Degree (S2/S3) = 4); Tenure: (1-5 years = 1; 6-10 years = 2; 11-15 years = 3; 16-20 years = 4; 21 years and beyond = 5); PVM = Proactive Vitality Management; PWD = Playful Work Design; CWP = Creative Work Performance;
*p<0.05. **p<0.01. ***p<0.001.

Based Regarding the primary constructs, the mean score for PVM was 43.34 (*SD* = 5.09), indicating moderate to high engagement in managing vitality among the respondents. For PWD, the mean score was 60.46 (*SD* = 9.02), while CWP had a mean score of 66.75 (*SD* = 9.63). PWD and CWP scores indicate that respondents reported relatively high levels of playful work engagement and creative output. A key finding was the strong interrelationships among PVM, PWD, and CWP (Table 3). PVM showed significant positive correlations with both PWD ($r = 0.62$, $p < 0.01$) and CWP ($r = 0.671$, $p < .001$). Similarly, PWD and CWP were strongly correlated ($r = 0.710$, $p < 0.01$). These results suggest that employees who actively manage their vitality are more likely to engage in PWD and exhibit higher CWP.

The mediating role of PWD in the relationship between PVM and CWP was examined using Hayes' PROCESS Model 4 in SPSS. The analysis results indicated a significant partial mediation effect, supporting the hypothesis that PWD partially explains the relationship between PVM and CWP.

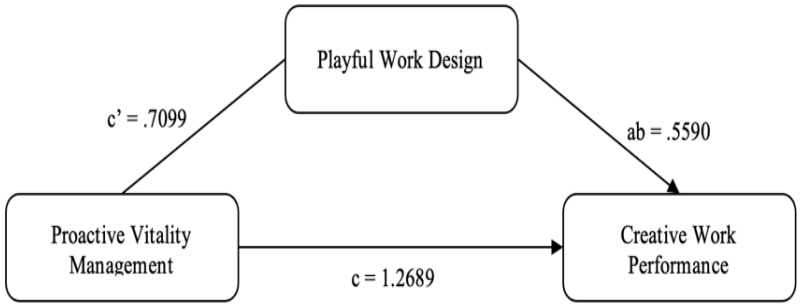
Table 4
Hypothesis Test Results

Effect	*B*	SE	t	p	CI 95% [LL, UL]
c	1.27	0.08	16.34	<0.001	[1.12, 1.42]
c'	0.71	0.09	8.33	<0.001	[0.54, 0.88]
ab	0.56	0.11			[0.36, 0.77]

Note: *c* = total effect, c′ = direct effect, *ab* = indirect effect

Mediation regression analysis was conducted using PROCESS Model 4 to test the role of PWD as a mediator between PVM and CWP. The analysis showed that the direct effect of PVM on CWP, without considering the mediator, was significant, with a coefficient of $B = 1.27$, $SE = 0.08$, and $t = 16.34$ ($p < 0.001$). The 95% confidence interval [1.12, 1.42] indicates that the total effect (c) is positive. See Table 4

Figure 2
Mediation Model



After controlling for the mediator PWD, the direct impact of PVM on CWP remained significant, with a coefficient of $B = 0.71$, $SE = 0.09$, and $t = 8.33$ ($p < 0.001$). The 95% confidence interval [0.54, 0.88] shows that the direct effect (c') is reduced compared to the total effect but remains positive. The indirect effect (ab) of PVM on CWP through the mediator PWD is significant, with a coefficient value of $B = 0.56$ and $SE = 0.11$. The 95% confidence interval [0.36, 0.77] does not cross zero, thus confirming the existence of a mediation effect.

These results indicate that the PWD variable partially mediates the relationship between PVM and CWP (partial mediation). The total effect comprises 44.1% indirect effect (mediator) and 55.9% direct effect. Thus, PWD plays an important role in explaining how PVM affects CWP, supporting the hypothesis that PWD is a significant mediator in the relationship. Figure 2 illustrates the mediation relationship among the three variables.

Discussion

This study aims to explore the relationship between PVM, PWD, and CWP. Overall, the findings support both hypotheses, indicating that PVM has a positive effect on CWP both directly (H1) and indirectly through PWD as a mediator (H2). The analysis results show that all hypotheses have been proven and that PVM positively influences CWP directly and through PWD mediation. As a proactive strategy, the study results show that PVM enables individuals to manage their vitality, optimally supporting engagement in creative tasks (Baas et al., 2008; Op den Kamp et al., 2018). This finding suggests that individuals who can

ISSN 2598-6368 (online) / ISSN 1693-7236 (print)

maintain their physical and mental energy are better able to sustain cognitive flexibility, which is essential for generating novel ideas and solving problems creatively. Meanwhile, PWD serves as a mechanism that leverages PVM-generated energy, enabling individuals to proactively create more engaging and challenging work experiences. The fun design element in PWD helps individuals create activities that spark humor or imagination. In contrast, the competition design motivates individuals through challenges that encourage deeper engagement (Scharp et al., 2019). Therefore, PVM and PWD function as complementary, proactive strategies to support CWP, enabling individuals to generate new ideas, innovations, and valuable solutions in the work context.

These findings are consistent with the Job Demands–Resources (JD-R) theory, which emphasizes the role of personal resources in supporting motivation and performance (Bakker & Demerouti, 2017). These findings are consistent with the Job Demands–Resources (JD-R) theory, which emphasizes the role of personal resources in supporting motivation and performance (Bakker & Demerouti, 2017). In this study, PVM serves as a personal resource that helps individuals manage their physical and mental energy to maintain work performance. PVM is a preventive measure that allows individuals to avoid burnout, conserve energy, and better cope with job demands (Lavrusheva, 2020). Meanwhile, PWD should be understood as a proactive behavior rather than a job resource, as it reflects individuals' efforts to shape their work experience. Through PWD, individuals can transform their available energy into more engaging and stimulating work activities, including through the experience of flow, an optimal state that promotes deep engagement and cognitive flexibility (Bakker & van Wingerden, 2021; Csikszentmihalyi, 1997). Thus, PWD mediates the relationship between PVM and CWP by translating individuals' energy into creative work behaviors.

Previous studies support the role of PVM in enhancing vitality. Op den Kamp et al. (2018) found that individuals who proactively manage their energy tend to have higher cognitive flexibility and are more likely to support creative ideas (Op den Kamp et al., 2018). Research by Bălăceanu et al. (2022) also showed that PVM is associated with reduced fatigue and increased positive energy, ultimately contributing to creative performance (Bălăceanu et al., 2022). On the other hand, research on PWD shows that this strategy facilitates the creation of enjoyable and challenging work experiences that encourage intrinsic motivation and cognitive flexibility (Bakker et al., 2020; Scharp et al., 2019). The findings of this study are also in line with the results of studies by Fredrickson (2001), which state that positive experiences, such as flow, can expand cognitive flexibility and motivate individuals to innovate (Fredrickson, 2001).

These findings have practical implications for organizations seeking to enhance employee creativity through proactive strategies. Organizations can take practical steps such as offering energy management training, promoting healthy lifestyle habits, and ensuring employees have sufficient downtime to refresh themselves and improve their performance. In addition, organizations can create a work culture that supports PWD by allowing employees to incorporate elements of fun (e.g., humor and creativity) and competition (e.g., personal challenges), providing space for idea exploration, and appreciating employees' creative initiatives. Implementing these strategies is highly relevant in the Indonesian context, especially as it faces global challenges and seeks to leverage the demographic bonus to increase workforce competitiveness.

Although this study's results support the JD-R theory and previous research findings, several limitations must be considered. First, this study was conducted among employees from various industries in Indonesia, which may limit the generalizability of the findings to other cultural and organizational contexts. Cultural values, such as collectivism and

hierarchical work structures, may influence how individuals manage their energy and engage in proactive work behaviors. Future research could expand the scope to include different cultural and organizational contexts and adopt a longitudinal approach to explore in greater depth the dynamics of the relationship among PVM, PWD, and CWP. Future studies may also examine boundary conditions that influence the effectiveness of PVM and PWD. For example, researchers could explore the role of emotional factors such as emotional exhaustion or stress recovery in this relationship. Future research could examine whether emotional exhaustion reduces an individual's ability to utilize these proactive strategies or, conversely, whether strategies such as PWD can serve as coping mechanisms that help individuals recover from emotional exhaustion.

Conclusion

Overall, this study makes a significant theoretical contribution to the literature on proactive workplace strategies, highlighting the importance of Proactive Vitality Management (PVM) and Playful Work Design (PWD) in supporting employee creativity. The results suggest that PVM provides the necessary energy base, while PWD reflects a proactive behavior that enables individuals to translate that energy into creative work activities. These findings provide new insights for organizations to support their workforces in achieving optimal creative performance, making employees more innovative, productive, and competitive in the modern era.

Acknowledgment

The authors sincerely thank the participants who generously contributed their time and perspectives, which were crucial to the success of this study. Although this research received no external funding, the unwavering support and encouragement from everyone involved have been instrumental in its completion.

Declarations

Author contribution. NSH was responsible for conceptualizing the study, designing and implementing the research, collecting and analyzing the data, validating the results, and drafting the manuscript. EP supervised the study, provided continuous guidance and direction, monitored progress, and contributed insights from the initial stages through to completion.

Funding statement. This research was not funded by any party other than the authors.

Conflict of interest. The authors declare that no significant competing financial, professional, or personal interests might have affected the performance.

Additional information. No additional information is available for this paper.

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ISSN 2598-6368 (online) / ISSN 1693-7236 (print)

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