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# Unlocking the Potential for Problem Solving Creativity through Transformational Leadership

Maria Valeria Roellyanti<sup>1\*</sup>, Suddin Lada<sup>2</sup>



## AFFILIATION:

<sup>1</sup> Sekolah Tinggi Teknologi  
Kedirgantaraan, Special Region of  
Yogyakarta, Indonesia

<sup>2</sup> Faculty of Business, Economic and  
Accountancy, Universiti Malaysia Sabah,  
Malaysia

## \*CORRESPONDENCE:

maria.valeria@sttkd.ac.id

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## Abstract

**Research aims:** This study analyzes the influence of personal characteristics (PC), creative work environment (CWE), cognitive skills (CS), and transformational leadership (TL), on creative problem solving (CPS) in the work environment.

**Design/methodology/Approach:** Questionnaires were distributed for data collection. The questionnaire covers aspects including personal characteristics, cognitive skills, transformational leadership, creative work environment, and problem-solving creativity. This study involved 146 respondents from various tourism service industries. Regression analysis was used to test the relationship between independent, mediated, and dependent variables using structural equation Modeling (SEM).

**Research finding:** The study shows that transformational leadership had a positive and significant influence on creative work environments. In addition, creative problem-solving is significantly influenced by the creative work environment and cognitive skills, although there is no significant influence between creative problem solving and personal characteristics.

**Theoretical Contribution/originality:** The theoretical contributions of these findings reinforce the importance of transformational leadership in creating work environments that support creativity and strengthen the relationship between the creative work environment and creative problem-solving and cognitive skills.

**Practitioners Contribution/implications:** Transformational leadership development through training and development is key for organizations to ensure leaders have the necessary skills to create creative work environments. Investment in creating work environments that support creativity involves the allocation of resources and efforts for workspace structuring and innovative policy development, along with efforts to enhance their capabilities in solving problems creatively.

**Research limitation/implications:** The study's respondents were confined to one provincial area, specifically the Special Region of Yogyakarta. Expanding the study to multiple provinces would yield more comprehensive results.

**Keywords:** Personal Characteristics; Creative Work Environment; Cognitive Skills; Transformational Leadership; Creative Problem Solving.

## Introduction

Creative problem-solving has become a key element in dealing with the complexity and dynamics of the modern era, garnering significant interest from researchers (Nazzal & Kaufman, 2020; Nurfadilah & Irawati, 2021; Van Hooijdonk et al., 2022). Along with technological advances and global competition, individuals and organizations are required to be able to come up with innovative solutions (Zaragoza-Sáez et al., 2024; Zhang et al., 2024). In this context, several factors serve as the main determinants of an individual's level of creativity in facing and solving problems.

Previous studies have consistently highlighted a crucial yet overlooked factor: the atmosphere of the work environment, which fosters employee creativity. Therefore, this study sought to explore the factors that impact problem-solving creativity, such as personal characteristics, creative work environment, cognitive skills, and leadership. Each individual has unique personal characteristics, including personality, motivation, and attitude (Cavalheiro et al., 2023; Corvello et al., 2023; Zhang et al., 2023). However, the creative work environment plays an important role in creating conditions that support the development of new ideas and innovative solutions (Steckelberg, 2015). In addition, cognitive skills, such as critical thinking skills and analytical power, contribute to shaping an individual's ability to design creative solutions (Kao, 2022; Xie, 2023).

This study also considered the role of leadership in the context of problem-solving creativity. Leadership encourages active participation, provides support, and motivates team members to create a work environment that facilitates the expression of ideas and promotes productive collaboration (Shafi et al., 2020; Tse et al., 2023).

By exploring this further, it is hoped that this research can provide a more comprehensive understanding of the factors that influence problem-solving creativity so that it can make a valuable contribution to optimizing individual creative potential and improving overall organizational performance (Kurniawanti et al., 2023).

Confronted by the dynamic complexity of the contemporary world, the ability to be creative in problem-solving has become an inevitable necessity. Problem-solving no longer requires technical skills alone but also requires the ability to innovate and adapt to rapid change. In this framework, this study provides a new perspective, namely, an analytical framework that includes integral aspects in shaping problem-solving creativity, namely personal characteristics, creative work environment, cognitive skills, and leadership, which have not been done in previous research.

Personal characteristics, the first dimension in this analysis, refer to the personal attributes of individuals that form the basis of their interaction with the surrounding environment (Hua & Yang, 2023). A person's personality, motivation, and mindset are factors that play a central role in shaping their creative approach to problem-solving (Suman, 2023). In addition, creative work environment, as the second variable, emerges as a determining factor that provides a foundation for creative expression and collaboration. How an organization shapes contexts that support the diversity of ideas and drivers of innovation is essential for exploring the potential of individual creativity (Kim et al., 2019; Stolaki et al., 2023).

Cognitive skills highlight the role of intellectuals and analytics in driving problem-solving processes (Amalina & Vidákovich, 2023). The ability to think critically, in-depth analysis, and flexibility of thinking emerge as qualities that support efforts to produce original and effective solutions (Orakçı, 2021). Finally, leadership, as the fourth variable, plays a key role in shaping an organizational culture that promotes creativity (Batool et al., 2024; Hunter et al., 2023; Jaboob et al., 2023). Leadership, vision, empowerment, and support

of creative initiatives can be key drivers for the emergence of innovative solutions in a team or organization (Dong & Tang, 2023; Pundt, 2024).

By combining these four dimensions, this study aims to provide a deeper understanding of the complex relationship between personal characteristics, creative work environments, cognitive skills, and leadership in problem-solving creativity. This holistic analysis is expected to provide new insights useful for optimizing individual creative potential and increasing organizational capacity in facing problem-solving challenges in the ever-changing contemporary era.

## **Literature Review and Hypotheses Development**

### **Creative Problem Solving**

Creativity in problem-solving refers to the ability of individuals to find innovative and unconventional solutions to challenges or problems faced (Bousinakis & Halkos, 2021; Subiyanto & Djastuti, 2018). This involves the ability to think outside the box, combine different ideas, and find new approaches that are effective in solving complex problems (Van Hooijdonk et al., 2023).

Individuals who possess a knack for creative problem-solving often excel at perceiving situations from various perspectives, enabling them to uncover novel solutions that had previously gone unnoticed. Creativity in problem-solving allows individuals to face challenges in unique ways, which can lead to more efficient or innovative solutions than conventional approaches (Amabile & Pillemer, 2012). This involves skills in identifying problems, gathering relevant information, and using imagination and knowledge to formulate creative and effective solutions.

Individuals with creativity in problem-solving are often open to experimentation and risk in finding new solutions that have never been tried before (Amabile & Pillemer, 2012). Creativity in a problem-solving context also involves skills to collaborate with others, expand ideas, and build stronger solutions (Hargadon & Bechky, 2006). This encourages continuous learning and innovation to find better ways to solve problems. Creativity in problem-solving also plays an important role in dealing with increasingly complex challenges in the modern world, where creative solutions are often required to deal with unprecedented problems.

### **Individual characteristics**

Individual characteristics refer to traits that distinguish one individual from another (Ismail et al., 2023). According to Ismail et al. (2023), individual characteristics include various factors that influence a person's behavior, responses, and interactions within their environment. Some of the important variables that comprise an individual's characteristics include genetic factors, personality, life experiences, social and cultural conditions, intelligence and cognitive abilities, mental and physical health, and motivation

and values. Genetic factors play a significant role in determining physical traits and some aspects of a person's personality. Personality includes patterns of behavior, emotions, and the way individuals interact with their surrounding world. Personality theory, such as the Big Five model, which includes dimensions such as openness, familiarity, conscientiousness, emotional stability, and self-confidence, can be helpful in understanding the variations in an individual's personality. Life experiences such as education, family environment, traumatic events, and important achievements can shape patterns of behavior and perception. These experiences influence attitudes, values, and how individuals adapt to change. Social and cultural conditions as well as accepted norms and values in the society in which individuals live also influence their characteristics including language used, norms of expected behavior, and social expectations of individual roles in society. Intelligence and cognitive abilities, such as intelligence, speed of information processing, and critical thinking skills, are also important individual characteristics. These factors influence how individuals solve problems, learn, and interact with the environment. Mental and physical health also affect individual characteristics. For example, levels of stress, depression, or physical fitness can affect the way an individual thinks, feels, and acts. Lastly, motivation and values, such as internal motivations, life goals, and values that a person believes in also play a role in shaping individual characteristics. This affects the level of dedication, hard work, and the decisions made by individuals.

Understanding the variables that make up individual characteristics enables appreciation of each person's uniqueness, enriches the experience of social interaction, and increases tolerance for differences. It also supports more effective self-management efforts taking into account individual needs, preferences, and tendencies (Grant & Ashford, 2008). Through a deeper understanding of these variables, we can increase knowledge of human behavior, assist in anticipating responses, and promote more effective communication in a variety of life contexts.

### **Creative Work Environment**

Creative Work Environment influences the atmosphere and conditions in the workplace to encourage individual creativity and collaboration among team members (Garcês et al., 2016). These include freedom of expression, support from management, and tolerance for new ideas (Marasabessy, 2019). A variety of tasks and projects, as well as space for the exploration of new ideas, are also an important part of the creative environment. In addition, a culture that accepts risk and failure as part of the innovation process is crucial for creating a work environment that supports creativity. Open collaboration and communication, along with diversity within the team, are also important variables in creating a creative work environment (Carmeli et al., 2013). An environment that allows for flexibility in time and space and provides adequate resources to support creative ideas also contributes to the creation of a creative atmosphere in the workplace.

An environment that offers flexibility in both time and space plays a crucial role in fostering creativity in the workplace. Adequate resources, such as technology, equipment, and facilities, have become the foundation for the realization of creative ideas. Flexibility

in adjusting work schedules and physical workspaces according to individual or team requirements can enhance productivity and spark innovative solutions (Perry-Smith & Mannucci, 2017). Environments that allow variety within the workplace, be it open spaces, collaborative spaces, or workplaces that can be customized as needed, provide the freedom needed for the exploration of new ideas. The availability of the right resources also helps support the process of experimentation and development of out-of-the-box ideas in the workplace. This flexibility can also create a more relaxed and comfortable atmosphere for individuals, which in turn can positively affect their creativity in the workplace (Within, 2023).

### **Cognitive skills**

Cognitive skills refer to mental abilities that involve complex thought processes, understanding, and problem-solving (Finn et al., 2014). It includes skills such as problem-solving, analysis, and strong reasoning in diverse information contexts (Xie, 2023). Cognitive skills also involve the ability to process, store, and retrieve information from multiple sources in a structured and effective manner (Amalina & Vidákovich, 2023). This ability is not only limited to intellectual intelligence, but also includes aspects of flexibility in thinking, the ability to relate different concepts, and the ability to make rational and appropriate decisions (Finn et al., 2014). Strong cognitive skills provide a solid foundation for a person to learn and adapt quickly to the changes and complexity of new situations. The development of cognitive skills through education, practice, and experience enables individuals to better deal with mental challenges, which in turn can improve performance and success in many areas of life.

The development of cognitive skills through education, practice, and experience is vital to an individual's ability to overcome mental challenges. Through solid education, one can hone analytical thinking skills, critically, as well as complex problem-solving abilities (Kaulfuss et al., 2021). Practice consistently plays an important role in sharpening cognitive skills, and providing opportunities to apply learned knowledge to real contexts (Knol & Keller, 2019). Experience broadens an individual's horizons and allows them to adapt to a variety of situations, hone flexibility of thinking, and enhance adaptability to change (Serneels, 2008). Awareness of the need to develop cognitive skills plays a significant role in improving performance in different areas of life, ranging from career to personal life. The development of cognitive skills not only benefits individuals in dealing with complex situations but also provides a significant competitive advantage in a dynamic environment (Dowell-Esquivel et al., 2023).

### **Transformational Leadership**

Transformational leadership emphasizes motivation, inspiration, and the cultivation of a compelling vision aimed at driving positive change and enhancement within an organization or group (Hooijberg & Choi, 2000). Transformational leaders tend to have the ability to influence team members or followers positively, motivating them to exceed expectations and achieve higher goals (Wu et al., 2023). One of the hallmarks of

transformational leadership is the ability to foster passion, conviction, and strong commitment in team members (Iqbal et al., 2023).

At its core, transformational leadership revolves around the capacity of leaders to inspire, motivate, and influence their subordinates in ways that extend beyond personal interests (Astuty & Udin, 2020). They also encourage innovation, creativity, and individual growth within organizations by providing necessary support, empowerment, and direction (Udin & Dananjoyo, 2024). Transformational leaders also typically show integrity, courage, and fairness in their actions, which helps build trust and commitment among subordinates.

Transformational leaders not only focus on routine tasks but also inspire others to see a long-term vision and focus on positive change (Malloch, 2014). They often use strong communication to convey their vision clearly and convincingly, thus encouraging greater collaboration and dedication among team members (Eisenbeiss et al., 2008). Transformational leaders also often show empathy (Gunther et al., 2007), and concern for the needs of individuals within the organization, motivating them by providing personal attention and supporting their professional growth and development (Wang et al., 2023). In addition, they can create a work culture that is innovative and open to new ideas and changes necessary for organizational growth (Lin, 2023; Xin & Wang, 2023). Transformational leaders also encourage the development of leadership skills in their team members, forming an environment that supports career growth and personal development (Sosik et al., 2004; Yao & Ma, 2024). With the presence of transformational leaders, organizations have the potential to grow significantly through innovative and sustainable drivers of change. Transformational leaders play a role in promoting the development of leadership skills among team members, creating an atmosphere where career development and personal growth are encouraged. The presence of transformational leaders not only impacts individual development but also provides the potential for organizations to grow substantially.

## **Hypothesis**

### **Cognitive Skills and Creative Problem Solving**

In exploring the dynamics of creative problem-solving, several key factors come into play. First, we hypothesized that cognitive skills significantly influence a person's ability to approach and solve creative challenges (Amalina & Vidákovich, 2023; Hidayat et al., 2018). These skills cover various aspects such as critical thinking (Dilekçi & Karatay, 2023), pattern recognition, and divergent thinking (Pasarín-Lavín et al., 2024; Wang et al., 2023), all of which are essential for generating innovative solutions.

*H<sub>1</sub>: Cognitive skills influence creative problem-solving.*

### **Personal Characteristics and Creative Problem Solving**

Second, personal characteristics play an important role in shaping an individual's approach to creative problem-solving (Orzechowski et al., 2017). Traits such as openness

to new experiences, resilience, and curiosity tend to improve a person's ability to navigate complex problems and design new solutions (Elkady et al., 2024). Thus, we anticipate a positive correlation between certain personal characteristics and creative problem-solving skills.

*H<sub>2</sub>: Personal characteristics influence creative problem-solving.*

### **Transformational Leadership and Creative Work Environment**

Moving beyond individual attributes, it is necessary to examine the role of leadership in fostering an environment conducive to creativity (Tse et al., 2023). Transformational leadership characterized by vision, inspiration, and empowerment is expected to have a significant impact in shaping a creative work environment (Lin, 2023). Leaders who foster a culture of experimentation, risk-taking, and psychological safety tend to stimulate innovation in their teams (Alami et al., 2023; Tran, 2023).

*H<sub>3</sub>: Transformational leadership influences creative work environment.*

### **Creative Work Environment and Creative Problem Solving**

In addition, the creative work environment itself has a great influence on the creative problem-solving process (Hua & Yang, 2023). Factors such as organizational support for creativity, collaboration opportunities, and access to resources can facilitate or hinder the generation and implementation of new ideas (Shang et al., 2023). Therefore, we estimated that nurturing and supportive creative work environments would be positively correlated with improved creative problem-solving outcomes.

*H<sub>4</sub>: Creative work environment influences creative problem-solving.*

In essence, these interconnected hypotheses form a comprehensive framework for understanding the multifaceted nature of creative problem-solving. By examining the effects of cognitive skills, personal characteristics, transformational leadership, and creative work environments, we aim to uncover the intricate mechanisms underlying innovative problem-solving processes.

## **Research Methods**

### **Research Design**

This study used a quantitative research design with a cross-sectional survey approach. The study respondents consisted of 146 individuals who were members of organizations or employees in various industry sectors. Sampling was random, including individuals from various backgrounds, positions, and work experiences. Data were collected using

questionnaires developed based on personal characteristics, creative work environment, cognitive skills, transformational leadership, and problem-solving creativity.

**Variable Measurement**

Personal characteristics were measured using a Likert scale, which measures aspects of creative personality, tolerance to risk, courage to face uncertainty, intrinsic motivation, ability to see from multiple perspectives, and level of curiosity (Sánchez-Medina, 2023).

Creative work environment was measured through questions related to freedom of expression, management support, tolerance for new ideas, and work culture that encourages innovation (Steckelberg, 2015). Cognitive Skills were measured using questions that assessed analytical ability, problem-solving, reasoning, and information-processing skills (Finn et al., 2014). Transformational leadership was measured through questions that measured the leader's ability to motivate, inspire, and cultivate a strong vision (Kaur Bagga et al., 2022; Stinglhamber et al., 2015). Creative problem-solving was measured using a scale that evaluates an individual's ability to find innovative and creative solutions to a given problem (Subiyanto & Djastuti, 2018; Van Hooijdonk et al., 2022).

**Data Analysis**

The collected data were analyzed using Structural Equation Model (SEM) analysis with the help of statistical software such as AMOS. This analysis aimed to examine the relationship between hypothesized variables, namely creativity problem solving (CPS), transformational leadership (TL), personal characteristics (PC), creative work environment (CWE), and cognitive skills (CS). Before the causality analysis was carried out, a description analysis was carried out for respondent demographics, validity, and reliability variables. Table 1 shows the demographic profile of respondents with respect to gender, age, and education level:

Table 1 Respondent Demographic

Respondent Demographics		Frequency	Percent (%)
Gender	Male	58	39.7
	Female	88	60.3
Age	17 - 25	79	54.1
	26 - 35	37	25.3
	36 - 45	20	13.7
	46 - 55	10	6.8
Education	Junior High School	3	2.1
	High School	94	64.4
	Diploma	8	5.5
	Diploma four	33	22.6
	Bachelor	6	4.1
	Master	2	1.4



Table 1 shows that the majority of respondents were women, with 88 respondents (60.3%), while men had 58 respondents (39.7%). By age, the majority of respondents were aged between 17 and 25 years, which included 79 respondents (54.1%), followed by the age group of 26 to 35 years with 37 respondents (25.3%), 36 to 45 years with 20 respondents (13.7%), and 46 to 55 years with 10 respondents (6.8%). In terms of education, the majority of respondents had a high school education background, consisting of 94 respondents (64.4%), followed by D4 with 33 respondents (22.6%), D3 with 8 respondents (5.5%), Bachelor (S1) with 6 respondents (4.1%), and Master (S2) with 2 respondents (1.4%).

Table 2 presents information on the validity and reliability of the research variables. Once all valid indicators and variables have achieved reliability, they are subjected to empirical analysis to determine their causal relationships.

Table 2 Validity and Reliability

No	Variable	Items	Cronbach's Alpha
1	Creativity Problem Solving (CPS)	.798	.937
		.890	
		.861	
		.858	
2	Transformational leadership (TL)	.905	.971
		.933	
		.955	
		.915	
3	Personal Characteristics (PC)	.894	.966
		.909	
		.906	
		.925	
4	Creative Work Environment (CWE)	.843	.942
		.914	
		.884	
		.802	
5	Cognitive Skills (CS)	.802	.944
		.932	
		.865	
		.878	

Valid: Loading Factor > 0.7

Reliable: Cronbach's Alpha > 0.7

Table 2 explains that construct reliability is measured using Cronbach's alpha. For Creativity Problem Solving (CPS), Cronbach's alpha value was 0.798, indicating a good level of reliability, with alpha values on each subscale being 0.937, 0.890, 0.861, and 0.858. Furthermore, Transformational Leadership (TL) has a Cronbach's alpha value of 0.905, indicating an excellent level of reliability, with subscale alpha values of 0.971, 0.933, 0.955, and 0.915, respectively. Personal Characteristics (PC) has a Cronbach's alpha value of 0.894, indicating good reliability, with subscale alpha values of 0.966, 0.909, 0.906, 0.925, and 0.878, respectively. Creative Work Environment (CWE) has a Cronbach's alpha value of 0.843, indicating good reliability, with subscale alpha values of 0.942, 0.914, and

0.884, respectively. Finally, Cognitive Skills (CS) has a Cronbach's alpha value of 0.802, indicating a good level of reliability, with subscale alpha values of 0.944, 0.932, 0.865, and 0.878, respectively. From these values, it follows that all variables have a good degree of reliability, since Cronbach's alpha values are all above 0.7, which is the generally accepted limit for good reliability.

The diagram illustrates the sequential path of the analysis process utilizing Structural Equation Modeling (SEM). Figure 1 is derived from the results obtained through SEM analysis, delineating the relationships and pathways among the variables under investigation.

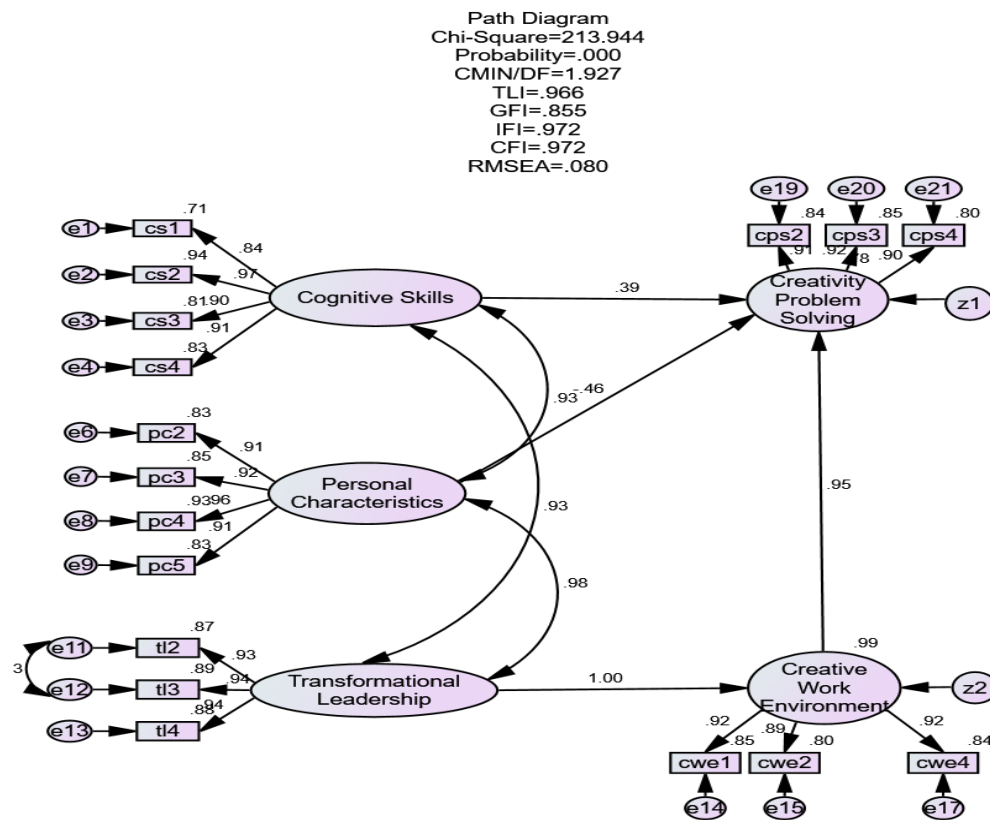


Figure 1 Research Model Path Diagram

The results of the SEM analysis show that the loading factor is in accordance with the provisions, namely, the loading factor value of  $< 0.7$ , as depicted in Table 3.

Table 3 Standardized Regression Weights

Indicators		Variables	Estimate
cs4	<---	CS	.911
cs3	<---	CS	.899
cs2	<---	CS	.967
cs1	<---	CS	.840
cps2	<---	CPS	.914
cps3	<---	CPS	.922
cps4	<---	CPS	.896
cwe4	<---	CWE	.919
cwe2	<---	CWE	.893
cwe1	<---	CWE	.921
tl4	<---	TL	.938
tl3	<---	TL	.942
tl2	<---	TL	.931
pc2	<---	PC	.910
pc3	<---	PC	.920
pc4	<---	PC	.962
pc5	<---	PC	.910

In the factor analysis presented in Table 3, the loading factor describes how well a variable can explain a particular factor. The results of the analysis showed that the variables had different loading factors for each observed factor. For CS factor, the loading factor value shows that the cs2 variable has the highest contribution (0.967), followed by cs4 (0.911), cs3 (0.899), and cs1 (0.840). Although CS1 has the lowest loading factor, it still contributes significantly to the CS factor.

Meanwhile, for the CPS, the variable cps3 has the highest loading factor (0.922), followed by cps2 (0.914) and cps4 (0.896). All variables in this factor contribute significantly to the CPS factor. The CWE factor shows that cwe1 has the highest loading factor (0.921), followed by cwe4 (0.919) and cwe2 (0.893), all of which significantly contribute to the CWE factor. Variables in the TL factor have a fairly high loading factor value, with tl3 having the highest loading factor (0.942), followed by tl4 (0.938) and tl2 (0.931), all of which contribute significantly to the TL factor.

Finally, for the PC factor, pc4 had the highest loading factor (0.962), indicating a very strong relationship with the PC factor. Other variables such as pc3 (0.920), pc2 (0.910), and pc5 (0.910) also contributed significantly to the PC factor, albeit with a slightly lower loading factor.

As for the suitability of the model with research data, often referred to as the goodness of fit criterion, shows a value that has been in accordance with the provisions, namely, assuming that the default model is correct, the probability of obtaining a difference of 213.94411645715 is 0.0000001610. Then, the values of chi-square =213.944, CMIN/DF=1.927, TLI=0.966, GFI=0.855, IFI=0.972, CFI=0.972, and RMSEA=0.080. Because the values of validity, reliability, loading factors, and goodness of fit are by the provisions, the results of the analysis can be drawn into the conclusions of the research results shown in Table 4.

Table 4 Regression Weights

	Regression		Estimate	S.E.	C.R.	P	Information
Creative Work Environment (CWE)	<---	Transformational Leadership (TL)	1.022	.050	20.594	***	Confirmed
Creativity Problem Solving (CPS)	<---	Creative Work Environment (CWE)	.921	.355	2.594	.009	Confirmed
Creativity Problem Solving (CPS)	<---	Cognitive Skills (CS)	.435	.188	2.313	.021	Confirmed
Creativity Problem Solving (CPS)	<---	Personal Characteristics (PC)	-.456	.355	-1.284	.199	Not Confirmed

\*\*\*<0,01

Table 4 shows that transformational leadership has a significant positive effect on the creative work environment with statistical evidence of an estimated value of 1,022 and a probability of 0,000 (\*\*\*). These findings are in line with those of previous research (Batool et al., 2024; Lin, 2023; Liu & Huang, 2020). Transformational leadership encourages employees to reach their maximum potential by inspiring, motivating, and developing a clear vision (Rolfe, 2011). In this study, transformational leadership is proven to have a significant positive influence on the creative work environment. This leadership style actively encourages employees to think creatively, innovate, and collaborate in creating a work environment that supports new ideas. Through transformational leaders, employees feel valued and encouraged to contribute creatively to their work. Transformational Leadership creates an atmosphere where new ideas are supported, risks are rewarded, and innovation is addressed, all of which are essential elements of a productive creative work environment. Overall, transformational leadership forms a strong foundation for creating a work environment that supports creativity and innovation.

The influence of cognitive capability on creativity in problem-solving was revealed through an estimated value of 0.435, showing a fairly strong positive relationship between the two variables. A probability of 0.021 confirms that this correlation did not occur by chance but rather had relevant statistical significance. This indicates that a person's cognitive abilities significantly influence or their ability to find creative solutions to problems. With a relatively high estimated value, it can be concluded that the higher a person's cognitive ability, the more likely they are to be creative in solving problems. The results of this analysis underscore the important role of cognitive abilities in supporting creativity in the context of problem-solving (Paz-Baruch & Maor, 2023; Sadak et al., 2022).

The results of the hypothesis confirmation showed the influence of personal characteristics on creativity in problem-solving, with an estimated value of -0.456. A negative value in this estimate indicates an inverse relationship between personal characteristics and creativity in problem-solving. Despite the negative value, a probability of 0.199 indicates that the relationship is not statistically significant. Overall, the results of the analysis show that personal characteristics tend to have a negative influence on

creativity in solving problems; however, these results do not have statistically significant certainty.

The results of the last hypothesis testing show a strong influence of creative work environment on the level of creativity in problem-solving, with an estimated value of 0.921. A high estimated value indicates that there is a strong positive correlation between the two variables. A significance of 0.009 indicates that this relationship is statistically significant, confirming that the influence of the creative work environment on problem-solving creativity is evident. These results highlight that a work environment that supports creativity has a major influence on an individual's ability to find creative solutions to problems at hand (Hua & Yang, 2023; Stolaki et al., 2023). Thus, improving or creating a work environment that promotes creativity is considered a key factor in improving individual skills in solving problems innovatively. In conclusion, the existence of a work environment that supports creativity has a significant impact on individual creativity in the context of problem-solving.

## **Conclusion**

Highlighting the pivotal role of the creative work environment (CWE) in improving creative problem solving ability (CPS) underscores its significance in the realm of productivity and innovation within the work environment. A creative work environment creates an atmosphere that supports and encourages employees to think outside the box, create new solutions, and explore innovative ideas. Achieving this goal can be accomplished through a multitude of factors including availability of resources, freedom to experiment, and a company culture that values creativity.

Support from transformational leadership (TL) is also recognized as a significant contributing factor in creating a creative work environment (CWE). This leadership style often features vision, inspires, and motivates employees to achieve higher goals, which can open the door to an environment that allows new ideas and creative solutions to emerge.

In addition, the findings also show that Cognitive Skills (CS) have a significant influence on creative problem-solving ability (CPS). Cognitive skills, such as problem solving, analysis, and critical thinking, become the foundation for the creative process. When employees possess these skills and can effectively apply them within a work context, they tend to be better able to develop creative and innovative solutions.

Nonetheless, the findings also note that personal characteristics (PC) did not have a significant influence on creative problem-solving ability (CPS) in the context of this study. Although personal characteristics can play an important role in individual creativity, in an organizational context, factors such as work environment and leadership seem to have a greater influence in facilitating creativity and innovation.

Thus, the results of this study affirm the importance of creating a work environment that supports creativity, inspiring leadership and relevant skills, as a strategic approach to enhance creative problem-solving capabilities in the workplace.

#### Limitation of the Study

While highlighting the important role of creative work environments in improving Creative Problem-Solving Abilities and emphasizing the importance of Transformational Leadership in fostering such environments, this study has certain limitations. While showing that cognitive skills significantly influence creative problem-solving, it ignores the potential influence of other individual factors, such as personal characteristics, on creative problem-solving abilities. In addition, the scope of research may be limited to the context or tourism industry in the Special Region of Yogyakarta, potentially influencing the generalization of its findings.

#### Avenues for Future Research

More research is needed to explore a broader spectrum of factors affecting creative problem-solving abilities and validate the effectiveness of strategies aimed at cultivating creativity in the workplace. In addition, for future research, it is recommended to expand the scope of this research area.

#### Theoretical Implications

The practical implication of these findings is the need for an emphasis on developing transformation-oriented leadership to create a work environment that supports creativity. In addition, reinforcing the factors that make up a Creative Work Environment can be an effective strategy for improving creative problem-solving abilities and cognitive skills in the workplace. However, it is also important to identify and consider other factors beyond personal characteristics that may affect creative problem-solving abilities.

#### Practical Implications

The practical implication of these findings is the need for an emphasis on developing transformation-oriented leadership to create a work environment that supports creativity. In addition, reinforcing the factors that make up a Creative Work Environment can be an effective strategy for improving creative problem-solving abilities and cognitive skills in the workplace. However, it is also important to identify and consider other factors beyond personal characteristics that may affect creative problem-solving abilities.

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