



Unlocking Innovative Work Behavior: The Interplay of Engaging Leadership, Trust, Learning Climate, and Time Pressure

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Abstract

Background: In the era of Industry 4.0, companies must foster innovative work behavior (IWB) to sustain competitiveness. Yet even organizations with structured HRM systems report low work engagement among employees, particularly under high time pressure, creating a critical gap between innovation infrastructure and actual employee innovative behavior.

Objective: This study examines the influence of engaging leadership, learning climate, trust, and time pressure on work engagement and, through it, on innovative work behavior, with work engagement as a mediating variable.

Method: A quantitative cross-sectional design was employed. Using purposive sampling (criterion: minimum 2 years of service), data were collected via a five-point Likert scale questionnaire from 170 permanent employees at PT XYZ, a multinational manufacturing company in South Tangerang, and analyzed using PLS-SEM via SmartPLS 4.0.

Result: The results of the study show that engaging leadership and learning climate have a positive and significant effect on work engagement, while trust and time pressure have no significant effect. In addition, work engagement has been proven to have a positive effect on innovative work behavior. The indirect relationship of engaging leadership and learning climate with innovative work behavior is established through work engagement mediation, while trust and time pressure are not mediated by work engagement.

Conclusion: These findings affirm engaging leadership and a positive learning climate as the primary drivers of work engagement and innovation. Organizations should strengthen an engaging culture, broaden learning opportunities, and frame time pressure as a motivating challenge rather than a hindrance.

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INTRODUCTION

The global manufacturing industry that is developing in this era has entered an era of fierce competition caused by the penetration of Industry 4.0 technology, which has an impact on product efficiency and quality (Elnadi & Abdallah, 2024). This competition requires companies to transform by improving operational efficiency, product quality, and competitiveness through driving innovation, including in the field of human resources (Dalenogare et al., 2018; Tarasov, 2018). Companies must transform the field of human resources by developing innovative work behaviors from employees, aiming to respond to technological changes and market competition in a more adaptive manner (Hermundsdottir & Aspelund, 2021).

Companies developing innovative work behaviors will be influenced by the existence of a positive learning climate and an ecosystem that supports the exchange of ideas between employees (Harsanto et al., 2024; Hermundsdottir & Aspelund, 2021). One way to foster employee innovation is through organizations that build a culture of collaboration and active learning, which creates more opportunities to develop sustainable innovation by training and rewarding employees who innovate serving as the main driver that strengthens commitment and belonging to the company (Mohd et al., 2022). In addition to a supportive organizational culture, there are challenges that will affect employees in innovating, namely time pressure which is related to a decrease in work involvement if it is not supported by other adequate supporting factors (De Spiegelaere et al., 2015). This is because the existence of high production targets will make employees experience stress that results in burnout (Bakker et al., 2026). If these conditions are not managed properly, innovation will not develop optimally even though the company has supporting facilities.

Building an organizational culture and managing employee stress requires HRM practices through the Ability-Motivation-Opportunity (AMO) framework, which consistently strengthens innovative work behaviors (Bos-Nehles et al., 2017). Yet high-performance work systems could impede innovation when psychological pressure exceeds employees' tolerances. The researchers highlight that perceived organizational support is crucial to productively directing challenge stress (Zhu et al., 2022). This dynamic is observable at PT XYZ, a multinational fitting-parts manufacturer in South Tangerang an intercultural organization with a paradox of a well-defined corporate culture. Having adopted AMO-based HRM via ERP systems, codified work guidelines, systematic incentives, and iterative learning, an internal survey of the organization conducted in 2024 revealed that even among production-line employees, approximately only 38 percent were highly engaged; nearly all cited chronic time pressure and ambiguous role boundaries as hindrances to their innovative initiatives. This finding unearths a structural-behavioral gap: innovation support systems are institutionally established, but psychological engagement mechanisms remain restricted underscoring the importance of including work engagement as an essential mediating variable.

Previous researchers have discussed the relationship between organizational factors that drive innovative work behaviors in employees, but there are some gaps that need to be addressed. In their study, De Spiegelaere et al. (2015) emphasized that time pressure can encourage employees to innovate, but at the same time reduce work engagement. On the other hand, research conducted by Zhu et al. (2022) and Zahoor & Khan (2022) state that work systems with high time pressure have the potential to negatively impact innovative work behaviors without adequate psychological and organizational support. Conversely, research by Song et al. (2023) found that ethical leadership and a learning climate are able to increase work engagement while encouraging innovation.

These contradictory findings indicate that the relationships among time pressure, engaging leadership, a learning climate, trust, and work engagement leading to innovative work behavior remain inconsistent, particularly in the multinational manufacturing context. Prior research predominantly examined these variables in general manufacturing or service settings, lacking evidence from highly structured, innovation-oriented multinationals facing work-culture barriers such as those at PT XYZ. Specifically, the mediation role of work engagement under conditions where trust and time pressure yield non-significant effects on engagement has received insufficient attention. In this study, these gaps are addressed by testing work engagement as a mediating mechanism linking engaging leadership, learning climate, trust, and time pressure to innovative work behavior emphasizing a novel finding that in the context of a senior experienced workforce, trust and time pressure can bypass the engagement variable entirely and exert direct effects on innovation outcomes. To address this gap, the present research investigates the relationship between engaging leadership, learning climate, trust, and time pressure as predictors of innovative work behaviors by examining work engagement as a mediating mechanism. Trust, grounded in Social Exchange Theory (SET), is also examined as a potential resource that fosters psychological safety and engagement. While prior studies confirm trust's engagement-enhancing role, this study tests whether trust operates directly on innovative behavior rather than through engagement in the PT XYZ context.

LITERATURE REVIEW

Innovative Work Behavior

Innovative work behavior (IWB) refers to an individual's planned behaviors in the workplace to generate, promote, and realize new ideas that benefit the organization (AlEssa & Durugbo, 2022). IWB is understood as a multidimensional and continuous process that encompasses opportunity identification, idea creation, the promotion of or search for support, and the implementation of ideas in work practice. Operationally, IWB is measured through four main dimensions, namely opportunity exploration (the ability to recognize innovation opportunities), idea generation (creativity in solving problems or formulating new solutions) (Kim & Choi, 2023), socialization and resource search (the ability to build a network, seek support, and access resources), and idea realization (the application of ideas into real practices that add value) (Hock-Doepgen et al., 2025). Recent research shows that factors such as ethical leadership play an important role in encouraging IWB, as ethical leadership creates a work culture of integrity and psychological safety that enables employees to innovate, allowing innovative work behaviors to develop sustainably in the manufacturing sector.

Ethical Leadership

A person who exercises ethical leadership not only prioritizes honesty, fairness, and transparency in interacting with subordinates but also actively encourages the creation of open dialogue spaces in the organization (Javed et al., 2018). In practice, ethical leadership has two main dimensions: first, the role as a moral person in daily interpersonal relationships, and second, the role as a leader who forms an organizational system and culture based on moral values and ethical norms (D'Amato et al., 2024). Based on this, ethical leadership plays a strategic role in increasing employee engagement, creating a psychologically safe work environment, and strengthening psychological empowerment that directly encourages innovative behavior and employee creativity (Liu et al., 2023). Trust in the leader creates a sense of psychological security that encourages employees to engage more closely, both emotionally and cognitively, in their work (Islam et al., 2024). Previous studies have shown that ethical leadership positively influences work engagement, meaning that ethical leaders can inspire subordinates' self-confidence to complete tasks effectively, which in turn increases employee dedication and vigor (Ashfaq et al., 2021).

In the context of the construction industry, it has been found that ethical leaders make fair decisions, show genuine concern for employee needs, and develop an ethical climate that improves employee well-being as well as work engagement (Cheng et al., 2022). This condition creates a sense of psychological security and increases the vigor, dedication, and absorption of employees in their work collectively known as work engagement (Jin & Peng, 2024). Employees who have high work engagement are more encouraged to propose, promote, and realize new ideas that constitute innovative work behavior (Elamin et al., 2024).

H1: Ethical Leadership has a positive influence on Work Engagement

H6: Work Engagement mediates the relationship between Ethical Leadership and Innovative Work Behavior

Learning Climate

The learning climate in an organization is a condition that emphasizes cultural values, structures, and technologies that support open communication, knowledge management, and team collaboration (Caniëls & Baaten, 2019). Previous research shows that the learning climate can be considered a job resource from an organizational aspect that supports work achievement, reduces workload, and encourages personal growth (Van der Heijde et al., 2018). In the context of learning climate, increasing work engagement can be achieved through several theoretical pathways; for example, building a learning climate that allows failures to be discussed openly increases employee resilience. This is evident in the improvement of proactive behavior in the workplace as an important component of work engagement. This resilience then has a positive impact on proactive behavior and work engagement (Caniëls & Baaten, 2019). Based on longitudinal studies, it was found that the learning climate components (facilitation, appreciation, and error avoidance) help employees maintain or transition to a better occupational well-being status to sustain and increase work engagement (Lehtiniemi et al., 2024). The work environment

that supports learning (learning climate) is seen as one of the important job resources in the Job Demands–Resources (JD-R) Theory (Bakker et al., 2026). A positive learning climate characterized by support for competency development, error tolerance, and knowledge collaboration is able to trigger the intrinsic motivation of employees to engage more in their work (Lehtiniemi et al., 2024).

H2: Learning Climate has a positive influence on Work Engagement

H7: Work Engagement mediates the relationship between Learning Climate and Innovative Work Behavior

Trust

Trust, seen from a psychological aspect, can be understood as a willingness to accept vulnerability with positive expectations of the other party's intentions, motivations, and behaviors (Hsu, 2022). Based on the Job Demands–Resources (JD-R) model, social resources in the workplace, including trust in superiors and organizations, play an important role in fostering enthusiasm, dedication, and full involvement in work, which is the essence of work engagement (Salmela-Aro & Upadyaya, 2018). A number of recent studies confirm the role of trust in work engagement; in the context of authentic and transformational leadership, trust in leaders has been proven to increase work engagement, confirming that trusted relationships trigger employee energy and work attachment. In the perspective of Social Exchange Theory (SET), the relationship between leaders and employees is built through mutually beneficial social exchanges, where the behavior of a trustworthy leader becomes a stimulus for positive reciprocity from employees (G. Zhou et al., 2022). This trust increases employees' sense of connection with the organization and minimizes uncertainty in work interactions, thereby strengthening a sense of psychological security (Joo et al., 2023).

H3: Trust has a positive influence on Work Engagement

H8: Work Engagement mediates the relationship between Trust and Innovative Work Behavior

Time Pressure

Time pressure can be defined as the stress felt by employees when they have to complete tasks within a predetermined time limit (Y. Zhou et al., 2024). This pressure can arise from high workloads, tight deadlines, or sudden changes in targets. Time pressure can be acute in the short term (for example, daily or weekly), which can still increase work engagement, but if it persists in the long term, it becomes critical and decreases work engagement (Schilbach et al., 2023). Time pressure is often seen as a form of job demand, which encourages individuals to work with greater focus and make optimal use of the resources they have (Schilbach et al., 2023). When time pressure is interpreted as a motivating challenge, it can spark a sense of excitement, dedication, and full engagement in the work. Empirical findings show that time pressure contributes positively to work engagement, especially when individual resources such as resilience and autonomy are adequate, as they promote the perception of challenge (Schilbach et al., 2023).

In the context of innovation, challenge time pressure has been proven to encourage confidence in performing work, which further increases innovative work behavior, while hindrance time pressure produces negative effects (G. Zhou et al., 2022). This indicates that there is a psychological mechanism that bridges the relationship between time pressure and innovative behaviors, one of which is work engagement. Work engagement is a positive psychological condition characterized by high vigor, dedication, and full absorption in work (Wang et al., 2023). Employees with high engagement tend to be proactive, creative, and willing to take risks to implement new ideas. A study by Husin et al. (2021) found that engagement significantly mediated employee participation in innovative behaviors in the higher education sector.

H4: Time Pressure has a positive influence on Work Engagement

H9: Work Engagement mediates the relationship between Time Pressure and Innovative Work Behavior

Work Engagement

Work Engagement is a positive psychological condition in the context of work that consists of three main dimensions: vigor (high mental energy and resilience), dedication (enthusiasm, inspiration, and pride in work), and absorption (full concentration until it is difficult to disengage

from work), which is measured through the Utrecht Work Engagement Scale (UWES) (Borst et al., 2020). Work engagement has a positive and significant effect on innovative work behavior, indicating that employees with high levels of work engagement characterized by enthusiasm, dedication, and full involvement in work are more likely to generate, promote, and implement new ideas in the workplace (Sari et al., 2021). These findings are in line with a meta-analysis that shows a moderate positive relationship between work engagement and innovative work behavior, affirming the role of engagement as a driving factor for innovative behavior in various organizational contexts (Sari et al., 2021). Other research proves that engagement can encourage innovative behaviors through improving knowledge-seeking behaviors in the service sector in the United Arab Emirates (Elamin et al., 2024). In addition, a study in China found that millennials in the service sector who have high engagement are more active in creating and implementing new ideas (Ali et al., 2022).

H5: Work Engagement has a positive influence on Innovative Work Behavior

METHOD

The design of this study was a quantitative cross-sectional design employing descriptive and explanatory methods (Sekaran & Bougie, 2016). This study examined a model in which Innovative Work Behavior (IWB) served as the dependent variable, mediated through Work Engagement (WE), while Ethical Leadership (EL), Learning Climate (LC), Trust (T), and Time Pressure (TP) served as the independent variables, as illustrated in the following figure. This study used a purposive sampling method aimed at permanent employees of PT XYZ who had worked for a minimum of two years, to ensure that the respondents had adequate organizational experience to assess all research constructs. The adequacy of the sample size was verified according to the PLS-SEM rule of 10 times the maximum number of structural paths pointed toward any latent construct, with a minimum necessary sample of 70; the achieved $N = 170$ easily exceeded that threshold (Hair et al., 2021). A structured questionnaire was used for data collection (a five-point scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree). The instruments used in this study were all adapted from their original English-language versions and had been validated; they were then translated sequentially using the back-translation method by two academic experts and piloted with 30 respondents to check item clarity and reliability prior to full administration. Data analysis was performed through Partial Least Squares Structural Equation Modeling (PLS-SEM) and estimated in SmartPLS 4.0, an appropriate methodology for handling variance-based SEM approaches used in predictive and exploratory models dealing with complex measurement structures as well as nonnormal data (Hair et al., 2021). Ethical Leadership was measured using 7 indicators (Liu et al., 2023), Learning Climate with 6 indicators, Trust with 5 indicators, and Time Pressure with 5 three-item measures.

RESULTS AND DISCUSSION

Results

Aspects regarding the profile of respondents indicate a predominantly male (95.38%), senior workforce (44–59 years, 58.75%), with education levels mainly comprising high school diploma (68.12%), bachelor's degree (27.50%), and master's degree (4.38%). Analytically, this senior characteristic directly relates to the interpretation of results. Trust was not a predictor of engagement, likely because most senior, long-tenured employees perceive trust as an organizational baseline expectation rather than a dynamic motivational resource (Islam et al., 2024). Likewise, decades of experience in production may enable employees to internalize time pressure functionally as part of work routines, explaining the direct path of time pressure–IWB (H9 supported) without mediating effects on engagement. This aligns with career consolidation theory, in which engagement is driven by clarity of role and predictability in career pathways among senior staff rather than simply by motivational factors. Convergent validity was confirmed for all constructs (outer loadings > 0.70 ; AVE > 0.50).

Table 1. Validity and Reliability Test

Indicator	Outer Loading
Ethical Leadership (CA : 0.926. CR : 0.941. AVE : 0.694)	
EL1: <i>Atasan saya menjalani kehidupan pribadinya dengan cara yang jujur.</i>	0.765
EL2: <i>Atasan saya peduli bukan hanya pada hasil.</i>	0.827
EL3: <i>Atasan saya mendengarkan ide dari karyawan.</i>	0.836
EL 4: <i>Atasan saya menindak karyawan yang tidak sesuai dengan aturan.</i>	0.821
EL5: <i>Atasan saya memperlakukan semua karyawan dengan adil saat mengambil keputusan.</i>	0.854
EL6: <i>Atasan saya menunjukkan perilaku yang patut ditiru.</i>	0.843
EL7: <i>Atasan saya berusaha yang baik untuk karyawan</i>	0.878
Learning Climate (CA : 0.918. CR : 0.936. AVE : 0.711)	
LC1: <i>Unit kerja saya memberi apresiasi kepada karyawan yang mau belajar.</i>	0.852
LC2: <i>Unit kerja saya karyawan menghabiskan waktu membangun kepercayaan.</i>	0.779
LC3: <i>Unit kerja saya mau menyelesaikan pekerjaan setelah rapat.</i>	0.859
LC4: <i>Unit kerja saya memberikan kesempatan semua anggota untuk belajar.</i>	0.897
LC5: <i>Unit kerja saya menghargai orang yang mengambil inisiatif.</i>	0.798
LC6: <i>Unit kerja saya bekerja sama dengan kelompok kerja lainnya</i>	0.868
Trust (CA : 0.922. CR : 0.942. AVE : 0.764)	
T1: <i>Saya yakin bahwa atasan saya peduli dengan kebutuhan pribadi saya di tempat kerja.</i>	0.821
T2: <i>Saya yakin atasan saya memberi tanggapan yang baik.</i>	0.846
T3: <i>Saya yakin bahwa saya bisa berbagi kesulitan pekerjaan saya dengan atasan saya.</i>	0.897
T4: <i>Saya yakin bahwa saya merasa aman untuk bicara terbuka dengan atasan.</i>	0.896
T5: <i>Saya merasa aman dengan atasan saya karena ketulusannya</i>	0.907
Time Pressure (CA : 0.867. CR : 0.902. AVE : 0.650)	
TP1: <i>Ketika saya bekerja merasakan tekanan waktu yang besar.</i>	0.718
TP2: <i>Ketika saya bekerja sering merasa sibuk.</i>	0.833
TP3: <i>Ketika saya bekerja sering memiliki waktu terbatas.</i>	0.84
TP4: <i>Ketika saya bekerja merasa terburu – buru.</i>	0.881
TP5: <i>Ketika saya bekerja tidak punya cukup waktu untuk menyelesaikan yang seharusnya saya lakukan</i>	0.748
Work Engagement (CA : 0.939. CR : 0.950. AVE : 0.732)	
WE1: <i>Di tempat kerja saya merasa penuh energi.</i>	0.839
WE2: <i>Di tempat kerja saya merasa bersemangat.</i>	0.886
WE3: <i>Saya antusias dengan pekerjaan saya.</i>	0.897
WE4: <i>Pekerjaan saya menginspirasi saya.</i>	0.849
WE5: <i>Ketika saya bangun pagi mempunyai perasaan ingin pergi bekerja.</i>	0.815
WE6: <i>Saya mempunyai perasaan bahagia ketika bekerja dengan intens.</i>	0.838
WE7: <i>Saya bangga dengan pekerjaan yang saya lakukan.</i>	0.861
Innovative Work Behaviour (CA : 0.914. CR : 0.936. AVE : 0.747)	
IWB1: <i>Saya mencari ide baru untuk mempermudah pekerjaan saya.</i>	0.870
IWB2: <i>Saya menghasilkan ide – ide kreatif.</i>	0.926
IWB3: <i>Saya mendaftarkan ide saya dalam format inovatif setiap bulan.</i>	0.865
IWB4: <i>saya melakukan implementasi ide – ide baru.</i>	0.896
IWB5: <i>Saya telah bertindak inovatif dengan rutin kepada atasan saya.</i>	0.754

The test results showed that all indicators had an outer loading value of more than 0.700 and an AVE of more than 0.5, which can be considered valid and reliable (Hair et al., 2021). Thus, all variables in this study, namely Engaging Leadership, Learning Climate, Trust, Time Pressure, Work Engagement, and Innovative Work Behavior, have met the criteria of validity and reliability.

Table 2. Discriminant Validity Test

	THE	IWB	LC	HCMC	T	WE
Ethical Leadership						
Innovative Work Behavior	0.622					
Learning Climate	0.796	0.720				
Time Pressure	0.084	0.253	0.136			
Trust	0.847	0.616	0.699	0.095		
Work Engagement	0.703	0.748	0.780	0.136	0.597	

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The results of the discriminant validity test (HTMT) showed that the entire value of the inter-construct relationship was below 0.90, with the highest value of 0.847. This indicates that all variables in the study have good discriminant validity. Thus, each construct is able to distinguish itself from other constructs clearly, and there is no problem of multicollinearity between variables in this research model.

Table 3. Multicollinearity Test

Variabel	VIF
Ethical Leadership -> Innovative Work Behavior	3.587
Ethical Leadership -> Work Engagement	3.437
Learning Climate -> Innovative Work Behavior	2.906
Learning Climate -> Work Engagement	2.284
Time Pressure -> Innovative Work Behavior	1.020
Time Pressure -> Work Engagement	1.012
Trust -> Innovative Work Behavior	2.683
Trust -> Work Engagement	2.683
Work Engagement -> Innovative Work Behavior	2.286

The results of the multicollinearity test showed that all variables had a Variance Inflation Factor (VIF) value below 5. The highest VIF score was 3.587 in the relationship between Engaging Leadership and Innovative Work Behavior, while the lowest score was 1.012 in the relationship between Time Pressure and Work Engagement. These values indicate that there is no high degree of linear relationship among the independent variables in the research model. Thus, this research model does not suffer from multicollinearity, so all independent variables can be used simultaneously in the analysis without overly influencing each other.

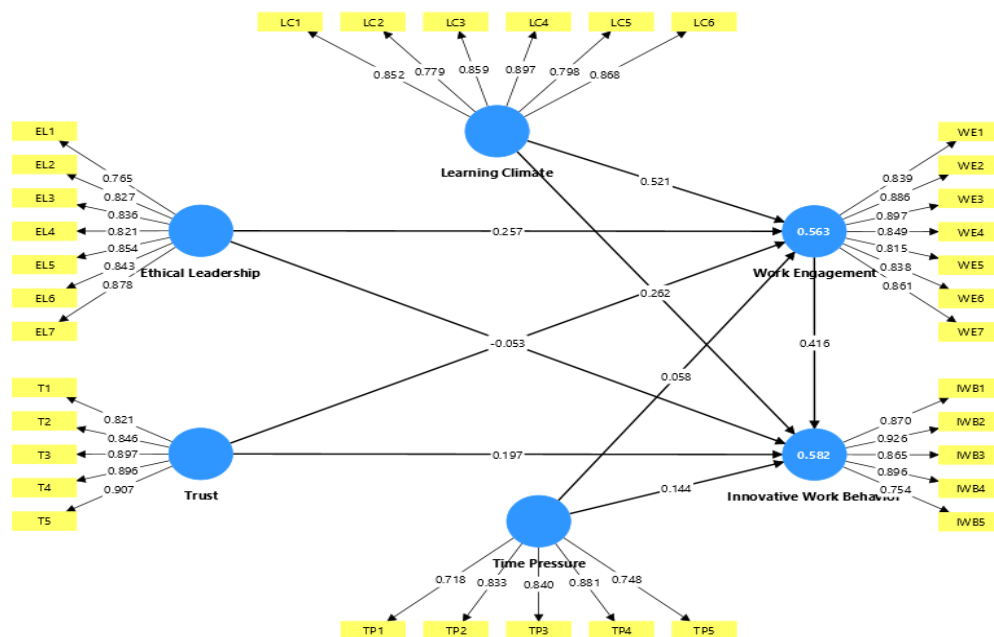


Figure 1. Research Model Result

The results of the analysis showed that Innovative Work Behavior had an R-square value of 0.582, while Work Engagement was 0.563. This means that each variable can be explained by the constructs in the model by 58.2% and 56.3%, while the rest is influenced by other factors outside the model. These values show that the model's ability to explain the relationship between variables is relatively strong.

Table 4. Results of Hypothesis Testing

	Hypothesis	Original sample	T stat	P values	Result
H1	Ethical Leadership -> Work Engagement	0.250	2.544	0.011	Supported
H2	Learning Climate -> Work Engagement	0.524	5.183	0.000	Supported
H3	Trust-> Work Engagement	0.014	0.143	0.886	Not Supported
H4	Time Pressure -> Work Engagement	0.060	1.051	0.293	Not Supported
H5	Work Engagement -> Innovative Work Behavior	0.417	5.066	0.000	Supported
H6	Ethical Leadership -> Innovative Work Behavior	-0.058	0.525	0.600	Not Supported
H7	Learning Climate -> Innovative Work Behavior	0.264	2.684	0.007	Supported
H8	Trust-> Innovative Work Behavior	0.197	2.183	0.029	Supported
H9	Time Pressure -> Innovative Work Behavior	0.147	2.116	0.034	Supported

Engaging Leadership ($\beta = 0.250$, $p = 0.011$) and Learning Climate ($\beta = 0.524$, $p = 0.000$) significantly predicted Work Engagement; Trust ($\beta = 0.014$, $p = 0.886$) and Time Pressure ($\beta = 0.060$, $p = 0.293$) did not. Work Engagement positively influenced IWB ($\beta = 0.417$, $p = 0.000$). Trust and Time Pressure each had significant direct effects on IWB (H8: $\beta = 0.197$, $p = 0.029$; H9: $\beta = 0.147$, $p = 0.034$), bypassing the engagement mediation pathway.

Discussion

Based on the analysis, the learning climate variable had a positive and significant influence on work engagement, with a coefficient value of 0.524, a t-statistic of 5.183, and a p-value of 0.000. This shows that the better the learning climate in the organization, the higher the employee attachment to work. In other words, a work environment that supports learning, experimentation, and self-development can increase employees' enthusiasm, dedication, and commitment to their work. Theoretically, this is in line with the Job Demands-Resources (JD-R) Theory by Bakker et al. (2026), which identifies the learning climate as an important job resource that can increase employee intrinsic motivation and well-being at work. A work environment that facilitates the development of new skills, provides positive feedback, and rewards initiatives creates psychological safety that is, a sense of security to learn from mistakes and strengthen employee resilience and attachment. Previous research has also shown that a strong learning climate can encourage proactive behavior and organizational commitment, thereby motivating employees to put in more effort and interpret work more positively. Organizations that consistently build a culture of learning and reward will increase work attachment both emotionally and cognitively.

Trust did not significantly predict Work Engagement (H3: $\beta = 0.014$, $p = 0.886$). According to Social Exchange Theory (SET), trust-based relationships should trigger positive reciprocity G. Zhou et al. (2022) however, three alternative explanations account for this non-significance. (1) Cultural context: in high-power-distance Indonesian manufacturing settings, employees may perceive trust in superiors as an expected structural norm rather than an active motivator its presence is taken for granted and does not elevate engagement. (2) Measurement scope: the scale captured dyadic supervisor trust, while engagement may depend more on systemic organizational trust (procedural fairness, institutional reliability). (3) Organizational structure: PT XYZ's hierarchical, formalized production environment may suppress the interpersonal trust-to-engagement pathway. Critically, trust directly and significantly predicted IWB (H8: $\beta = 0.197$, $p = 0.029$), indicating that trust functions as a psychological safety mechanism enabling idea expression by reducing the perceived social risk of innovation (Lee, 2022; Rai et al., 2025). This bypass-engagement pathway distinguishes trust's role in this context: it enables innovation not by energizing employees but by lowering the cognitive cost of proposing new ideas.

Time pressure did not significantly predict Work Engagement (H4: $\beta = 0.060$, $p = 0.293$). From the JD-R perspective, time pressure functions as a hindrance demand when individual autonomy and organizational resources are insufficient to buffer its effects (Schilbach et al., 2023). Three critical alternative explanations apply: (1) Cultural normalization senior PT XYZ employees may have normalized production-related time pressure as a routine feature of their work context, neutralizing its motivational impact on engagement. (2) Chronic vs. acute pressure the measurement scale captured general time pressure perception without distinguishing chronic from acute episodes; chronic pressure is more consistently associated with hindrance effects. (3) Structural imposition production targets at PT XYZ are centrally set with minimal employee input, reducing the sense of autonomous challenge essential for transforming time pressure into engagement energy. Despite this, time pressure directly predicted IWB (H9: $\beta = 0.147$, $p = 0.034$), consistent with Y. Zhou et al. (2024), who demonstrate that challenge-framed time pressure spurs creative problem-solving and faster decision-making independent of engagement levels. This finding is practically significant: organizations can leverage time pressure as a direct innovation catalyst by framing deadlines as challenges and providing decision-making latitude, without relying on engagement as an intermediary mechanism. Employees emphasize the importance of clarity of goals, work instructions, team support, clear communication, and task autonomy as structural enablers of sustainable engagement. Organizations should therefore frame time pressure communicatively as a challenge, provide decision-making latitude, and ensure adequate resources transforming deadline pressure into an innovation catalyst rather than a stressor.

Work engagement has a positive and significant influence on innovative work behavior, shown by strong statistical values supporting this hypothesis. This shows that employees who have a high level of attachment characterized by vigor, dedication, and absorption tend to exhibit innovative behaviors by looking for new ways to improve their work. Engaged employees have psychological energy that encourages creativity and the initiative to take risks and propose ideas that benefit the organization. Theoretical support from Ali et al. (2022) explains that work engagement is a psychological energy that drives innovation and change. Research by Sari et al. (2021) and Elamin et al. (2024) also confirms that engagement encourages innovation both individually and collaboratively in teams. In modern organizations, engaged employees not only perform well but also provide creative solutions that increase the competitiveness and efficiency of the organization. Thus, work engagement is an important asset in fostering a culture of sustainable innovation. To maximize innovative potential, companies need to create a work environment that supports employee enthusiasm, dedication, and focus.

Innovative work behavior is not directly influenced by engaging leadership, as evidenced by insignificant coefficients, t-statistics, and p-values; however, engaging leadership significantly influences work engagement, which subsequently mediates its effect on innovative work behavior. Specifically, this implies that engaging leaders promote positive psychological conditions such as security, trust, and intrinsic motivation, which in turn increase engagement. Employees become emotionally and cognitively involved in their work, thus helping them to think outside the box. These results support Social Learning Theory and prior work by Cheng et al. (2022) and Shang & Yang (2022), offering evidence that engaging leaders, as role models, create a climate of justice and transparency, which indirectly fosters psychological safety, in turn leading to engagement and innovation. Similarly, the results from employee interviews indicate that engaging leadership contributes to feelings of being valued among employees, but the direct impact on triggering innovation behaviors is not established. On the contrary, engaging leadership fails to directly drive innovation largely due to a lack of awareness of innovation processes, inflexible work systems, time and facility constraints, as well as team dynamics. Employees remarked that a work environment that fosters experimentation, learning opportunities, creativity appreciation, collaboration, trust, emotional resilience, and promotion opportunities is considered to enhance innovation more than compensation alone. In this way, engaging leadership indirectly affects innovation through increased work engagement, but other organizational factors are required for innovation to be adequately cultivated.

For H7, we find partial mediation by work engagement, meaning that learning climate not only has a significant effect on work engagement but also positively impacts innovative work behavior through the same mediator. A good learning climate not only increases work engagement but also positively affects innovative behavior through a direct pathway. More

engaged employees those with opportunities to learn, adapt, and build their abilities are also more likely to contribute new ideas that lead to organizational benefits. The results are aligned with JD-R Theory, which indicates that the learning climate is an important job resource for increasing intrinsic motivation and well-being at work. A training-friendly environment with constructive feedback and recognition creates a safe space to experiment and unlock employees' full potential. In this sense, work engagement becomes a mediator because engaged employees display higher levels of vigor, dedication, and absorption. In essence, the role of learning climate in innovative work behavior is both direct and mediated by work engagement. Organizations that foster open conversations, teamwork, and acceptance of trial and error will cultivate a mindset of discovery and the confidence to experiment. Creating a learning climate, therefore, serves as a strategic approach for sustainable innovation.

The path results indicated that the effect of trust on work engagement was not significant (H3 rejected), while trust had a direct impact on innovative work behavior, with a coefficient of 0.197, a t-statistic of 2.183, and a p-value of 0.029. Thus, the effect proposed in H8 is not mediated by work engagement, but trust still has a direct effect on innovative behavior. While trust does not increase engagement directly, increased trust in superiors or the organization can boost the courage and psychological safety needed to innovate. At the theoretical level, this finding can be explained by Social Exchange Theory (SET), which describes how trust-based working relationships embody mutually beneficial social exchanges. Employees who trust their leaders and the organization feel more psychologically safe in presenting ideas or taking risks at work (Lee, 2022). Trust enables new behaviors, not through engagement but by enhancing a sense of responsibility and moral obligation to the organization (Rai et al., 2025).

Time pressure showed a non-significant effect on work engagement (H4 rejected), while its direct effect on innovative work behavior was significant ($\beta = 0.147$, $t(298) = 2.116$, $p = 0.034$), indicating that the relationship proposed in H9 is not mediated by work engagement. This means that time pressure can directly prompt innovative behavior without first needing to enhance work engagement. These results are theoretically consistent with Y. Zhou et al. (2024), who differentiate between challenge and hindrance time pressure. When employees perceive time pressure as a challenge, it pushes them to think quickly and develop innovative solutions to meet deadlines. Conversely, when time pressure becomes an obstacle, it detrimentally affects psychological well-being and work engagement. For this study, time pressure appears to have been interpreted primarily as a challenge that directly triggers innovative behavior in employees.

CONCLUSION

This study concludes that the variables of ethical leadership and learning climate have a positive and significant effect on work engagement, while trust and time pressure do not show a significant influence. This research shows that ethical leadership and a supportive work environment are the main factors that can increase work engagement. Meanwhile, work engagement has been proven to have a positive and significant influence on innovative work behavior. Employees who have a high level of work engagement are more energetic, dedicated, and willing to explore new ideas in their work. In addition, the influence of ethical leadership and learning climate on innovative work behavior is mediated indirectly by work engagement, while the relationship between trust, time pressure, and innovative work behavior is not mediated by work engagement.

This research provides important implications for human resource management. First, organizations need to emphasize the importance of implementing ethical leadership at every managerial level to build employee trust and engagement. Second, companies are advised to strengthen the learning climate through continuous training, a constructive feedback system, and appreciation for employee initiatives. Third, management needs to manage time pressure so that it remains within reasonable limits, making it a motivating challenge rather than an obstacle that suppresses performance. This study has limitations in the context of the sample and the mediating variables used. Other factors such as psychological safety, organizational support, or leadership trust could serve as variables to help explain the relationship between organizational factors and innovative behaviors. Therefore, further research is suggested to expand the scope of study across different sectors and organizational cultures, as well as include moderating variables to enrich understanding of the dynamics of work engagement in encouraging innovative behavior.

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AUTHOR CONTRIBUTION STATEMENT

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REFERENCES

- AlEsa, H. S., & Durugbo, C. M. (2022). Systematic review of innovative work behavior concepts and contributions. *Management Review Quarterly*, 72(4). <https://doi.org/10.1007/s11301-021-00224-x>
- Ali, H., Li, M., & Qiu, X. (2022). Employee Engagement and Innovative Work Behavior Among Chinese Millennials: Mediating and Moderating Role of Work-Life Balance and Psychological Empowerment. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.942580>
- Ashfaq, F., Abid, G., & Ilyas, S. (2021). Impact of ethical leadership on employee engagement: Role of self-efficacy and organizational commitment. *European Journal of Investigation in Health, Psychology and Education*, 11(3). <https://doi.org/10.3390/ejihpe11030071>
- Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. (2026). Annual Review of Organizational Psychology and Organizational Behavior Job Demands-Resources Theory: Ten Years Later. *Annu. Rev. Organ. Psychol. Organ. Behav.* 2023, 10.
- Borst, R. T., Kruyen, P. M., Lako, C. J., & de Vries, M. S. (2020). The Attitudinal, Behavioral, and Performance Outcomes of Work Engagement: A Comparative Meta-Analysis Across the Public, Semipublic, and Private Sector. *Review of Public Personnel Administration*, 40(4). <https://doi.org/10.1177/0734371X19840399>
- Bos-Nehles, A., Renkema, M., & Janssen, M. (2017). HRM and innovative work behaviour: A systematic literature review. *Personnel Review*, 46(7), 1228–1253. <https://doi.org/10.1108/PR-09-2016-0257>
- Caniëls, M. C. J., & Baaten, S. M. J. (2019). How a Learning-Oriented Organizational Climate is Linked to Different Proactive Behaviors: The Role of Employee Resilience. *Social Indicators Research*, 143(2). <https://doi.org/10.1007/s11205-018-1996-y>
- Cheng, J., Sun, X., Lu, J., & He, Y. (2022). How Ethical Leadership Prompts Employees' Voice Behavior? The Roles of Employees' Affective Commitment and Moral Disengagement. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.732463>
- Dalenogare, L. S., Benitez, G. B., Ayala, N. F., & Frank, A. G. (2018). The expected contribution of Industry 4.0 technologies for industrial performance. *International Journal of Production Economics*, 204. <https://doi.org/10.1016/j.ijpe.2018.08.019>
- D'Amato, A., Murugavel, V., Medeiros, K., & Watts, L. L. (2024). An ethical leadership assessment center pilot: Assessing and developing moral person and moral manager dimensions. *Industrial and Organizational Psychology*, 17(2). <https://doi.org/10.1017/iop.2024.7>
- De Spiegelaere, S., Gyes, G. Van, Witte, H. De, & Hootegeem, G. Van. (2015). Job design, work engagement and innovative work behavior: A multi-level study on Karasek's learning hypothesis. *Management Revue*, 26(2). <https://doi.org/10.1688/mrev-2015-02-DeSpiegelaere>
- Elamin, A. M., Aldabbas, H., & Ahmed, A. Z. E. (2024). The impact of diversity management on innovative work behavior: the mediating role of employee engagement in an emerging economy. *Frontiers in Sociology*, 9. <https://doi.org/10.3389/fsoc.2024.1441109>
- Elnadi, M., & Abdallah, Y. O. (2024). Industry 4.0: critical investigations and synthesis of key findings. *Management Review Quarterly*, 74(2). <https://doi.org/10.1007/s11301-022-00314-4>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage Publications.
- Harsanto, B., Ifghaniyafi, J., Egi, F., Firmansyah, A., Farras, J. I., & Firmansyah, E. A. (2024). Sustainability Innovation, Firm Competitiveness, Export. *ASEAN Journal on Science and*

Technology for Development.

- Hermundsdottir, F., & Aspelund, A. (2021). Sustainability innovations and firm competitiveness: A review. In *Journal of Cleaner Production* (Vol. 280). <https://doi.org/10.1016/j.jclepro.2020.124715>
- Hock-Doepgen, M., Montasser, J. S., Klein, S., Clauss, T., & Maalaoui, A. (2025). The role of innovative work behavior and organizational support for business model innovation. *R and D Management*, 55(1). <https://doi.org/10.1111/radm.12671>
- Hsu, L.-C. (2022). The Role of Cognitive and Affective Trust on Promoting Unethical Pro-Organizational Behavior. *Journal of Human Resource and Sustainability Studies*, 10(03). <https://doi.org/10.4236/jhrss.2022.103036>
- Husin, N. H., Abu Mansor, N. N., Kelana, B. W. Y., & Sondoh Jr., S. L. (2021). Employee Participation and Innovative Work Behaviour: The Mediation Effect of Work Engagement. *International Journal of Academic Research in Business and Social Sciences*, 11(7). <https://doi.org/10.6007/ijarbss/v11-i7/10571>
- Islam, T., Khatoun, A., Cheema, A. U., & Ashraf, Y. (2024). How does ethical leadership enhance employee work engagement? The roles of trust in leader and harmonious work passion. *Kybernetes*, 53(6). <https://doi.org/10.1108/K-09-2022-1343>
- Javed, B., Rawwas, M. Y. A., Khandai, S., Shahid, K., & Tayyeb, H. H. (2018). Ethical leadership, trust in leader and creativity: The mediated mechanism and an interacting effect. *Journal of Management and Organization*, 24(3). <https://doi.org/10.1017/jmo.2017.56>
- Jin, H., & Peng, Y. (2024). The impact of team psychological safety on employee innovative performance a study with communication behavior as a mediator variable. *PLoS ONE*, 19(10 October). <https://doi.org/10.1371/journal.pone.0306629>
- Joo, B. K. (Brian), Yoon, S. K., & Galbraith, D. (2023). The effects of organizational trust and empowering leadership on group conflict: psychological safety as a mediator. *Organization Management Journal*, 20(1). <https://doi.org/10.1108/OMJ-07-2021-1308>
- Kim, H. H., & Choi, J. N. (2023). How to Translate Creative Ideas into Innovation? Differential Resources for Proactive and Responsive Team Idea Generation. *Creativity Research Journal*, 35(1). <https://doi.org/10.1080/10400419.2021.1997468>
- Lee, H. J. (2022). A Study on the Effect of Customer Habits on Revisit Intention Focusing on Franchise Coffee Shops. *Information (Switzerland)*, 13(2). <https://doi.org/10.3390/info13020086>
- Lehtiniemi, K., Tolvanen, A., Rantanen, J., & Feldt, T. (2024). Occupational Well-Being Profiles and Learning Climate as an Organizational Resource: A Latent Transition Analysis. *Employee Responsibilities and Rights Journal*. <https://doi.org/10.1007/s10672-024-09512-6>
- Liu, X., Huang, Y., Kim, J., & Na, S. (2023). How Ethical Leadership Cultivates Innovative Work Behaviors in Employees? Psychological Safety, Work Engagement and Openness to Experience. *Sustainability (Switzerland)*, 15(4). <https://doi.org/10.3390/su15043452>
- Mohd, N., Goh, Y., & Wahab, E. (2022). Work Engagement and Innovativeness in Manufacturing Sector. *Research in Management of Technology and Business*, 3(2).
- Rai, S. S., Koodamara, N. K., & K, V. (2025). Antecedents of organizational commitment: a systematic literature review. In *Cogent Business and Management* (Vol. 12, Number 1). <https://doi.org/10.1080/23311975.2025.2484462>
- Salmela-Aro, K., & Upadyaya, K. (2018). Role of demands-resources in work engagement and burnout in different career stages. *Journal of Vocational Behavior*, 108. <https://doi.org/10.1016/j.jvb.2018.08.002>
- Sari, D. K., Yudianto, A., & Sinambela, F. C. (2021). Work Engagement and Innovative Work Behavior: Meta-Analysis Study. *Proceedings of the International Conference on Psychological Studies (ICPSYCHE 2020)*, 530. <https://doi.org/10.2991/assehr.k.210423.053>
- Schilbach, M., Haun, V. C., Baethge, A., & Rigotti, T. (2023). The Challenging and Hindering Potential of Time Pressure: Qualitative Job Demands as Suppressor Variables. *Journal of Business and Psychology*, 38(5). <https://doi.org/10.1007/s10869-022-09844-w>
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & sons.
- Shang, L., & Yang, L. (2022). A cross-level study of the relationship between ethical leadership and employee constructive deviance: Effects of moral self-efficacy and psychological safety

- climate. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.964787>
- Song, H., Gao, R., Zhang, Q., & Li, Y. (2023). The nonlinear effect of time pressure on innovation performance: New insights from a meta-analysis and an empirical study. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1049174>
- Tarasov, I. V. (2018). Technologies of 4.0 industry: Impact on the performance improvement of industrial companies. *Strategic Risk & Decision Management*, 2.
- Van der Heijde, C. M., Van der Heijden, B. I. J. M., Scholarios, D., Bozionelos, N., Mikkelsen, A., Epitropaki, O., Marzec, I., Jedrzejowicz, P., & Looise, J. C. (2018). Learning climate perceptions as a determinant of employability: An empirical study among European ICT professionals. *Frontiers in Psychology*, 9(DEC). <https://doi.org/10.3389/fpsyg.2018.02471>
- Wang, F., Su, W., & Ding, H. (2023). Job Autonomy and Employee Strengths Use: The Roles of Work Engagement and Job Insecurity*. *Psihologija*, 56(3). <https://doi.org/10.2298/PSI220416004W>
- Zahoor, A., & Khan, D. (2022). Frontline service employees and customer engagement: some further insights. *IIM Ranchi Journal of Management Studies*, 1(2). <https://doi.org/10.1108/irjms-06-2021-0016>
- Zhou, G., Gul, R., & Tufail, M. (2022). Does Servant Leadership Stimulate Work Engagement? The Moderating Role of Trust in the Leader. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.925732>
- Zhou, Y., Zhang, J., Zheng, W., & Fu, M. (2024). Promoting or Prohibiting? Investigating How Time Pressure Influences Innovative Behavior under Stress-Mindset Conditions. *Behavioral Sciences*, 14(2). <https://doi.org/10.3390/bs14020143>
- Zhu, F., Gao, Y., & Chen, X. (2022). Tough Love: Impact of High-Performance Work System on Employee Innovation Behavior. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.919993>