Unearthing the Influence of Work Environment on Innovative Work Behavior: Mediated by Organizational Learning and Employee Engagement

Imad Al Zeer [1], Fahreta Fijuljanin [2]

[1] *Palestine Ahliya University, Bethlehem, Palestine*
[2] *University of Novi Pazar, Novi Pazar, Serbia*

Abstract **– This study aims to investigate the influence of the work environment (WE) on innovative work behavior (IWB) in state higher education institutions while considering the mediating roles of organizational learning (OL) and employee engagement (EE). Academic and non-academic staff data were collected through a quantitative survey methodology and analysed using PLS-SEM. Results indicate that the WE significantly enhances OL and EE, with β values of 0.583 and 0.471, respectively. Additionally, OL and EE mediate the relationship between the WE and IWB with β values of 0.296 and 0.111, respectively, explaining 39.6% of its variance. The study suggests introducing novel mediators to understand this relationship more comprehensively within higher education institutions.**

Keywords **– Innovative work behavior, work environment, organizational learning, employee engagement.**

1. Introduction

In recent years, the influence of the WE on IWB has become a focal point for researchers and practitioners due to its influence on organizational performance and competitive advantage [1], [2].

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Corresponding author: Imad Al Zeer,
Palestine Ahliya University, Bethlehem, Palestine
Email: imad@paluniv.edu.ps

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Recognizing how the WE either nurtures or hinders innovation is paramount and a priority for fostering a competitive workforce [3]. Yet, the role of OL and EE in shaping innovation remains underexplored [4], [5], [6].

The relationship between the WE, OL, and EE is critical in forming IWB [7], [8]. OL, marked by knowledge acquisition, sharing, and application, encourages innovative solutions [4], [5], while engaged employees are motivated to invest creatively in their tasks [6]. Both elements mediate the relationship between the WE and innovation, promoting an atmosphere conducive to innovation [9], [10].

OL is crucial in disseminating innovative ideas and best practices [11], [12]. A supportive WE that encourages knowledge sharing and continuous learning is expected to enhance employees' innovative capabilities [4], [5]. However, empirical research on the interaction between different WE dimension, and OL still needs to be explored. Thus, this study's primary objective is to investigate how OL mediates the link between WE and IWB.

Similarly, EE is characterized as a satisfying work-related mindset defined by energy, commitment, and deep engagement [6], [13]. Engaged employees are more inclined to actively engage in problem-solving actively and contribute to innovative initiatives [6]. However, additional scrutiny is needed to explore the mechanisms through which the WE influences EE and its subsequent effects on innovation. Furthermore, this study seeks to examine how EE mediates the relationship between the WE and IWB.

The theoretical foundation of this study is robust, leaning on expectancy theory, which accentuates how WE stimulate OL [14]. Socio-Technical system theory points to the interplay between social and technical systems, where the WE's technical influence impacts the OL process [15].

The Hawthorne effect highlights the complex interrelations among the WE, EE, and innovation, stressing the effect of surroundings and interactions on employee effectiveness [16]. The affective events theory also provides insights into the significant influence of employees' moods and emotions in response to work incidents on their engagement and organizational effectiveness [17].

This research offers vital contributions by aligning with the OL theory, exploring the direct impact of the WE on OL, and emphasizing a supportive environment's importance, an aspect that has not been directly explored in previous researches [18]. It also relates to the Hawthorne effect, probing how the WE influences EE and innovation [16]. The study uncovers the roles of OL and EE by employing mediation analysis, providing deeper insights into the mechanisms underlying the WE's effect on innovative behavior. These contributions enhance our understanding of how the WE shape IWB by elucidating the mediating roles of OL and EE. The findings hold valuable insights for organizations seeking to optimize their WE to foster a culture of innovation and enhance overall organizational performance.

The paper is structured as follows: After the introduction was done, a comprehensive evaluation of the literature, and presenting the theoretical framework. The third part outlines the approach used in this investigation. The results will be presented and discussed next. The study ends with a recap of the findings, significance, constraints, and suggestions for further studies.

2. Literature Review

This section conducts a bibliometric analysis of recent literature to delve deeper into the factors influencing IWB. Notable journal articles sourced from prominent databases were reviewed to develop the conceptual framework for the current research.

2.1. Analyzes of the Knowledge Framework

The current investigation embarked on an exhaustive bibliometric scrutiny of existing academic literature, focusing on the factors influencing IWB. This study analyzed publishing trends in the field and utilized data visualization methods to articulate findings visually. The aim of bibliometric analysis is to create a robust, transparent assessment method, hinging on statistical reviews of three central components: conceptual structure, thematic mapping, and theme evolution [19], [20], [21]. The accumulated data was subjected to a comprehensive bibliometric examination using the advanced Bibliometrix R program, a powerful tool for comprehensive bibliometric analyses [19], [22].

In conducting this comprehensive research, we systematically employed an extensive array of keywords and their respective synonyms to ensure thoroughness and to capture the multifaceted nature of the phenomena under study. For IWB, the search terms used were "creative job performance", "innovation-oriented work conduct", and "novelty-driven work behavior". When exploring the concept of "EE", the study considered "worker involvement", "staff dedication", "workforce participation", and "personnel engagement". The facet of OL was examined using terms like "corporate learning", "institutional knowledge acquisition", and "organizational knowledge development". Lastly, the term WE was examined using "workplace atmosphere", "job setting", and "organizational climate". The use of these keywords and their respective synonyms ensured the comprehensive coverage of the literature and facilitated the extraction of relevant articles addressing various dimensions of the research topics.

Spanning the past 12 years from 2011 to 2023, there has been a considerable academic contribution to the subject, represented by 99 papers indexed in the renowned Scopus database. These research outputs were the collective work of 298 authors and were disseminated across 83 distinct sources. Notably, a substantial majority, precisely 90%, of these documents were journal articles, evidencing a strong preference for this type of publication in the academic community. The remaining 10% constituted conference papers, book chapters, and reviews contributing to the vibrant exchange of ideas in scholarly gatherings and forums.

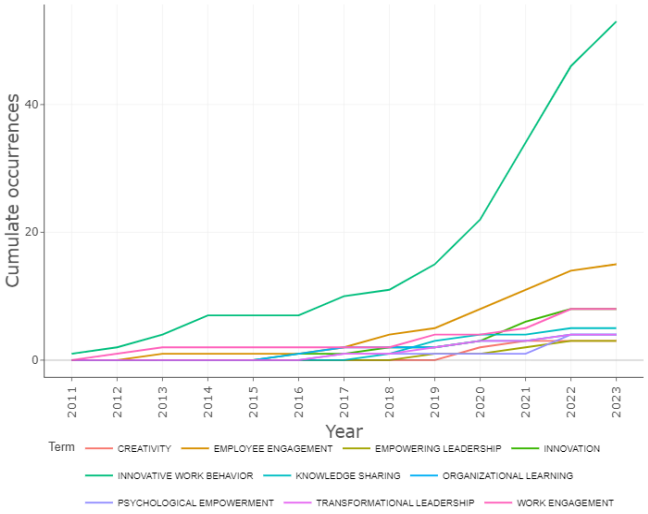

Figure 1. Keywords analysis and word dynamics

The keywords analysis and word dynamics as shown in Fig 1 from the research papers reveal central themes within literature, with IWB being the most prevalent.

Other significant keywords include "innovation and creativity", "work engagement", "knowledge sharing", "OL", "transformational leadership", and "empowering leadership". The frequency of these terms indicates a strong focus on these areas within IWB. The frequent occurrence of IWB aligns directly with the research's core focus. "Work engagement", a synonym for employee commitment, further establishes the relevance of the keyword analysis. Meanwhile, OL directly ties into the mediating factors mentioned in the research title.

In a refined effort to decipher the dataset's typological themes, the study integrated a thematic mapping approach, a method efficient in graphically depicting two-dimensional theme arrangements [23]. Figure 2 reveals that the IWB exhibited in the upper right quadrant, is the motor theme, distinguished by its significant density and centrality. These findings highlight its critical role in workplace studies, particularly in influencing organizational outcomes such as learning and commitment.

On the contrary, the lower right quadrant illuminates key areas that, despite being crucial, are less developed. It houses "EE," signaling a potential avenue for more comprehensive exploration. Given the significance of EE in this research, probing into its enhancement and resultant effects on IWB could prove insightful.

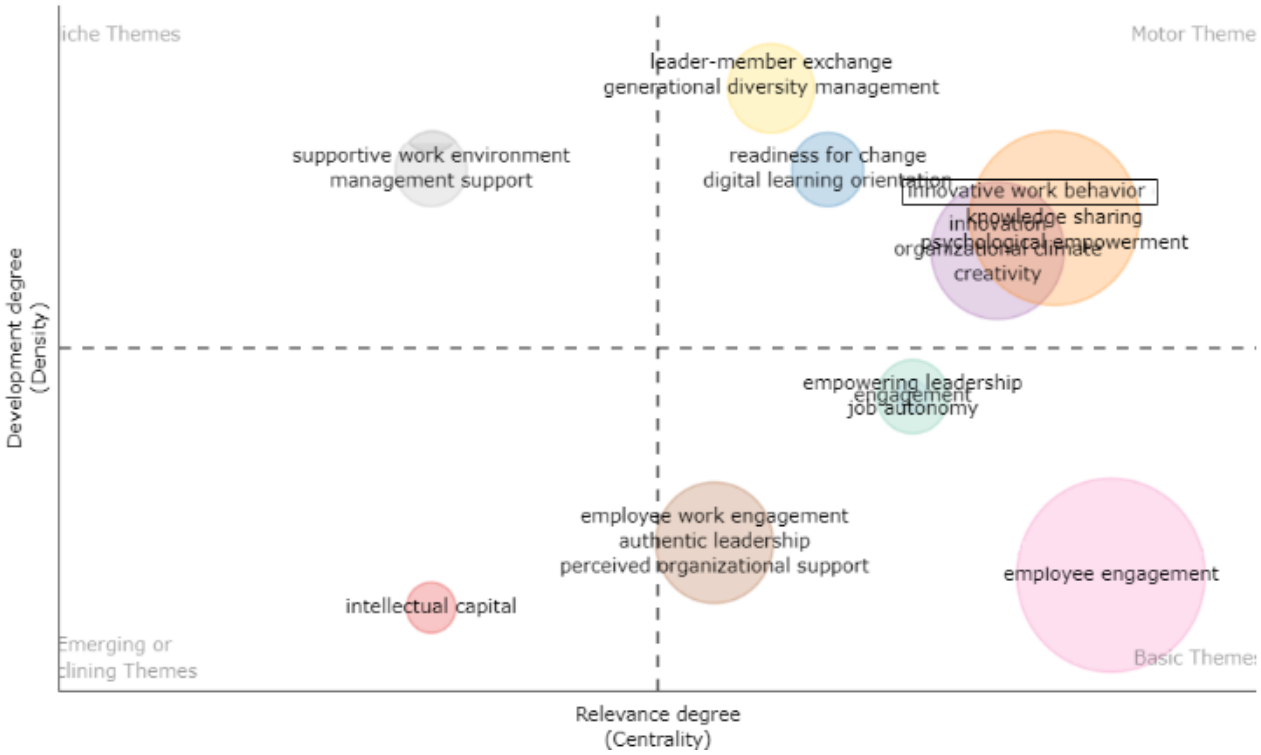

Figure 2. Thematic map

Both "work environment" and "intellectual capital" themes inhabit the upper-left and lower-left quadrants, respectively, being identified as niche and underdeveloped areas. As the WE are a pivotal variable in the study, these results may hint at the possibility of contributing to this less investigated area. An exploration into the relationship between the WE and IWB could be of vital importance. In the lower-left quadrant, intellectual capital may not be as pivotal or develop a theme as the others. Nevertheless, its potential linkage with OL could enrich this study further.

Furthermore, it is crucial to underscore the evolution of themes within the field through thematic evolution network. As depicted in Figure 3, six interconnected clusters emerge from the analysis, representing a broad panoramic view of the field's evolution. These clusters, created from a co-occurrence network, offer a comprehensive overview of the field's developmental trajectory, and reveal the complex interplay among various themes. The clusters bring to light a network of conceptually linked themes that have evolved, enriching our understanding of the intricate factors that mold IWB across diverse environments.

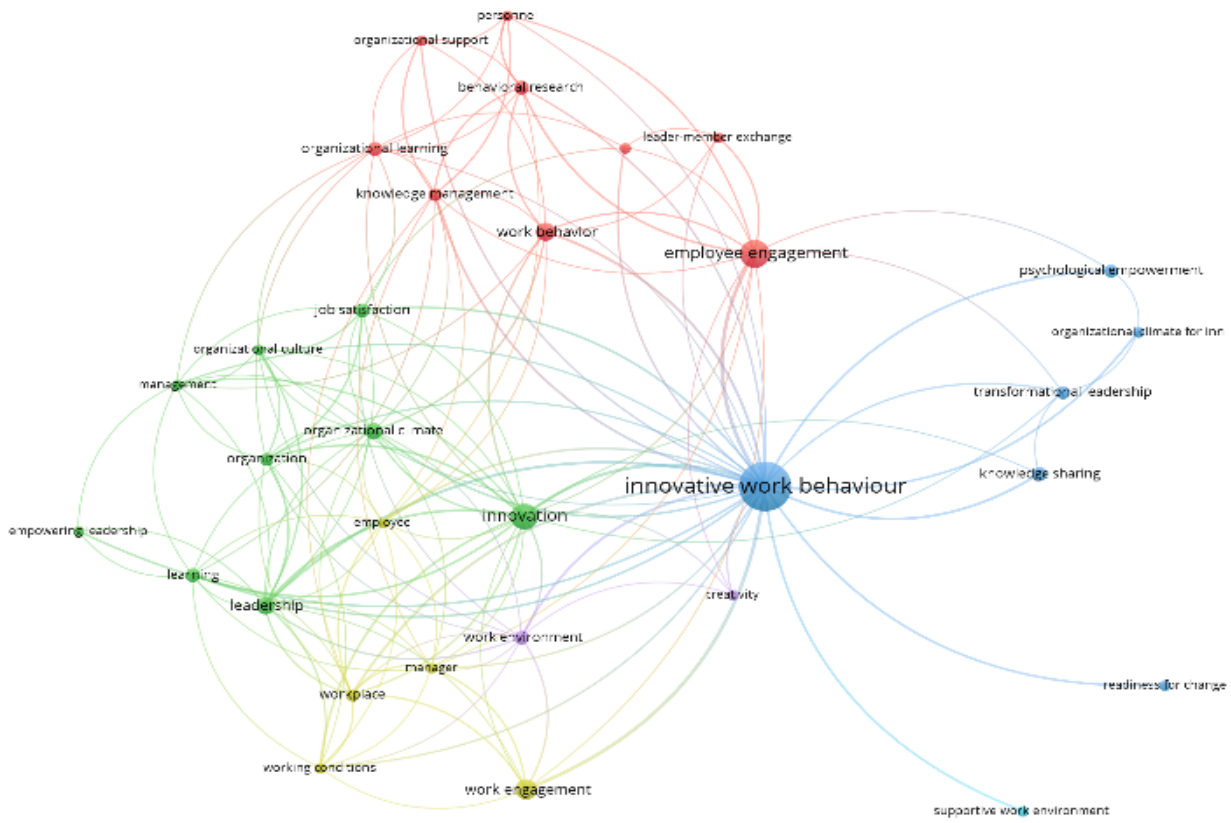

Figure 3. Thematic evolution network

Cluster 1 focuses on factors that revolve around internal organizational dynamics and interpersonal relationships within the workplace, including EE, leader-member exchange, OL, and self-efficacy. These themes directly pertain to current research's interest in EE and OL as mediators of the relationship between WE and IWB. Cluster 2 emphasizes leadership, climate, and culture as crucial elements shaping organizational performance and innovation. Concepts like empowering leadership, job satisfaction, organizational climate, and culture align with this research's underlying premise that environmental influences IWB. Cluster 3 contains themes related to readiness for change, psychological empowerment, and transformational leadership, which are relevant to understanding the organizational conditions fostering innovation. The presence of IWB within this cluster aligns directly with the current research's focus. Cluster 4 focuses on the employee-manager relationship and conditions within the workplace, underlining the importance of work engagement in fostering a conducive WE for innovation. Cluster 5 encapsulates two central aspects of this study – creativity and the WE, pointing towards the idea that a creative WE may significantly influence IWB. Finally, Cluster 6 consists of one item, 'supportive WE', underscoring the importance of a supportive workplace as a standalone theme in the research field.

2.2. The Proposed Conceptual Framework

2.2.1. Work Environment

The WE's construct encapsulates various conditions and factors that constitute the workplace, comprising physical and abstract aspects and psychological dimensions [24]. It includes all material infrastructure, amenities, and operational policies that shape the daily endeavors of staff members [25]. The significance of an organization's influence in fostering or obstructing an employee's sense of safety, satisfaction, and ease in performing tasks cannot be overstated [26]. The work milieu incorporates diverse components such as illumination, ambient temperature, airflow, humidity, safety protocols, aesthetic appeal, and scent [27]. A conducive and supportive work setting bolsters employee morale and heightens their performance within the organizational setting.

In parallel thinking, a hospitable WE, apt facilities, and positive interpersonal relations among employees are pivotal in realizing organizational objectives [28]. Similarly, structural empowerment theory posits that workplace conditions significantly impact the capacity of employees to execute their duties effectively, providing a lens to understand how WE shape innovative behavior [1].

Although empirical research presents varying views, with some scholars asserting a significant and positive correlation between WE and innovative employee behavior, others argue the absence of such a relationship [29]. This divergence between theoretical propositions and empirical outcomes concerning the influence of the WE on innovative behavior illuminates the first research gap in the present study.

Additionally, the WE positively and indirectly impacts OL [18]. To enhance scholarly contributions, this study seeks to directly investigate this relationship, guided by the theoretical framework of the socio-technical system theory [15]. Consistent with this line of thought, the WE influences EE, as postulated by the Hawthorne effect [16]; and the affective events theory [17]. Empirical evidence suggests that the WE significantly and positively influences EE [30]. Drawing from the foregoing discourse, the current research postulates the subsequent hypotheses:

H_1: The work environment significantly and positively affects organizational learning.

H_2: The work environment significantly and positively affects employee engagement.

2.2.2. Mediating Role of Organizational Learning

The construction of OL, which surfaced over five decades ago, necessitates organizations to achieve a superior competitive position. Given the current global landscape, organizations must cultivate knowledge more rapidly than their competitors to remain relevant [12]. As per [11], a pragmatic strategy encourages continuous learning among employees. It promotes distributing their acquired knowledge for the collective benefit of themselves, their peers, and more comprehensive organization. OL refers to the continual processes that nurture knowledge acquisition among individuals and groups within an organization. This concept comes into play when a shared understanding exists within the organizational milieu [31]. OL is a foundational and indispensable factor in securing a sustainable competitive advantage and enhancing organizational performance [32].

The crux of OL lies in harnessing insights from past experiences, adapting to environmental shifts, and paving the way for future opportunities [12]. Organizations that foster a dynamic, flexible, and responsive structure through accelerated OL are better equipped to address and adapt to emergent environmental challenges relative to their competitors. [32] further underscores that organizations exhibiting a robust commitment to OL are more adept at fulfilling their objectives effectively.

In addressing a significant research gap, this study employs OL as an intermediary, a novelty within this field per the literature review. The construct of OL may be elucidated theoretically through the lens of contingency theory [33]. Analogously, this study's components can be interlinked utilizing expectancy theory as the appropriate theoretical scaffolding. This theory can shed light on the mechanisms through which WE facilitate EE in OL [14].

The socio-technical system theory underscores that an effective organizational design hinges on the optimal interaction between the social and technical systems [15]. Thus, the WE (as a technical system) can influence the organization's learning process (as a social system), subsequently affecting organizational effectiveness.

Empirically, the literature review reveals that the relationship between the WE and OL was indirectly tested and mediated, demonstrating a significant indirect correlation [18]. Conversely, the current study examines the direct relationship between the WE and OL, enhancing its scholarly contribution. Additionally, studies suggest that OL influences IWB [4], [5]. In light of the preceding discourse, the present research proposes the subsequent hypotheses:

H_3: Organizational learning significantly and positively affects innovative work behavior.

H_4: The work environment significantly and positively affects innovative work behavior.

2.2.3. Mediating Role of Employee Engagement

EE encapsulates how an employee's affective and behavioral predispositions align with the organization's goals [34]. This construct is characterized by the individual's emotional investment and enduring commitment to the organization and its strategic aspirations [35]. Such engaged employees contribute to the organization's success not merely for remuneration or rewards but out of personal dedication to the collective mission [36]. These individuals are wholly driven to deploy their utmost capabilities in a harmonious and focused manner, fostering enhanced participation. Underlying this behavior is the understanding that employees demonstrate superior performance when they derive significance from their work, perceive a positive organizational culture, and agree with the institutional policies [37].

EE fosters an affirmative sentiment among workers, leading them to perceive their contributions as integral to organizational success [13]. The advantages of such commitment manifest in the form of heightened work motivation, reduced employee turnover, increased satisfaction and performance, lower absenteeism and tardiness, adherence to organizational rules, and improved citizenship behavior [38].

The Hawthorne effect can theoretically elucidate the interplay among WE, EE, and IWB. This effect posits that an employee's effectiveness is as much a product of their surroundings and interactions with co-workers as it is of their intrinsic abilities [16]. Concurrently, the affective events theory (AET) provides insights into how an employee's mood and emotions influence their engagement and job satisfaction. This theory proposes a linkage between an employee's internal emotional and cognitive states and their reactions to incidents occurring in the WE. These reactions, in turn, can significantly impact employee behavior, job satisfaction, and overall organizational effectiveness [17]. Empirical evidence also supports these theoretical propositions, indicating that the WE significantly and positively impacts EE [39]. Additionally, EE has a considerable effect on IWB [6]. Given these theoretical discussions and empirical evidence, the current research posits as follows:

H_5: Employee engagement significantly and positively affects innovative work behavior.

H_6: Employee engagement significantly and positively mediates the link between work environment and innovative work behavior.

3. Methodology

This section offers a comprehensive discussion on the methodological framework utilized to achieve the delineated research objectives. It delves into the research design and population, as well as the research instrument and data collection methods employed.

3.1. Research Design and Population

Primary data was used in a quantitative method to predict IWB within Palestinian universities. The rationale for selecting higher education employees as information sources was driven by a gap in existing research targeting this demographic. IWB at higher education institutions significantly enhances the instructional process, which in turn influences present and forthcoming generations.

3.2. Research Instrument and Data Collection

The research instrument's items, developed to measure IWB, OL, WE, and EE, were formulated by reviewing relevant literature to ensure content validity. The measurement indices for IWB were adapted from [40]; while the metrics for OL and the WE were informed by [41]. The construct of EE was assessed based on the framework proposed by [42]. Furthermore, a five-point Likert scale was utilized in the employed instrument, ranging from 1, signifying strong disagreement, to 5, indicating strong agreement.

This study's intended respondents were higher education employees located in the West Bank, Palestine. The sample size determination followed the G*Power method, endorsed by [43], recommending a sample size of 65 observations [44]. Data were gathered through self-administered questionnaires and electronic survey techniques, with the collecting period from October 29, 2020, to January 11, 2023. Hence, questionnaires were disseminated using a convenient random sampling method. We garnered 105 valid answers in total, thus adhering to the general rule of thumb that requires a minimum sample size of 100 [45].

Ultimately, the collected data were evaluated through the partial least squares method. Adhering to the best practices associated with PLS, an evaluation was conducted on the measuring model to determine the internal consistency reliability of the indicators. Convergent and discriminant validity were assessed using the PLS modeling approach, a form of multiple regression analysis, to evaluate the hypotheses. The bootstrapping method was employed using 10,000 resamples for this purpose [44].

4. Results

This section intricately details the quantitative findings obtained through the data collection process. It primarily emphasizes evaluating and refining the measurement model, while also presenting the outcomes of the tested hypotheses.

4.1. Assessment and Refinement of the Measurement Model

The measurement model was initially evaluated to verify its reliability and validity. The results demonstrate marked consistency and acceptability in the outer loadings, as evidenced by their corresponding T-values. According to [46], an acceptable range for outer loadings of observed variables should surpass a threshold of 0.50. In the context of this study, the outer loadings extend between 0.636 and 0.917, comfortably exceeding the established benchmark. Concurrently, the associated T-values, falling within the statistically significant boundaries of 5.15 to 46.40, exceed the commonly accepted threshold of 1.96, further substantiating the robustness of the findings.

Moreover, the study satisfied the expected standards for convergent validity. This is evidenced by the average variance extracted (AVE) values for all constructs, which range from 0.603 to 0.796, comfortably exceeding the predefined threshold of 0.50 [44], [47], [48].

Regarding the composite reliability of the latent variables, their values vary from 0.819 to 0.951. Additionally, the study revealed that Cronbach's alpha (CA) values fluctuated between 0.787 and 0.936. These values meet and exceed the acceptable level, as specified by [49], [50], [51]. This emphasizes the robust reliability and validity of the measurement model employed in the study, as detailed in Table 1.

Table 1. Latent variable evaluation

Constructs	Cronbach's alpha	Composite Reliability Rho_a	Rho_c	AVE
IWB	0.90	0.91	0.93	0.69
OL	0.93	0.93	0.95	0.79
EE	0.79	0.81	0.86	0.62
WE	0.78	0.84	0.85	0.60

To evaluate the discriminant validity, the procedure outlined by [52] was implemented. As Table 2 illustrates, the square roots of the average variance extracted (AVE) for the principal constructs conspicuously surpass their associated construct correlations. This significant disparity among constructs demonstrates the attainment of discriminant validity, in line with the Fornell-Larcker criteria [49], [53]. Furthermore, the Heterotrait-Monotrait (HTMT) test outlined by [54] was also implemented. The results showed HTMT values ranging from 0.386 to 0.644, comfortably under the 0.85 threshold [22], [55]. This demonstrates a distinct separation between the different constructs, reinforcing the discriminant validity of this research, as can be found in Table 2.

Table 2. Latent variable evaluation

	IWB	OL	EE	WV
IWO	**0.832**	*0.633*	*0.503*	*0.386*
OL	0.587	**0.892**	*0.412*	*0.644*
EE	0.418	0.356	**0.789**	*0.533*
WE	0.340	0.583	0.471	**0.776**

4.2. Structural Model: Hypothesis Testing Results

The hypotheses underwent assessment through the application of the partial least squares (PLS) bootstrapping technique, recognized for its solid statistical inference capabilities [49]. Figure 4 depicts the model's predictive power, accounting for 39.6% of the variance in IWB, indicating moderate explanatory capacity. Tables 3 and 4 verify six relationships at a 95% confidence level. A key finding validates the theoretical proposition: OL and EE are vital mediators in IWB, offering insights for practical enhancement.

In detail, the result revealed a potent impact of the WE on OL. The beta coefficient (β) value of 0.583 indicates a strong positive relationship, which implies that changes within the work environment are closely linked with improvements in OL. This positive correlation means that as the work environment becomes more supportive, engaging, and intellectually stimulating, there is a notable enhancement in the organization's learning capabilities. This relationship is confirmed by a t-value of 9.799 and a p-value less than 0.05, establishing its statistical significance. To interpret this more straightforwardly, enhancing OL is often facilitated by the provision of a supportive, engaging, and intellectually stimulating environment [56], [57]. This is achieved by fostering a culture of knowledge acquisition, dissemination, and implementation within the organization [58].

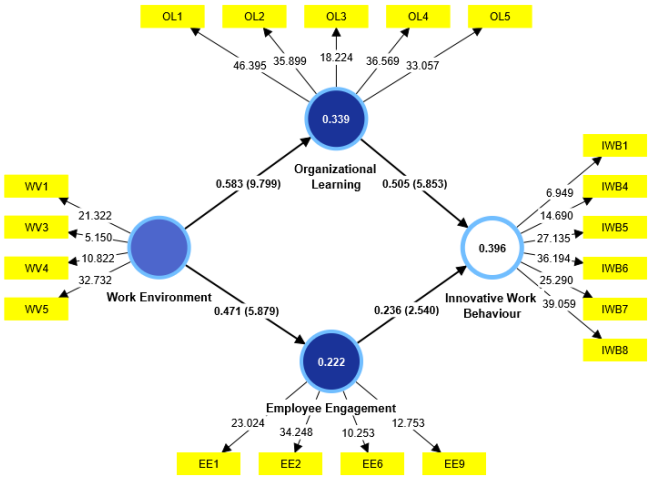

Figure 1. Structural model results

Likewise, the result highlighted the substantial influence of the WE on fostering EE. A robust positive association was unveiled, as indicated by a beta coefficient (β) of 0.471, a t-value of 5.879, and a p-value less than 0.05. This statistically significant outcome evidences a firm and dependable link between a nurturing WE, and the degree of engagement employees display [59]. This means that improvements or positive changes in the work environment are directly associated with increased levels of employee engagement. A positive WE, characterized by support for employee well-being and the provision of opportunities for professional growth and development, can lead to higher levels of EE. Such an environment not only promotes the well-being of employees but also encourages their active participation, commitment, and enthusiasm towards their work. This may result in many favorable results, such as enhanced productivity, better job satisfaction, and higher retention rates.

Furthermore, the study highlighted the significant role of OL in driving IWB. The beta coefficient (β) of 0.505 signifies a robust positive association between these elements. This relationship's statistical significance is reinforced by a T-value of 5.853 and a p-value below the threshold of 0.05, suggesting that improvements in an organization's learning processes are closely linked with higher levels of innovation among its workforces. In practical terms, these findings suggest that improvements in an organization's learning processes are directly linked to higher levels of IWB among employees. This indicates that the mechanisms facilitating learning—namely, the acquisition, dissemination, and application of knowledge—are essential for creating a culture conducive to innovation [60]. This relationship suggests that organizations that invest in learning and knowledge management practices are more likely to see a rise in innovation activities. This is because OL fosters a culture that values the creation, retention, and sharing of knowledge, which are foundational elements for innovation [61].

Table 3. Path coefficients of the PLS-SEM results

H_X	Relationship	Std Beta	T-Value	P-Value
H_1	WV-> OL	0.583	9.799	0.000
H_2	WV -> EE	0.471	5.879	0.000
H_3	OL -> IWB	0.505	5.853	0.000
H_5	EE -> IWB	0.236	2.540	0.011

The study's results emphasize the significant role of EE in driving IWB. It found a robust positive association, indicated by the beta coefficient (β) of 0.236 suggests that for every one-unit increase in EE, there is an associated increase of 0.228 units IWB. Moreover, the results showed a T-value of 2.540, and the p-value was below the significance threshold of 0.05. The T-value is a measure of the statistical significance of the beta coefficient. Since the p-value is less than 0.05, it indicates that the relationship between EE and IWB is statistically significant. Engaged employees tend to be more motivated, creative, and open to new ideas, which can positively influence their propensity to engage in innovative behavior within the workplace [6].

The findings pertaining to the mediating effects highlight a significant role of OL and EE in shaping the relationship between the WE and IWB as seen in Table 4.

Table 4. PLS-SEM of mediation results

H_X	Relationship	Std Beta	T-Value	P-Value
H_4	WV-> OL-> IWB	0.296	4.161	0.000
H_6	WV-> EE-> IWB	0.111	2.299	0.022

The data analysis corroborates the indirect, yet statistically significant, influence of the WE on IWB, facilitated through the mechanism of OL (H4: $\beta = 0.296$; $t = 4.161$, $P < 0.05$). It is inferred that enhancements in the WE positively stimulate OL, which, in turn, boosts IWB. Furthermore, the WE exerts a substantial influence on IWB ($\beta = 0.359$; $t = 4.422$, $P < 0.05$), which can be ascribed to both direct impacts and indirect effects transmitted through the conduit of OL [62]. These findings suggest a comprehensive mediation role played by OL in the WE-IWB relationship, as per [63] mediation criteria.

Similarly, the statistical analysis validates the indirect impact of the WE on IWB, channeled through EE (H6: $\beta = 0.111$; $t = 2.299$, $P < 0.05$). An enhanced WE increases EE, subsequently fostering IWB. The collective influence of the WE on IWB ($\beta = 0.359$; $t = 4.422$, $P < 0.05$) can be traced to both direct and indirect pathways, with EE functioning as the mediating variable. In line with [63] guidelines, this suggests a full mediation role for EE in the WE-IWB association. This underlines the strategic importance of a conducive WE for nurturing EE and fostering innovation within the organization.

5. Discussion and Implications

This section synthesizes and analyzes the study's findings and their implications. It encompasses theoretical discussions, practical considerations, limitations, and recommendations for future research directions.

5.1. Theoretical Discussion and Implications

Recent research emphasizes the role of the WE in enhancing IWB, focusing on multidimensional aspects. A well-structured WE fosters creativity and innovation; elements like culture, recognition, and collaboration contribute to innovation [1]. This study empirically supports a mediating model where OL and EE are critical. It addresses a research gap, contrasting with [29], by showing a correlation between the WE and innovative behavior chiefly through the mediators of the proposed model, namely OL and EE.

The results reveal a positive relationship between the WE, OL, and EE, laying a foundation for future studies. Addressing a significant research gap, this study innovatively incorporates OL as a mediating variable within the context of WE and IWB. In alignment with this argument, the research findings indicate that OL plays a crucial role in fostering IWB, corroborating the views of [18]. The propensity of OL to engender a culture of continuous improvement, knowledge sharing, and adaptability harmonizes with socio-technical system theory, reinforcing the study's theoretical grounding [15].

Furthermore, the research supports the findings of [4], [5], demonstrating that a strong emphasis on OL bolsters IWB facilitating the generation, refinement, and implementation of new ideas.

The present study sheds light on a crucial aspect of organizational behavior, exploring the relationship between the WE and IWB, focusing on the mediating role of EE. A well-designed and supportive WE are found to positively affect EE, which, in turn, fosters a culture of innovation within the organization. This finding aligns with previous research that has emphasized the pivotal role of EE in influencing employee attitudes, behavior, and performance [64]. The results indicate that EE fully mediates the association between the WE and IWB. This highlights the crucial role of EE in fostering innovation. The study's findings enrich existing theory by emphasizing EE as a vital mediator and aligning with the socio-technical system theory, which underscores the impact of OL in promoting continuous improvement and adaptability within organizations.

Future research should investigate other possible mediators like leadership style, team dynamics, or organizational culture. Longitudinal studies could illuminate how these relationships progress over time, and cross-industry, cross-cultural studies could assess the generalizability of these findings.

6. Conclusion

This work has practical implications in addition to its theoretical significance, providing interested parties with effective and quantifiable insights. The results indicate that the WE are indispensable in successfully implementing innovative behavior. Institution managers must transform the WE into a more supportive, engaging, and intellectually stimulating environment. To this end, managers need to recognize the WE as a fundamental principle within their institutional framework. Consequently, they must endeavor to foster a collaborative WE and eliminate barriers that could inhibit the manifestation of IWB.

The empirical evidence derived from this study provides considerable insights for practical organizational management. The conspicuous influence of the WE on OL elucidates the need for fostering a nurturing, intellectually stimulating, and supportive WE. In practical terms, it suggests that practitioners, particularly managers and executives, should facilitate a culture of learning that emphasizes knowledge acquisition, sharing, and utilization. This would necessitate creating open channels of communication, encouraging team collaborations, promoting continuous education, and maintaining a robust feedback system.

Furthermore, the study underscores the powerful influence of a supportive WE on enhancing EE. For managers, this signifies the importance of cultivating a positive WE that engages employees, providing them with the right resources, recognition, and feedback to excel in their roles. Such practices can significantly heighten employee loyalty, consequently reducing turnover rates and enhancing overall productivity.

Another key finding of this study is the strong relationship between OL and IWB. This correlation implies that an increase in OL - via an environment that promotes the creation, sharing, and retention of knowledge - would likely foster innovative behavior among employees. For organizations seeking to drive innovation, the practical implication is to promote practices that engender learning and knowledge sharing. The empirical findings of the present study underscore the crucial role that EE plays in fostering IWB. This relationship suggests that efforts to boost EE can be an effective avenue for stimulating innovative behavior within the organizational setting. Consequently, organizations aiming to spur innovation should invest resources in fostering EE, for instance, by shaping a supportive organizational culture, fostering healthy employee-manager relationships, and offering opportunities for skills development.

The role of OL as a mediator between the WE and IWB has been significantly highlighted in this study. This points to the importance of bolstering learning capabilities in organizations to harness the benefits of a conducive WE. The ability to learn, adapt, and implement new knowledge directly influences an organization's innovative capacity. The study validates the indirect influence of the WE on IWB via EE. It highlights the importance of a supportive WE in fostering EE and thereby spurring innovation. Organizations are advised to enhance their WE, for instance, by bolstering safety, encouraging inclusivity, providing advanced tools, and offering flexible work arrangements. These measures could boost EE significantly, further catalyzing innovative behavior.

Overall, this study serves as a practical guide for organizations seeking to enhance their innovative capacities and a valuable resource for academic researchers investigating these relationships.

6.1. Limitations and Future Research Directions

This research, while offering insights into the relationship between WE, OL, EE, and IWB, has some limitations. The focus was primarily on OL and EE as mediating factors, leaving out other potential mediators like leadership style, team dynamics, and organizational culture.

Also, the use of cross-sectional data does not provide insight into the evolution of these relationships over time. Future research could address these limitations by considering other potential mediators and implementing longitudinal study designs.

In addition to exploring other mediators, future studies could consider the potential influence of industry-specific factors and cultural contexts. Comparative studies across industries and cultures could test the applicability of the findings to different contexts. Moreover, the synergistic effects of multiple mediators on the relationship between WE and IWB could be examined, exploring the combined influence of factors like EE, OL, leadership style, and organizational culture.

The study contributes significantly to understanding the relationship between the WE, OL, and IWB. However, an expanded perspective accounting for additional variables and longitudinal effects would further enrich this body of knowledge.

References:

[1]. Jocelyne, S., & Kariuki, M. (2020). Human capital, employee empowerment and organization performance. *International Academic Journal of Human Resource and Business Administration*, *3*(9), 319–332.

[2]. Charli, C. O., Masnum, A., Hidayat, R., Menhard, M., & Hartoyo, B. (2023). Interpretation Innovative Work Behavior and Transformational Leadership: Analysis Work Engagement and Work Environment on Dinas Pariwisata Kota Padang. *Journal of Accounting and Finance Management*, *3*(6), 318–333.

[3]. Luchyk, S., Semykina, M., Zapirchenko, L., Luchyk, V., & Semykina, A. (2021). Priority of stimulating creative work in innovation management in the stage of globalization. *SHS Web of Conferences*, *129*.

[4]. Hosseini, S., & Haghighi Shirazi, Z. (2021). Towards teacher innovative work behavior: A conceptual model. *Cogent Education*, *8*(1), 1869364.

[5]. Udin, U. (2021). A Theoretical Model Of Leadership Styles (Transformational And Transactional) Influence On Innovative Work Behavior And Employee Performance: Testing The Role Of Knowledge Sharing And Organizational Learning As Mediation Variables. *International Journal of Management Studies Social Science Research*, *3*(5).

[6]. Khan, N., Moin, F., Khan, A., & Zhang, C. (2022). A multistudy analysis of abusive supervision and social network service addiction on employee's job engagement and innovative work behaviour. *Creativity and Innovation Management*, *31*(1), 77–92.

[7]. Abd Hair Awang, S., Hussain, Y., Ishak, S., & Yusof, M. (2014). Organizational learning and work environment: A formation of innovative work behavior at small medium enterprises (SMEs). *ICICKM2014-Proceedings of the 11th International Conference on Intellectual Capital, Knowledge Management and Organisational Learning*, 30.

[8]. Salem, N. H., Ishaq, M. I., Yaqoob, S., Raza, A., & Zia, H. (2022). Employee engagement, innovative work behaviour, and employee wellbeing: Do workplace spirituality and individual spirituality matter? *Business Ethics, the Environment & Responsibility, 32*(2). Doi: 10.1111/beer.12463.

[9]. Raj, R., & Srivastava, K. B. (2013). The mediating role of organizational learning on the relationship among organizational culture, HRM practices and innovativeness. *Management and Labour Studies*, *38*(3), 201-223.

[10]. Kwon, K., & Kim, T. (2020). An integrative literature review of employee engagement and innovative behavior: Revisiting the JD-R model. *Human Resource Management Review*, *30*(2), 100704.

[11]. Sturm, T., Gerlach, J.P., Pumplun, L., Mesbah, N., Peters, F., Tauchert, C., Nan, N., & Buxmann, P. (2021). Coordinating Human and Machine Learning for Effective Organizational Learning. *MIS Quarterly*, *45*(3), 1581–1602.

[12]. Hariharan, K., & Vivekanand, G. (2018). Perspectives on organizational learning. *Indian Journal of Commerce Management Studies*, *9*(1), 81–86.

[13]. Salahat, M. (2021). Employee Empowerment, Knowledge Management and Decision-making Agility; Mediating Role of Extra-role Performance. *International Journal of Academic Research in Business and Social Sciences*, *11*(7), 960–977.

[14]. Cheng, B., Wang, M., Moormann, J., Olaniran, B. A., & Chen, N. S. (2012). The effects of organizational learning environment factors on e-learning acceptance. *Computers & Education*, *58*(3), 885–899.

[15]. Trist, E. L. (1981). *The evolution of socio-technical systems, 2*. Toronto: Ontario Quality of Working Life Centre.

[16]. Adair, J. G. (1984). The Hawthorne effect: A reconsideration of the methodological artifact. *Journal of Applied Psychology*, *69*(2), 334–345.

[17]. Weiss, H., & Cropanzano, R. (1996). Affective events theory. *Research in Organizational Behavior*, *18*(1), 1–74.

[18]. Attiq, S., Rasool, H., & Iqbal, S. (2017). The impact of supportive work environment, trust, and self-efficacy on organizational learning and its effectiveness: A stimulus-organism response approach. *Business & Economic Review*, *9*(2), 73–100.

[19]. Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, *11*(4), 959–975.

[20]. Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods, 18*(3), 429–472.

[21]. Altarturi, B., & Ajouz, M. (2021). Review of Knowledge Framework and Conceptual Structure of Islamic Banking. *Al Qasimia University Journal of Islamic Economics*, *1*(2), 116–143.

[22]. Al Zeer, I., Ajouz, M., & Salahat, M. (2023). Conceptual Model of Predicting Employee Performance Through the Mediating Role of Employee Engagement and Empowerment. *International Journal of Educational Management*, *37*(5), 986–1004.

[23]. Saks, A. (2019). Antecedents and consequences of employee engagement revisited. *Journal of Organizational Effectiveness: People and Performance*, *6*(1), 19–38.

[24]. Muharni, S., Wardani, U. C., & Sudarmanto, J. (2022). The Relationship Between Work Environment and Turnover Intention Among Nurses in Awal Bros Hospital. *Malaysian Journal of Medicine and Health Sciences*, *25*(60), 15–18.

[25]. Maryanti, M., Fauzi, A., Natalia, R., Sean, K., & Abas, K. (2022). The Influence of Work Environment, Work Enthusiasm and Rewards on Work Discipline (Literature Review Human Resource Management). *Dinasti International Journal of Management*, *3*(6), 1069–1078.

[26]. Saputra, F., & Mahaputra, M. R. (2022). Building Occupational Safety and Health (K3): Analysis of the Work Environment and Work Discipline. *Journal of Law, Politic and Humanities*, *2*(3), 105–114.

[27]. Permana, A. Y., Akbardin, J., Permana, A. F. S., & Nurrahman, H. (2020). The concept of optimal workplace in providing a great experience to improve work professionalism in the interior design of pln Corporate university, Ragunan, Jakarta. *International Journal of Advanced Science Technology*, *29*(7), 3238–3254.

[28]. Putri, E. M., Ekowati, V. M., Supriyanto, A. S., & Mukaffi, Z. (2019). The effect of work environment on employee performance through work discipline. *International Journal of Research-Granthaalayah*, *7*(4), 132–140.

[29]. Kurniawaty, K., Ramly, M., & Ramlawati, R. (2019). The effect of work environment, stress, and job satisfaction on employee turnover intention. *Management Science Letters*, *9*(6), 877–886.

[30]. Funminiyi, A. K. (2018). Impact of workplace environmental factors on employee commitment: Evidence from North East Nigeria. *International Journal of Scientific Research and Management*, *6*(7), 575–585.

[31]. Namada, J. M. (2018). Organizational learning and competitive advantage. In *Handbook of research on knowledge management for contemporary business environments*, 86–104. IGI Global.

[32]. Kiziloglu, M. (2015). The Effect of Organizational Learning on Firm Innovation Capability: An Investigation in the Banking Sector. *Global Business & Management Research*, *7*(3).

[33]. Salahat, M. (2021). Improving Customer Responsiveness Agility Through Leadership Styles; Mediating Role of Employee Empowerment. *Australian Journal of Basic Applied Sciences*, *15*(11), 1–11.

[34]. Chin, T. L., Yap Peng Lok, S., & Kee Peng Kong, P. (2019). Does Transformational Leadership Influence Employee Engagement. *Global Business & Management Research*, *11*(2), 92–97.

[35]. Kassa, A. G., & Tsigu, G. (2021). Corporate entrepreneurship, employee engagement and innovation: a resource-basedview and a social exchangetheory perspective. *International Journal of Organizational Analysis*, *30*(6), 1694–1711.

[36]. Saks, A. M. (2019). Antecedents and consequences of employee engagement revisited. *Journal of Organizational Effectiveness: People and Performance*, *6*(1), 19-38.

[37]. Riyanto, S., Endri, E., & Herlisha, N. (2021). Effect of work motivation and job satisfaction on employee performance: Mediating role of employee engagement. *Problems Perspectives in Management*, *19*(3), 162–174.

[38]. Xiong, R., & Wen, Y. (2020). Employees' turnover intention and behavioral outcomes: The role of work engagement. *Social Behavior and Personality: An International Journal*, *48*(1), 1–7.

[39]. Setiyani, A., Djumarno, D., Riyanto, S., & Nawangsari, L. (2019). The effect of work environment on flexible working hours, employee engagement and employee motivation. *International Review of Management and Marketing*, *9*(3), 112–116.

[40]. Yuan, F., & Woodman, R. W. (2010). Innovative behavior in the workplace: The role of performance and image outcome expectations. *Academy of Management Journal*, *53*(2), 323–342.

[41]. Hanaysha, J. (2016). Testing the effects of employee empowerment, teamwork, and employee training on employee productivity in higher education sector. *International Journal of Learning and Development*, *6*(1), 164–178.

[42]. Majid, M., Ramli, M. F., Badyalina, B., Roslan, A., & Hashim, A. J. A. J. C. M. (2020). Influence of engagement, work-environment, motivation, organizational learning, and supportive culture on job satisfaction. *International Journal of Human Resource Studies*, *10*(4), 186207–186207.

[43]. Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155–159.

[44]. Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2013). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks, California: Sage publications.

[45]. Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2019). *Multivariate Data Analysis* (8th ed.). Hampshire, United Kingdom: Cengage Learning.

[46]. Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, *20*(2), 195–204.

[47]. Ajouz, M., Salhab, A., & Idais, A. (2020). Factors Influencing the Potential User's Acceptance of Rocab Mobile Application for Public Transportation in Palestine: Insights from Innovation Diffusion Theory and Technology Acceptance Model. *Management & Economics Research Journal*, *2*(5), 1–20.

[48]. Salahat, M., & Katalu, R. (2023). The Impact of HRM Practices and Leadership Styles on Administrative-Office Staff Performance in Palestinian Universities. *Journal of Palestine Ahliya University for Research and Studies*, *2*(3), 54–66.

[49]. Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). SAGE Publications.

[50]. Ajouz, M., Abdullah, A., & Kassim, S. (2020). Acceptance of Sharīʿah-compliant precious metal-backed cryptocurrency as an alternative currency: An empirical validation of adoption of innovation theory. *Thunderbird International Business Review*, *62*(2), 171–181.

[51]. Alomary, L., AlShrouf, H., & Ajouz, M. (2023). Factors Influencing Female Student Participation in Student Council Elections at Palestinian Universities: An Application of the Theory of Planned Behavior. *Journal of Palestine Ahliya University for Research and Studies*, *2*(1), 28–59.

[52]. Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models With Unobservable and Measurement Error: A Comment. *Journal of Marketing Research*, *18*(1), 39–50.

[53]. Ajouz, M., Abuamria, F., & Hammad, J. (2023). Factors Influencing Mobile Payment Adoption and Its Role in Promoting Financial Inclusion: An Integrated Reflective Model with Theory of Planned Behavior. In *International Conference on Business and Technology*, 563-581. Springer, Cham.

[54]. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115-135.

[55]. Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York, USA: Guilford Press.

[56]. Šuťáková, V., Ferecová, J., & Kosturková, M. (2019). School Environment as a Determinant of Organizational Learning Support. *Lifelong Learning*, *9*(1), 20–44.

[57]. Piłat, M. (2016). How organizational culture influences building a learning organization. *Forum Scientiae Oeconomia*, *4*(1), 83–92.

[58]. Hauschild, S., Licht, T., & Stein, W. (2001). Creating a knowledge culture. *The McKinsey Quarterly*, *1*, 74–81.

[59]. Campbell, U., Arrowood, S., & Kelm, M. (2013). Positive work culture: a catalyst for improving employee commitment. *American Journal of Health-System Pharmacy*, *70*(19), 1657–1659.

[60]. Lin, H. C., & Lee, Y. D. (2017). A study of the influence of organizational learning on employees' innovative behavior and work engagement by a cross-level examination. *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(7), 3463–3478.

[61]. Argote, L. (2012). *Organizational learning: Creating, retaining, and transferring knowledge*. Heidelberg, Germany: Springer-Verlag Berlin Heidelberg.

[62]. Dul, J., Ceylan, C., & Jaspers, F. (2011). Knowledge workers' creativity and the role of the physical work environment. *Human Resource Management*, *50*(6), 715–734.

[63]. Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.

[64]. Guan, X., & Frenkel, S. (2018). How HR practice, work engagement and job crafting influence employee performance. *Chinese Management Studies*, *12*(3), 591–607.