

When learning culture fails to reach everyone: work engagement and employee differences in innovative behaviour

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Abstract

Purpose – This study revisits the relationship between organizational learning culture (OLC), work engagement (WE) and innovative work behaviour (IWB) by examining whether the benefits of learning culture are realized uniformly across employees. Building on the established OLC–WE–IWB framework, this study aims to investigate the role of WE as a mediating mechanism and to explore employee-level boundary conditions shaping the learning culture–innovation relationship.

Design/methodology/approach – Data were collected through a survey of 228 employees from organizations operating in Albania. Established multi-item measures were used to assess OLC, WE and IWB. Hypotheses were tested using regression-based mediation, moderation and moderated-mediation analyses. Exploratory analyses examined whether employee characteristics, including age, tenure, job position, gender and education, influenced the strength of the observed relationships.

Findings – Results indicate that OLC is positively associated with IWB and that WE serves as an important explanatory mechanism linking the two. Importantly, this relationship is not uniformly distributed across employees. Exploratory analyses suggest that learning culture is more strongly associated with innovative behaviour among younger, lower tenure and non-managerial employees, whereas its association is substantially weaker among more organizationally embedded groups.

Originality/value – Rather than proposing a new mechanism, this study demonstrates that a well-established learning culture–engagement–innovation relationship is unevenly realized across employee groups. The



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findings challenge assumptions of homogeneous learning-culture effects and suggest that the innovative benefits of learning-oriented practices depend on employee positioning within organizational structures.

Keywords Innovative work behaviour, Organizational learning culture, Work engagement

Paper type Research paper

1. Introduction

Organizations innovate to maintain competitiveness, adapt to changing market conditions and improve performance. Innovation is not merely a response to environmental pressures but a proactive process through which firms generate new knowledge, develop novel solutions and sustain differentiation in increasingly dynamic environments. Organizational learning has long been recognized as a fundamental driver of these processes because it enables knowledge acquisition, adaptation, integration and capability renewal (Achdiat *et al.*, 2022; Chanani and Wibowo, 2019; Sanz-Valle *et al.*, 2011; Tripathi, 2024; Wahda *et al.*, 2020). Through continuous learning, organizations strengthen their ability to develop new products, services and processes aligned with evolving market demands (Kasapi *et al.*, 2026), thereby supporting long-term competitiveness (Amabile and Pratt, 2016). In spite of this recognized importance, research on innovation continues to emphasize technological and structural drivers, often giving less attention to the human and cultural conditions that enable employees to transform organizational resources into innovative outcomes (Biswakarma and Subedi, 2025). In this regard, employee engagement is particularly important because engaged employees are more likely to invest cognitive, emotional and behavioural resources in generating and implementing novel ideas (Li and Liu, 2022).

Within this stream of research, organizational learning culture (OLC) has emerged as a central construct capturing the extent to which organizations institutionalize continuous learning, knowledge sharing, dialogue and experimentation. Learning-oriented cultures foster trust, openness and knowledge sharing, thereby enhancing organizational adaptability and innovation capacity (Basten and Haamann, 2018; Rebelo and Gomes, 2017; Tripathi, 2024; Wahda *et al.*, 2020). At the individual level, these dynamics are reflected in innovative work behaviour (IWB), defined as the generation, promotion and implementation of novel ideas within work roles (De Jong and Den Hartog, 2010; Janssen, 2000). A growing body of evidence suggests that OLC contributes positively to innovative behaviour, both directly and through employee-level psychological mechanisms. Among these, work engagement (WE) has attracted particular attention because it represents a motivational state characterized by vigour, dedication and absorption, which encourages employees to invest effort and energy in discretionary work activities. Previous studies indicate that learning-oriented environments foster engagement, which in turn supports innovative behaviour (Park *et al.*, 2014). Collectively, this literature provides substantial support for the OLC–WE–IWB relationship while also highlighting the importance of individual-level mechanisms such as resilience and learning-goal orientation (Mohammad *et al.*, 2024; Yean *et al.*, 2016).

However, an important assumption remains largely unexamined. Existing studies generally treat the effects of learning culture as homogeneous, implicitly assuming that learning-oriented practices are translated into innovative behaviour similarly across employees. Yet employees differ considerably in their organizational roles, tenure and career positions, all of which may influence their willingness and ability to act on learning opportunities. Individuals occupying different positions within organizational structures face different incentives, constraints and expectations, potentially shaping how they respond to learning-oriented environments. If the effects of learning culture vary across employee groups, treating them as universal may obscure important boundary conditions and lead

organizations to overestimate the uniform effectiveness of learning-oriented interventions (Doran and Ryan, 2017; Kang *et al.*, 2016; Lee and Seol, 2021). Understanding whether learning culture benefits all employees equally is therefore both a theoretical and practical question.

This study addresses this issue by revisiting the established OLC–WE–IWB framework and asking a different question from that typically examined in the literature: for whom is OLC associated with innovative behaviour? Rather than proposing a new mediating mechanism, the study investigates whether the strength of an established relationship varies across employees with different levels of organizational embeddedness. Particular attention is devoted to employee age, organizational tenure and job position as potential boundary conditions shaping the relationship between learning culture and IWB.

The study is conducted in Albania, an underexamined post-communist transition economy where formal training provision remains limited relative to many developed economies (World Bank, 2013). While Albania is not examined as an institutional moderator, it provides a valuable empirical context for assessing whether an established learning culture–innovation relationship is realized uniformly across employees.

Using survey data from 228 employees across multiple Albanian organizations, we examine the role of WE as a mediating mechanism and assess whether employee characteristics shape the relationship between learning culture and innovation. By focusing on employee-level heterogeneity rather than model novelty, the study extends evidence on the OLC–WE–IWB relationship to an underexamined transition-economy context and identifies important boundary conditions of an otherwise well-established mechanism.

2. Theoretical framework

2.1 Organizational learning culture

The terms learning organization and organizational learning are often used interchangeably, yet they refer to distinct, though related, concepts. Organizational learning captures the processes through which knowledge is acquired, developed and shared within organizations (Vera and Crossan, 2005), whereas the learning organization denotes an organizational form that systematically supports these processes, enabling individuals to continuously expand their capabilities (Senge, 1990). Building on these perspectives, OLC can be understood as the extent to which learning-oriented practices – such as knowledge sharing, inquiry, reflection and experimentation – are embedded in organizational routines and norms (Hawamdeh, 2022; Springmier *et al.*, 2024; Tripathi, 2024).

Seminal frameworks converge in portraying learning culture as a multidimensional system that fosters adaptation and collective sensemaking. Senge (1990) emphasizes shared vision and systems thinking, Argyris and Schön (1978) highlight the importance of questioning underlying assumptions through double-loop learning, and Watkins and Marsick (1993) link learning processes to organizational structures through dimensions such as empowerment, dialogue and embedded systems. Together, these perspectives suggest that learning cultures rely on openness, participation and the free exchange of knowledge.

Importantly, learning cultures do more than facilitate information flows. They shape how organizational members interpret challenges, evaluate opportunities and respond to uncertainty. By encouraging dialogue, experimentation and critical reflection, learning-oriented environments create shared cognitive frameworks that support adaptation and continuous improvement. Learning culture therefore operates not only as a mechanism for knowledge acquisition but also as a social infrastructure that legitimizes exploration and change. In environments characterized by complexity and rapid technological development, such cultures help employees develop the confidence and psychological safety required to

challenge established assumptions and propose novel solutions (Argyris and Schön, 1978; Senge, 1990).

At the same time, the mere presence of learning-oriented practices does not guarantee equivalent behavioural outcomes across employees. Learning opportunities, feedback systems and knowledge-sharing mechanisms provide resources, but employees differ in their willingness and ability to use them. Consequently, OLC should not be viewed as universally activating. Rather, its behavioural consequences are likely to depend on individual-level characteristics that influence how organizational resources are interpreted and enacted. Understanding these conditions is essential for explaining when and for whom learning-oriented practices are associated with innovative behaviour.

2.2 Innovative work behaviour

Consistent with De Jong and Den Hartog (2010), IWB is conceptualized as self-reported behaviour spanning idea exploration, generation, championing and implementation, without assumptions regarding the actor's underlying intentions. Unlike creativity, which primarily concerns the production of novel ideas, IWB encompasses both the development and practical realization of those ideas. Foundational perspectives, including Amabile's componential theory of creativity (Amabile and Pratt, 2016) and Kanter's (1988) theory of innovation, suggest that innovative behaviours emerge through the interaction of individual motivation and organizational context (Birdi *et al.*, 2014; Manral, 2011; Orgambidez *et al.*, 2024; Widmann *et al.*, 2016).

De Jong and Den Hartog (2010) conceptualize IWB as a multi-stage process comprising idea exploration, idea generation, idea championing and idea implementation. The first two stages involve identifying opportunities and developing potential solutions, whereas championing and implementation require mobilizing support and transforming ideas into practice (Cerne *et al.*, 2024; Leong and Rasli, 2014). Consequently, innovative behaviour extends beyond creativity and includes the social and political processes necessary to secure acceptance for new initiatives.

IWB occupies a particularly important position within organizations because it represents a micro-level foundation of broader innovation outcomes. Although innovation is frequently discussed at the organizational level, organizations innovate through the actions of individual employees who identify opportunities, solve problems and introduce improvements into existing practices. Understanding the conditions that promote innovative behaviour is therefore essential for explaining how organizational capabilities are translated into observable innovation outcomes (Amabile and Pratt, 2016; Kanter, 1988).

Importantly, innovative behaviour is inherently discretionary. Employees are rarely required to challenge established routines, propose unconventional ideas, or advocate for organizational change as part of their formal job descriptions. Such activities often involve uncertainty, interpersonal risk and the possibility of failure. As a result, innovative behaviour is highly sensitive to contextual conditions. Access to learning opportunities, supportive leadership, psychological safety and an enabling organizational climate can significantly influence whether employees are willing to engage in innovative activities (Skerlavaj *et al.*, 2014; Zappala *et al.*, 2020). This sensitivity to context makes IWB particularly relevant for examining the potential influence of OLC.

2.3 Work engagement as a mediating mechanism

WE is defined as a positive, fulfilling, work-related state of mind characterized by vigour, dedication and absorption (Schaufeli *et al.*, 2006). Vigour reflects high levels of energy and resilience, dedication captures a sense of significance, enthusiasm and inspiration, and

absorption refers to full concentration and immersion in work activities. Together, these dimensions describe a motivational state through which employees invest themselves cognitively, emotionally and behaviourally in their work roles.

A central question concerns whether learning-oriented practices are sufficient to generate innovative behaviour or whether an additional motivational mechanism is required. Because innovative behaviour is discretionary and frequently involves uncertainty and risk, organizational resources do not automatically translate into innovation. Employees must also be willing to devote effort, attention and persistence to activities that may not produce immediate rewards. In this study, WE is conceptualized as a key mechanism through which OLC is translated into IWB.

This argument can be understood through social exchange theory (SET) and the job demands–resources (JD-R) model. SET proposes that employees tend to reciprocate organizational support with positive attitudes and behaviours (Blau, 1964; Hosseini and Shirazi, 2021). Learning-oriented environments signal investment in employee development through practices such as continuous training, knowledge sharing, participation and psychological safety. Employees who perceive such support are therefore more likely to respond with higher levels of engagement (Biswakarma and Subedi, 2025; Park *et al.*, 2014).

The JD-R model provides a complementary explanation. From this perspective, OLC supplies valuable job resources, including autonomy, developmental opportunities, constructive feedback and collaborative problem-solving mechanisms (Schaufeli *et al.*, 2006). These resources enhance motivation and facilitate personal growth, thereby increasing engagement. In turn, engaged employees are more likely to mobilize the energy, persistence and cognitive focus required to initiate and implement innovative ideas (Anwar and Niode, 2017; De Spiegelaere *et al.*, 2014; Lin and Lee, 2017).

Among alternative attitudinal constructs, WE is particularly relevant because it captures the active mobilization of employee resources. Job satisfaction reflects favourable evaluations of work conditions, while organizational commitment primarily reflects attachment to the organization. Neither necessarily implies proactive action. WE, by contrast, reflects a state of energized involvement that is closely linked to discretionary effort and proactive behaviour (Park *et al.*, 2014). This distinction is especially important in the context of innovation, where employees must often go beyond formal job requirements and persist in spite of uncertainty, resistance or the possibility of failure.

Accordingly, WE represents a theoretically plausible mechanism through which OLC can influence innovative behaviour. Learning-oriented practices provide employees with resources and opportunities, but engagement determines whether those resources are actively invested in innovation-related activities. It therefore functions as a motivational bridge connecting organizational conditions to individual behavioural outcomes.

2.4 Hypotheses development and conceptual model

OLC provides employees with access to resources such as training opportunities, knowledge-sharing practices, collaborative learning and psychological safety (Basten and Haamann, 2018; Rebelo and Gomes, 2017). These resources encourage experimentation, openness and the exchange of ideas, all of which are conducive to innovative behaviour (Sanz-Valle *et al.*, 2011; Wahda *et al.*, 2020). Consequently, employees working in stronger learning cultures should be more likely to engage in IWB:

- H1.* Organizational learning culture is positively associated with employees' innovative work behaviour.

However, organizational resources alone may not be sufficient to generate innovation. Employees must also be motivated to invest effort in discretionary activities that involve uncertainty and risk. WE captures this motivational activation. Prior research demonstrates that learning-oriented environments foster engagement (Biswakarma and Subedi, 2025; Park *et al.*, 2014), while engaged employees are more likely to display innovative behaviour because of their greater energy, dedication and involvement in work activities (Anwar and Niode, 2017; De Spiegelaere *et al.*, 2014; Lin and Lee, 2017):

- H2.* Work engagement mediates the relationship between organizational learning culture and employees' innovative work behaviour.

2.5 Exploratory hypotheses (*H3a–H3c*)

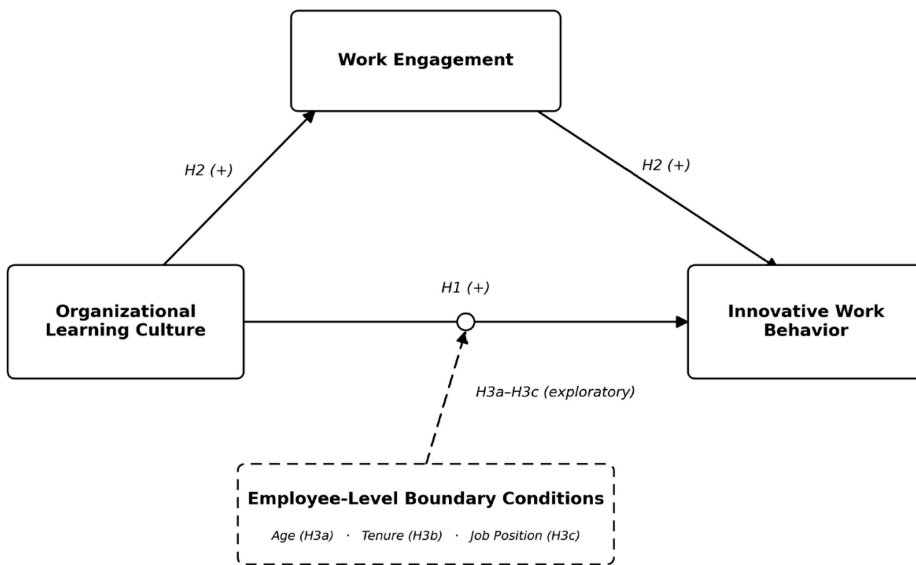
The following hypotheses were developed after analysis in response to the moderation patterns observed in the data and are therefore presented explicitly as exploratory expectations requiring confirmation in future research (Hollenbeck and Wright, 2017).

Although the learning culture–engagement–innovation mechanism is well established, its strength may vary across employees. We interpret this possibility through the concept of organizational embeddedness, defined as the extent to which individuals are tied to established roles, routines, relationships and status structures. Employees who are less embedded may possess greater flexibility to experiment with new ideas, whereas highly embedded employees may face stronger incentives to maintain existing practices (Janssen, 2000; Skerlavaj *et al.*, 2014).

Three observable indicators of embeddedness are considered: age, organizational tenure and job position. Younger employees are typically less constrained by established routines and may therefore respond more strongly to learning-oriented environments (Kang *et al.*, 2016; Zappala *et al.*, 2020). Employees with shorter organizational tenure are less invested in existing ways of working and may therefore be more willing to act on learning opportunities (Škerlavaj *et al.*, 2010; Skerlavaj *et al.*, 2014). Similarly, non-managerial employees may experience fewer accountability constraints and greater latitude to experiment than managerial employees, whose responsibilities often encourage preservation of established systems (Manral, 2011). Accordingly:

- H3a.* Age moderates the relationship between organizational learning culture and innovative work behaviour, with the relationship stronger among younger employees.
- H3b.* Organizational tenure moderates the relationship between organizational learning culture and innovative work behaviour, such that the relationship is stronger among employees with shorter tenure.
- H3c.* Job position moderates the relationship between organizational learning culture and innovative work behaviour, with the relationship stronger among non-managerial employees.

Figure 1 summarizes the conceptual model. *H1* and *H2* capture the direct and indirect relationships linking OLC, WE and IWB, whereas *H3a–H3c* represent exploratory employee-level boundary conditions shaping the strength of the learning culture–innovation relationship.



Solid paths (H1-H2): confirmatory hypotheses. Dashed path (H3a-H3c): exploratory boundary conditions.

Figure 1. Conceptual framework

Source: Authors' own elaboration

3. Methods

3.1 Research design

This study adopts a quantitative research design to examine the relationships between OLC, WE and IWB. Data were collected via a structured, self-administered questionnaire based on validated scales, administered through an online survey platform. Prior to data collection, the study received ethical approval from the university's Ethics Committee. A pilot study ($n=21$) was conducted to assess the clarity, reliability and feasibility of the measurement instrument. Based on the pilot results, minor adjustments were made to improve item clarity before proceeding to the main data collection ($n=228$).

3.2 Participants and sampling method

The study used a non-probability sampling approach combining convenience and purposive techniques to recruit wage-earning employees across multiple organizations. This approach was deemed appropriate given the exploratory nature of examining behavioural mechanisms within a transition context and the need to capture behavioural variation across heterogeneous organizational settings. The survey was distributed to employees from approximately 120 organizations, yielding 239 responses, of which 228 were valid and retained for analysis. The sample is predominantly composed of female respondents (71.5%), younger individuals (40.4% aged 25 or below) and early-career employees (54.4% with 0–4 years of tenure).

The sectoral distribution includes information technology and communication (27.2%), education (19.3%) and finance and banking (13.5%), reflecting knowledge-intensive environments where learning practices and innovative behaviours are particularly salient. Overall, the sample captures a workforce segment relevant to examining the dynamics of organizational learning and innovation. Respondents were drawn mainly from organizations

located in Tirana and Shkodër. The demographic profile of respondents is presented in [Table 1](#). The age item offered five response brackets as administered, with no 41–45 option; [Table 1](#) reports the brackets *verbatim*.

3.3 Research instruments

The three instruments use different response formats (six-, five- and seven-point Likert scales), consistent with their original, validated versions. All items were aggregated at the construct level by computing mean scores prior to analysis. The use of different scale formats also serves as a procedural remedy to reduce the risk of common method variance (CMV) ([Podsakoff et al., 2003](#)).

The questionnaire comprised 40 items across three constructs. OLC was measured using the 21-item short version of the Dimensions of the Learning Organization Questionnaire (DLOQ; [Marsick and Watkins, 2003](#)), in the 21-item abbreviated form identified and validated by [Yang \(2003\)](#), rated on a 6-point Likert scale (1 = almost never to 6 = almost always). IWB was assessed using the 10-item scale by [De Jong and Den Hartog \(2010\)](#), measured on a 5-point Likert scale (1 = never to 5 = always). WE was measured using the 9-item Utrecht Work Engagement Scale (UWES-9; [Schaufeli et al., 2006](#)), a validated short form of the original UWES ([Schaufeli et al., 2002](#)), rated on a 7-point Likert scale (0 = never to 6 = always). [Table 2](#) summarizes the operationalization of the study variables.

OLC is inherently a perceptual and socially constructed phenomenon and is therefore appropriately measured through employees’ perceptions of learning-oriented practices rather than through objective organizational indicators. Following the established DLOQ tradition, the instrument captures the extent to which employees experience continuous learning, inquiry, dialogue and embedded systems within their organizations. Sample items for all three scales are reported in [Appendix](#).

Table 1. Demographic characteristics of respondents (*n* = 228)

Variable	Categories	Frequency	%
Gender	Male	65	28.5
	Female	163	71.5
Age	25 years or less	92	40.4
	26–30	40	17.5
	31–35	52	22.8
	36–40	32	14.0
	41 and above	12	5.3
Education	High school	5	2.2
	Bachelor’s degree	88	38.6
	Master’s degree	131	57.4
	PhD degree	4	1.8
Job position	Managerial	89	39.0
	Non-managerial	139	61.0
Tenure	0–4 years	124	54.4
	5–9 years	36	15.8
	10–14 years	32	14.0
	15+ years	36	15.8

Source(s): Authors’ own elaboration

Table 2. Variable operationalization

Variable	Items	Scale	Source	Type
OLC	21	6-pt Likert	Marsick and Watkins (2003); 21-item short form: Yang (2003)	Interval
IWB	10	5-pt Likert	De Jong and Den Hartog (2010)	Interval
WE	9	7-pt Likert	Schaufeli <i>et al.</i> (2006)	Interval

Source(s): Authors' own elaboration

3.4 Pilot study

A pilot study was conducted with 21 participants from 15 organizations to assess the clarity, feasibility and reliability of the measurement instrument. Cronbach's alpha values indicated high internal consistency across all scales (e.g. OLC: 0.94), supporting the measures' reliability in the study context. The pilot was used solely to assess item clarity, feasibility and the internal consistency of the measures; no hypothesis tests from the pilot are reported or used in the main analyses, given its sample size. The results provided initial support for proceeding with the full-scale data collection.

3.5 Data analysis strategy

Data analysis was conducted using SPSS 30, RStudio (version 2025.05.1 + 513) and the PROCESS Macro. The analysis followed a structured approach. First, descriptive statistics and assumption testing (normality, linearity and homoscedasticity) were performed to assess data suitability. Second, CMV was evaluated using Harman's single-factor test (Podsakoff *et al.*, 2003). Third, reliability and validity were assessed through Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), the Fornell–Larcker criterion and the heterotrait–monotrait (HTMT) ratio. Subsequently, Pearson and Spearman correlation analyses were conducted to examine associations among variables. *H1* and *H2* were tested using regression-based mediation analysis with PROCESS Macro Model 4 and 5,000 bootstrap samples. The moderation hypotheses (*H3a–H3c*) were tested using PROCESS Macro Model 1, with the predictor and each moderator mean-centred; gender and education were examined on an exploratory basis, as no directional predictions were advanced for them. Bootstrapping was used to ensure robust estimation of indirect effects independent of normality assumptions. Finally, exploratory moderated-mediation analyses were estimated for the significant moderators, using integrated specifications in which the moderator conditions both the direct and the second-stage paths (corresponding to PROCESS Model 15), with first-stage moderation examined separately (Model 7) and the index of moderated mediation bootstrapped over 5,000 samples (Hayes, 2015).

3.6 Descriptive statistics

Table 3 presents the descriptive statistics for the study's primary variables. Mean values ranged from 3.80 to 4.30, indicating moderate to relatively high levels across all constructs. Standard deviations ranged from 0.55 to 0.83, suggesting moderate variability in responses. Skewness values were within acceptable thresholds (± 1), indicating no substantial deviations from normality. Although the kurtosis values for OLC (2.15) and IWB (3.30) suggest slight leptokurtosis, these levels are considered acceptable in large social science samples (Field, 2018).

Table 3. Descriptive statistics of study variables

Variable	Mean	SD	Min	Max	Skewness	Kurtosis
OLC	4.30	0.74	1.38	6.00	−0.78	2.15
IWB	3.80	0.55	1.00	5.00	−0.87	3.30
WE	4.14	0.83	1.56	6.00	−0.60	0.31

Source(s): Authors’ own elaboration

3.7 Assumption testing, reliability and validity

Prior to hypothesis testing, key statistical assumptions were assessed to ensure the appropriateness of parametric analyses.

Normality was evaluated using the Shapiro–Wilk and Kolmogorov–Smirnov (K–S) tests, complemented by skewness and kurtosis statistics, as well as visual inspection of histograms and Q–Q plots. Both tests indicated statistically significant deviations from normality for all variables ($p < 0.001$), as reported in Table 4. However, such results are common in large samples (Field, 2018). Skewness values remained within acceptable thresholds (± 1), and although OLC and IWB exhibited leptokurtic distributions (kurtosis = 2.15 and 3.30, respectively), these values fall within acceptable limits in social science research. Visual inspection confirmed approximately normal distributions with only minor deviations.

Linearity was assessed by plotting standardized residuals against predicted values from the OLC–IWB regression model. Residuals were randomly distributed around zero, with no evidence of curvilinearity. Normal P–P plots indicated that residuals closely followed the diagonal line. Partial regression plots for both OLC and WE further confirmed linear relationships, with no systematic deviations.

Homoscedasticity was examined using scatterplots of standardized residuals (ZRESID) against predicted values (ZPRED), which showed no funnel-shaped patterns. However, the Breusch–Pagan test indicated significant heteroscedasticity in both the direct and mediation models ($p < 0.001$). Simple-slope and conditional-effect inference is therefore reported with HC3 heteroscedasticity-consistent standard errors (Hayes and Cai, 2007), and indirect-effect inference rests on the percentile bootstrap confidence interval, which does not assume homoscedasticity (Hayes, 2022).

Taken together, these results indicate that the data satisfy the assumptions required for parametric analysis, except for homoscedasticity, which is addressed through heteroscedasticity-robust and bootstrap-based inference as described above. To further assess robustness, both Pearson and Spearman correlations were computed.

Pearson correlation results (Table 5) show that OLC is positively associated with IWB ($r = 0.33$, $p < 0.01$) and WE ($r = 0.34$, $p < 0.01$), while WE is positively related to IWB

Table 4. Normality assessment test

Variable	K–S stat.	K–S sig.	S–W stat.	S–W sig.
OLC	0.09	<0.001	0.95	<0.001
IWB	0.09	<0.001	0.95	<0.001
WE	0.09	<0.001	0.97	<0.001

Note(s): K–S = Kolmogorov–Smirnov; S–W = Shapiro–Wilk

Source(s): Authors’ own elaboration

Table 5. Pearson correlation analysis

Variable	OLC	IWB	WE
OLC	—		
IWB	0.33**	—	
WE	0.34**	0.40**	—

Note(s): ** $p < 0.01$ **Source(s):** Authors' own elaboration

($r = 0.40$, $p < 0.01$). Spearman correlations yielded consistent patterns (OLC–IWB: $r = 0.22$; WE–IWB: $r = 0.36$; OLC–WE: $r = 0.31$; all $p < 0.01$).

CMV was assessed given the cross-sectional, self-reported nature of the data. Harman's single-factor test indicated that the first factor accounted for 18.58% of the total variance, well below the 50% threshold (Podsakoff *et al.*, 2003), indicating that the tests do not point to severe CMV, although method bias cannot be ruled out given the single-source, cross-sectional design (Podsakoff *et al.*, 2024). Two further considerations bound this risk. First, all HTMT ratios fall well below 0.85, whereas unaddressed CMV characteristically inflates inter-construct correlations towards unity; the observed discriminant separation is therefore itself evidence against method-driven construct collapse. Second, consistent with current guidance on cross-sectional inference (Spector, 2019), all findings are reported as associations, with causal ordering assumed on theoretical grounds alone. Additionally, 14 factors with eigenvalues greater than 1.0 were extracted, accounting for 68.33% of the total variance. Procedural remedies were also implemented, including the use of different response scale formats across constructs and ensuring respondent anonymity, thereby reducing the likelihood of common method bias. While CMV cannot be entirely ruled out, the combined evidence suggests that it does not substantially bias the results.

Internal consistency was assessed using Cronbach's alpha and CR. All constructs demonstrated acceptable reliability: OLC ($\alpha = 0.85$; CR = 0.85), IWB ($\alpha = 0.71$; CR = 0.74) and WE ($\alpha = 0.73$; CR = 0.72), exceeding the recommended threshold of 0.70 (Hair *et al.*, 2021). Table 6 reports the full reliability and convergent validity assessment.

A confirmatory factor analysis of the parcel-level correlated three-factor model was estimated with robust maximum likelihood (MLM; Satorra and Bentler 1994), given the leptokurtic distributions reported in Table 3, and showed acceptable fit: SB- $\chi^2(74) = 135.52$, $p < 0.001$; robust CFI = 0.928; robust TLI = 0.911; robust RMSEA = 0.063, 90% CI [0.046, 0.080]; SRMR = 0.056. Robust incremental indices are reported because they consistently estimate population fit under nonnormality (Brosseau-Liard and Savalei, 2014); the

Table 6. Reliability and convergent validity assessment

Variable	Items	Cronbach's α	CR	AVE	$\sqrt{\text{AVE}}$
OLC	21 (7 parcels)	0.85	0.85	0.446	0.67
IWB	10 (4 parcels)	0.71	0.74	0.422	0.65
WE	9 (3 parcels)	0.73	0.72	0.458	0.68

Note(s): CR = composite reliability; AVE = average variance extracted. Convergent and discriminant validity were assessed at the sub-dimension parcel level (Hair *et al.*, 2021). Standardized parcel loadings ranged from 0.50 to 0.81

Source(s): Authors' own elaboration

uncorrected Satorra–Bentler scaled CFI and TLI are 0.895 and 0.872. Convergent validity was assessed through AVE and CR. At the parcel level, AVE values fell below the conventional 0.50 threshold for all three constructs (OLC = 0.446; IWB = 0.422; WE = 0.458). These shortfalls are reported transparently rather than rounded away: they reflect the multidimensional structure of the instruments, in which each parcel represents a theoretically distinct facet rather than an interchangeable indicator of a narrow construct, and CR exceeds 0.70 for all constructs. Convergent validity was therefore judged on CR, which Fornell and Larcker (1981) treat as a valid, if less conservative, criterion when AVE falls below 0.50. Discriminant validity was assessed primarily through the HTMT ratio, following Henseler *et al.* (2015), who demonstrate that HTMT is a more sensitive and theoretically grounded criterion than the Fornell–Larcker rule and that it is precisely the appropriate arbiter when an AVE estimate sits at the threshold. All HTMT ratios fall well below both the conservative 0.85 and lenient 0.90 thresholds (OLC–IWB = 0.426; OLC–WE = 0.447; IWB–WE = 0.560), and the Fornell–Larcker criterion is also satisfied, with each construct’s $\sqrt{\text{AVE}}$ exceeding its correlations with all other constructs. Convergent and discriminant validity are therefore supported, with the marginal IWB AVE acknowledged and contextualized.

Parcels were formed on a theoretically grounded, facet-based basis following the established subdimensions of each instrument rather than random allocation, which is the form of parcelling that Little *et al.* (2002, 2013) consider methodologically defensible: items within each parcel share a theoretically specified source of common variance by instrument design. The seven OLC parcels correspond to the seven DLOQ dimensions of Marsick and Watkins (2003); the three WE parcels correspond to the vigour, dedication and absorption facets of the UWES-9 (Schaufeli *et al.*, 2006); and the four IWB parcels correspond to the idea exploration, generation, championing and implementation stages of De Jong and Den Hartog (2010). The item-level measurement model was examined first as a diagnostic. Because each instrument spans several theoretically distinct subdimensions, item-level AVE under a forced single-factor specification was substantially attenuated (OLC = 0.24; IWB = 0.23; WE = 0.26), which is the expected signature of multidimensional instruments rather than evidence of poor items; convergent validity was therefore evaluated at the parcel level corresponding to the dimensions used in the structural model, consistent with Little *et al.* (2002, 2013). We acknowledge the countervailing position of Marsh *et al.* (2013) that parcels can camouflage measurement misspecification, and for this reason, parcel-level reliability and AVE estimates are interpreted as properties of the structural model’s latent variables rather than as item-level psychometric evidence; see Table 7.

Table 7. Discriminant validity assessment (Fornell–Larcker criterion and HTMT)

Variable	OLC	IWB	WE
OLC	0.67		
IWB	0.44	0.65	
WE	0.44	0.55	0.68

Note(s): Diagonal values (italic) represent $\sqrt{\text{AVE}}$. Off-diagonal values are latent factor correlations from the parcel-level CFA. HTMT ratios: OLC–IWB = 0.426; OLC–WE = 0.447; IWB–WE = 0.560. All HTMT values are below the 0.85 threshold

Source(s): Authors’ own elaboration

3.8 Hypothesis testing

A simple linear regression analysis indicated that OLC is positively associated with IWB ($b = 0.25$, $t = 5.41$, $p < 0.01$), explaining 11% of the variance ($R^2 = 0.11$, $F = 29.25$, $p < 0.01$). The association was robust to heteroscedasticity-consistent estimation (HC3: $b = 0.25$, $SE = 0.09$, $t = 2.80$, $p = 0.006$). These results provide support for *H1*. Table 8 presents the regression results.

Mediation analysis was conducted using PROCESS Macro Model 4 with 5,000 bootstrap samples and 95% confidence intervals. When WE was included as a mediator, the direct effect of OLC on IWB decreased from $b = 0.25$ (total effect) to $b = 0.17$ ($t = 3.60$, $p < 0.001$ under OLS estimation). The indirect effect through WE was 0.08 (Boot SE = 0.03), with a 95% confidence interval [0.03, 0.15] excluding zero, indicating a significant mediation effect. The direct association remained significant under OLS estimation ($c' = 0.17$, $p < 0.001$) but attenuated to marginal significance under HC3 heteroscedasticity-consistent standard errors ($p = 0.099$); following Hayes (2022), no partial/full mediation classification is drawn, and *H2* is supported on the basis of the bootstrap indirect effect, whose inference does not assume homoscedasticity. The mediation results are reported in Table 9.

Including both OLC and WE in the model increased the explained variance in IWB to 21% ($R^2 = 0.21$, $F = 29.57$, $p < 0.001$), indicating a meaningful improvement compared to the direct-effect model ($R^2 = 0.11$). This suggests that WE contributes additional explanatory power beyond OLC alone.

3.9 Exploratory hypotheses (H3a–H3c)

H3a–H3c were tested using moderated regression (PROCESS Macro Model 1), with OLC and each moderator mean-centred. These analyses are exploratory. The age, tenure and job-position expectations set out in Section 2.4 were not specified in advance but developed as a

Table 8. Regression analysis results (DV: IWB)

Variable	<i>B</i>	R^2	<i>F</i>	<i>t</i>
OLC	0.25	0.11	29.25	5.41**

Note(s): ** $p < 0.01$

Source(s): Authors' own elaboration

Table 9. Mediation analysis decomposition results

Path	Effect	SE	<i>t</i>	LLCI	ULCI	Decision
Total (c)	0.25	0.05	5.41	—	—	
Direct (c')	0.17	0.05	3.60	—	—	
a (OLC→WE)	0.38	0.07	5.48	—	—	
b (WE→IWB)	0.22	0.04	5.16	—	—	
Indirect (a × b)	0.08	0.03	—	0.03	0.15	Supported

Note(s): 5,000 bootstrap samples. LLCI/ULCI for indirect effect only. — = not applicable. No partial/full mediation classification is applied (Hayes, 2022); under HC3 standard errors, the direct effect is marginal ($p = 0.099$), while the bootstrap indirect-effect interval is unaffected

Source(s): Authors' own elaboration

post hoc embeddedness account, and gender and education were examined without directional expectations. The moderation results below are therefore interpreted as theory-consistent but provisional, requiring confirmation on independent data. Results indicate that age significantly moderates the OLC–IWB relationship ($b = -0.23$, $SE = 0.04$, $p < 0.001$), with the relationship stronger among younger employees, consistent with the age expectation (*H3a*). Tenure moderates the relationship ($b = -0.18$, $SE = 0.04$, $p < 0.001$), with stronger effects among employees with shorter organizational tenure, consistent with the tenure expectation (*H3b*). Job position is also a significant moderator ($b = 0.50$, $SE = 0.09$, $p < 0.001$); conditional-effects analysis with HC3 heteroscedasticity-robust standard errors (Hayes and Cai, 2007) shows a positive OLC–IWB association among non-managerial employees ($b = 0.44$, $SE = 0.09$, $p < 0.001$, 95% CI [0.26, 0.62]) and no detectable association among managerial employees ($b = -0.06$, $SE = 0.11$, $p = 0.60$, 95% CI [-0.26, 0.15]), consistent with the job-position expectation (*H3c*); the managerial interval excludes values approaching the non-managerial estimate, although small positive effects cannot be ruled out at this subgroup size ($n = 89$). The age moderation is not an artefact of the small older subgroup; excluding the 12 respondents aged 41 and above, the age interaction remained significant and similar in magnitude ($b = -0.24$, $p < 0.001$). On an exploratory basis, neither gender ($b = 0.13$, $p = 0.27$) nor education ($b = -0.11$, $p = 0.21$) moderated the relationship. Table 10 summarizes the moderation results (OLS estimates); all three interaction terms remain significant under HC3 robust standard errors (age $p < 0.001$; tenure $p = 0.012$; job position $p < 0.001$).

3.10 Exploratory moderated-mediation analyses

To examine whether the observed moderation patterns operate through the engagement pathway rather than solely through the direct association, exploratory moderated-mediation analyses were conducted for each significant moderator (Hayes, 2015, 2022). For each moderator, an integrated specification allowed the moderator to condition both the second-stage (WE → IWB) and the direct (OLC → IWB) paths simultaneously (corresponding to PROCESS Model 15), with first-stage moderation (Model 7) examined separately; predictors and moderators were mean-centred, interaction inference was checked against

Table 10. Moderation analysis results (DV: IWB)

Moderator	Hypothesis	<i>b</i>	SE	<i>t</i>	<i>p</i>	ΔR^2	Result
Age	<i>H3a</i>	-0.23	0.04	-5.74	<0.001	0.11	Consistent
Organizational tenure	<i>H3b</i>	-0.18	0.04	-4.05	<0.001	0.06	Consistent
Job position	<i>H3c</i>	0.50	0.09	5.39	<0.001	0.10	Consistent
Gender	—	0.13	0.12	1.10	0.27	0.01	No effect
Education	—	-0.11	0.09	-1.26	0.21	0.01	No effect

Note(s): $n = 228$ ($n = 225$ for education: three free-text education responses could not be ordered on the education scale and were excluded from the moderation; Table 1 assigns them to the closest category). Each moderator was tested in a separate PROCESS Macro Model 1 with OLC and the moderator mean-centred; b is the OLC × moderator interaction coefficient. ΔR^2 is the increment from the interaction term. *H3a–H3c* are exploratory, theory-consistent expectations developed post hoc rather than a priori confirmatory tests; gender and education were examined without directional expectations. Conditional effects for job position (HC3 robust standard errors): non-managerial, $b = 0.44$ ($p < 0.001$); managerial, $b = -0.06$ ($p = 0.60$, 95% CI [-0.26, 0.15]). Excluding respondents aged 41 and above ($n = 12$), the age interaction remained significant ($b = -0.24$, $p < 0.001$)

Source(s): Authors' own elaboration

HC3 robust standard errors, and the index of moderated mediation was estimated with 5,000 percentile bootstrap samples (Hayes, 2015).

Across all three moderators, the index of moderated mediation was not reliably different from zero: age, index = 0.010, 95% CI [-0.031, 0.042]; tenure, index = 0.009, 95% CI [-0.030, 0.044]; job position, index = 0.064, 95% CI [-0.014, 0.171]. By contrast, the direct-path interaction remained significant for all three moderators in the integrated models (age $p < 0.001$, HC3 $p = 0.010$; tenure $p < 0.001$, HC3 $p = 0.039$; job position $p < 0.001$, HC3 $p = 0.018$). For job position, a second-stage specification omitting the direct-path interaction (Model 14) produced a significant index (0.110, 95% CI [0.024, 0.224]); this estimate did not survive the inclusion of the direct-path interaction (second-stage interaction: $b = 0.17$, $p = 0.079$, HC3 $p = 0.129$), indicating that it reflected omitted direct-path moderation rather than a robust pathway difference. The conditional indirect effect was significant among non-managerial employees (0.083, 95% CI [0.029, 0.168]) and not among managerial employees (0.019, 95% CI [-0.041, 0.089]); because the index of moderated mediation does not differ reliably from zero, however, the difference between these conditional effects cannot itself be asserted (Gelman and Stern, 2006).

Taken together, these exploratory analyses locate the observed heterogeneity on the direct learning culture–innovation association rather than on the indirect pathway through engagement. Within the limits of this design, embeddedness appears to condition the behavioural conversion of learning-culture resources rather than employees' motivational response to them. Given the post hoc character of the boundary conditions, the modest managerial subgroup and the single-sample basis of these estimates, this pattern requires confirmation in preregistered moderated-mediation designs.

4. Discussion

This study set out not simply to test whether OLC relates to IWB, but to examine how this relationship operates across employees and through which mechanisms it operates. The findings support both hypotheses while advancing a more conditional understanding of this relationship.

First, the positive association between OLC and IWB should not be interpreted as a universal effect, but as an average association whose strength varies systematically across employee groups, as the boundary-condition analyses show. Rather than directly producing innovative outcomes, learning culture appears to function by altering how employees interpret uncertainty and risk, making discretionary behaviours such as idea generation and implementation more viable (Rebelo and Gomes, 2017; Skerlavaj *et al.*, 2014; De Jong and Den Hartog, 2010).

Second, the mediating role of WE provides a more precise explanation of this process. The results suggest that learning-oriented practices do not automatically translate into innovative behaviour; instead, they are channelled at least in part through motivational activation. WE captures this activation, reflecting the extent to which employees are willing to invest effort in spite of the uncertainty and risk inherent in innovative behaviour (Schaufeli *et al.*, 2006). In this sense, engagement transmits a reliably estimated share of this association. Whether a residual direct component also operates cannot be established here: its point estimate is positive but not robust to heteroscedasticity-consistent estimation, so the present data neither support nor rule out additional pathways beyond engagement, and no partial or full mediation classification is drawn (Hayes, 2022).

Third, and most consequentially, the exploratory boundary-condition analyses reveal that the OLC–IWB association is sharply non-uniform across the organizational hierarchy. The finding that deserves the greatest prominence is not merely that non-managerial employees

show a strong positive association ($b = 0.44$, $p < 0.001$), but that the corresponding simple slope for managerial employees is $b = -0.06$, $p = 0.60$ under HC3 robust inference: statistically indistinguishable from zero. Read directly, the same OLC that is meaningfully associated with innovative behaviour among non-managerial staff yields no detectable behavioural return for the employees that organizations most expect to lead innovation. It bears emphasis that this moderation concerns responsiveness to learning culture, not innovativeness itself: managers are not less innovative in general, but their innovative behaviour appears decoupled from the learning-culture resources available to them. This null slope is best understood as theoretically overdetermined rather than anomalous, because several distinct literatures converge on the same prediction. Job embeddedness theory (Mitchell *et al.*, 2001) holds that accumulated links, fit and sacrifice bind longer-tenured and senior employees to existing routines, dampening responsiveness to cues that demand change. Meta-analytic evidence across 98 studies indicates that older and longer-tenured employees do not, on average, display less innovation-related behaviour (Ng and Feldman, 2013). The moderations observed here concern a different quantity – the responsiveness of innovative behaviour to learning culture (age $b = -0.23$; tenure $b = -0.18$, both $p < 0.001$) – and illustrate the heterogeneity that such average effects can conceal. Career-plateau research similarly documents declining engagement and creativity among content-plateaued senior staff, while the accountability literature argues that managerial roles carry sanction-focused accountability regimes that suppress risk-taking and provoke defensive routines (Skerlavaj *et al.*, 2014; De Spiegelare *et al.*, 2014). Status quo bias offers a further route: senior members most invested in current arrangements are least likely to convert learning-culture cues into exploratory behaviour. We interpret these patterns through an organizational-embeddedness lens while explicitly acknowledging that career-stage effects, role expectations, status-related constraints and hierarchical differences in psychological safety may also account for the results; the present design cannot adjudicate among these candidate mechanisms, and they are offered as convergent interpretations of three individually plausible boundary conditions rather than as indicators of a single latent construct (Cerne *et al.*, 2024).

The contribution of the Albanian setting lies not in demonstrating a unique Albanian mechanism but in extending an established mechanism to a rarely studied transition-economy workforce and revealing sharply non-uniform responsiveness within it, in a labour market where World Bank (2013) evidence indicates formal training provision reaches fewer than one in five firms.

Taken together, these findings shift the interpretation of the learning culture–innovation relationship from a stable and generalizable link to a contingent, activation-based process. Within this interpretation, OLC is associated with the potential for innovation, WE represents a potential mechanism through which this potential may be realized, and individual characteristics appear to shape the extent to which it is realized. This suggests that learning-oriented practices do not fail outright but rather require motivational activation and are differentially realized depending on employees' individual positioning within the organization. The exploratory boundary-condition expectations ($H3a$ – $H3c$) were borne out in this sample: age, tenure and job position each moderated the OLC–IWB relationship in the anticipated direction, and the age pattern held after excluding the small older subgroup, indicating it is not a small-sample artefact. Because these expectations were developed post hoc rather than specified in advance, they are treated as theory-consistent and provisional, to be confirmed in independent, adequately powered samples. Gender and education, for which no directional predictions were advanced, did not moderate the relationship. These findings indicate that the learning culture–innovation association is differentially realized across employee groups, being stronger among employees who are less embedded in established

organizational routines; exploratory moderated-mediation analyses (Section 3.10) found no reliable evidence that the heterogeneity operates through the engagement mechanism, locating it instead on the direct association.

The relatively modest explanatory power indicates that learning culture and WE account for only part of the innovation process. IWB is likely shaped by additional contextual and relational factors, such as psychological safety, leadership style, autonomy and organizational structure, that lie beyond the present model and warrant attention in future work. Rather than undermining the present account, the large share of unexplained variance is consistent with the premise that these unmeasured factors plausibly carry meaningful weight; this observation motivates the moderators proposed in the research agenda.

5. Implications

From a theoretical perspective, this study refines how the relationship between OLC and IWB should be understood by showing that it is neither direct nor uniformly enacted but contingent on both motivational activation and individual positioning. While prior research has established positive associations between learning-oriented environments and innovation (Sanz-Valle *et al.*, 2011; Skerlavaj *et al.*, 2014), the present findings indicate that this association is channeled at least in part through WE, as evidenced by the reliable indirect effect; whether a residual direct association also exists could not be established, as its estimate, though positive, was not robust to heteroscedasticity-consistent estimation. This suggests that OLC operates less as a direct driver of innovation and more as a resource-enabling condition whose behavioural effects depend on employees' willingness to invest effort, consistent with motivational process models (Schaufeli *et al.*, 2006; Park *et al.*, 2014).

Moreover, the moderation results provide a critical extension by showing that the learning culture–innovation association is not evenly distributed across employees. The stronger associations observed among younger, lower tenure and non-managerial employees indicate that the translation of learning-oriented practices into innovation depends on individuals' embeddedness in existing routines and role constraints. This challenges implicit assumptions in the literature that learning culture exerts homogeneous effects across organizational members and instead supports a boundary-condition perspective, in which the effectiveness of organizational practices varies across employee segments (Johns, 2006; Whetten, 2009).

Taken together, these findings shift the theoretical interpretation of the learning culture–innovation link from a stable and generalizable relationship to a contingent, activation-based process, in which organizational resources create the potential for innovation, WE enables its realization and individual characteristics shape its strength.

In terms of practical implications, the subgroup findings offer more targeted guidance for managers, HR practitioners and policymakers than generic prescriptions to “build a learning culture”. Because the association between learning culture and innovative behaviour is stronger among younger, lower tenure and non-managerial employees, organizations could – if these exploratory patterns are confirmed – expect the highest behavioural return from channeling learning-oriented investment towards these groups, for example, through structured onboarding programmes, mentoring and innovation initiatives aimed at junior staff who are most ready to convert learning resources into innovative action. Conversely, because the association is weaker among senior, longer tenured and managerial employees, learning resources are currently least likely to translate into innovative behaviour for exactly those groups. This pattern suggests that a uniform learning-culture investment will leave a substantial part of the workforce relatively unaffected, and that more senior and managerial employees require deliberately differentiated treatment, such as targeted engagement

interventions, role-relevant innovation mandates and tenure-sensitive learning initiatives designed to re-engage staff for whom established routines and accountability pressures appear to dampen the mechanism. Across both groups, raising WE is one lever: the indirect pathway through engagement is the most robustly estimated component of the observed association; any remaining component could not be reliably established with the present data, including whether it operates through pathways outside the present model.

A further limitation concerns the structural alignment between the mediation model and the exploratory boundary-condition analyses. The theoretical argument positions WE as the mechanism through which OLC is associated with IWB, yet the exploratory boundary conditions were examined on the direct relationship between learning culture and IWB rather than on the mediating pathway itself. Exploratory moderated-mediation analyses (Section 3.10) addressed this alignment directly and found no reliable evidence that the engagement pathway itself is moderated, with the heterogeneity attaching to the direct path. These analyses are nonetheless post hoc and rest on a single sample with a modest managerial subgroup, and the second-stage estimate for job position, while not reliably different from zero, was positive and imprecise. Confirmatory first-stage and second-stage moderated-mediation designs in independent, adequately powered samples therefore remain necessary (Hayes, 2022).

The findings presented in this paper have certain boundaries within which they can be interpreted. First, the cross-sectional design supports associational rather than causal inference; the relationships reported here describe patterns of association and should not be read as evidence that learning culture or WE causally produce IWB. While the methodological approach used in this research was appropriate for investigating the proposed model of the relationship among OLC, WE and IWB in the context of Albania, future studies could use longitudinal or experience-sampling methods to examine the causal effects of each variable (Maxwell and Cole, 2007). Future work could also examine how organizational practices, such as performance management design and remote work arrangements, condition innovative behaviour alongside the employee-level boundary conditions examined here (Curzi *et al.*, 2026). A further limitation concerns the size of some demographic subgroups. The 12 respondents aged 41 and above are too few to characterize older employees in detail; however, the observed age moderation (*H3a*) is not driven by this subgroup, as the interaction remains essentially unchanged when these respondents are excluded. The managerial subgroup, while larger, remains modest in size, so the boundary-condition estimates should be regarded as robust in direction but approximate in magnitude and re-examined in larger and more age-diverse samples. Furthermore, while the current study relied on self-reported measures of IWB, future studies could use measures obtained from supervisors or employees' innovative work outputs to enhance the study's validity.

Moreover, while the study has examined how various demographic groups differ in relation to the strength of the relationship between OLC and IWB, future studies could investigate additional potential moderators of that relationship, such as factors like psychological safety within the organizations, organizational structure, organizational leadership and the autonomy of the employees within those organizations. Furthermore, while the employees surveyed in this study were mainly from Tirana and Shkodër in Albania, future studies could expand to include employees from additional industries, public organizations and geographic regions across the country.

Beyond these design-specific limitations, the present study is also situated within three broader gaps identified in recent syntheses of the OLC–WE–IWB literature. First, because the mediation model relies, like most foundational studies in this stream, on cross-sectional, single-wave data, it cannot establish the causal ordering implied by the $OLC \rightarrow WE \rightarrow IWB$

pathway; longitudinal or experience-sampling designs that track learning culture, engagement and innovative behaviour across multiple waves remain rare and are needed to test temporal precedence directly (Sanhokwe *et al.*, 2023). Second, although the theoretical model treats OLC as an organization-level resource, the empirical test here, like most in the literature, operates entirely at the individual level; multilevel designs that model team- or organization-level learning climate alongside individual engagement and behaviour would allow the cross-level assumptions embedded in the theory to be tested rather than assumed (Jung *et al.*, 2021; Lin and Lee, 2017). Third, WE is treated here as the mediating mechanism, but it is one of several mechanisms that the literature has linked to the OLC–IWB relationship, including creative self-efficacy, job crafting and psychological empowerment; because these mechanisms are typically examined in separate models rather than compared head-to-head, it remains unclear whether WE is the dominant pathway or one of several competing or complementary routes (Iman *et al.*, 2025; Vu *et al.*, 2025). Addressing these three gaps – causal design, level of analysis and mechanism specificity – represents a natural next step for research building on the present findings.

Finally, future studies could expand the sample of organizations to include other countries in the Western Balkans or similar economies to determine whether the findings generalize to comparable transitional contexts.

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Appendix. Scale dimensions and sample items

This appendix reports the dimensional structure of each instrument together with the items administered, so that readers can assess directly what each scale captures. The items below reproduce the wording used in the present study; organizational learning culture items share the stem indicated for each dimension.

Organizational learning culture (OLC). Dimensions of the Learning Organization Questionnaire, 21-item short form (Marsick and Watkins, 2003; Yang, 2003). Rated on a six-point scale (1 = almost never to 6 = almost always).

Continuous learning (stem: "In my organization, people..."):

- help each other learn;
- take time to support learning; and
- are rewarded for learning.

Dialogue and inquiry (stem: "In my organization, people..."):

- provide open feedback;
- ask what others think; and
- spend time building trust.

Team learning (stem: "In my organization, teams/groups..."):

- have freedom to adapt goals;
- revise thinking with information; and
- act on our recommendations.

Embedded systems (stem: "My organization..."):

- creates a measurement system;
- makes its lessons learned available; and
- measures the results of training.

Empowerment (stem: "My organization..."):

- recognizes people for taking initiative;
- gives people control over resources; and
- supports calculated risk-taking.

System connection (stem: "My organization..."):

- encourages global perspectives;
- works with the outside community and resources; and
- encourages diverse perspectives.

Strategic leadership (stem: "In my organization, leaders..."):

- provides mentoring/coaching;
- provides opportunities to learn; and
- ensures consistent actions.

Work engagement (WE). Utrecht Work Engagement Scale, UWES-9 (Schaufeli et al., 2006). Rated on a six-point scale (0 = never to 6 = always).

Vigour:

- At my work, I feel bursting with energy.
- At my job, I feel strong and vigorous.
- When I get up in the morning, I feel like going to work.

Dedication:

- I am proud of the work that I do.
- I am enthusiastic about my job.
- My job inspires me.

Absorption:

- I am immersed in my work.
- I get carried away when I am working.
- I feel happy when I am working intensely.

Innovative Work Behaviour (IWB). Ten-item scale (De Jong and Den Hartog, 2010). Rated on a five-point scale (1 = never to 5 = always).

Idea exploration:

- I often pay attention to issues that are not part of my daily work.
- I often wonder how things can be improved.

Idea generation:

- I often search out new working methods, techniques or instruments.
- I often generate original solutions for problems.
- I often find new approaches to execute tasks.

Idea championing:

- I often make important organizational members enthusiastic for innovative ideas.

- I often attempt to convince people to support an innovative idea.

Idea implementation:

- I often systematically introduce innovative ideas into work practices.
- I often contribute to the implementation of new ideas.
- I often put effort into the development of new things.

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