

## Article

# The Mediated Moderating Role of Organizational Learning Culture in the Relationships among Authentic Leadership, Leader-Member Exchange, and Employees' Innovative Behavior

Ki Baek Jung <sup>1</sup>, S. M. Ebrahim Ullah <sup>2</sup> and Suk Bong Choi <sup>1,\*</sup> <sup>1</sup> College of Global Business, Korea University, 2511 Sejong-ro, Sejong City 30019, Korea; jkb7528@korea.ac.kr<sup>2</sup> HR Team, ACI Godrej Agrovet Pvt. Ltd., Dhaka 1212, Bangladesh; ebrahim.ullah@acigodrej.com

\* Correspondence: sukchoi@korea.ac.kr

**Abstract:** Previous studies have shown that enhancing employees' innovative behavior can facilitate organizations' sustainable competitiveness. This study investigated the relationship between authentic leadership and employees' innovative behavior in Korean manufacturing and service companies. Moreover, the study examined the complex processes and conditions underlying this relationship. The results indicated that authentic leadership was significantly related to employees' innovative behavior and that leader-member exchange mediated the relationship between authentic leadership and employees' innovative behavior. Additionally, organizational learning culture moderated the relationship between leader-member exchange and employees' innovative behavior. Finally, organizational learning culture moderated the mediating effect of authentic leadership on innovative behavior via leader-member exchange. We discuss the theoretical and practical implications of these findings as well as the study's limitations for future research directions.

**Keywords:** authentic leadership; innovative behavior; organizational learning culture; mediated moderation



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## 1. Introduction

Organizational sustainability and continuous growth in today's business environment strongly depend on employee innovation behavior [1]. In this context, prior studies have found that employees' innovation behavior is strongly influenced by flexible leadership and an open-ended, creative culture [2–5]. Although researchers have long prioritized the study of leadership as a key influence on employee behavior, what constitutes effective leadership behavior is still under debate [6]. In terms of its influence on employees, House and Javidan [7] define leadership as “the ability of an individual to influence, motivate, and enable others to contribute toward the effectiveness and successes of the organizations of which they are members” (p. 15). To induce positive employee behavior and improve organizational performance, leadership studies have paid increasing attention to organizations' purpose, values, and employee integrity, which can enhance employees' innovation behavior [8]. At this critical juncture, organizations need leadership styles comprising flexibility, open-mindedness, and authenticity to positively impact employee relations and behavior [7]. Authentic leadership entails leaders' flexibility and open-mindedness with the organization's employees through honesty and instructional clarity [9]. Avolio and Gardner [10] also have proposed that authentic leadership includes self-awareness, self-regulation, and positive modeling, all of which positively influence employees' innovative performance.

More specifically, self-awareness is the process of understanding an individual's unique talents, strengths, sense of purpose, core values, beliefs, and desires, including knowledge, experience, and ability [10]. Therefore, it refers to leaders knowing what is important to individuals and organizations. Self-regulation involves the process of people

exercising self-control by setting internal standards, evaluating discrepancies between these standards and actual or expected outcomes, and identifying intended measures to reconcile these discrepancies [10]. Therefore, self-regulation is the process by which true leaders match their intentions and actions with their values. Self-regulation helps promote transparency and consistency in leadership behaviour. Positive modeling means that a leader leads a subordinate based on sincerity such as positive psychological ability, moral perspective, self-awareness, and self-control [10]. The positive emotions of authentic leaders spread through the social transmission process. As a result, it helps to promote the emotional and cognitive development of members. These characteristics of authentic leadership allow members to develop their values, identities, and emotions and ultimately build transparent relationships between leaders and true behavior [10–13].

Authentic leadership focuses on organizational vision attainment through authentic behavior that stimulates idea generation, promotes knowledge sharing, and fosters innovative behavior in the completion of daily tasks [11,14].

In this study, we investigated the impact of authentic leadership considering its fundamental characteristics of self-awareness, self-regulation, and positive modeling. We assumed these features of authentic leadership to be important preconditions for employees' innovative behavior [10,12,13]. Although previous studies have highlighted the positive impact of authentic leadership on employee behavior at the organizational level and in terms of individual task performance [10,15,16], there is little empirical evidence regarding the link between authentic leaders' behavior and innovative behavior of employees. Innovation in today touch business environment can be seen a key source of organizational sustainable competitiveness. Thus, it is important for organization to recognize the necessity of promoting employees' behavior in relation to innovation since it is starting point for enhancing organizational innovation performance and, ultimately it affects sustainable growth of organizations and secure long survive in such tough business environment [3,4]. Therefore, this study explored how authentic leadership and its subcomponents facilitate employees' innovative behavior. Moreover, there has not been much research examining the complex process and conditions underlying this relationship, which this study also addressed.

To address these research gaps, we investigated the mediating role of leader–member exchange (LMX) and the moderating role of organizational learning culture (OLC) to explain the relationship between authentic leadership and employees' innovative behavior. LMX refers to the quality of inter-personal relationships between leaders and followers [17], which develop through embedded exchange processes between the parties [18,19]. As authentic leadership emphasizes flexible, relationship-oriented employee behavior, it creates a high level of LMX [20,21]. Understanding LMX's fundamental features, we argue that LMX quality can heavily influence the relationship between authentic leadership and employees' innovation behavior. Several studies have shown that LMX quality impacts individual and organizational performance [1,20,21]. Thus, we suggest LMX as a potential mediator of the relationship between authentic leadership and innovative behavior.

Furthermore, this study posits that OLC may enhance the positive effect of LMX on innovative behavior because employees' innovative behavior requires an organizational environment supporting idea generation and knowledge sharing among members to enhance work performance. OLC can be defined as "an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights" [22]. According to previous literature [21–23], OLC creates a psychological and physical environment for enhancing employees' learning. OLC provides an atmosphere and support system creating greater learning opportunities and dialogue or collaboration among organizational members. Thus, a strong OLC may enhance the positive effect of LMX on innovative behavior by facilitating better collaboration, creative problem solving, and knowledge sharing in the completion of daily tasks.

To this end, the objective of this study was fourfold. First, we investigated the relationship between authentic leadership and employees' innovative behavior. Second,

we tested the mediating effect of LMX in this relationship. Third, we tested the moderating role of OLC in the relationship between LMX and innovative behavior finally, we assessed whether OLC positively moderates the mediating effect of LMX on the relationship between authentic leadership and innovative behavior.

## 2. Theoretical Background and Hypothesis Development

### 2.1. Authentic Leadership and Employees' Innovative Behavior

As explained previously, authentic leadership refers to the flexibility, open-mindedness, and honesty that leaders demonstrate toward employees [9], characterized by positive modeling, self-awareness, and self-regulation [10]. This type of leadership tends to support new, useful ideas and employees' innovation behavior [24].

We expected authentic leadership to promote employees' innovative behavior in several ways. First, we examined the three fundamental characteristics of authentic leadership: positive modeling, self-awareness, and self-regulation, which have been shown to positively impact employee behavior [10]. For instance, self-aware and self-regulated leaders present their true personalities to their organizations. This favorable leadership behavior inspires employees to make strong physical and intellectual efforts to innovate, ultimately impacting organizational performance [13]. Authentic leaders also try to share information and knowledge with followers, including organizational values, morals, and vision [25]. Such sharing may positively influence employees' self-esteem and motivation to engage in innovative behaviors.

Second, positive modeling entails acting as an authentic role model in the organization. This cultivates positive psychological capital among employees, which helps them develop new ideas and represents a positive challenge to regular work patterns, ultimately increasing task performance. Maintaining high levels of psychological capital through authentic leadership promotes employees' innovative behavior within the organization [9].

Third, authentic leaders play a supervisory role, promoting hope, optimism, trust, commitment, and resilience among employees [26]; these act as psychological foundations for innovative behavior. Authentic guidance also enhances employees' confidence and enthusiasm toward creative thinking and problem solving, ultimately resulting in innovative behavior.

Fourth, authentic leadership contributes to a learning- and change-oriented organizational environment [27]. This environment supports employees' innovative behavior. For these four reasons, we expected authentic leadership to significantly impact employees' innovative behavior: Therefore we propose:

**Hypothesis 1 (H1).** *Authentic leadership is positively related to employees' innovative behavior.*

### 2.2. LMX as a Mediator

LMX refers to the quality of interpersonal relationships between supervisors and employees [17]. It is a positive outcome of authentic leaders' behavior [11]. Authentic leadership supports employee trust and cooperation, which is also a precondition for LMX. Quality LMX necessitates sharing organizational beliefs, values, morals, and vision among organizational members, which motivates employees to achieve organizational goals [6]. High levels of trust and sharing the organizational vision can encourage employees to make additional innovative efforts. In other words, the LMX promoted by authentic leadership facilitates strong interpersonal trust and knowledge sharing between leaders and followers [6]. Therefore, we expected LMX to mediate the relationship between authentic leadership and employees' innovation behavior in the following ways.

First, employees' innovation behavior involves a complex process of changing the status quo, idea conflict, and role complexities to generate and implement new ideas [28]. Idea generation and implementation requires and is strongly influenced by levels of trust and exchange among organizational members, regardless of rank or department. This

trust-based exchange cannot occur without high-quality LMX. In turn, high-quality LMX resolves the complexities of the innovation process.

Second, West [29] has argued that four major factors— external demands, task characteristics, groups' knowledge diversity and skills, and integrated group processes—impact employees' innovation behavior. Further, Cerne et al. [28] has contended that these four factors are highly influenced by leader–member support and positive forms of leadership. LMX positively impacts employees' attitudes, behavior, loyalty, and respect, which are preconditions for strong organizational trust [30–32]. Therefore, we argue that LMX strongly influences both authentic leadership and employees' innovation behavior and acts to explain their relationship.

Finally, several studies have demonstrated that authentic leaders inspire team members to put forth high-level physical and intellectual effort (including innovative work ideas) to attain the organizational vision, which requires sharing, cooperation, and commitment among leaders and followers [27]. In a similar context, Redmond, Mumford, and Teach [33] have shown that mutual expertise sharing and outstanding efforts among leaders and followers (which are consequences of trust-based LMX) facilitate attainment of the organizational vision. Therefore, we argue that the LMX promoted by authentic leadership facilitates organizational vision attainment through employees' innovation behavior:

**Hypothesis 2 (H2).** *LMX positively mediates the relationship between authentic leadership and employees' innovative behavior.*

### 2.3. Organizational Learning Culture as a Moderator

OLC can be defined as an environment promoting the creation, acquisition, and transfer of new knowledge, which enhances organizational competitiveness [22]. Previous literature has identified OLC as a key factor in improving organizational outcomes [21,22,34], including overall organizational performance [23,35]. Therefore, we posit that OLC is an important moderator strengthening the positive effect of LMX on employees' innovative behavior in several ways.

On the one hand, OLC creates an organizational environment of learning processes, connecting with other companies for knowledge sharing and developing unique business value [22]. Thus, the trusting relationships between leaders and followers that lead to innovative behavior can vary depending on the extent to which the organization fosters a culture of learning. OLC often empowers team members to engage in knowledge-sharing sessions and frequent inquiry [36]. OLC impacts employees' commitment to innovative work through the promotion of professional learning processes and by stimulating intrinsic motivation [37]. In such organizational climates, LMX tends to be of higher quality, fostering employees' innovative behavior.

On the other hand, LMX promotes organizational flexibility, open-mindedness, and more horizontal leadership structures characterized by partnerships and mutual benefits [38,39]. It also creates trust and organizational loyalty, and such pro-organizational behavior can be strengthened by learning-oriented environments as they tend to yield better LMX outcomes in the process of task completion. In other words, strong OLCs can maximize the positive outcomes of LMX because of OLCs' promotion of cooperation and sharing. This interaction between OLC and LMX ultimately enhances employees' innovative behavior. Employee innovation behavior is heavily influenced by high quality of LMX since OLC ensure and support for various leader member interaction in the process of developing the positive effect of new knowledge creation, and accumulation of creative problem solving activities. LMX strengthened by OLC finally enhances innovative behavior of employees more effectively. Therefore, we propose:

**Hypothesis 3 (H3).** *OLC positively moderates the relationship between LMX and employees' innovative behavior.*

#### 2.4. Integrated Model: Mediated Moderating Effect of Organizational Learning Culture

Integrating the logic of Hypotheses 2 and 3 produces a model in which LMX mediates the relationship between authentic leadership and employees' innovative behavior and OLC moderates the relationship between LMX and employees' innovative behavior. While LMX can explain the relationship between authentic leadership and employees' innovative behavior (H2), because we expected that the relationship between LMX and employees' innovative behavior to be stronger with stronger OLC (H3), we also predicted the mediated relationship described in Hypothesis 2 to be stronger with stronger OLC:

**Hypothesis 4 (H4).** *The strength of the relationship between authentic leadership and employees' innovative behavior mediated by LMX varies depending on the extent of OLC; the indirect effect of authentic leadership on employees' innovative behavior via LMX is stronger when OLC is stronger.*

Figure 1 summarized the proposed relationships.

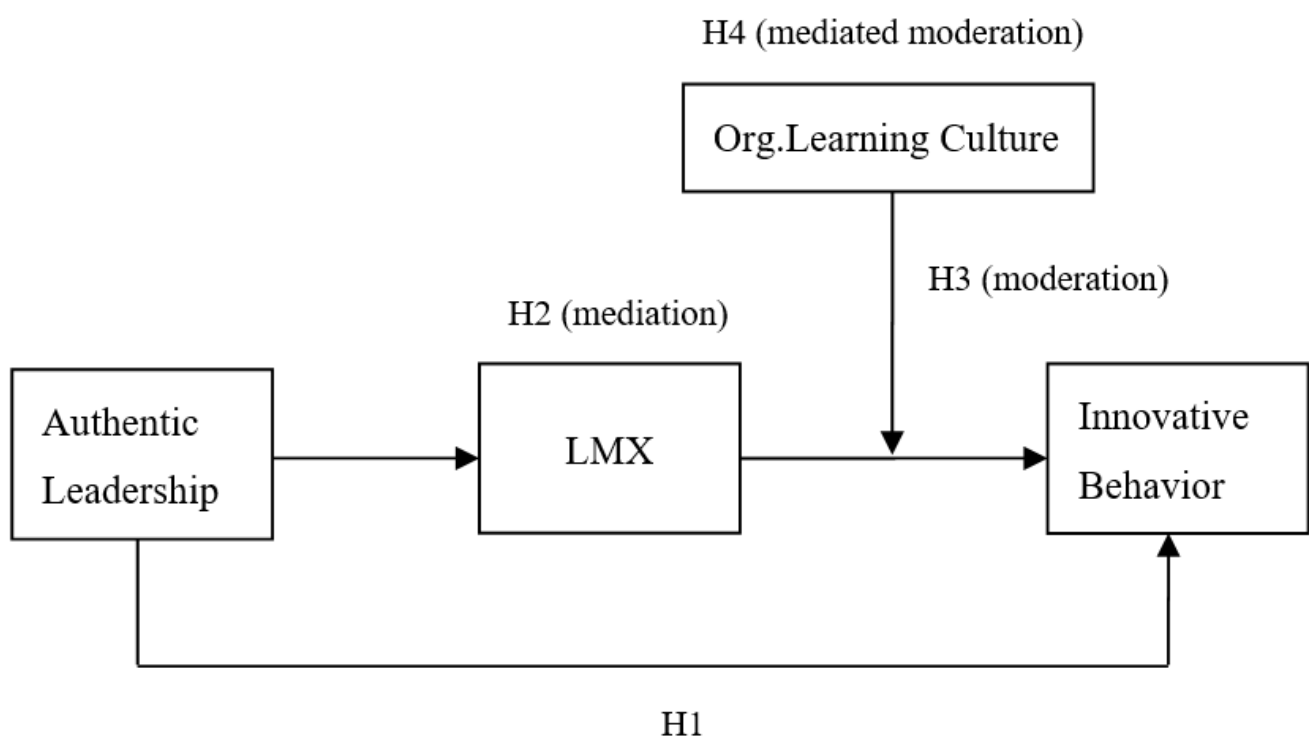


Figure 1. Research model.

### 3. Method

#### 3.1. Sample and Procedure

We collected data from employees working for Korean manufacturing and service companies using online and offline questionnaires. The adopted sampling strategy was intentional judgment sampling, a non-probability-based sampling method. Previous studies using this non-probability method [40–42] show that authors more effectively select sample groups based on their judgment and preference for their research objectives. Considering the specific characteristics of employees' innovative behavior analyzed, we adopted this sampling technique because both leaders and employees expected to exhibit compulsory authentic leadership and innovative behavior can misrepresent the actual situation due to fear of pressure from managers or colleagues. In the first step, we contact the HR managers through a personal network to explain the purpose of the survey. In the second stage, when we obtained their permission, personnel managers were asked to consider the diversity of sampling, such as gender, age, and education level, and to

distribute questionnaires randomly. In addition, online and offline surveys were conducted to secure anonymity and respond objectively.

We collected 317 total questionnaires, of which we analyzed 256 valid responses. Among the 256 respondents, 142 (55.5%) were male, and 114 (44.5%) were female. The average age of the respondents was 30.20 years ( $SD = 8.40$ ), the average organizational tenure was 6.31 years ( $SD = 6.41$ ), and the average duration of education was 15.58 years ( $SD = 1.86$ ).

### 3.2. Measures

The original questionnaire of variables was in English. We used the original questionnaire translated into Korean. We adopted the Brislin's back-translation procedure [43]. A professional translator translated the original version into Korean, then a bilingual scholar (who neither was aware of the study's purpose nor had seen the original survey) back-translated it into English.

We measured authentic leadership using the 16-items suggested by previous studies [44] and adopted in prior studies [28,45]. This questionnaire measures four dimensions of authentic leadership: relational transparency, self-awareness, balanced processing, and internalized moral perspective. Based on previous studies' practice of combining authentic leadership's dimensions into a unified construct [44], we also proceeded aggregated the items, treating authentic leadership as one latent, higher-order construct. A sample item is "My boss frankly admits the mistake when he makes it." The Cronbach's alpha was 0.951.

We assessed employees' innovative behavior using a nine-item measure commonly employed in previous organizational research [46–49]. The measure assesses three dimensions of individual innovative behavior according to the stages of innovation. Participants indicated how often they performed innovative activities, including generating new ideas about difficult issues (idea generation), "mobilizing support for innovative ideas" (idea promotion), and "transforming innovative ideas into useful applications" (idea realization). A sample item is "I search out new working methods, techniques, or instruments." The Cronbach's alpha was 0.941.

We measured OLC using seven items suggested by previous studies [35,39,50]. The seven items represent each subconstruct of OLC (i.e., continuous learning, dialogue and inquiry, team learning, empowerment, embedded system, system connection, and strategic leadership). A representative question is "In my organization, whenever people state their view, they also ask what others think." The Cronbach's alpha was 0.892.

LMX quality scale was used the seven items suggested by previous studies [51]. It assesses the degree to which leaders and followers have mutual respect. A sample item is "My leader understands my job problems and needs very well." The Cronbach's alpha was 0.897.

## 4. Results

A correlational analysis was conducted to investigate the relationships among the measured variables. Means, standard deviations, and correlations among the variables were reported in Table 1. Employees' innovative behavior was significantly related to authentic leadership ( $r = 0.726$ ,  $p < 0.001$ ), LMX ( $r = 0.740$ ,  $p < 0.001$ ), and OLC ( $r = 0.534$ ,  $p < 0.001$ ). Additionally, we analyzed the scales' reliabilities to test that the study variables were suitable for hypothesis testing. All Cronbach's alpha coefficients exceeded 0.80, indicating the measures' strong reliability.

**Table 1.** Means, Standard Deviations, and Correlations Among the Study Variables.

Variables	Mean	SD	1	2	3	4	5	6	7	8
1 Gender	0.45	0.50	-							
2 Age	30.20	8.40	-0.087	-						
3 Tenure	6.31	6.41	-0.054	0.746 ***	-					
4 Education Level	15.59	1.86	-0.079	0.347 ***	0.319 ***	-				
5 AL	3.26	0.96	-0.0097	0.040	0.146 *	0.164 **	(0.951)			

Table 1. Cont.

Variables	Mean	SD	1	2	3	4	5	6	7	8
6 LMX	3.36	0.98	−0.044	0.109	0.181 **	0.103	0.821 ***	(0.897)		
7 OLC	3.65	0.84	−0.049	−0.014	0.050	0.073	0.371 ***	0.400 ***	(0.892)	
8 INNO	3.43	0.95	−0.025	0.094	0.142 *	0.099	0.726 ***	0.740 ***	0.534 ***	(0.941)

Note.  $n = 256$ . AL: authentic leadership; LMX: leader–member exchange; OLC: organizational learning culture; INNO: employees' innovative behavior; Cronbach's alpha ( $\alpha$ ) coefficients are reported in the parentheses. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

We also carried out a confirmatory factor analysis with the measures of the study variables to verify their factor structure and construct validity. We modeled four factors: authentic leadership, leader–member exchange, organizational learning culture, and employees' innovative behavior. As shown in Table 2, the four-factor model fit the data reasonably well ( $\chi^2 = 379.404$ ,  $df = 251$ , CFI = 0.977, TLI = 0.972, RMR = 0.045, RMSEA = 0.045). Additionally, Chi-square difference tests results indicate that the four-factor model fit the data significantly better than several alternative measurement models (Table 2). These results verified the discriminant validity among the measures was suitable. Further, the average variance extracted (AVE)—the variance size explained by the measured variables—was greater than 0.50, which is the reference value. Moreover, the construct reliability value exceeded 0.70. These results convergent validity and reliability of the constructs were suitable for the hypothesis test [52,53].

Table 2. Model Fit Statistics for Measurement Models.

Measurement Model	$\chi^2$ (df)	CFI	TLI	RMR	RMSEA	$\Delta\chi^2$ (df)
Theoretical four-factor model (AL, LMX, OLC, INNO)	379.404 (251)	0.977	0.972	0.045	0.045	
Three-factor model (AL, LMX and OLC, INNO)	573.263 (254)	0.943	0.932	0.070	0.070	193.859(3) ***
Two-factor model (AL and LMX and OLC, INNO)	955.051 (256)	0.874	0.853	0.097	0.103	575.647(5) ***
One-factor model	993.084 (257)	0.868	0.846	0.098	0.106	613.680(6) ***

Note. AL: authentic leadership; LMX: leader–member exchange; OLC: organizational learning culture; INNO: employees' innovative behavior. \*\*\*  $p < 0.001$ .

We carried out Hypotheses 1, 2, and 3 using hierarchical regression analysis (Table 3). We attempted to address the multicollinearity issue using a mean-centering method [54]. Therefore, we calculated the interaction terms after a mean-centering method. The maximum VIF value among the variables was 3.180, indicating no multicollinearity issues.

Table 3. Results of Hierarchical Regression Analysis.

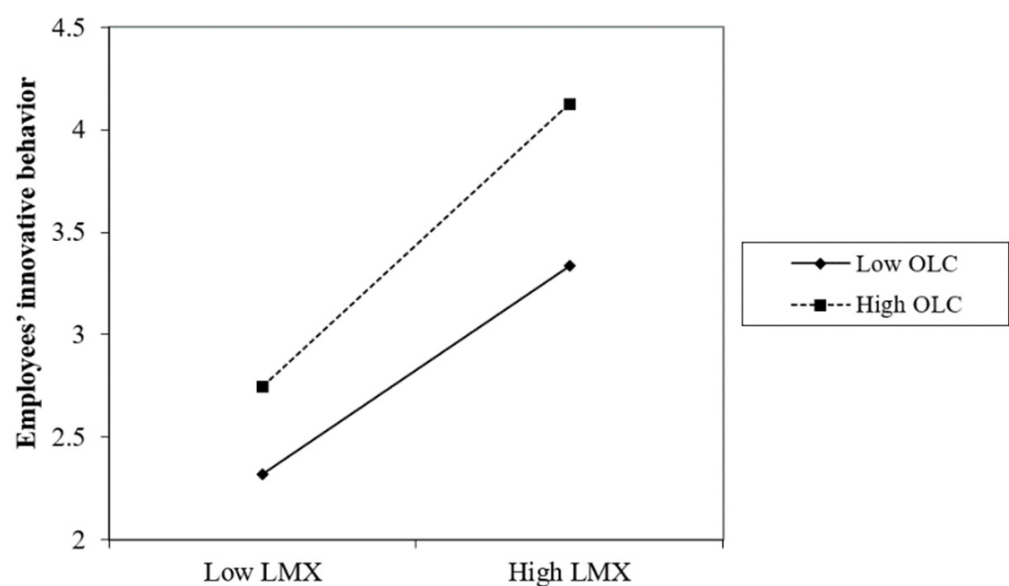
Variables	LMX			INNO			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Gender	−0.035	0.040	−0.016	0.050	0.010	0.034	0.028
Age	−0.075	0.092	−0.045	0.104	0.010	0.065	0.067
Tenure	0.216 *	0.014	0.155	−0.026	−0.005	−0.032	−0.043
Education level	0.058	−0.066	0.064	−0.045	0.022	−0.017	0.007
AL		0.830 ***		0.738 ***		0.384 ***	
LMX					0.738 ***	0.426 ***	0.631 ***
OLC							0.322 ***
LMX×OLC							0.111 **
R <sup>2</sup>	0.038	0.686	0.025	0.536	0.548	0.593	0.627
$\Delta R^2$		0.648 ***		0.511 ***	0.523 ***	0.057 ***	0.079 ***

Note.  $n = 256$ . Values reported are standardized regression coefficients. AL: authentic leadership; LMX: leader–member exchange; OLC: organizational learning culture; INNO: employees' innovative behavior. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

Supporting Hypothesis 1, we found authentic leadership to be positively related to employees' innovative behavior ( $\beta = 0.738$ ,  $p < 0.001$ ) in Model 4. Hypothesis 2 predicted that authentic leadership is positively related to innovation behavior via LMX. To test the mediating role of LMX, we followed the Baron and Kenny [55] procedure. First, we tested that authentic leadership has positively related to employees' innovative behavior through Hypothesis 1. Second, we found that authentic leadership was positively associated with LMX ( $\beta = 0.830$ ,  $p < 0.001$ ) in Model 2. Third, LMX was positively related to employees'

innovative behavior ( $\beta = 0.426, p < 0.001$ ) in Model 6, explaining significant additional variance in it ( $\Delta R^2 = 0.057, p < 0.001$ ). The effect of authentic leadership on employees' innovative behavior became weaker, but it was still significant ( $\beta = 0.384, p < 0.001$ ), suggesting partial mediation. To substantiate this result, we applied Preacher and Hayes' [56] test for an indirect effect, which utilizes the bootstrap method for more reliable estimates. The results indicate that the mediating role of LMX was significant (indirect effect = 0.3480, SE = 0.0669, 95% CI [0.2059, 0.4696]). Thus, Hypothesis 2 was supported.

We proposed the moderating role of OLC between LMX and employees' innovative behavior in Hypothesis 3. We found that the interaction term of LMX and OLC significantly predicted employees' innovative behavior ( $\beta = 0.111, p < 0.01$ ) in Model 7. As seen in Figure 2, there was a difference in the link between LMX and employees' innovative behavior depending on the degree of OLC. Thus, Hypothesis 3 was supported.



**Figure 2.** The Moderating Effect of OLC on the Relationship between LMX and Employees' Innovative Behavior.

To test the integrated mediated moderation model, we investigated whether the indirect effect of authentic leadership on employees' innovative behavior via LMX was moderated by OLC. The conditional indirect effect was tested by utilizing Hayes [57] PROCESS program.

We estimated the conditional indirect effect of authentic leadership on employees' innovative behavior via LMX for high (+1 SD) and low (−1 SD) levels of OLC using a bootstrap method (Table 4). The results indicated that the conditional indirect effect was significant with high levels of OLC (conditional indirect effect = 0.3571, SE = 0.0642, 95% CI [0.2255, 0.4770]), but the effect was weaker (albeit still significant) with low levels of OLC (conditional indirect effect = 0.2263, SE = 0.0633, 95% CI [0.0924, 0.3395]). Thus, Hypothesis 4 was supported.

**Table 4.** Mediated Moderation Results for Conditional Indirect Effect.

Org. Learning Culture	Boot Indirect Effect	Boot SE	95% of Confidence Intervals	
			Boot LLCI	Boot ULCI
<i>M</i> − 1 SD	0.2263	0.0633	0.0924	0.3395
<i>Mean</i>	0.2917	0.0587	0.1708	0.3996
<i>M</i> + 1 SD	0.3571	0.0642	0.2255	0.4770



## 5. Discussion and Implication

### 5.1. Theoretical Contributions

Our study investigated the link between authentic leadership and employees' innovative behavior, the mediating role of LMX in this relationship, and the moderating role of OLC in the relationship between LMX and innovative behavior among Korean individuals. The results showed that authentic leadership was positively related to employees' innovative behavior. OLC moderated the relationship between LMX and innovative behavior as well as the mediating effect of LMX in the relationship between authentic leadership and innovative behavior. We also found OLC to moderate the indirect effect LMX on the relationship between authentic leadership and innovative behavior. In sum, our findings on the positive relationship between authentic leadership and employee innovative behaviour is also congruent with the results of previous authentic leadership studies that show its positive effect for enhancing employees' job performance [3], in-role and extra-role performance [16], creativity [57] and team performance [15]. However, this study extended that previous research by confirming positive role of authentic leadership to innovative behaviour. Moreover, in contrast to the previous study, the results of current study uncovered an underlying mechanism and offered integrated picture linking authentic leadership and innovative behaviour of employees by identifying the mediated moderating role of organizational learning culture in the relationship.

These findings have several theoretical implications for the leadership and innovation literature.

First, our empirical analysis showed that authentic leadership is positively associated with LMX. Although positive forms of leadership have been examined in many previous empirical studies [20,36,58], but authentic leadership is a new, positive form of leadership enhancing employees' innovative behavior [9,10,59,60]. Authentic leadership entails role modeling and providing psychological capital, which influences employees to share responsibilities and make outstanding efforts toward innovative solutions. Second, our study's findings also indicated that LMX is an important variable for understanding the relationship between authentic leadership and innovative behavior. This study's results provide new knowledge about the association between authentic leadership and innovative behavior in South Korean workers, which may be due to LMX's provision of horizontal relationships between leaders and followers. Third, this study contributes to the prior research on organizational culture by suggesting OLC as a condition that interacts with LMX to promote innovative behavior. The results also showed that OLC's enhancement of the mediating role of LMX in the relationship between authentic leadership and innovative behavior. This study enhances our understanding of the significance of OLC as a situational variable. Moreover, we demonstrated the mediated moderation effect of OLC on employees' innovative behavior via LMX, extending prior research. These findings provide a holistic view of how authentic leadership promotes employees' innovative behavior in the Korean workplace.

These findings can be considered to be of great importance, in that they provide a possible explanation for how and in what condition, authentic leadership, which is emerging as an alternative leadership type in South Korea, has the potential to enhance innovation.

### 5.2. Managerial Implication

This study's results also have several practical implications. First, we demonstrated authentic leadership's positive effect on innovative behavior and LMX as a key factor explaining the relationship between these two variables. Organizations should develop various supporting strategies for promoting authentic leadership among managers and team leaders, thereby facilitating employees' innovative behavior. Organization managers need to know the importance of LMX for innovation. For instance, organization should provide proper training and education programs for employees to enhance the quality of LMX, fostering employees' innovative behavior. Third, the findings suggest the importance of an OLC for maximizing the benefits of LMX and authentic leadership, at least in Korean

companies. Thus, organizations must provide proper incentives and support systems that facilitate OLC at both the team and organizational levels, encouraging employees to share functional knowledge, develop intellectual capabilities, and amass professional experiences [39]; in turn, this enhances efforts toward innovation at the individual level. Furthermore, the present study suggested the understanding of the significance of authentic leadership as an important sustainable factor in evoking employees' positive behavior toward innovation. Our results indicate that policy makers in organization should be aware of the importance of a leader's authentic behavior on the follower's attitude and behavior to innovation, leading to the sustainable growth of the organization.

## 6. Limitations and Future Research

Despite these contributions, this study has several limitations. Thus, future study needs to consider the limitations of this study. First, data collection followed a cross-sectional design, which can present difficulties for identifying respondents' psychological states accurately. Given the time-dependent nature of innovative behavior and its relationships with LMX and OLC, future research should employ longitudinal designs. Additionally, our data had potential for common method bias because we used the self-report questionnaire [61]. To address this problem, we suggest that measuring at different times or dividing the source of measurement to solve the common method bias problem. Second, our research was conducted at the individual level because this study focused on how authentic leadership affects individuals' innovative behavior, which represents the starting point of innovation within organizations. However, leadership and innovation behavior are connected with group-level social-psychological constructs [58]. Therefore, future research should consider multi-level or team-level design to derive more practical insights. Finally, future studies should identify various mediating and moderating factors in the relationship between authentic leadership and innovation from psychological and learning-oriented perspectives. Although we investigated OLC as an important conditional variable, future studies should explore other mediators and moderators. Thus, future studies need to focus on various psychological factors in the relationship between authentic leadership and innovative behavior. For example, psychological capital, resilience, and satisfaction with supervisor could be considered as mediator. Since the impact on employees' innovative behavior may depend on organizational factors, specific types of organizational level climate, power distance and innovation supporting system may be considered as moderator.

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