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Research Article

Ambidextrous Leadership as an Antecedent of Ambidextrous Innovation: Mediating Roles of Psychological Safety and Job Autonomy

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ABSTRACT

The study explores the nexus between ambidextrous leadership and ambidextrous innovation (exploratory and exploitative innovation). The mediating role of psychological safety and job autonomy was assessed based on the leader-member exchange (LMX) and contingency theories. The researcher selected 684 private sector employees in Accra, Ghana. The research design employed in the study was time-lagged. Data on psychological safety and the components of ambidextrous innovation were collected at T1, and data on ambidextrous leadership and job autonomy were collected at T2. The responses were analyzed using JASP software, applying Bootstrap resampling with 10,000 replications. The results indicate that psychological safety and job autonomy mediate the significant positive relationship between ambidextrous leadership and the two components of ambidextrous innovation. The present study exclusively focused on private-sector employees. Future research should also include public sector employees to help generalize the results. To encourage ambidextrous innovation, management should cultivate an environmental context where employees feel safe to take interpersonal risks and have autonomy in decision-making related to their job responsibilities. This study undertook a comprehensive examination of the two components of innovation, an aspect that previous studies have often overlooked. Moreover, the study expands the scope by considering psychological safety and job autonomy as mediating factors in the relationship under investigation.

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Introduction

Private companies thrive on their capacity to generate both novel ideas and refined solutions to maintain a competitive edge in dynamic markets (Zahoor et al., 2023). To adapt to changing market demands or

consolidate their market position, these organizations depend heavily on the innovative capacities of their workforce (Berraies & Zine El Abidine, 2019). This highlights the crucial role of leadership in fostering innovation within teams. Ambidextrous leadership (AL) has emerged as a critical concept in organizational studies, emphasizing the need for leaders to balance the exploration of new opportunities with the exploitation of existing resources to drive innovation (Rosing & Zacher, 2017).

Ambidextrous innovation (AI) highlights the concurrent necessity of exploratory innovation (ERI), which involves generating new knowledge, products, or markets, and exploitative innovation (ETI), which focuses on enhancing and optimizing existing systems and capabilities (Slåtten et al., 2023). Organizations that effectively combine these two dimensions gain a distinct competitive advantage, ensuring both short-term performance and long-term sustainability (Wan et al., 2024). Leaders who exhibit ambidextrous qualities play a pivotal role in achieving this balance, enabling employees to engage in behaviors that foster both exploration and exploitation (Zahoor et al., 2023). Consequently, ambidextrous leadership is regarded as a strategic predictor of organizational innovation (Rosing & Zacher, 2017).

While the impact of ambidextrous leadership on innovation has been acknowledged, most studies have narrowly focused on innovation as a singular construct, often neglecting the complex relationship between leadership and the dual aspects of AI (El-Gazar et al., 2024; Wiedemann et al., 2023). Additionally, existing literature predominantly examines the direct influence of leadership, with limited attention given to the mediating mechanisms that bridge the gap between ambidextrous leadership and its impact on AI. Psychological safety (PS) and job autonomy (JA) have been identified as essential contextual factors that facilitate employee innovation by fostering an environment of trust and independence, yet their mediating roles in the relationship between AL and AI remain underexplored (Berraies et al., 2020).

This study seeks to address these gaps by investigating how AL drives AI, specifically ERI and ETI, through the mediating roles of PS and JA. Unlike previous studies that primarily focus on traditional leadership styles, this research adopts a refined perspective that emphasizes the dual nature of innovation and the contextual mechanisms that underpin it. By exploring these mediating factors, this study provides a deeper theoretical understanding of the leadership-innovation nexus, offering actionable insights for organizations striving to achieve sustained competitiveness through balanced innovation strategies.

Literature Review

Ambidextrous leadership (AL) and ambidextrous innovation (AI)

Ambidextrous innovation (AI) represents an organization's capability to balance and integrate exploratory innovation (ERI) and exploitative innovation (ETI) (Zacher et al., 2016). ERI focuses on generating and experimenting with novel ideas, often resulting in radical breakthroughs and the creation of entirely new markets, products, or services. This type of innovation thrives in environments that encourage creativity, risk-taking, and the exploration of uncharted territories (Slåtten et al., 2023). Conversely, ETI emphasizes incremental improvements to existing offerings, processes, and systems, leveraging established resources and expertise to enhance efficiency and maintain a competitive edge (El-Gazar et al., 2024). Achieving AI requires an organization to simultaneously foster these dual innovation behaviors, which can be inherently conflicting (Jiang et al., 2023).

Ambidextrous leadership (AL) has emerged as a critical driver of AI by enabling organizations to navigate the competing demands of ERI and ETI (Dietl et al., 2023). AL encompasses leadership behaviors that promote both exploration and exploitation, allowing firms to achieve a dynamic balance between the two (Rosing & Zacher, 2017). Opening leadership behaviors, such as encouraging experimentation, fostering autonomy, and challenging the status quo, are particularly conducive to ERI. They inspire employees to engage

in creative thinking and risk-taking, driving breakthrough innovations (Jiang et al., 2023; Wan et al., 2024). In contrast, closing leadership behaviors emphasize control, goal clarity, and efficiency, which align with the objectives of ETI. By providing structure and ensuring adherence to processes, closing leadership behaviors facilitate incremental improvements and resource optimization (Wiedemann et al., 2023).

The relationship between these leadership behaviors reflects the essence of ambidexterity, where leaders skillfully switch between fostering exploration and exploitation based on situational demands (Pradhan & Jena, 2019). Empirical studies have shown that organizations led by ambidextrous leaders are better positioned to achieve sustainable growth and competitive advantage (Slåtten et al., 2023). Leaders who adopt an ambidextrous approach create an environment where teams can pursue ERI and ETI concurrently, ensuring long-term innovation success. They empower employees to explore new opportunities while maintaining focus on refining existing processes to optimize performance (Feng et al., 2023).

Building on this understanding, this study hypothesizes the following:

H1: AL is positively associated with ERI.

H2: AL is positively associated with ETI.

The mediating effect of psychological safety and job autonomy

Psychological safety (PS) is defined as employees' perception of a work environment where they can freely express their thoughts, take risks, and innovate without fear of negative consequences such as humiliation or punishment (Edmondson, 1999; Jha, 2019). PS is essential in fostering trust and collaboration within teams, enabling employees to engage confidently in tasks that involve creativity and problem-solving (Khan et al., 2023). Leaders play a crucial role in establishing psychological safety by creating a supportive atmosphere where employees feel valued and respected, encouraging openness and engagement (Elsayed, 2023).

In the context of ambidextrous leadership (AL), which emphasizes balancing exploration (exploratory innovation) and exploitation (exploitative innovation), psychological safety serves as a critical predictor of innovation. When employees perceive PS, they are more willing to experiment, voice ideas, and explore uncharted territories, thereby driving exploratory innovation (Dietl et al., 2023). Similarly, a safe environment fosters collaboration and refinement of existing processes, enhancing exploitative innovation by enabling employees to build upon established knowledge without fear of failure (Mogård et al., 2023). High-quality leader-member exchange (LMX) relationships further strengthen this relationship, as trust and support from leaders enhance employees' willingness to embrace risks and innovate in both exploratory and exploitative domains (Graen & Uhl-Bien, 1995; Kim et al., 2020).

Drawing from LMX theory and empirical evidence, it can be posited that psychological safety mediates the relationship between ambidextrous leadership and ambidextrous innovation. Specifically, ambidextrous leaders cultivate psychological safety, which in turn facilitates both exploratory and exploitative innovation. Therefore, the following hypotheses are proposed:

H3: PS mediates the relationship between AL and ERI.

H4: PS mediates the relationship between AL and ETI.

Job autonomy (JA) also refers to the level of discretion and independence that employees have in making decisions and carrying out their job tasks (Yang et al., 2023). It reflects the extent to which employees can control how and when they perform their work. The perception of autonomy may differ across roles, teams, and organizations, with some jobs requiring greater independence while others necessitate more structured supervision (Albritton et al., 2019). Organizations that promote high levels of JA tend to experience a range of positive outcomes, including increased employee motivation, innovation, and responsiveness to changes

(Suhandiah et al., 2023). Empowering employees to make decisions and take ownership of their roles has been shown to stimulate creativity and foster an innovative mindset (Liu et al., 2019). When employees are granted the freedom to explore new ideas and methods, they are more likely to demonstrate innovative behaviors (Albritton et al., 2019).

In the context of ambidextrous leadership (AL), which involves balancing exploratory and exploitative innovation, JA plays a crucial mediating role. The Contingency Theory (Fiedler, 1993) suggests that the relationship between leadership styles and innovation outcomes is contingent upon specific situational factors. In this case, JA serves as a key factor influencing how ambidextrous leadership impacts both exploratory and exploitative innovation (Liu et al., 2019). When employees are granted higher levels of autonomy, they are more inclined to engage in exploratory activities, such as generating new ideas and experimenting with innovative solutions, without waiting for explicit directions from their leaders (Frare & Beuren, 2021). Furthermore, autonomy enables employees to respond quickly to emerging challenges and opportunities, especially in dynamic environments, by allowing them the flexibility to make decisions without being constrained by rigid organizational structures (Garg & Dhar, 2017). This suggests that JA can enhance the positive effects of ambidextrous leadership on both exploratory and exploitative innovation. Therefore, the following hypotheses are proposed:

H5: JA mediates the relationship between AL and ERI.

H6: JA mediates the relationship between AL and ETI.

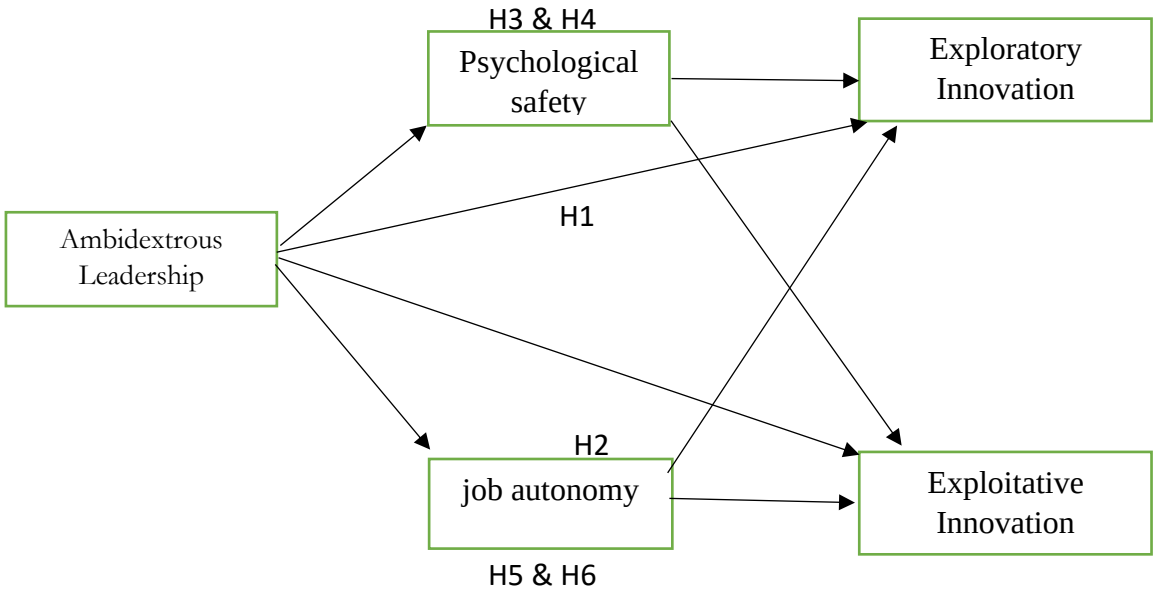

Figure 1: *Hypothesized framework*

Methodology

Research design

The study employed a quantitative survey to investigate how PS and JA elucidate the relationship between AL and AI. Utilizing the time-lagged survey approach, data on AL and JA (T2) were collected three weeks after gathering information on PS and the components of AI (T1) from the same participants. This method was used since data were gathered at multiple time points from the same respondents.

A two-step sampling approach was utilized to gather data from employees working in the private sector in Accra, Ghana. In the first stage, 50 private sector organizations were selected using the cluster sampling technique, with the employees within these organizations forming the sample frame. Subsequently, 800 respondents were selected from this sample frame using the convenience sampling technique. The selection of these 800 respondents was determined using the Raosoft online calculator, taking into account factors such as the margin of error (5%), confidence interval (95%), population size (25,000), and response distribution (50%)

Through collaboration with administration departments, 800 questionnaires were disseminated via QuestionnairePro across various departments. Initially, questionnaires assessing PS and AI components (T1) were distributed, yielding 738 responses. Three weeks later (T2), questionnaires on AL and JA were collected from the 738 respondents obtained in T1, resulting in a total response rate of 684 respondents, representing an 85.5% response rate. Response codes were employed to accurately identify individual responses.

Among the responses, the majority (60.5%) were female, with a mean age of 37.02 years. With regard to educational attainment, 29.9% held bachelor's degrees, 28.4% possessed diploma degrees, 17.5% held postgraduate qualifications, 16.8% had certificates, and 8.3% possessed SSS certificates. In terms of tenure of work, 64.2% had been working in the organization for more than 10 years. Table 1 provides the details of the respondents.

Table 1: *Characteristics of the respondents (n=684)*

Variable	Frequency	Percent
Gender		
• **Females**	414	60.5
• **Males**	270	39.5
Age		
• **At most 20 years**	125	18.3
• **21 – 30 years**	232	33.9
• **31 – 40 years**	141	20.6
• **41 – 50 years**	109	15.9
• **Above 50 years**	77	11.3
Educational Attainment		
• **SSS and below**	57	8.3
• **Diploma**	194	28.4
• **Professional Certificate**	115	16.8
• **Degree**	198	28.9
• **Postgraduate**	120	17.5
Work Tenure		
• **More than 10 years**	439	64.2
• **At most 10 years**	245	35.8

Measures

All essential variables were evaluated on five-point responses, where values from 1 to 5 were assigned. These values represented responses ranging from "strongly agree" to "strongly disagree." Ambidextrous leadership (AL) was measured using an adapted 14-item scale by Rosing and Zacher (2017). A sample of an item is "My manager allows different ways of accomplishing a task." The Cronbach's α of the AL Scale is 0.86 (Ahmad et al., 2022). To assess AI, the study used the 6-item measure by Jansen et al. (2006) was used. Out of the 6 items, three each measured ERI and ETI. An item on ERI is "Our company is in the process of launching

a new generation of products or services," and an item on ETI is "Our company is enhancing the quality of existing products or services." A seven-item scale, originally designed by Edmondson and Lei (2014) was employed to assess PS. Sample include: "I feel free to admit my mistakes or ask for help without fearing negative consequences." This scale demonstrated a reliability of 0.91 (Hoshina et al., 2021). In assessing job autonomy, a nine-item scale created by Breaugh (1990) was utilized. An example item from this scale is: "I am free to choose the methods to use in carrying out my work". The scale demonstrated a Cronbach's α of 0.89 in this study. Following prior studies (e.g., Ahmad et al., 2022; Suhandiah et al., 2023), certain variables were controlled. These variables included gender, age, educational attainment and tenure of work.

Analysis

The data analysis process was conducted in two stages. Initially, data entry was performed, including checks for validity, reliability, and an evaluation of data normality. The model's goodness of fit was assessed using various indices, such as the chi-square value and the Goodness of Fit Index (GFI). Following this, JASP software with Bootstrap resampling (10,000 replications) was used to evaluate the direct and indirect effects of the variables.

Results and Discussion

Psychometric Properties Assessment

Items were systematically analyzed to identify and remove items that failed to enhance the internal reliability of the measures (Mahembe & Engelbrecht, 2013). During the inter-item reliability assessment, it was noted that each item produced a total-item correlation coefficient greater than 0.3 (Pallant, 2013). Thus, none of the items were excluded in subsequent analysis. As shown in Table 2, all the reliability values surpassed the prescribed cut-off value of 0.70, exhibiting a satisfactory internal consistency coefficient (Pallant, 2013).

Table 2: Reliability and item analyzed

Construct	The number of items in the construct	Number of items retained	Item deleted	Cronbach Alpha
AL	14	14	0	.96
PS	7	7	0	.81
JA	9	9	0	.96
ERI	4	4	0	.79
ETI	4	4	0	.76

Assessment of CFA

The CFA of the constructs was conducted, with the results presented in Table 3. Table 3 displays results from the confirmatory factor analysis assessing the construct validity of the scales as utilized in this study. Following the guidelines proposed by Anderson and Gerbing (1988), the scales were scrutinized using JASP. The five-factor model was compared with the alternative factors to confirm the discriminant validity (Pradhan & Jena, 2019). As shown in Table 3, the hypothesized five-factor model (AL, PS, JA, ERI, and ETI) exhibited a favorable fit with the dataset ($\chi 2/df = 2.69$, RMSEA = 0.05, TLI = 0.93, GFI = 0.94, CFI = 0.94, RFI = 0.90, $p < 0.01$). The proposed five-factor model remains distinct from both the four-factor ($\chi 2/df = 2.69$, RMSEA = 0.04, TLI = 0.94, GFI = 0.93, CFI = 0.94, RFI = 0.91, $p < 0.01$) and three-factor models ($\chi 2/df = 4.55$, RMSEA = 0.07, TLI = 0.86, GFI = 0.87, CFI = 0.87, RFI = 0.83, $p < 0.01$). The hypothesized model also shows a strong fit when compared to alternative models.

Table 3*. Confirmatory Factor Analysis testing the distinctiveness of the variables*

Model		χ^2	Df	χ^2/df	RMSEA	TLI	GFI	CFI	RFI
(1)	Five-factor model	1763.48	655	2.69	0.05	0.93	0.94	0.94	0.90
(2)	Four-factor model	1775.49	659	2.69	0.04	0.94	0.93	0.94	0.91
(3)	Three-factor model	3017.17	662	4.55	0.07	0.86	0.87	0.87	0.83
(a)	AL and ERI	1007.21	135	7.46	0.09	0.88	0.936	0.89	0.86
(b)	AL and ETI	858.82	135	6.36	0.08	0.90	0.95	0.91	0.88
(c)	AL and PS	1471.34	189	7.78	0.10	0.83	0.92	0.85	0.82
(d)	AL and JA	6024.44	230	24.16	0.19	0.55	0.73	0.87	0.54
(e)	PS and JA	913.51	104	8.78	0.11	0.88	0.94	0.89	0.87
(f)	PS and ERI	622.83	44	14.15	0.14	0.67	0.94	0.74	0.66
(g)	PS and ETI	565.62	44	12.86	0.13	0.70	0.95	0.76	0.68
(h)	JA and ERI	681.69	65	10.49	0.12	0.89	0.94	0.91	0.89
(i)	JA and ETI	580.84	65	8.93	0.11	0.91	0.92	0.93	0.91
(j)	ERI and ETI	94.47	20	4.72	0.07	0.94	0.99	0.96	0.93
(3)	One factor model	9258.97	665	13.92	0.14	0.50	0.50	0.53	0.48

Notes: CFI, comparative-fit-index; GFI, goodness-of-fit index; TLI, Tucker-Lewis statistics; RFI. Relative Fit Index

Additionally, each item showed a significant loading on its respective construct, confirming the convergent validity within these constructs. To evaluate the potential influence of common method variance, a single-factor analysis was performed. The results revealed a poor fit for the single-factor model ($\chi 2/df = 13.92$, RMSEA = 0.14, TLI = 0.50, GFI = 0.50, CFI = 0.53, RFI = 0.48), indicating the distinctiveness of the constructs and reinforcing their strong discriminant validity.

Descriptions and intercorrelations among the variables

In this study, descriptive statistics encompassing means, standard deviations, and intercorrelations between constructs were conducted.

Table 4. Description and intercorrelations among the variables

	Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1.	Gender	1								
2.	Age	0.01	1							
3.	Educational Status	0.04	-001	1						
4.	Work Tenure	-0.07	0.04	0.12**	1					
5.	AL	0.03	-0.05	0.13**	0.03	1				
6.	PS	0.03	0.07	0.25**	0.05	0.37**	1		-	
7.	JA	0.02	0.02	0.34**	0.09	0.39**	0.58**	1		
8.	ERI	0.06	-0.01	0.32**	0.04	0.35**	0.42**	0.48**	1	
9.	ETI	0.01	-0.04	0.35**	0.08	0.36**	0.46**	0.51**	0.73**	1
	Mean	2.01	29.32	3.26	1.61	17.85	32.05	31.21	8.56	9.08
	SD	0.81	7.53	1.29	0.48	5.22	9.15	12.12	3.12	3.07
	Skewness	-0.01	0.09	-0.10	-0.43	-0.01	-0.24	-0.04	0.43	0.29
	Kurtosis	-1.49	-1.05	-1.19	-1.82	-1.02	-1.58	-1.29	-0.79	-1.01

As depicted in Table 4, apart from educational status, which exhibited a significant positive correlation with all the primary variables, all the remaining demographic variables displayed an insignificant correlation with the main variables. Concerning the primary variables used to test the hypotheses, AL demonstrates a

significant correlation with PS (r = 0.37), JA (r = 0.39), ERI (r = 0.35), and ETI (r = 0.36). PS also exhibits significant correlations with JA (r = 0.58), ERI (r = 0.42), and ETI (r = 0.46). JA displays significant correlations with ERI (r = 0.48) and ETI (r = 0.51). Furthermore, a significantly positive relationship is observed between ERI and ETI (r = 0.75). The data were normally distributed as the values of the skewness and kurtosis were within -2 to +2 (Mahembe & Engelbrecht, 2013).

Testing the Hypotheses

Table 5. Direct effect of ambidextrous leadership (AL) on ambidextrous innovation (AI)

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
AL	→	ERI	0.013	0.003	4.333	< .001	0.006	0.019
AL	→	ETI	0.013	0.003	4.682	< .001	0.007	0.019

Note. Al, Ambidextrous leadership, ERI, Exploratory Leadership; ETI. Exploitative Leadership.

Table 6. Indirect effect of PS and JA on the relationship between AL and AITop of Form

									95% Confidence Interval	
					Estimate	Std. Error	z-value	p	Lower	Upper
AL	→	PS	→	ERI	0.005	0.001	3.959	< .001	0.002	0.008
AL	→	JA	→	ERI	0.010	0.002	6.409	< .001	0.007	0.014
AL	→	PS	→	ETI	0.006	0.001	4.677	< .001	0.004	0.009
AL	→	JA	→	ETI	0.011	0.002	6.653	< .001	0.007	0.015

Note. AL, Ambidextrous leadership, PS, Psychological safety, JA, Job autonomy, ERI, Exploratory Leadership; ETI. Exploitative Leadership

Table 7. Total effect of AL on AL and the components of AITop of Form

						95% Confidence Interval	
			Estimate	Std. Error	z-value	P	Lower	Upper
AL	→	ERI	0.029	0.003	9.647	< .001	0.023	0.034
AL	→	ETI	0.030	0.003	10.383	< .001	0.024	0.036

Note. Al, Ambidextrous leadership, ERI, Exploratory Leadership; ETI. Exploitative Leadership

Table 8. Path coefficients of AL on AL and the components of AITop of Form

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
PS	→	ERI	0.173	0.041	4.275	< .001	0.077	0.255
JA	→	ERI	0.320	0.041	7.827	< .001	0.238	0.411
AL	→	ERI	0.013	0.003	4.333	< .001	0.005	0.019
PS	→	ETI	0.206	0.039	5.225	< .001	0.121	0.290
JA	→	ETI	0.329	0.040	8.284	< .001	0.237	0.413
AL	→	ETI	0.013	0.003	4.682	< .001	0.007	0.021
AL	→	PS	0.031	0.003	10.489	< .001	0.025	0.036
AL	→	JA	0.032	0.003	11.165	< .001	0.027	0.038

Note. AL, Ambidextrous leadership, PS, Psychological safety, JA, Job autonomy, ERI, Exploratory Leadership; ETI, Exploitative Leadership

As depicted in Table 5, there is a significant positive direct impact of AL on ERI, with AL explaining 1.3% of the variance in exploratory ERI (b = 0.013, z = 4.33). The bootstrap with 10,000 resampling was utilized to confirm the significance of this relationship and the findings did not include zero. This confirms that the effect of AL on ERI is significant (CI = 0.019, CI = 0.061). Thus, the statistical analysis supports H1.

Furthermore, there exists a positive direct effect of AL on ETI (Z = 4.68, p < 0.001), with AL predicting 1.3% of the variance in explaining ETI (b = 0.013). The bootstrap method with 10,000 replications also did not include zero (CI = 0.021, CI = 0.063). Hence, the second prediction is also affirmed by the results of the statistical analysis.

The indirect effects of PS in the linkage between AL and ERI (z = 3.959) and AL and ETI (z = 4.677) are significant. The amount of variance explained by AL on ERI (b = 0.005) and ETI (b = 0.006) remained significant when PS was added to the model, indicating a partial mediation. The results obtained from the bootstrap analysis reveal that the mediating role of PS does not include zero when assessing the linkage between AL and ERI (CI = 0.002, CI = 0.008) and AL and ETI (CI = 0.04, CI = 0.009). The findings thus provide support for H3 and H4.

Furthermore, there was an observed indirect effect of JA on the relationship between AL and ERI (z = 6.409) and AL and ETI (z = 6.653). Critically assessing the result, the amount of variance accounted for by AL on ERI (b = 0.010) and ETI (b = 0.011) remained significant when JA was added to the model, indicating partial mediation. The results of the bootstrap analysis demonstrate that the mediating role of JA in the direct effect of AL on ERI (CI = 0.007, CI = 0.014) and AL on ETI (CI = 0.007, CI = 0.015) did not include zero. Thus, the findings offer statistical support for H5 and H6

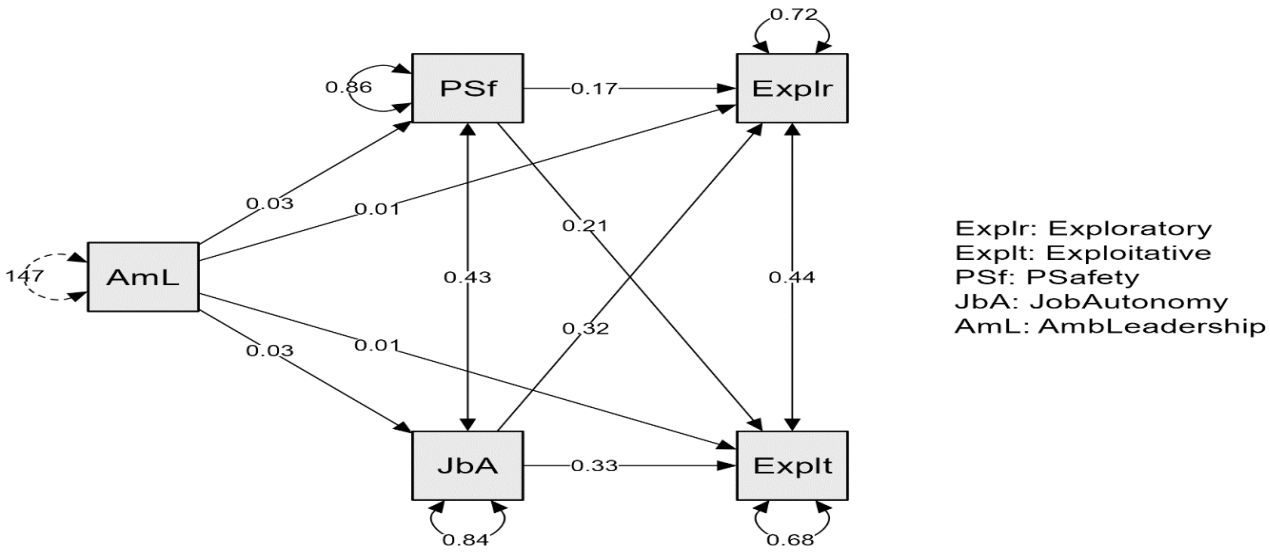

Figure 1: Path plot of the mediation model generated by JASP

Discussion

This study explored the impact of AL on ambidextrous innovation (AI), focusing on both ERI and ETI. The results revealed that AL positively influenced both dimensions of innovation, suggesting that leaders who can balance the exploration of new opportunities with the optimization of existing processes are better positioned to foster innovation. This supports previous studies that emphasize the critical role of leadership in driving innovation within organizations (Frare & Beuren, 2021; Wan et al., 2024). Furthermore, the study examined the mediating roles of JA and PS in the relationship between AL and AI. Both JA and PS were found

to be crucial mediators, with JA partially mediating the relationship by empowering employees to engage in both ERI and ETI. By giving employees, the freedom to make decisions and explore ideas independently, ambidextrous leaders encourage creativity and innovation, aligning with previous research that highlights the importance of autonomy in fostering innovative behavior (Ahmad et al., 2022; Slåtten et al., 2023).

In addition, PS emerged as a significant mediator between AL and AI, with leaders who foster an environment of trust and support enabling employees to express innovative ideas and take risks without fear of failure. This safety is vital for promoting both ERI and ETI, as it allows employees to feel secure in their efforts to innovate. These findings are consistent with prior research that underscores the role of PS in nurturing creativity and innovation (Feng et al., 2023). Together, the study highlights the importance of ambidextrous leadership in fostering both JA and PS to create a conducive environment for innovation. By empowering employees and ensuring a psychologically safe space, AL can effectively support both exploratory and exploitative innovation, ultimately driving organizational success and competitiveness.

Conclusion

The study aimed to investigate the relationship between ambidextrous leadership (AL) and ambidextrous innovation (exploratory innovation and exploitative innovation). Drawing upon the leader-member exchange (LMX) and contingency theories, the research assessed the mediating roles of psychological safety and job autonomy in the relationships between AL and the components of ambidextrous innovation. Findings indicated that PS and JA partially mediate the positive relationship between AL and AI (ERI and ETI). These findings suggest that fostering a work environment where employees feel psychologically safe and have autonomy in their job responsibilities can enhance the impact of AL on both ERI and ETI within an organization. Therefore, organizations should not only focus on developing ambidextrous leadership capabilities but also on nurturing psychological safety and providing job autonomy to their employees. This holistic approach can contribute to creating a conducive environment for innovation and driving organizational success.

Theoretical Implications

This study makes several important theoretical contributions to the literature on leadership, innovation, and organizational behavior. First, it extends the application of LMX theory in the context of ambidextrous leadership and innovation. While LMX has traditionally focused on how the quality of leader-follower relationships influences job outcomes and performance (Graen & Uhl-Bien, 1995), this study expands its scope by linking high-quality LMX relationships to both PS and JA, which in turn foster ambidextrous innovation. Specifically, the study reveals that leaders who cultivate trust and open communication with their followers create a safe and empowering environment that encourages both ERI (the generation of new ideas) and ETI (the refinement and implementation of existing ideas). These findings challenge existing applications of LMX by emphasizing the indirect impact of leader-member relationships on innovation outcomes, showing that the quality of these relationships is crucial for nurturing the conditions necessary for both types of innovation (Liu et al., 2019; Yang et al., 2023).

Second, this study provides a significant extension to Contingency Theory (Fiedler, 1993) by demonstrating how job autonomy and psychological safety mediate the relationship between ambidextrous leadership and innovation outcomes. Contingency Theory posits that the effectiveness of leadership depends on situational factors, yet its application to the mechanisms by which leadership influences innovation has been limited. By focusing on the PS and JA dimensions, this study suggests that the leadership style's impact on innovation is contingent not only on the context but also on how the leader facilitates an environment that supports these key factors. These findings challenge and expand Contingency Theory by introducing PS and JA as crucial situational elements that influence innovation outcomes, thus providing a more nuanced

understanding of how leadership behavior affects creativity and performance in complex organizational settings (Suhandiah et al., 2023; Garg & Dhar, 2017).

Practical Implications

The study has numerous practical implications. First, there is a need for leadership development programs that cultivate AL skills. This includes training leaders to balance exploration and exploitation effectively, fostering a dynamic and innovative organizational environment. Organizations can provide training programs on innovation processes, emphasizing the importance of both exploratory and exploitative approaches. This ensures that employees understand how their roles contribute to the overall innovation strategy. Secondly, leaders should strategically allocate resources to support both exploratory and exploitative initiatives. This involves budgeting, staffing, and time allocation that align with the organization's innovation goals. A balanced resource approach ensures that both dimensions of innovation receive the necessary support. Thirdly, creating a psychologically safe work environment should be a priority. Organizations can implement strategies to enhance open communication, encourage risk-taking, and learn from failures. This fosters an atmosphere where employees feel safe to express ideas, contributing to a conducive environment for innovation. Lastly, recognizing the importance of job autonomy, organizations can empower employees by providing them with the freedom and flexibility to engage in both exploratory and exploitative activities. This autonomy fosters a culture of creativity, risk-taking, and continuous learning.

Limitation and Future Direction

While this study provides valuable insights into the mediating roles of PS and JA in the relationship between AL and AI, several limitations must be acknowledged. The study's focus was restricted to PS and JA as the only mediators, potentially overlooking other critical variables that could influence this relationship. Future research should consider incorporating additional mediating factors, such as organizational culture, team composition, and employee engagement, which may provide a more nuanced understanding of how AL fosters both ERI and ETI. For instance, the role of organizational culture in supporting innovation and creativity could be further explored to examine how it interacts with leadership to shape innovation outcomes.

Another limitation is the study's focus on employees within the private sector, which restricts the generalizability of its findings to other sectors, particularly the public sector. Differences in organizational structures, cultural norms, and leadership styles between the private and public sectors may influence how AL impacts innovation. Future research could broaden the scope by including both private and public sector employees in the sample to assess whether the relationship between AL and AI holds across different organizational contexts. By comparing results across sectors, researchers could uncover sector-specific dynamics that may affect the effectiveness of AL in fostering ERI and ETI, further enhancing the external validity of the findings.

In terms of future research methodologies, it would be valuable to replicate this study using longitudinal designs to examine how AL, PS, and JA influence AI over time. This would help determine whether the effects of AL on innovation are sustained and how they evolve in response to organizational changes. Additionally, researchers could explore cross-cultural studies to understand how leadership styles and innovation behaviors are shaped by different cultural contexts. Incorporating qualitative methods, such as in-depth interviews or case studies, could also provide rich, contextual insights into how AL operates in various industries and environments. These future studies would offer a more comprehensive understanding of the complex nexus between leadership, autonomy, psychological safety, and innovation.

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