

The Role of Ambidextrous Leadership Behavior in Hancing Innovation Behavior: The Mediating Role of Organizational Loyalty

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Abstract: The research aimed to find the relationship between the independent variable, Ambidextrous leadership, with its dimensions (closed leadership behaviors, open leadership behaviors), and the dependent variable, innovation behavior, with its dimensions (idea generation, idea promotion, idea implementation), mediated by the variable, organizational loyalty, with its dimensions (emotional loyalty, moral loyalty, and continuous loyalty). In a sample of Karbala Education Directorate employees, what is the link between talented leadership and creative conduct on average and organizational loyalty? The research's results, based on 155 responses from the study population of 260 employees' thoughts on a five-point Likert scale questionnaire, showed its value. Using SPSS, descriptive statistical approaches like arithmetic mean and standard deviation and analytical statistical methods like linear regression and correlation coefficient were applied. The most important result from the Sobel test was that organizational loyalty strengthened the association between talented leadership and creative conduct. The most important recommendation was encouraging communication and dialogue, activating idea generation, delegating authority, supporting continuous learning, and adopting flexible work systems.

Key words: Ambidextrous leadership, innovation behavior, organizational loyalty / Director of Education, Karbala.



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Introduction:

Ambidextrous leadership works to enhance and develop innovative behavior in the researched organization, especially when the mediator is organizational loyalty, which is what most organizations need in a rapidly evolving environment due to communication technologies. In this context and the concepts presented, the central hypothesis of the research was the existence of a significant impact of Ambidextrous leadership on innovation behavior. The descriptive analytical approach was used, and the research community and sample consisted of the functional cadres in the Karbala Education Directorate, with a sample of 155 respondents, out of a population of 260. The most important conclusion after conducting the analysis was that there is a strong influence

relationship between Ambidextrous leadership and innovation behavior, mediated by organizational loyalty. The recommendation was to focus on enhancing organizational loyalty due to its significant role in supporting Ambidextrous leadership to enhance innovation behavior. Four key research sections existed. First, the technique, then a literature analysis on the key research variables and their sub-dimensions, and finally the outcomes. The fourth portion assessed the results and suggestions in light of statistical analysis to finish the research.

1- Methodology

The study lays out the issue, aims, relevance, technique, and resources needed to gather data, analyze it, and process the results statistically.

1-1- The problem:

The problem is revealed through questions about the relationship between Ambidextrous leadership and innovation behavior mediated by organizational loyalty. Ambidextrous leadership plays a significant role in influencing organizational loyalty. To clarify the problem, we pose the following questions:

1. What is the relationship of influence between Ambidextrous leadership and innovation behavior?
2. What is the correlation between Ambidextrous leadership and innovation behavior?
3. What are the expected results of this relationship?
4. What is the effect of organizational loyalty as a mediating variable?
5. Does the research sample clearly understand the concept of Ambidextrous leadership?

1-2- Objectives.

The objectives are as follows:

- 1- Adding knowledge to the academic library.
- 2- Verifying the extent of the impact of Ambidextrous leadership on innovation behavior.
- 3- Determining the relationship between Ambidextrous leadership and organizational loyalty.
- 4- The research results are a means of enhancing innovation behavior.

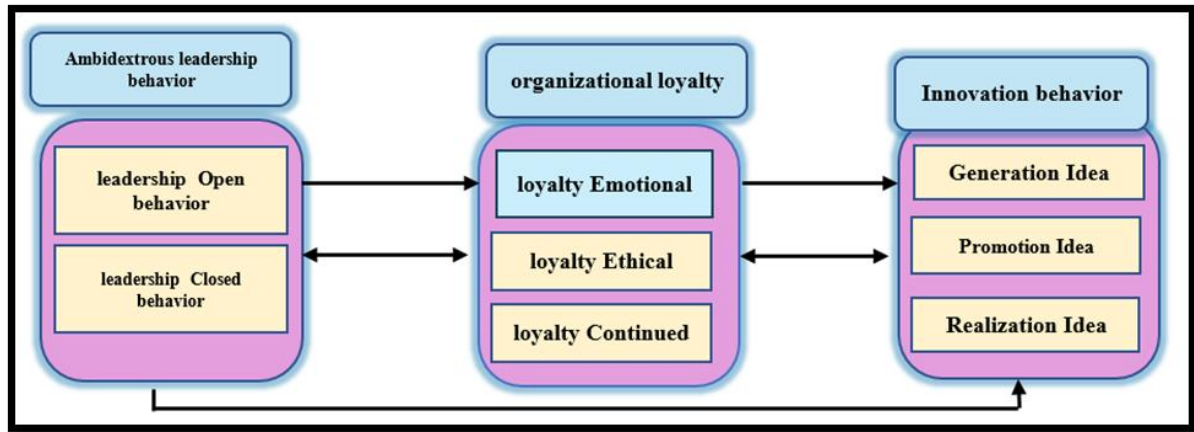
1-3- Importance:

Importance can be explained as follows:

1. A conceptual, intellectual, and practical presentation of the reality of the variables (Ambidextrous leadership, innovation behavior, organizational loyalty).
2. The organization under study actively adopts the concept of Ambidextrous leadership through the conclusions reached.
3. The logical interconnectedness of the variables is of exceptional importance for organizations to achieve a competitive advantage.

1-4- The Hypothetical Model:

Represents the logical relationships that clarify the picture of the reality within which the variables operate.



"Figure 1: Hypothetical model of the research"

The researcher used scientific sources.

1-5- Research Hypotheses.

Based on the title, we can formulate the hypotheses as follows:

1. Ambidextrous leadership behavior has a direct, "statistically significant effect" on organizational loyalty in the studied directorate.
2. Organizational loyalty has a direct, "statistically significant effect" on employee innovation behavior in the studied directorate.
3. Ambidextrous leadership behavior has a direct, "statistically significant effect" on innovation behavior in the studied directorate.
4. Ambidextrous leadership behavior has an indirect, "statistically significant effect" on innovation behavior through organizational loyalty in the studied directorate.

1-6- Research Methodology:

The theoretical framework and investigation of the research variables' relationships and directions of impact were carried out using a descriptive/analytical methodology.

1-7- Study Population and Sample

Appropriate selection of the study location and population is crucial in ensuring the accuracy and validity when testing the study hypotheses. Accordingly, the Karbala Education Directorate was chosen as the practical site for this study, given its critical importance to the educational sector in Karbala Governorate in particular.

The sample size was determined based on Krejcie's statistical tables (1970: 608). The total population size of all individuals and employees of the surveyed directorate was 260. According to the statistical tables, the optimal sample size is at least 155 individuals to meet the study's requirements. To achieve this goal, the researchers distributed 160 questionnaires to a random sample of employees in the Karbala Education Directorate, as shown in the table below.

Table 1: Responses of the surveyed sample members

Status	Distributed	falsehood	Non-refundable	Suitable for analysis
Number	160	2	3	155
Percentage	100.00%	1.3%	1.9%	96.9%

Source: Based on a field study

The following table shows the personal and professional characteristics of the research sample, which included age, gender, educational background, and years of service:

Table 2: Demographic information of the study sample

Age	Frequency	Percentage
18-30 years	23	8.46%
31-40 years	43	15.81%
41-50 years	54	19.85%
51 years and older	35	12.87%
Total	155	100
Gender	Frequency	Percentage
Male	102	37.50%
Female	53	19.49%
Total	155	100
Academic Qualification	Frequency	Percentage
Diploma	22	8.09%
Bachelor's	77	28.31%
Master's	35	12.87%
Doctorate	21	7.72%
Total	155	100
Number of Years of Service	Frequency	Percentage
5 years or less	20	7.35%
6 to 10 years	43	15.81%
11 to 15 years	39	14.34%
16 to 20 years	34	12.50%
20 years and older	19	6.99%
Total	155	100

Source: Prepared by the researcher based on field data

The above table shows the following:

The high representation of the older age group may skew responses toward their experiences and viewpoints. In contrast, the low representation of young people may reduce the reflection of their varied opinions and perceptions, possibly affecting the comprehensiveness and accuracy of the results.

Age:

Highest representation (41–50 years, 19.85%) against lowest representation (18–30 years, 8.46%): The relative dominance of men in the sample may skew responses if there are notable variations in gender perspectives or experiences on the survey topic, reducing the representation of female viewpoints and possibly influencing the results' accuracy, reflecting gender-balanced views. Men have the highest representation (males, 37.50%) against the lowest representation (females, 19.49%).

The sample's concentration on bachelor's degree holders may indicate a particular level of education in the replies, as shown by the highest representation (bachelor's degree, 28.31%) against the lowest representation (PhD, 7.72%). On the other hand, the low representation of PhD holders could restrict the integration of specific or in-depth viewpoints, influencing the depth and accuracy of certain questionnaire parts.

Employees with intermediate experience constitute the highest percentage, influencing this group's views.

Number of Years of Service:

Highest representation (6-10 years, 15.81%) vs lowest representation (20 years and above, 6.99%). While the relatively low representation of new employees (5 years and below, 7.35%) may lower the representation of fresh ideas and perspectives, perhaps affecting the comprehensiveness and accuracy of the results, the low representation of employees with long experience may limit the integration of insights based on long-term experience.

1-8-coding the study scale, measuring the reliability coefficient, and determining the normality of data distribution

We coded the research scale to ease data processing in SPSS and Amos version 26. A statistical approach suitable for the kind and distribution of the data was chosen to guarantee reliable findings that fairly depict the population. Extraction of the kurtosis and skewness coefficients enabled the research variables to be subjected to a normalcy distribution test. Most research is based on (Hair et al., 2010) values between +1.96 and -1.96 are reasonable and show that the data follow a normal distribution. Furthermore, Cronbach's alpha coefficient confirmed the degree of dependability; values equal to or above 0.70 were deemed acceptable, depending on (Nunnally & Bernstein, 1994). As the table below shows, the scale's dependability coefficient and the requirements for normal distribution were satisfied.

Table 3: Coding of the study scale

Dimension	Number of questions	Kurtosis	Skewness	Cronbach's alpha	Scale
Open Leadership Behavior	4	0.974	-1.021	83.7%	(Zecher & Rosing, 2015: 54)
Closed Leadership Behavior	4	1.542	-1.432	91.2%	
Ambidextrous leadership Behavior	16	1.258	-1.2265	87.5%	
Emotional Loyalty	3	1.432	-1.21	86.2%	(Argawi, et al: 2018)
Ethical Loyalty	3	1.765	-1.654	77.3%	
Continued Loyalty	3	0.871	-0.742	84.4%	
Organizational Loyalty	12	1.356	-1.202	82.6%	
Idea Generation	4	0.907	-0.892	91.4%	(Hoch, 2013)
Idea Promotion	4	0.776	-0.698	79.1%	
Idea Realization	4	1.209	-1.141	87.6%	
Innovation behavior	12	0.964	-0.910	86.0%	

"Source: Prepared by the researcher"

The table above displays:

Reliability Coefficient (Cronbach's Alpha): Excellent internal consistency for the many dimensions of the scale is shown by all high alpha values ranging between 77.3% and 91.4%. This implies that the concepts of the questions within every dimension are constant.

Kurtosis values vary between 0.776 and 1.6565, while skewness values range between -1.654 and -0.698. Normal data distribution. Since there is no kurtosis or high skewness, suggesting a notable deviation from normalcy, these values are generally within the permissible range for a somewhat normal data distribution.

2- The Theoretical Aspect.

2-1- Ambidextrous leadership Behavior:

2-1-1- The Concept:

The concept can be clarified through what some authors have indicated. (Enlund & Lorentsson, 2020: 19). They demonstrated the need for researchers to develop the concept of ambidextrous leadership so that it possesses high capacity and competence in a complex environment and the field of behavior and knowledge. These complex roles can be performed to enhance the ability to seize available opportunities and avoid threats. (Mueller, et al., 2020: 8) explained that ambidextrous leadership adopts and operates with open and closed ambidextrous leadership behavior. This behavior leads to improving and developing subordinates' creativity, empowering them, and thus building their innovative behavior while maintaining the organization's workflow. Dabic et al. (2021: 685) indicated that skilled leaders are distinguished by their ability to create and formulate a leadership vision for their subordinates in an environment of uncertainty, as well as encouraging them to establish strategic values. This influences identifying and capitalizing on opportunities, avoiding threats, and thus maintaining a sound future framework for growth. Schlosser et al. (2023: 580) emphasized that Ambidextrous leadership represents the skillful leader's ability to create, develop, implement, and plan new strategies to improve products or services in the face of competition from other organizations, to achieve a sustainable competitive advantage.

2-1-2- Importance:

The importance is evident in what Yao et al. (2019: 553) indicated: Ambidextrous leadership behaviors enable creativity and high-efficiency work, reduce behaviors that discourage employees from innovation, adhere to work regulations according to established plans, and implement and monitor the achievement of objectives. Chakma (2021: 59) added that Ambidextrous leadership behaviors enable organizations to adapt more effectively to their surrounding environment and make critical decisions that contribute to long-term sustainability. Kim & Iee (2021: 3) indicated that they are essential in enabling skillful leaders to plan and implement exploration models for successful experiences in seizing opportunities, avoiding threats, and implementing new ideas for employee creativity, which gives them loyalty to their organizations.

2-1-3- Dimensions:

The authors (Zeher & Rosing, 2015: 54) argue that Ambidextrous leadership has two dimensions: open and closed leadership behavior. We will discuss these as follows:

- A. **Open leadership behavior:** (Tabesh, et al., 2019: 67) indicated that open leadership behavior is evident through the leader's behavior, which works to diversify employee behavior by encouraging them to use various methods to accomplish work, providing the opportunity to think and express themselves without objection, and defining their aspirations in this area. (Klonek et al., 2020: 9) indicate that open behaviors allow for working differently. They represent a set of behavioral actions adopted by the skillful leader to motivate employees to accomplish work in various ways, allowing room for reflection without interference, and providing support to avoid outdated work methods. They also create an open work environment for thinking, which employees require to explore new ideas that support creative and cognitive output. Mohiy & Sulphay (2021:4) explained that open behaviors grant employees complete freedom to accomplish their assigned tasks through exploratory behavior, innovative models, forward-thinking, and avoiding prevailing customs and norms.
- B. **Closed Leadership Behaviors:** Jianfeng et al. (2018:2) explained that closed leadership behaviors refer to those procedures that work to mitigate behavioral discrepancies among employees and motivate them to seize available cognitive opportunities, in addition to setting comprehensive guidelines and monitoring to achieve goals. Nan & Jian (2019:2018)

explained that they include all behaviors that achieve the process of taking and implementing corrective actions, renewing guiding plans, and monitoring the work of departments, units, and individuals to achieve goals. (Zurik et al., 2020: 3) Pointed to establishing instructions and standards for employee performance, which is a significant intervention through procedures, legislation, and monitoring of the mechanism for achieving goals. Here, allowing employees to complete tasks in predetermined ways enhances control and fosters the implementation of routine procedures and close supervision.

2-2- Innovation behavior:

2-2-1- The Concept.

The book's definition can clarify the concept: it is a distinctive innovative behavior practiced by individuals, organizations, or groups while performing ambidextrous leadership. At the same time, it supports members in creative communication and enhances the interconnectedness between the various elements of power within the organization. (Alikaj et al., 2021: 860) This indicates that it is an innovative behavior that has the potential to carry out activities and implement decisions while developing ideas in new and creative ways. It enables the organization to achieve and sustain competitiveness and grow towards leadership. Li et al. (2021: 206) defined innovation behavior as the result of a complex interaction between internal and external factors. It is the individual's expression of their interactions with numerous surrounding factors and other critical situations and factors.

2-2-2- Importance:

The importance can be explained by Hick (2016: 15), who explained that adopting innovation behavior at work leads to the creation of new ideas and innovations that support organizational and operational movement within the organization, which works to build a successful plan and vision for that organization. Joo & Bennet (2018: 7) explained that distinctive innovation behavior is the essence of excellence toward achieving organizational leadership, as well as the development that occurs in performance, whether production or service, through improving processes and avoiding waste. This requires the support of the creative leader, as he inspires and motivates employees. (Declerq & Pereira, 2018: 7) Added:(020: 1137) Innovation behavior represents the most important element in improving an organization's ability to change and adapt, contributing to achieving and sustaining excellence. It supports the organization with new working methods to address environmental challenges. Here, creative individuals are a source of new ideas and solutions for various operations.

2-2-3- Dimensions:

The dimensions proposed by Hoch (2013) were adopted, namely (idea generation, idea promotion, idea realization). We will discuss these as follows:

- A. **Idea generation:** Wood et al. (2018: 3) defined it as an innovation behavior that focuses on researching and generating ideas for action and utilizing them. Idea generation is the foundation for change and modernization, whether internally or externally, and it works to find solutions to problems, gaps, and sources of threat. (Javed et al. (2021: 773) continued: It represents an innovative behavior that generates ideas and opportunities, contributes to improving and developing the organization, and gives it a competitive advantage. Ivcevic & Hoffmann (2022: 246) emphasized that it represents the basic step in innovation behavior, which involves studying and analyzing opportunities and threats, working to adopt positive opportunities, and urging people to avoid those that threaten the organization. This has a positive impact on both the organization and the customer.
- B. **Idea Promotion:** Pukin (2016: 14) explained that it represents a call to promote new ideas that benefit the organization. The creative worker is confident in the success of the selection

process and the validity of implementing these new ideas. Besides the sound selection of supportive personnel from managers, board members, and colleagues, that stability is assured. Bos-Nehle et al. (2017: 383) added that it represents analytical support and a description of the ideas that have been adopted, demonstrating their importance to the organization, and then showing the positive returns the organization receives if these ideas are adopted, which are in line with the rapid and significant changes in technology and the surrounding environment. Farzal et al. (2019: 11) emphasized that promoting a new idea is necessary to gain management or colleagues' support towards its adoption and implementation. There may be opposing views to its adoption, and here promotion clarifies and explains the benefits of the organization's development in terms of production, services, or even human resources.

- C. **Idea Realization:** (Faraz et al., 2019: 15) indicated that implementing creative ideas in services or goods leads to achieving goals and building benefits for the organization and society. This is the basis for building efficient organizational performance at the managerial level. (Lu et al., 2019: 587) Discussed the stage of transforming ideas into actions and implementing them through behaviors and mechanisms. This part achieves the actual outputs that will be of real value to the organization. This certainly occurs through the dynamic interaction of a group of stakeholders in a tangible form of great creative work. (Messen, 2021: 453) added that it is the process of implementing existing ideas, where implementation can occur despite factors resisting change due to the changing daily work context. Therefore, this situation's management and control process must be well conducted to facilitate the implementation process.

2-3-Organizational Loyalty

2-3-1- Concept:

Concept (Rodivilov & Shing, 2019: 13) indicated that it expresses the great willingness of employees to exert effort and a strong desire to work and remain in the organization. The organization, as employees feel, offers opportunities for work accomplishment and self-development, in addition to their commitment to the organization's values and goals. This creates a strong attachment and psychological connection at all levels to the organization. (Sukor et al., 2020: 204) Stated that it represents the behavior of employees within an organization, which they perform to express the level of commitment achieved in their work and the emotional connection they have with their organization regarding attaining goals. (Giao et al., 2021: 204) Emphasized that it is employees' sense of close connection to the organization, as loyal employees strongly identify with and defend their organizations at all times, not ignoring them or moving to other organizations. This behavior builds trust between employees and the organization.

2-3-2- Importance:

Important: Goodarzi (2012: 899) stated that it ensures the continuity of the workforce and the achievement of the organization's goals while enhancing employee confidence, stability, and job security. Nogueira (2016: 43) elucidated that it is designed to facilitate the mobilization of a series of decisions that contribute to the resolution of crises. This is achieved by providing policies and solutions that mitigate damage and develop future solutions to prevent the recurrence of such crises, as well as a strategy that addresses crisis containment. Important: Daniel (2017: 3) emphasized the significance of the use and follow-up in the development of proactive and necessary solutions to crises, which are expressed by confronting and deleting them. It is observed that the inability of leadership to manage these crises is a result of the failure to optimally utilize solution mechanisms.

2-3-3- Dimensions:

The following dimensions were adopted (Argawi et al., 2018): (emotional, moral, and continuous loyalty). We will discuss them as follows:

- A. **Emotional loyalty:** (Suker, 2018: 523) indicated that it represents the degree of employees' emotional attachment to their organization and their awareness of the benefits granted to them, represented by independence at work, as well as the nature of positive relationships with superiors and supervisors and their contribution to consulting at work. (Vuon, et al., 2021: 304) Explained that it is a behavior exhibited by employees who always stand by their organizations at all times, assume responsibility, and play a significant role in building trust between the organization and the community within which it operates. (Zhao & Cai, 2022: 4) defined it as employees' feelings of loyalty and devotion to the organization, which leads them to reduce turnover, increase work performance, and foster cooperation and cohesion among colleagues.
- B. **Moral loyalty** (Tekiner & Tavas, 2016: 234) referred to steadfast commitment. Employees are connected to the organization through the interconnectedness between employee goals and the organization's goals and values. Employees feel satisfied with fulfilling their basic needs, which motivates them to efficiently and accurately complete work. (Owais, 2019: 4) defined it as the set of feelings and strong affinity employees have with their organizations, based on the ongoing support provided by the organization for promotion and development, along with the opportunity to interact and implement work procedures. This is in addition to the employee's constant awareness of the limits of their contribution to achieving goals and building values within the organizational structure. (Adem & Kesuma, 2021: 94) defined it as the employee's subjective feelings toward their organization and emotional drive to complete work precisely.
- C. **Continuous loyalty** (Iqbal et al., 2015: 2) indicates the degree of commitment, sincerity, and great effort exerted by employees who possess a desire and a sense of connection to their work and loyalty to their organizations. Frempony (2018: 96) defined the characteristic of employees who enjoy a high level of ongoing commitment and permanent connection to the organization due to the benefits they gain from staying rather than moving to another organization. This supports development and goal achievement for both parties. Abidin et al. (2022: 88) defined it as employees' conviction to accomplish tasks with utmost energy and effort in their organizations and their genuine desire to remain with their organizations, accept their culture, and achieve their goals.

3- The practical aspect:

This section will conduct descriptive analysis, confirmatory factor analysis, and test the study's hypotheses, as follows:

3-1-Descriptive Statistics of Study Variables

In this part of the analysis, we aim to explore the actual reality of the study variables by examining the opinions of a sample of 155 workers in the Karbala Education Directorate. The sample's level of responses to their views will be determined based on their responses to the questionnaire questions using a five-point Likert scale.

The table below displays the results of measuring the arithmetic mean of the respondents' responses.

Table (4): Weighted Mean and Response Level

weighted average		Weights		Answer direction	Answer scale
4.21	5	84.2%	100%	Strongly agree	Very Good
3.41	4.2	68.2%	84%	Agree	Good
2.61	3.4	52.2%	68%	Neutral	Average
1.81	2.6	36.2%	52%	Disagree	Weak
1	1.8	20%	36%	Strongly disagree	Very Weak

Akadiri O. P. (2011), Development of Multi-Criteria Approach for Selection:

Wolver Hampton, U.K.

The comparison and dimensions were made based on obtaining the highest percentage of agreement and the highest level of relative importance; this indicates great consistency and high response, as well as the degree of awareness, interest, and homogeneity by the directorate under analysis for the main dimensions and variables.

1- Ambidextrous leadership Behavior

In general, The spreadsheet below summarizes the outcomes. for Ambidextrous leadership behavior variable. Its average was (3.31) with a deviation of (0.794), reaching agreement of (66.1%), as the variable's dimensions focus on neutrality, close to high. The findings show that awareness of the employees in the directorate under study regarding Ambidextrous leadership behavior was average and tending towards high. Results for dimensions showed the following:

- With an arithmetic mean of 3.40, the dimension of open leadership conduct recorded an agreement level of 68.0%, thereby occupying the first position in terms of the agreement percentage among the personnel in the directorate and at a high level. This makes it very evident that the staff members in the directorate are well aware of the open leadership style of their boss. This is seen from their view of their boss using many approaches to complete tasks and talking about work issues and problems with subordinates.
- With an arithmetic mean of (3.21), the dimension of closed leadership conduct recorded an agreement level of (64.2%), thereby occupying the second level in terms of the agreement percentage among the personnel in the directorate and at an average level. This suggests, therefore, that the directors' staff members view the closed leadership practices of their leader on average. This is seen from the view of their leader, who depends on implementation and monitoring to reach the company's objectives and holds workers who make errors in their job responsible.

Table 5: Dimensions of descriptive values for the Ambidextrous leadership behavior variable

Dimensions of Ambidextrous Leadership Behavior	MEAN	S.D	Answer direction	Agreement rate	Answer level	C.V	NO.
Open leadership behavior	3.40	0.747	Agreed	68.0%	High	21.97%	1
Closed leadership behavior	3.21	0.841	Neutral	64.2%	Medium	26.20%	2
Ambidextrous leadership behavior	3.31	0.794	Neutral	66.1%	Medium	24.02%	

"Source: researcher grounded on SPSS 27 statistical software."

2- Organizational Loyalty

In general, The spreadsheet below summarizes the outcomes. for organizational loyalty variable. Its average was (3.46) with a deviation of (0.810), reaching agreement of (66.1%), as the dimensions of the variable are centered around agreement in a manner close to neutrality. The findings show that awareness of employees in the directorate under study regarding organizational loyalty was high, tending toward the average. Results for dimensions showed the following:

- As it occupied the first level in terms of the arrangement of the agreement percentage among the personnel in the directorate and at a high level, the dimension (emotional loyalty) attained an arithmetic mean of 3.63, where it recorded an agreement level of 72.6%. That makes it abundantly evident that the directors' staff members have a great understanding of emotional loyalty, which is shown in their sense of pride and honor in belonging to the company and their great will to keep working for it.
- As it occupied the third level in terms of the order of the agreement percentage among the personnel in the directorate and at an average level, the dimension (ethical loyalty) attained an arithmetic mean of 3.32, where it recorded an agreement level of 66.4%. This suggests that the directors' average view of ethical loyalty is thus clear from their belief that their company meets their needs, that leaving it is considered unethical, and that they regret leaving their job in it.
- With a high level close to the average, the dimension (continuous loyalty) attained an arithmetic mean of 3.42, where it recorded an agreement level of 68.4%, occupying the second level in terms of the agreement rate among the personnel in the directorate. This leads one to believe that the staff members in the directorate have a great awareness of the average level of loyalty. This is seen from their not thinking about quitting the company and their regard for excellent contacts with the leadership and coworkers as crucial for their retention.

Table 6: Dimensions of descriptive values for the organizational loyalty variable

Dimensions of organizational loyalty	MEAN	S.D	Answer direction	Agreement rate	Answer level	C.V	NO.
Emotional loyalty	3.63	0.754	Agreed	72.6%	High	20.76%	1
Ethical loyalty	3.32	0.873	Neutral	66.4%	Medium	26.30%	3
Continued loyalty	3.42	0.802	Agreed	68.4%	High	23.45%	2
organizational loyalty	3.46	0.810	Agreed	69.1%	High	23.42%	

"Source: researcher grounded on SPSS 27 statistical software."

3- Innovation behavior

In general, the table below shows a summary of the results of the innovation behavior variable, as it is clear that Its average was (3.37) with a deviation of (0.783), achieving an agreement level of (67.4%), as the variable's dimensions focus on neutrality in a way close to agreement. The findings show that awareness of the workers in the directorate under study of innovation behavior was average and tended towards an increase. As for the dimensions level, the results showed the following:

- At an average level, the (idea generation) dimension attained an arithmetic mean of 3.38 with an agreement level of 67.5%, placing second in agreement percentage among the directorate personnel. This suggests that the directorate's staff members view their leader's contribution

in producing ideas on average. Their view of their boss shows this: she continually motivates subordinates to develop fresh ideas and creates new ideas to help solve difficulties.

- The component of idea promotion scored an arithmetic mean of 3.28, with an agreement level of 65.6%, third in terms of the agreement percentage among the staff members of the directorate at an average level. This suggests that the directorate's staff members see their leader's contribution to idea promotion generally somewhat differently. Their impression of their boss inspiring staff members toward fresh ideas and looking for support for these ideas clearly shows this.
- With an agreement level of (69.0%), the (idea realization) dimension obtained an arithmetic mean of (3.45), placing first in terms of the percentage of agreement among the directorate personnel, and at a high level. This makes it abundantly evident that the directorate's staff members are very aware of their leader's responsibility in achieving ideas. Their impression of their boss realizing ideas in a manner that helps the company to reach its objectives and attempts to turn ideas into fresh, useful applications clearly shows this.

Table 7: Dimensions of descriptive values for the innovation behavior variable

Dimensions of Innovation Behavior	MEAN	S.D	Answer direction	Agreement rate	Answer level	C.V	NO.
Idea Generation	3.38	0.784	Neutral	67.5%	Medium	23.22%	2
Idea Promotion	3.28	0.843	Neutral	65.6%	Medium	25.70%	3
Idea Realization	3.45	0.721	Agreed	69.0%	High	20.90%	1
Innovation behavior	3.37	0.783	Neutral	67.4%	Medium	23.23%	

"Source: researcher grounded on SPSS 27 statistical software."

3-2- Confirmatory factor analysis of the research variables to verify the structural validity of the research scale with its variables, dimensions, and items.

To validate the suggested model, structural equation modeling—especially confirmatory factor analysis (CFA)—uses Amos V.24 software. By use of this process, the researcher intends to accomplish two key goals:

Make sure the suggested measurements reflect the investigated variables and that the construct validity and statistical acceptability of the questionnaire questions match.

Check that the gathered sample data matches the expected structural measurement model well.

Two main factors will guide this verification process:

- ✓ Item saturation comes either above or equal to 0.40 or more.
- ✓ Criteria of goodness of fit based on the following table:

Table 8: Structural modeling equation goodness of fit metrics and criterion

	Indicators	Goodness of Fit Rule
1-	Ratio between X2 values and degrees of freedom df	Less than or equal to 3
2-	Goodness of Fit Index (GFI)	Greater than or equal to 0.90

3-	Comparative Fit Index (CFI)	Greater than or equal to 0.95
4-	Root Mean Square Error of Approximation (RMSEA)	Less than 0.05 or 0.08

Source: Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017) "A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)", 2nd Ed. Thousand Oaks, CA: Sage, p.289.

3-3- Confirmatory factor analysis of research variables

The attached figure and table indicate that all elements of the dimensions (Ambidextrous leadership conduct, organizational loyalty, and innovation behavior) are above the saturation value (0.40), thereby showing their statistical validity according to the research (Costello & Osborne, 2005). Furthermore, the structural model's goodness-of-fit standards exceeded the given restrictions. This proves that the data gathered from the sample are homogenous and compatible with the expected structural structure of the research variables and that the research variables are multidimensional. Consequently, one may say that the extracted data from the research sample corresponds with the measuring model expressed by the scale of the research variables.

Table 9: Confirmatory factor analysis of research variables

item	path	The dimension	Estimate	S.E.	C.R.	P
Confirmatory factor analysis of the variable of Ambidextrous leadership behavior						
X11	<---	Open leadership behavior	.563	.103	7.869	***
X12	<---		.616			
X13	<---		.605	.095	8.298	***
X14	<---		.462	.091	6.719	***
X21	<---	Closed leadership behavior	.466	.216	6.862	***
X22	<---		.450	.178	6.736	***
X23	<---		.408			
X24	<---		.462	.142	6.829	***
Confirmatory factor analysis of the organizational loyalty variable						
M11	<---	Emotional loyalty	.731	.094	12.195	***
M12	<---		.649	.096	10.888	***
M13	<---		.697			
M14	<---		.530	.099	8.944	***
M21	<---	Ethical loyalty	.508	.109	8.334	***
M22	<---		.555	.091	9.098	***
M23	<---		.733			
M24	<---		.713	.105	11.636	***
M31	<---	Continued loyalty	.570	.082	9.669	***
M32	<---		.593	.072	10.093	***
M33	<---		.807			
M34	<---		.765	.085	13.078	***
Confirmatory factor analysis of a variable of innovation behavior						
Y11	<---	Idea Generation	.723			
Y12	<---		.777	.073	10.519	***
Y13	<---		.430	.119	6.640	***
Y14	<---		.465	.090	7.150	***
Y21	<---	Idea Promotion	.821			
Y22	<---		.777	.069	16.545	***
Y23	<---		.809	.058	17.565	***

Y24	<---		.768	.063	16.251	***
Y31	<---		.676			
Y32	<---	Idea Realization	.684	.063	11.121	***
Y33	<---		.613	.062	10.053	***
Y34	<---		.901	.043	14.040	***

"Source: AMOS Program Outputs"

3-4- Examining and Testing Study Hypotheses

A sophisticated statistical method used to investigate and replicate complicated interactions between a collection of variables is structural equation modeling, or SEM. With the potential of introducing a mediator who clarifies how the independent variable impacts the dependent variable, it seeks to ascertain how one or more independent variables affect another.

The findings of evaluating the hypothesis of influence will be discussed in this part, consecutively:

- 1- **The first main hypothesis (H1):** Ambidextrous leadership behavior has a direct, "statistically significant effect" on organizational loyalty in the directorate under study. The researcher designed a structural model to determine the extent to which the data support the study's hypotheses. The following figure illustrates this structural model, which was designed and proposed by the researcher:

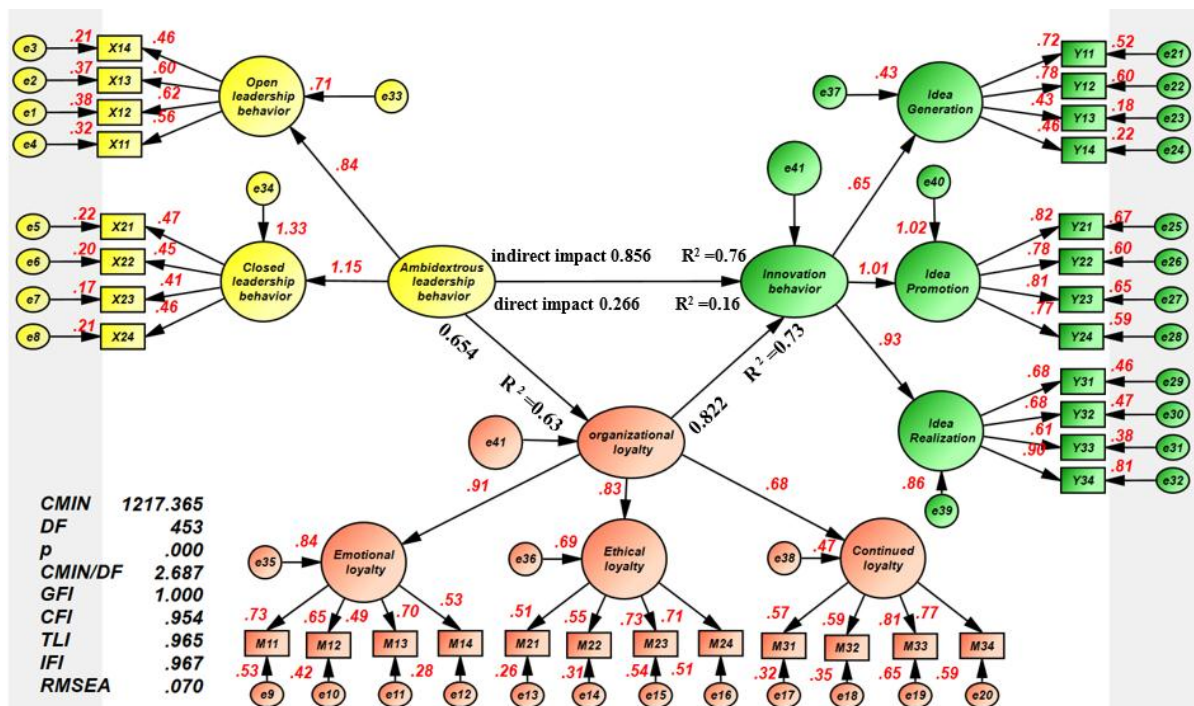


Figure 2. The effect of Ambidextrous leadership behavior and innovation behavior mediated by organizational loyalty

Source: "AMOS Program Outputs. 23"

The researcher's statistical study of impact model acceptance criteria is shown in the following table:

Table 10: The direct and indirect impact of the study hypotheses

PATH					indirect impact	direct impact	standard error	critical value	R ²	Sig.
Ambidextrous leadership Behavior	→		Organizational Loyalty		---	0.654	0.068	11.418	0.631	0.000
Organizational Loyalty	→		Innovation behavior		---	0.822	0.058	13.087	0.728	0.000
Ambidextrous leadership Behavior	→		Innovation behavior		---	0.266	0.156	4.765	0.162	0.000
Ambidextrous leadership Behavior	→	Organizational Loyalty	→	Innovation behavior	0.856	---	0.043	18.547	0.756	0.000
The amount of improvement brought about by organizational loyalty										
Ambidextrous leadership Behavior	→	Organizational Loyalty	→	Innovation behavior	0.590	---	0.113	13.782	0.594	0.000

Source prepared by the researcher based on the outputs of the (AMOS.V.23) program.

Where the effect value reached (0.654), with a critical percentage of (11.424), the results of the table above show a direct, positive, and significant effect below the 5% significance level for the Ambidextrous leadership behavior axis on the organizational loyalty axis, where the p-value was equal to zero and so less than the 5% significance level. From this, we deduce the presence of a direct link. Stated otherwise, a one-unit rise in the value of the Ambidextrous leadership conduct axis increases the organizational loyalty axis by 0.654. Furthermore, good leadership behavior explains (63.1%) the variation in organizational loyalty; the remaining proportion (36.9%) results from additional factors not included by the research model. This shows that the degree of organizational loyalty among employees in the directorate is higher the more senior management is interested in promoting Ambidextrous leadership behavior - through the leader's adoption of flexible systems in work procedures, encouraging continuous education and development, following up on employees' commitment to rules and policies, setting time frames for completing work and following up on its implementation on time -. Investigated

- 2- **The second major theory (H2)** is that organizational loyalty directly and statistically significantly influences the creative activity of directors under examination. Where the effect value reached (0.822), with a critical percentage of (13.087), which is a significant value since the p-value was equal to zero and so less than the 5% significance level, the results of the table above show the presence of a direct, positive, and significant effect beneath the 5% significance level for the organizational loyalty axis. This leads us to determine the existence of a direct link. Stated otherwise, a one-unit increase in the value of the organizational loyalty axis results in a corresponding rise in the innovation behavior axis by 0.822. Furthermore, explaining 72.3% of the variation in innovation behavior is organizational loyalty; the remaining percentage (17.7%) comes from other factors not included in the research model. This shows that the level of innovative behavior among employees in the investigated directorate increases as organizational loyalty rises through the leader of the company making efforts to lower resistance to new ideas, clarify their importance in development, seek effective control to achieve them, and adopt motivation to enhance creativity in generating ideas.
- 3- **Third major theory (H3):** Ambidextrous leadership conduct directly and statistically significantly influences creative activity in the investigated directorate.

Under the 5% significance level, the findings of the table above reveal a direct, positive, and significant influence on the innovation behavior axis on the Ambidextrous leadership behavior.

With a critical percentage of (4.65), the effect value attained (0.266), a significant result as the p-value was equal to zero, and therefore less than the 5% significance threshold. From this, we deduce the presence of a direct link. Stated otherwise, a one-unit change in the axis of Ambidextrous leadership conduct results in a (0.266) rise in the innovation behavior axis. Moreover, good leadership behavior explains 16.2% of the variation in creative activity; the remaining 83.8% is explained by other factors not included in the research model. This implies that the given proportion of impact and explanation is weak and cannot be depended upon to improve innovation behavior in the investigated directorate.

Using organizational loyalty in the directorate under investigation,

- 4- **The fourth sub-hypothesis (H4)** asserts a statistically significant indirect influence of Ambidextrous leadership conduct on creative activity.

With a critical value of 18.547 and a standard error of 0.043, the findings of the table above reveal that rising Ambidextrous leadership behavior by one unit in the presence of organizational loyalty improves innovation behavior by a standard weight of 0.856.

Furthermore, the table above shows that moral leadership conduct helps explain 75.6% of the variation in innovative activity in organizational loyalty. The last value is ascribed to elements not covered by the research. Based on the findings, one might argue that organizational loyalty helped increase the link between moral leadership conduct and creative activity. The results show a 0.590 improvement in the standard estimates, accompanied by a 0.113 standard error decrease and a 13.782 critical value improvement, thus reducing the potential risk to enhance the capacity of the company to increase its innovation behavior. With accounting for 0.590 of the variation in innovation behavior, the findings also revealed a significant rise in the explanation of innovation behavior with organizational loyalty.

A Sobel test will be carried out to confirm the existence of a mediating impact of organizational loyalty on the link between creative activity and moral leadership behavior. The Sobel test yields a value of 5.656, higher than the calculated t-value of 1.92, as shown below. This result confirms the important effect of the mediating variable (organizational loyalty) on the link between moral leadership conduct and creative activity.

Input			Test statistic:	p-value
t_a	19.483	Sobel test	5.65767889	0
t_b	4.71	Aroian test	5.76999872	0
		Goodman test	5.54565320	0
		Reset all	Calculate	

"Figure (3) Sobel test based on t values"

"Source: Sobel test outputs"

4- Final Thoughts and Suggestions

This section summarizes the research's key findings—both theoretical and practical—and offers suggestions for how other organizations may use them to serve the public good better, all while meeting two criteria:

4-1- Requirement: Discussion and Results

1. The research reached a level of agreement of 66.1% with an overall mean of 3.31 and a variation of 0.794. All of the variable's dimensions point in the direction of high neutrality.

According to the findings, the study's directorate workers had an average to high degree of awareness regarding Ambidextrous leadership conduct.

2. The study's overall results showed a mean score of 3.46, a standard deviation of 0.810, and a degree of agreement of 69.1%. All of the variable's dimensions point toward accord, which is quite neutral. According to the findings, the study directorate's workers had a high degree of knowledge of organizational loyalty, which was around average.
3. The variable's dimensions are oriented toward neutrality to a near-high degree, yielding a level of agreement of 67.4 percent, with a mean of 3.37 and a standard deviation of 0.783. According to the data, workers in the investigated directorate had an ordinary to high degree of awareness when it came to innovative activity.
4. The axis of Ambidextrous leadership behavior in the organizational loyalty axis has a direct, positive, and "statistically significant effect" at a level lower than the 5% significance level. The effect value reached (0.654) with a critical percentage of (11.418), a significant value because the p-value was equal to zero, which is less than the 5% significance level. This leads us to believe that a direct link does exist.
5. The value of the effect reached (0.822) with a critical percentage of (13.187), which is a significant value since the p-value was equal to zero and therefore less than the 5% significance level. This indicates a direct, positive, and "statistically significant effect" on the organizational loyalty and innovation behavior axes, which is below the 5% significance level. This leads us to believe that a direct link does exist.
6. On the axis of innovation behavior, which represents Ambidextrous leadership, there is a direct, positive, and statistically significant influence that falls below the 5% significance threshold; the effect value reached (0.266), and the critical percentage is (4.765), indicating a significant value. Significance: With a p-value of zero, we can say that our results are statistically significant at the 5% level. We can infer a causal link from this. Since it is poor, it is impossible to rely on this proportion of impact and interpretation to improve innovation behavior in the studied directorate.
7. Loyalty to the organization helped strengthen the association between innovative conduct and the effect of Ambidextrous leadership. The results demonstrate a reduction in the amount of risk that could improve the organization's capacity to enhance its innovation behavior, with an improvement of (0.590) in the standard estimates, a decrease of (0.113) in the standard error, and an improvement of (13.782) in the critical value. Additionally, the data demonstrated that 0.590 the variation in innovation behavior may be explained by organizational loyalty, which is a considerable increase.

Based on the results, Section Three: Suggestions shows some ideas as follows:

1- Emphasize good leadership qualities:

- Learn open leadership. Promote open communication and conversation; promote idea development; assign responsibility; encourage ongoing education; and use flexible work schedules.
- Address closed leadership carefully: Involve staff members in choices, lower monitoring levels that are too high by supporting experimentation and error acceptance, and provide helpful criticism.

2- Turn on the aspect of organizational loyalty:

- Strengthen emotional loyalty: Create a supportive and positive atmosphere; recognize efforts; and encourage belonging.
- Strengthen ethical loyalty by keeping commitments, creating a fair surrounding, and stressing ethical duty.
- Strengthen continuous loyalty utilizing growth chances, competitive advantages, and close connections building.

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