



Disclosing the nexus between employee voice behavior and firm innovation performance with the moderating effect of algorithmic management

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Abstract: The aim of this study is to investigate factors that enhance employee voice behavior and firm innovation performance. Therefore, current study has schematized factors like ambidextrous leadership, shared leadership, employee moral identity, emotional healing, work empowerment and work motivation to investigate employee voice behavior. Likewise, the moderating effect of algorithmic management is evaluated between employee voice behavior and firm innovation performance. Research hypotheses are tested with empirical data. Data were collected from 315 employees working in banking sector. Findings revealed that ambidextrous leadership, shared leadership, employee moral identity, emotional healing, work empowerment and motivation had shown substantial variance R^2 71.6% in measuring employee voice behavior. However, within integrated model work empowerment and work motivation have shown insignificant impact towards employee voice behavior. Concerning with extended model results indicate that employee voice behavior and algorithmic management have demonstrated large variance R^2 54.3% in measuring firm innovation performance. Practically, this research suggest that policymakers could promote employee voice through ambidextrous leadership style, shared leadership, employee moral identity and emotional healing which ultimately contributes to firm innovation performance. This research has unveiled unique antecedent namely ambidextrous leadership, shared leadership, employee moral identity and emotional healing and examined employee voice behavior.

Keywords: Ambidextrous leadership; Shared leadership; Employee moral identity; Emotional healing; Work empowerment; Work motivation; Employee voice behavior; Firm innovation performance; Algorithmic management

1 INTRODUCTION

The rapid technological advancements, shifting consumer preferences, and the increasing pace of globalization have compelled organizations to continuously innovate in order to remain relevant and competitive in volatile business environment (Alzghoul et al., 2024). In this essence, employee voice behavior and firm innovation performance act as a catalyst in achieving long-term organizational success (Tsameti et al., 2023). Employee voice behavior denotes to employee willingness to share new ideas, suggestions, or concerns for organizational improvement and pay vital for driving firm innovation performance (Afrianty et al., 2025; Yamin, 2021). For instance studies have unveiled that supportive environment encourages employee voice promotes psychological safety, boost employees confidence to propose new ideas without fear of retaliation which ultimately contribute to firm innovation (Ajmal et al., 2025; Aman-Ullah et al., 2023; Tsameti et al., 2023). Although employee voice behavior is found an essential factor that foster organizational innovation performance by promoting culture of problem solving, innovative ideas at workplace however studies are scarce disclosing factors which positively impact employee voice behavior. Similarly, employee innovative behavior is determined with knowledge oriented leadership by Alzghoul et al. (2024) however conceptual linkage is yet to be established between employee voice behavior and firm innovation performance. Therefore, drawing on ambidexterity theory, distributed leadership theory, moral Identity theory and servant leadership theory this research has developed an integrated research model to investigate employee voice behavior and firm innovation performance.

The current research has schematized that ambidextrous leadership, shared leadership, employee moral identity, emotional healing, workplace empowerment and workplace motivation are core antecedents of employee voice behavior. Author like Choudhary et al. (2024) have demonstrated ambidextrous leadership as ability to alternate



between explorative and exploitative behavior that fosters dynamic organizational climate and facilitate employee voice. Therefore, shared leadership is the degree wherein multiple members of team share responsibility for guiding and influencing others rather than concentration on a single designated leader (Yamin, 2025; Zeier et al., 2021). Similarly, employee moral identity refers to moral traits such as honesty, compassion, and fairness Hu and Jiang (2018) whereas emotional healing illustrate to leadership style that recover employees from emotional distress by offering empathy, support, and understanding in the workplace (Goldsby et al., 2022). In addition to that work empowerment is the degree in which employees get access to necessary resources and information (Mowbray et al., 2021). Moreover, employee work motivation reduces the fear of retaliation and enhances their willingness to speak up (Ng et al., 2021). Past literature has unveiled that these factors are most influential in measuring employee voice and firm innovation performance (Alyoubi & Yamin, 2024; Mowbray et al., 2021). Therefore, finding of this research is in threefold. First to examine the impact of ambidextrous leadership, shared leadership, employee moral identity, emotional healing, workplace empowerment and workplace motivation on employee voice behavior. Second, this research has examined conceptual linkage between employee voice behavior and firm innovation performance. Third, this research has examined algorithmic management as moderator between employee voice behavior and firm innovation performance. Therefore, this research is pioneer to investigate moderating effect of algorithmic management between employee voice behavior and firm innovation performance. Similarly, this research is significant as it has unveiled that ambidextrous leadership, shared leadership, employee moral identity and emotional healing, are core antecedents of employee voice behavior.

2 LITERATURE REVIEW

2.1 Ambidextrous leadership & Shared leadership

The term ambidextrous leadership denotes ability to alternate between explorative and exploitative behaviors fosters a dynamic organizational climate that is conducive to employee voice behavior (Choudhary et al., 2024). The explorative dimension promotes openness, autonomy, and the encouragement of novel ideas, thereby facilitating promote employees voice proactive expression of suggestions for improvement. In contrast, the exploitative dimension emphasizes control, performance, and adherence to established procedures, which may legitimize prohibitive voice by encouraging the reporting of risks and inefficiencies (Choudhary et al., 2024; Ouyang et al., 2022). The ambidextrous leadership approach aligns with psychological safety theory which posits that employees are more inclined to speak up in environments where leaders balance support with expectations. Additionally, ambidextrous leadership contributes to the development of high-quality leader member exchange (LMX), a relational dynamic positively associated with increased voice behavior. By integrating both leadership styles, ambidextrous leaders signal adaptability and responsiveness, thereby fostering trust and minimizing the perceived risks of speaking up. Moving further shared leadership conceptualized as the distribution of leadership influence among team members rather than its concentration in a single individual and provides a collaborative structure that facilitates employee voice behavior (Zeier et al., 2021). By enabling individuals to share responsibility, contribute ideas, and participate in decision-making processes, shared leadership fosters employee voice proactive efforts to suggest improvements. This inclusive leadership approach also enhances psychological safety by promoting mutual respect and reducing hierarchical barriers, thereby encouraging prohibitive voice through the open expression of concerns and identification of potential risks. Furthermore, shared leadership nurtures a collective sense of ownership and accountability, aligning with self-determination theory, which highlights the importance of autonomy, competence, and relatedness in fostering intrinsic motivation and proactive engagement (Vandavasi et al., 2020). Through shared influence and participatory dynamics, employees perceive their input as valued and impactful. Consequently, shared leadership cultivates a psychologically safe and empowering team climate, increasing the likelihood of voice behaviors as integral components of team effectiveness and continuous improvement (Vandavasi et al., 2020). Thus, following hypotheses are assumed:

H1: Ambidextrous leadership has positive impact on employee voice behavior.

H2: Shared leadership has positive impact on employee voice behavior.

2.2 Employee moral identity & emotional healing

In academic literature employee moral identity recognized as employee moral traits such as honesty, compassion, fairness and are considered central to an individual's self-concept (Hu & Jiang, 2018). This internalized moral self-guides behavior, particularly in situations requiring ethical judgment or social responsibility. In organizational settings, moral identity significantly influences discretionary behaviors like employee voice, which involves speaking up with suggestions, concerns, or warnings to improve or protect the organization (Hu & Jiang, 2018; Liu et al., 2022). Employees with a strong moral identity are more inclined to view ethical conduct and the well-being of others as personal obligations. As a result, they are more likely to engage in offering constructive ideas for improvement and



prohibitive voice expressing concerns about harmful or unethical practices. Grounded in identity theory, moral identity motivates individuals to act in ways that align with their self-view, including voicing concerns or suggestions that uphold moral standards (Liu et al., 2022; Mesdaghinia et al., 2022). Furthermore, employees with high moral identity may be more willing to take interpersonal risks, as their sense of moral duty can outweigh fear of retaliation or negative consequences. Therefore, moral identity acts as a powerful internal motivator that strengthens both the frequency and ethical quality of employee voice behavior. Another unique factor emotional healing, a key aspect of servant leadership and psychological recovery, involves helping individuals recover from emotional distress by offering empathy, support, and understanding in the workplace. In organizational settings, emotional healing is often facilitated by leaders or colleagues who provide a compassionate environment that validates employees' emotional experiences (Goldsby et al., 2022). Such a climate plays a vital role in enabling employee voice behavior, as it fosters emotional and psychological safety. When employees feel emotionally supported, they are more likely to experience psychological safety (Ma et al., 2021). This, in turn, promotes both promote voice (constructive suggestions for improvement) and prohibitive voice (raising concerns about potential threats or unethical practices). Emotional healing also helps reduce emotional exhaustion and fear of negative consequences, which are common barriers to voice behavior (KA & Aboobaker, 2021). Additionally, emotional healing strengthens interpersonal trust and a sense of belonging, making employees feel valued and respected. This relational security increases their willingness to engage in voice behaviors not only to enhance organizational outcomes but also to uphold team well-being (KA & Aboobaker, 2021). Thus, following hypotheses are theorized:

H3: Employee moral identity has positive impact on employee voice behavior.

H4: Emotional healing has positive impact on employee voice behavior.

2.3 Work empowerment & work motivation

Work empowerment, which refers to employees' sense of control over their work, along with access to necessary resources, information, support, and opportunities for growth plays a crucial role in encouraging employee voice behavior (Mowbray et al., 2021). Empowered employees experience greater autonomy, competence, and purpose, which enhance their motivation to voice ideas, concerns, or suggestions aimed at improving organizational performance. Social cognitive theory suggests that when employees feel effective and valued, they are more likely to engage in proactive behaviors, including voice (Ng et al., 2021; Sweiss & Yamin, 2024). Additionally, empowered employees tend to perceive less interpersonal risk when speaking up, as they feel supported and trusted by the organization. Moreover, work empowerment contributes to psychological safety and mitigates the fear of retaliation, which is critical for encouraging voice behavior. By providing employees with authority, meaningful work, and the resources to act, organizations signal that their input is valued. Therefore, work empowerment serves as both a motivational and structural facilitator of employee voice, promoting open communication and continuous improvement within the organization. Similarly, work motivation, the internal drive to achieve goals and perform tasks, significantly influences employee voice behavior. Motivated employees are more likely to speak up with ideas, concerns, or suggestions that aim to improve organizational performance. Motivation fosters voice by enhancing engagement, initiative, and the willingness to take risks in sharing opinions. Studies have revealed that motivated employees also perceive their voice as valuable and impactful, which reduces the fear of retaliation and enhances their willingness to speak up (Ng et al., 2021). Thus, work motivation acts as both a catalyst and an enabler for employee voice behavior, encouraging proactive and reactive contributions to improve organizational practices and address issues (Frazier & Fainshmidt, 2012; Ng et al., 2021). Thus, following hypotheses are postulated:

H5: Work empowerment has positive impact on employee voice behavior.

H6: Work motivation has positive impact on employee voice behavior.

2.4 Algorithmic management

Employee voice behavior is seen as the willingness to share ideas, suggestions, or concerns for organizational improvement and pay vital for driving firm innovation performance. It is stated that when employees are encouraged to speak up, they contribute valuable insights that can lead to new products, processes, or strategies (Tsameti et al., 2023). Similarly, studies have unveiled that supportive environment that encourages voice promotes psychological safety, allowing employees to propose ideas without fear of retaliation, further boosting innovation (Abdlatif & Yamin, 2022; Ajmal et al., 2025; Tsameti et al., 2023). Thus, employee voice behavior directly impacts firm innovation by fostering a culture of idea-sharing, problem-solving, and continuous improvement, all crucial for sustaining innovation and organizational success. Nevertheless, literature has disclosed this relationship could be weakening with algorithmic management. Algorithmic management, which uses data-driven algorithms to oversee and guide employee work, can moderate the relationship between employee voice behavior and firm innovation performance. Employee voice, by



promoting idea-sharing and problem-solving, supports organizational innovation. However, algorithmic management can both enhance and hinder this dynamic, depending on its implementation. On one hand, algorithmic management can enhance employee voice by providing clear performance metrics, data transparency, and insights into organizational needs. This can encourage employees to contribute ideas aligned with the company's strategic goals, thus boosting innovation. Furthermore, algorithms can offer timely feedback, empowering employees to voice their suggestions and improvements. On the other hand, algorithmic management may dampen voice behavior if it creates an overly controlled environment. Employees might feel that their contributions are overly monitored or undervalued, leading to fear of negative consequences and reduced willingness to speak up. Additionally, excessive reliance on algorithms may limit employees' autonomy, discouraging proactive innovation (Dalain et al., 2025; Shin et al., 2022). Following above argument this study has taken algorithmic management as negative factor and restricts positive influence of employee voice on innovation (Liu et al., 2025). Therefore, following hypotheses are assumed:

H7: Employee voice behavior has positive impact firm innovation performance.

H8: Algorithmic management negatively moderates the relationship between employee voice behavior and firm innovation performance.

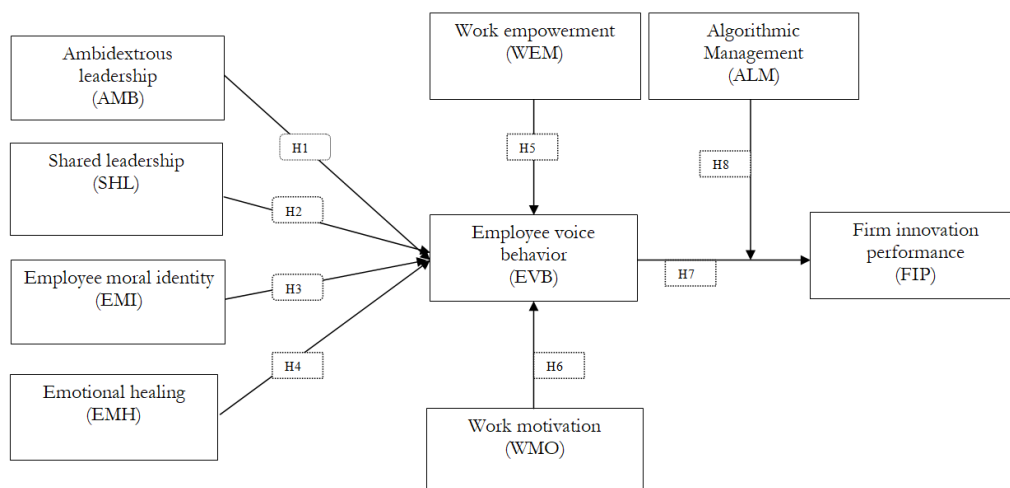


Figure1 Research model

3 METHODS

3.1 Survey questionnaire and instruments

This study has collected data using structured questionnaire comprising respondents demographics and scale items. The first part of the survey questionnaire present brief introduction of the research. Respondents were briefed about employee voice behavior and its impact on firm innovation performance. Second part of the questionnaire seeks information about respondent's age, gender, education and work experience. Concerning with scale instrument this study has adopted items from past studies. These items are anchored on seven point Likert scale depicting range 1 to 7 demonstrating 1 for strongly disagree and 7 for strongly agree. Ambidextrous leadership scale items were adapted from Rosing et al. (2011) and (Ajmal et al., 2024). Shared leadership scale items were adapted from (Zhang et al., 2025). Similarly, employee moral identity scale items were adapted from (Rosing et al., 2011). Emotional healing scale items were adapted form (Afrianty et al., 2025). Work empowerment scale items were adapted from (Gilbert et al., 2010). Work motivation scale items were adapted from (Afrianty et al., 2025) and (Hyseni Duraku et al., 2025). Employee voice behavior is measure with scale items adapted form (Yang et al., 2024). Firm innovation performance scale items were adapted from (Yu et al., 2022). Likewise, algorithmic management scale items were adapted from (Zayid et al., 2024) and (Sharma & Mittal, 2024). Prior to administrating final survey pilot study was also conducted with 15 respondents. The purpose of this test was to ensure face validity and reliability of the scale items. Respondents had confirmed that scale items were relevant, easy to read and measure distinct concepts. Thus, reliability, convergent validity and discriminant validity of these scale items were measured through structural equation modeling approach.



3.2 Research methods, sample size and data collection

The research framework of this study has outlined multiple factors which are selected after detailed literature review. These factors are further tested through hypotheses. As the research design is grounded in quantitative methods therefore hypotheses are tested with empirical data (Rahi, 2018). Prior to data collection it is mandatory to select research population and sample size. The research population of this study is employees working in the banking sector of Saudi Arabia. Nevertheless, for sample size estimation author has followed rule of thumb of five times or ten times greater data as suggested by Samar Rahi (2017) and (Hair Jr et al., 2023). Therefore, the required data for this study is 145 minimum and the maximum is 290. Data were collected through non-probability sampling approach. The purposive sampling approach is taken into consideration. Selection of this approach is in line with research objective wherein study wants to know employee voice behavior. Following that only early-career and mid-career employees were eligible to participate in this research. Prior to data collection respondents consent was taken. This study was conducted in voluntarily setting with non-monetary incentives. Moreover, respondents were ensured that personal information will not be disclosed. Data collection process was started during the month of May 2025 and ended in June 2025. Respondents were approached physically and requested to participate in this organizational survey.

The survey questionnaires were distributed among 345 respondents. These respondents were approached through purposive sampling approach. After distribution respondents were reminded through phone calls and emails and requested to fill survey questionnaire. Overall, 315 observations were retrieved from respondents with a response rate of 91% considered outstanding. These responses were used further for hypotheses testing. Among these respondents 299 were male and 16 were female. Similarly, age of the respondents was also measured. There were 90 respondents aged between 18 to 25 years. Therefore, 114 respondents were aged between 26 to 30 years. Similarly, 86 respondents were aged between 31 to 35 years. Moving further 25 respondents were aged between 35 to 40 years. Next to this education of the respondents was also examined. There were only 5 respondents with high school education and 11 were with higher secondary school education. Therefore, 25 respondents had disclosed undergraduate level of education. However, 176 respondents were educated and had post graduate level of education. Likewise, 98 respondents had revealed education level above than post graduate. Respondents work experience was also examined. There were 52 respondents with work experience of 1 to 3 year. Therefore, 191 respondents had revealed that they were working from last 4 to 6 year. Likewise, 48 respondents were shown work experience from 7 to 10 year. However, only 24 respondents had unveiled their work experience from 11 year and above.

4 DATA ANALYSIS

4.1 Common method bias and multicollinearity

The quantitative research that collects data through survey questionnaire could be affected with common method variance and multicollinearity issue. Nevertheless, these issues have been addressed prior to data estimation. Following recommendation provided by Samar Rahi (2017) this study has addressed common method bias in two folds. First questionnaires were mixed up prior to data collection. This process ensures that respondents have answered questionnaires carefully without differentiating exogenous and endogenous factors. At second stage data were tested with Harman's single factor analysis. The recommended threshold value for Harman's single factor analysis is 40%. However, the first factor has revealed only 21% variance demonstrating data are free from common method bias. Another issue in data analysis namely multicollinearity is tested with variance inflation factor analysis. The suggested variance inflation factor threshold value is ≤ 3.3 to confirm that multicollinearity is not likely issue (Rahi, 2018). Results have revealed that none of the variance inflation factor value was greater than threshold value. Hence, these findings have confirmed that data are valid for structural equation modeling assessment.

4.2. Structural equation modeling

Data are calculated with structural equation modeling approach. The statistical literature has unveiled two types of structural equation modeling namely variance based structural equation modeling and covariance based structural equation modeling. Both types of structural equation modeling have their own importance however the variance based structural equation modeling is considered more reliable wherein study objective is to establish and testing of a new model rather testing an existed model (S. Rahi, 2017; Yamin, 2024; Yamin & Abdalatif, 2024). The variance based structural equation modeling is further measured with measurement model and structural model. Indicator reliability and factors reliability is achieved with threshold value of ≥ 0.70 (S. Rahi, 2017; Rahi & Ghani, 2018). Likewise, convergent validity is established following criterion that value of the average variance extracted must be greater than ≥ 0.50 . Results of the factors reliability, convergent validity and indicators reliability can be seen in Table 1.



Table 1 Reliability and convergent validity

Instrument	Loading	CA	CR	AVE
ALM1: Employee performance is measured through machines or computers.	0.813	0.788	0.873	0.696
ALM2: Data analytics is used to monitor employee performance.	0.838			
ALM3: Robots carry complex actions to improve the process of services.	0.851			
AMB1: Leadership encourages employee to do experiment with new ideas.	0.876	0.826	0.897	0.743
AMB2: Leadership provides opportunity to think independently.	0.901			
AMB3: Leadership monitors and takes necessary action to accomplish task.	0.806			
EMH1: When I feel down I get leaders attention to resolve problem.	0.825	0.848	0.908	0.767
EMH2: If I had personal problem I get support from leadership.	0.912			
EMH3: Leadership in this firm pays attention on employee well-being.	0.889			
EMI1: Employee honesty and fairness are encouraged at workplace.	0.851	0.888	0.923	0.749
EMI2: Employee takes those decisions that reflect to moral values.	0.863			
EMI3: Employee actions are aligned with ethical principles.	0.876			
EMI4: Employee actions demonstrate traits of fairness.	0.872			
EVB1: Employees frequently suggest how to do things more effectively.	0.846	0.804	0.884	0.718
EVB2: Employees raise suggestions that are beneficial to firm.	0.808			
EVB3: Employees constructive suggestions improve firm operational process.	0.887			
FIP1: The production system in this firm is better than competitors.	0.863	0.896	0.928	0.763
FIP2: New products in this firm are better than competitors.	0.918			
FIP3: technology used in this firm is better than competitors.	0.893			
FIP4: This firm has improved existing products better than competitors.	0.816			
SHL1: In this firm each team member expertise is acknowledged.	0.857	0.825	0.895	0.740
SHL2: In this firm each team members are involved in decision making.	0.889			
SHL3: Team members collaborate with each other to achieve goals.	0.835			
WEM1: Employees in this firm have autonomy in determining how to do job.	0.896	0.866	0.918	0.788
WEM2: Workplace offers complete independence and freedom to do work.	0.901			
WEM3: Employees can take decision on their own in completing tasks.	0.866			
WMO1: I get encouragement from leadership to handle important tasks.	0.898	0.831	0.898	0.746
WMO2: My leaders give me responsibility to make important decision.	0.911			
WMO3: My leaders give me freedom to deal with difficult situation.	0.776			

The measurement model estimates discriminant validity of the factors through cross loading analysis and Fornell-Larcker analysis. These methods have widely recognized in statistical literature and recommended by prior researchers in same field (Alnaser et al., 2023; Yamin, 2021; Yamin, 2019; Yamin, 2020). At first discriminant validity is assessed with cross loading method. The cross loading method estimates data through factors loading. For the cross loading estimation criterion is that loading of the factors must be higher than other factors loadings (Hair Jr et al., 2023; S. Rahi, 2017; Yamin, 2022). Data were estimated with cross loading analysis. Results have revealed satisfactory loadings wherein single factor loadings are found higher than corresponding factors loadings. These loadings have established that factors are discriminant. Table 2 exhibits satisfactory factors loading and confirmed discriminant validity of the factors.

Table 2 Cross loadings

Factors	ALM	AMB	EMH	EMI	EVB	FIP	SHL	WEM	WMO
ALM1	0.813	0.380	0.247	0.268	0.346	0.303	0.346	0.336	0.326
ALM2	0.838	0.341	0.267	0.209	0.323	0.282	0.343	0.284	0.224
ALM3	0.851	0.393	0.310	0.315	0.381	0.429	0.370	0.318	0.346
AMB1	0.346	0.876	0.483	0.553	0.666	0.586	0.627	0.619	0.695



AMB2	0.369	0.901	0.517	0.585	0.641	0.643	0.648	0.650	0.713
AMB3	0.447	0.806	0.550	0.539	0.631	0.585	0.709	0.561	0.576
EMH1	0.217	0.479	0.825	0.423	0.495	0.499	0.409	0.508	0.512
EMH2	0.305	0.536	0.912	0.559	0.631	0.564	0.466	0.602	0.571
EMH3	0.347	0.556	0.889	0.562	0.579	0.531	0.497	0.581	0.545
EMI1	0.228	0.511	0.473	0.851	0.588	0.560	0.567	0.682	0.521
EMI2	0.245	0.557	0.484	0.863	0.654	0.614	0.542	0.635	0.563
EMI3	0.295	0.602	0.573	0.876	0.652	0.620	0.607	0.695	0.614
EMI4	0.353	0.571	0.518	0.872	0.637	0.590	0.523	0.694	0.611
EVB1	0.398	0.673	0.545	0.690	0.846	0.594	0.670	0.666	0.655
EVB2	0.324	0.499	0.481	0.533	0.808	0.541	0.527	0.530	0.474
EVB3	0.352	0.713	0.623	0.630	0.887	0.673	0.651	0.630	0.633
FIP1	0.317	0.602	0.476	0.580	0.595	0.863	0.516	0.544	0.545
FIP2	0.415	0.660	0.576	0.659	0.685	0.918	0.633	0.617	0.649
FIP3	0.350	0.608	0.533	0.597	0.619	0.893	0.557	0.596	0.627
FIP4	0.379	0.576	0.532	0.568	0.593	0.816	0.544	0.571	0.508
SHL1	0.405	0.700	0.481	0.614	0.648	0.570	0.857	0.629	0.637
SHL2	0.375	0.631	0.473	0.580	0.678	0.611	0.889	0.568	0.588
SHL3	0.310	0.652	0.389	0.463	0.552	0.477	0.835	0.483	0.468
WEM1	0.291	0.640	0.613	0.694	0.583	0.586	0.559	0.896	0.630
WEM2	0.318	0.632	0.566	0.623	0.608	0.548	0.594	0.901	0.667
WEM3	0.379	0.614	0.545	0.750	0.714	0.633	0.586	0.866	0.630
WMO1	0.296	0.699	0.602	0.658	0.660	0.620	0.557	0.710	0.898
WMO2	0.366	0.719	0.552	0.620	0.674	0.638	0.634	0.630	0.911
WMO3	0.284	0.553	0.434	0.415	0.438	0.448	0.517	0.518	0.776

Data are further estimated with fornell-larcker analysis as recommended by Fornell (1992) and (Rahi, 2018). The Fornell-Larcker analysis is another renowned method to measure discriminant validity of the factors (S. Rahi, 2017; Yamin, 2021). In fornell-larcker analysis data are measured with average variance extracted. To achieve adequate discriminant validity it is recommended that square root of average variance extracted must be higher in correlation. Data were calculated and found adequate values of average variance extracted (S. Rahi, 2017). Results have confirmed that square root of average variance extracted is satisfactory and hence factors are discriminant. Table 3 depicts results of the fornell-larcker analysis and confirmed that factors are discriminant.

Table 3 Fornell & larcker analysis

Factors	ALM	AMB	EMH	EMI	EVB	FIP	SHL	WEM	WMO
ALM	0.834								
AMB	0.448	0.862							
EMH	0.334	0.599	0.876						
EMI	0.325	0.649	0.592	0.865					
EVB	0.424	0.750	0.653	0.732	0.848				
FIP	0.420	0.701	0.608	0.690	0.715	0.873			
SHL	0.425	0.767	0.524	0.647	0.732	0.647	0.860		
WEM	0.375	0.708	0.646	0.781	0.722	0.667	0.655	0.888	
WMO	0.366	0.768	0.620	0.668	0.700	0.669	0.661	0.724	0.864



4.3 Hypotheses analysis

The research framework has multiple hypotheses and tested through structural model estimation. Therefore, for hypotheses testing data were bootstrapped with dummy data of 4000 as suggested by prior researchers (S. Rahi, 2017; Rahi, 2018). According to S. Rahi (2017) has asserted that bootstrapping mitigates data normality issues. Moreover, bootstrapping method reveals robust results and more accurate values of beta, p-values and t-values. Consistent with above suggestion data were bootstrapped for hypotheses testing. Results of the hypotheses are exhibited in Table 4 comprising path values, standard error, t-statistics and path significance.

Table 4 Hypotheses analysis

Hypothesis	Path	β	STDEV	t-value	p-values	Decision
H1	AMB -> EVB	0.209	0.072	2.887	0.004	Supported
H2	SHL -> EVB	0.234	0.085	2.763	0.006	Supported
H3	EMI -> EVB	0.244	0.067	3.618	0.000	Supported
H4	EMH -> EVB	0.177	0.069	2.565	0.010	Supported
H5	WEM -> EVB	0.074	0.080	0.925	0.355	Rejected
H6	WMO -> EVB	0.058	0.080	0.723	0.470	Rejected
H7	EVB -> FIP	0.596	0.059	10.106	0.000	Supported

Findings of the hypotheses analysis have unveiled that ambidextrous leadership has significant impact in measuring employee voice behavior and supported by $\beta = 0.209$, standard error 0.072, t-value 2.887 and $p < 0.05$ hence confirmed H1. The relationship between shared leadership and employee voice behavior is found significant and supported by $\beta = 0.234$, standard error 0.085, t-value 2.763 and $p < 0.05$ thus confirmed H2. Employee moral identity is positively related to employee voice behavior and supported by $\beta = 0.244$, standard error 0.067, t-value 3.618 and $p < 0.05$ and therefore H3 is established. Similarly, emotional healing has shown positive impact in determining employee voice behavior and supported by $\beta = 0.177$, standard error 0.069, t-value 2.565 and $p < 0.05$ and confirmed H4. Nevertheless, factor like work empowerment has revealed insignificant statistics in determining employee voice behavior $\beta = 0.074$, standard error 0.080, t-value 0.925 and $p > 0.05$ and therefore H5 is rejected. Extending to this work motivation has also revealed insignificant impact in measuring employee voice behavior and hence H6 is rejected following statics of $\beta = 0.058$, standard error 0.080, t-value 0.723 and $p > 0.05$ H6. Therefore, employee voice behavior has shown positive impact in measuring firm innovation performance and confirmed H7 supported by $\beta = 0.596$, standard error 0.059, t-value 10.106 and $p < 0.05$. Moreover, research framework has unveiled that altogether ambidextrous leadership, shared leadership, employee moral identity, emotional healing, work empowerment and motivation had shown substantial variance R^2 71.6% in measuring employee voice behavior. Therefore, employee voice behavior and algorithmic management had disclosed large variance R^2 54.3% in measuring firm innovation performance.

4.4 Moderation analysis

The moderating effect of algorithmic management is conceptualized in research framework. With the help of prior literature this research has assumed that algorithm management negatively moderates the relationship between employee voice behavior and firm innovation performance. For moderating analysis data were bootstrapped by incorporating product indicator approach. The interaction effect has disliked that algorithmic management negatively moderates the relationship between employee voice behavior and firm innovation performance. This result is also supported by $\beta = -0.101$, standard error 0.035, t-statistics 2.865, significance at 0.004 and confirmed H8. These results inferred that algorithmic management weakens the relationship between employee voice behavior and firm innovation performance. Statistical results of the moderating analysis can be seen in Appendix 1.

4.5 Effect size f^2 analysis

The research model is further evaluated with factors effect size f^2 analysis. The purpose of this analysis is to reveal actual effect size of each factor within an integrated model. Following guidelines provided by Samar Rahi (2017) factor effect size measured with threshold values wherein 0.02 is considered small effect, 0.15 medium and 0.35 demonstrating large effect size. Results of the effect size analysis had revealed small effect of all exogenous factors in measuring employee voice behavior. Nevertheless, employee voice behavior had shown large effect size towards firm innovation performance. Factors actual effect sizes with respective f^2 values are given in Table 5.

Table 5 Factor effect size f^2

Employee voice behavior		
Factors	f^2	Results
Ambidextrous leadership	0.042	Small effect
Emotional healing	0.057	Small effect
Employee moral identity	0.072	Small effect
Shared leadership	0.071	Small effect
Work empowerment	0.005	No-Effect
Work motivation	0.004	No-Effect
Firm innovation performance		
Factors	f^2	Results
Algorithmic management	0.037	Small effect
Employee voice behavior	0.537	Large effect

4.6 Importance performance matrix

The importance performance matrix test is also taken into consideration. This test discloses macro impact of all factors within an integrated model. Nevertheless, prior to employing this analysis it is mandatory to select outcome factor. Therefore, firm innovation performance is taken an outcome factor. IPMA analysis has disclosed that employee voice behavior is the most important factor in measuring firm innovation performance. Therefore, employee moral identity is the second most important factor in measuring firm innovation performance followed by algorithmic management. Similarly, shared leadership, ambidextrous leadership and emotional healing have shown considerable impact in measuring firm innovation performance. Nevertheless, work motivation and empowerment have shown no effect in measuring firm innovation performance. Table 6 presents results of the IPMA analysis.

Table 6 Importance performance matrix

Firm innovation performance		
Factors	Factors total effect	Factors performance
Algorithmic management	0.143	53.906
Ambidextrous leadership	0.125	68.787
Emotional healing	0.105	69.628
Employee moral identity	0.145	63.024
Employee voice behavior	0.596	72.279
Shared leadership	0.139	67.187
Work empowerment	0.044	72.159
Work motivation	0.035	68.730

Data are measured with importance performance map. IPMA map exhibited least effect of work motivation and empowerment. However, factors like ambidextrous leadership, shared leadership, employee moral identity and emotional healing are found most relevant factors in boosting firm innovation performance. The IPMA map has also revealed substantial impact of employee voice behavior in fostering firm innovation performance. These findings demonstrate that policymakers could achieve maximum firm innovation performance by promoting employee voice behavior at workplace. Moreover, policymakers could enhance firm innovation performance by introducing ambidextrous leadership, shared leadership, employee moral identity and emotional healing at workplace. IPMA map is depicted in Figure 2.

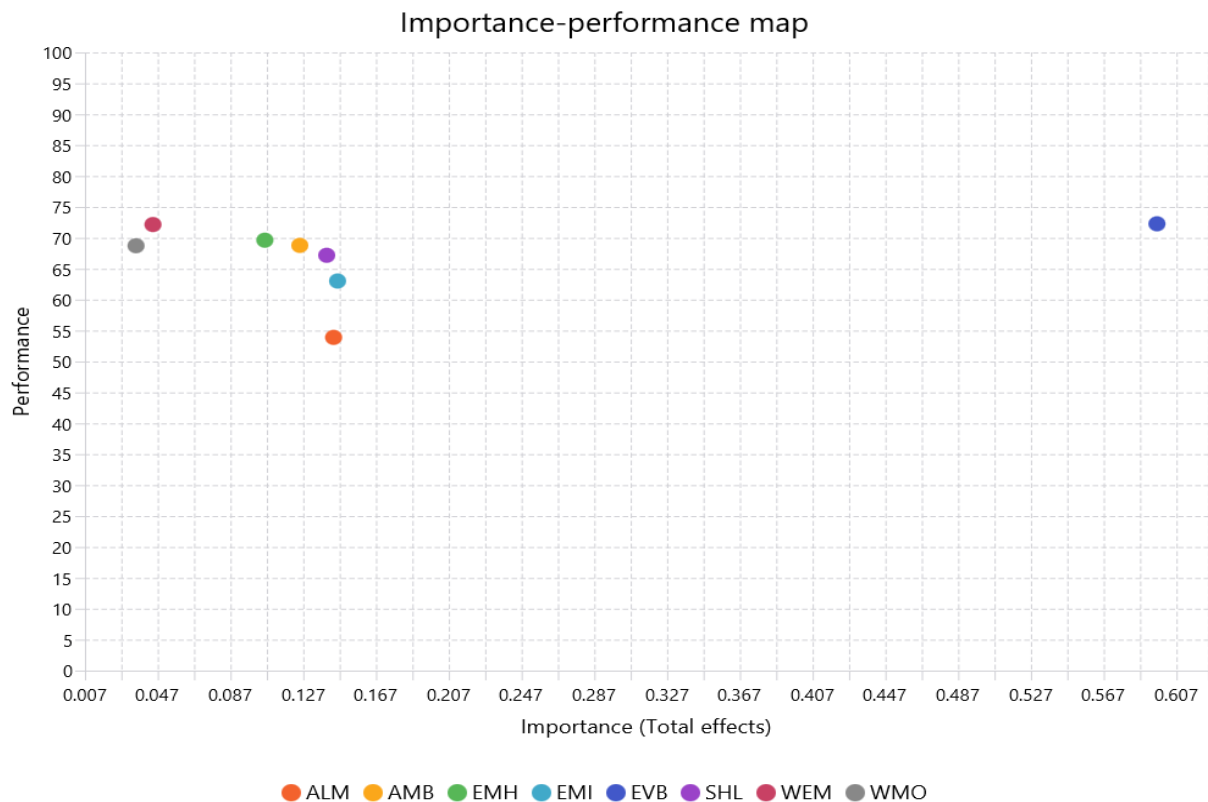


Figure 2 Importance- performance map

5 DISCUSSION

The rising uncertainty and dynamic organizational environment have pushed organizations to bring innovation in their products and services. Therefore, employee voice behavior is found an essential factor that foster organization innovation by promoting culture of problem solving, innovative ideas at workplace. Though, employee voice behavior brings new ideas, increase employee engagement towards work, promote knowledge sharing culture, build trust and solve lethal organizational problems however studies are scarce on the antecedents of employee voice behavior. To address this research gap at first current study has established research model to identify core antecedent's impact employee voice behavior. After detailed literature review and with the help of statistical analysis this study has summarized that factors like ambidextrous leadership, shared leadership, employee moral identity and emotional healing are core antecedent of employee voice behavior. Moreover these factors are compared with past studies. For instance leadership has shown significant impact in employee voice behavior and consistent with past studies (Choudhary et al., 2024; Ouyang et al., 2022). Shared leadership has revealed positive impact in employee voice behavior and in line with past studies (Vandavasi et al., 2020; Zeier et al., 2021). Factor like employee moral identity is positively related to employee voice behavior and endorsing arguments established by past studies (Hu & Jiang, 2018; Liu et al., 2022). The emotional healing has shown positive impact in determining employee voice behavior and supporting arguments established by past studies (KA & Aboobaker, 2021; Ma et al., 2021).

However, work empowerment has revealed insignificant impact in measuring employee voice behavior and hence negating arguments established by past researchers (Mowbray et al., 2021; Ng et al., 2021). Similarly, work motivation has also revealed insignificant impact in measuring employee voice behavior and hence rejecting arguments established by prior researchers (Frazier & Fainshmidt, 2012; Ng et al., 2021). In terms of collective impact jointly ambidextrous leadership, shared leadership, employee moral identity, emotional healing, work empowerment and motivation had shown substantial variance $R^2 71.6\%$ in measuring employee voice behavior. This study has also confirmed significant impact of employee voice behavior in measuring firm innovation performance. Another unique dimension in this study is testing negative moderating effect of algorithmic management. This study has established that negative impact of algorithmic management weaken the positive relationship between employee voice behavior and firm innovation performance. These findings are consistent with past studies Ajmal et al. (2025); Tsameti et al. (2023) and confirmed arguments established in literature especially related to algorithmic management (Ajmal et al., 2025; Tsameti et al., 2023). Finally, results have also unveiled that employee voice behavior and algorithmic



management collectively explained large variance R^2 54.3% in firm innovation performance. These results have established validity of the research model as fact of large variance and unveiled that algorithmic management weaken employee voice behavior and firm innovation performance.

6 RESEARCH CONTRIBUTIONS, CONCLUSION AND LIMITATIONS

6.1 Theoretical contributions

The current research has several contributions to theory and literature. First, this research has identified key antecedent of employee voice behavior and established that ambidextrous leadership, shared leadership, employee moral identity and emotional healing foster employee voice behavior at workplace. These findings contribute to the employee voice behavior literature by offering a nuanced understanding that how ambidextrous leadership styles, employee moral identity, and emotional healing facilitate employee voice. In terms of contribution to theory the research model is grounded in ambidexterity theory, distributed leadership theory, moral Identity theory by Aquino and Reed (2002) and servant leadership theory. More precisely factor like ambidextrous leadership is extracted from ambidexterity theory. Therefore, shared leadership is taken from distributed leadership theory. Factor like employee moral identity is backed by from moral identity theory. Similarly, emotional healing is extracted from servant leadership theory. Therefore, this research has substantially contributed to literature by examining the role of ambidexterity theory, distributed leadership theory, moral Identity theory and servant leadership theory in measuring employee voice behavior at workplace. This study has also confirmed that algorithm management negatively moderates the relationship between employee voice behavior and firm innovation performance. Results have unveiled that algorithmic management weakens the relationship between employee voice behavior and firm innovation performance. Therefore, conceptualizing algorithmic management between the relationship of employee voice behavior and firm innovation performance is substantially contributed to literature. In terms of variance results have also unveiled that employee voice behavior and algorithmic management collectively explained large variance in firm innovation performance and hence confirmed theoretical validity of the research model.

6.2 Practical contributions

This research offers several practical contributions to practice by unveiling key antecedents of employee voice behavior and innovation performance. Result of this research has confirmed positive impact of ambidextrous leadership, shared leadership, employee moral identity and emotional healing in boosting employee voice behavior. Therefore, policymakers could promote employee voice by deploying ambidextrous leadership style, shared leadership, employee moral identity and emotional healing which ultimately contributes to firm innovation performance. The ambidextrous leadership style demonstrates that leaders who balance exploitation and exploration strategies could effectively boost employee confidence and encourage employees to speak up with ideas and concerns. Likewise, shared leadership explains benefits of decentralizing authority that capable employees to influence one another and hence encourage them to share new ideas and problem solving solution at workplace. Concerning with employee moral identity this study has highlighted that employee moral identity promote ethical behavior and a sense of responsibility among employees resulting constructive opinions which enhance firm innovation performance. Emotional healing is found another important factor in measuring employee voice behavior. Therefore, for policy makers this research has suggested that emotional healing encourage employee voice. Moreover, this finding also suggest that policymakers could foster employee voice by showing empathy which in turn assist employees to cope on emotional distress and create psychologically safe space to share new ideas in organization. Results have also established that employee voice a critical driver of innovation, engagement, and continuous improvement. Therefore, policy makers could boost firm innovation performance by improving employee voice. Finally, this study has suggested that algorithmic management weakens the relationship between employee voice behavior and firm innovation performance and hence policy makers should avoid implementing algorithmic management practices at workplace which not only suppress employee voice but also reduces firm innovation performance.

6.3 Conclusion

Drawing on the framework of ambidexterity theory, distributed leadership theory, moral Identity theory and servant leadership theory this study has developed research model to investigate employee voice behavior and firm innovation performance. To establish research framework detail literature review was conducted. After reviewing literature this study has identified that factors like ambidextrous leadership, shared leadership, employee moral identity, emotional healing, work empowerment and work motivation are core factors to investigate employee voice behavior. Nevertheless, empirical analysis has revealed that work empowerment and work motivation have disclosed insignificant impact in measuring employee voice behavior. Concerning with overall impact results unveiled that ambidextrous leadership, shared leadership, employee moral identity, emotional healing, work empowerment and work motivation had shown substantial impact towards employee voice behavior. Moving further the moderating effect of



algorithmic management is tested between employee voice behavior and firm innovation performance. Results revealed that algorithmic management weakens the relationship between employee voice behavior and firm innovation performance. Similarly, results indicate that employee voice behavior and algorithmic management have shown large variance in measuring firm innovation performance. In terms of contributions this research contribute to the employee voice behavior literature by offering a nuanced understanding how ambidextrous leadership styles, employee moral identity, and emotional healing foster employee voice behavior. Likewise, the research model is grounded in ambidexterity theory, distributed leadership theory, moral Identity theory and servant leadership theory. Therefore, examining these theories in employee voice behavior setting is largely contributed to organization literature. In terms of managerial implications this research has suggested that policymakers could promote employee voice through ambidextrous leadership style, shared leadership, employee moral identity and emotional healing which ultimately contributes to firm innovation performance. In addition to that results of the IPMA analysis have also unveiled that managers could enhance firm innovation performance by introducing ambidextrous leadership, shared leadership, employee moral identity and emotional healing at workplace.

6.4 Study limitations and future research directions

Despite numerous contributions to organizational and employee voice behavior literature this study has some limitations. For instance employee voice behavior is measured with ambidextrous leadership, shared leadership, employee moral identity, emotional healing, work empowerment and work motivation. Nevertheless, this research has not claimed to include all factors which impact employee voice behavior. Therefore, future researcher may extend current research with some external factors like perseverance and passion. This study is cross sectional and therefore assesses respondent's observation at one point in time. Nonetheless, longitudinal research could reveal more interesting findings. This study has conceptualized direct and moderating hypotheses to reduce complexity of the research model. However, employee voice behavior could be conceptualized as mediating factor between exogenous and outcome factor. This study has tested negative moderating effect of algorithmic management between employee voice behavior and firm innovation performance. However, future researchers are suggested to add positive moderating factor to strengthen the relationship employee voice behavior and firm innovation performance. Finally, future researchers are also suggested to replicate current research framework in developed region and make comparison how employee voice behavior vary region to region.

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Appendix 1 Moderating analysis output

