

EMPLOYEE ENGAGEMENT IN VUCA ENVIRONMENTS: ROLES OF RESILIENCE, AGILITY, AND AMBIDEXTROUS LEADERSHIP

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Abstract. The increasing volatility, uncertainty, complexity, and ambiguity (VUCA) characterising contemporary business environments have intensified organisational concerns regarding employee engagement. As organisations face rapid technological advancements, changing workforce expectations, and heightened competitive pressures, employees are required to remain adaptable, resilient, and committed to organisational objectives. Although employee engagement has been extensively examined in organisational research, limited studies have investigated the simultaneous influence of resilience and agility on employee engagement, particularly through the mediating role of ambidextrous leadership within a VUCA context. Addressing this gap, this study examines the relationships among resilience, agility, ambidextrous leadership, and employee engagement among private sector employees in Malaysia. Grounded in the positivist paradigm, the study adopted a quantitative research design. Data were collected from 309 private sector employees using a structured questionnaire and analysed using SmartPLS. The measurement model was assessed to establish reliability, convergent validity, and discriminant validity, followed by structural model evaluation and hypothesis testing. The findings indicate that resilience, agility, and ambidextrous leadership significantly and positively influence employee engagement. Furthermore, resilience and agility were found to significantly predict ambidextrous leadership. The mediation analysis revealed that ambidextrous leadership partially mediates the relationships between resilience and employee engagement, as well as between agility and employee engagement. These findings suggest that employees who possess greater resilience and agility are more likely to exhibit higher levels of engagement when supported by leaders capable of balancing exploratory and exploitative leadership behaviours. This study contributes to the employee engagement literature by extending the understanding of engagement drivers within VUCA environments and establishing ambidextrous leadership as a critical explanatory mechanism linking employee capabilities to engagement outcomes. Practically, the findings provide guidance for organisations seeking to enhance employee engagement through workforce resilience, organisational agility, and leadership development initiatives.

Keywords: *employee engagement, resilience, agility, ambidextrous leadership, VUCA environment, Kahn's engagement theory*

Introduction

Employee engagement is a critical driver of organizational performance, employee well-being, and workforce sustainability. Kahn (1990) defines employee engagement as the investment of employees' physical, cognitive, and emotional energies into their work roles, resulting in greater commitment, motivation, and discretionary effort (Macey and Schneider, 2008). Consequently, organizations increasingly view engagement as a strategic resource for sustaining competitiveness and long-term success. However, maintaining employee engagement has become increasingly challenging in today's Volatile, Uncertain, Complex, and Ambiguous (VUCA) environment. Rapid technological change, economic uncertainty, evolving workforce expectations, and continuous organizational transformation require employees to adapt while maintaining performance and commitment (Syamsir et al., 2025). These demands often deplete

psychological resources and increase workplace stress, making sustained engagement more difficult to achieve. Recent studies suggest that adaptive employee capabilities may help address this challenge. Resilience enables employees to recover from adversity and maintain effective functioning under challenging conditions (Rachmad, 2022), while agility reflects the ability to adapt rapidly, learn continuously, and respond effectively to changing demands (Lee and Song, 2022). Although both capabilities are increasingly recognized as important resources in uncertain environments, previous research has largely examined them independently and focused on their direct effects on employee outcomes. Consequently, limited understanding exists regarding how resilience and agility jointly contribute to employee engagement. Furthermore, the mechanisms through which these capabilities influence engagement remain underexplored. Existing studies often investigate resilience, agility, leadership, and engagement as separate constructs, overlooking how leadership may facilitate the translation of adaptive capabilities into sustained engagement. This gap is particularly relevant in VUCA environments, where engagement is likely to emerge from the interaction between employee capabilities and organizational support. Ambidextrous leadership offers a relevant perspective for addressing this gap. By balancing exploratory behaviours that promote innovation and flexibility with exploitative behaviours that emphasize efficiency and control (Jia et al., 2022), ambidextrous leaders provide the support and direction necessary for employees to remain engaged during periods of uncertainty. Drawing on Kahn's Engagement Theory, this study proposes that resilience and agility function as personal resources that enhance employees' psychological availability, while ambidextrous leadership serves as a contextual mechanism that facilitates their translation into employee engagement. Accordingly, this study examines the direct effects of resilience and agility on employee engagement and the mediating role of ambidextrous leadership in these relationships.

Literature review

Khan's engagement theory

Kahn (1990) Engagement Theory provides the theoretical foundation for this study. The theory posits that employee engagement is influenced by psychological meaningfulness, psychological safety, and psychological availability. In VUCA environments, psychological availability is particularly important as employees require sufficient personal resources to remain engaged amid uncertainty and change. Resilience and agility represent such resources. Resilience enables employees to cope with adversity and maintain effective functioning, while agility facilitates adaptation and responsiveness to changing work demands. These capabilities enhance employees' psychological availability and, consequently, their engagement. However, Kahn also emphasizes the role of contextual factors in supporting engagement. In this regard, ambidextrous leadership provides a supportive environment by balancing flexibility and stability, exploration and exploitation. Therefore, the theory suggests that resilience and agility contribute to employee engagement through enhanced psychological availability, while ambidextrous leadership serves as a contextual mechanism that supports sustained engagement in VUCA environments (*Figure 1*).

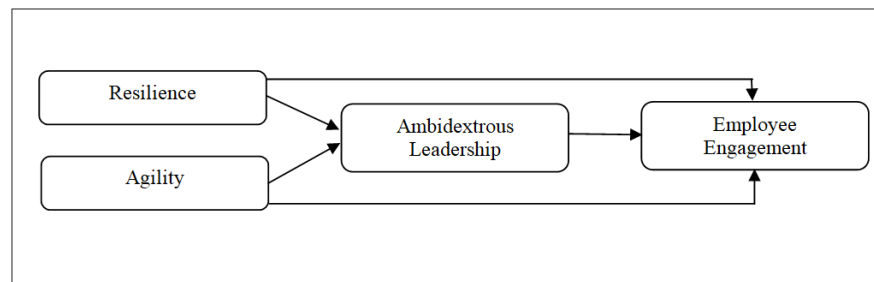


Figure 1. Conceptual framework.

Resilience and employee engagement in a VUCA environment

Resilience has increasingly been recognized as an important individual capability influencing employee engagement in VUCA environments (Ludviga and Kalvina, 2024). Earlier studies largely treated resilience and engagement as separate constructs, viewing resilience as a psychological trait that helps individuals cope with adversity rather than as a resource that actively promotes engagement (Sanhokwe and Chinyamurindi, 2023). More recent research challenges this perspective by suggesting that resilience and engagement are mutually reinforcing, as resilience enables employees to navigate uncertainty while engagement sustains motivation and persistence in responding to changing work demands (Shet, 2024). Consequently, resilience is increasingly viewed as a proactive resource that supports sustained engagement. Despite growing scholarly attention, the conceptualization of resilience remains inconsistent. Some studies define resilience as a reactive recovery process that enables employees to regain stability following disruption, whereas others conceptualize it as a proactive capability characterized by adaptability, persistence, and sustained effort. This ambiguity complicates the interpretation of empirical findings and raises questions about the role of resilience in engagement processes. Specifically, it remains unclear whether resilience merely helps employees maintain engagement during adversity or actively enhances engagement by increasing psychological availability in uncertain environments. Addressing this gap is particularly important in VUCA contexts, where employees are exposed to continuous change rather than isolated stressful events.

Agility and employee engagement in a VUCA environment

Similarly, personal agility has become a key individual competency that has emerged as relevant to employee engagement in VUCA environments (Naqvi and Naqvi, 2023). Agility is not the same as resilience the latter is generally thought of as endurance, recovery, and getting back on one's feet, while agility involves flexibility, quick adjustment, and responding to change. Agility has been a key predictor of employee engagement in many prior studies because agile workers are better prepared to meet the changing expectations of employers and accumulate performance during uncertain times (Shet, 2024). When the old ways are not being followed, cognitive flexibility and an adaptive mindset are seen as key elements that enable employees to stay effective. There are, however, inconsistencies in the literature on the link between agility and engagement. There are some research that suggest that agility can lead to greater engagement because staff members perceive they are empowered to deal with change, and others that have adapted this notion to agility and innovation and constant learning

behaviours. But in this perspective, agility is not just a consequence of engagement, it's also a means to further capability development, extending the flow of directionality between the two. The question is whether it is agility as a sole property that increases engagement or whether there are context elements that buffer the potential overload and role ambiguity that could be brought by agility.

Ambidextrous leadership and employee engagement

In VUCA environments, where organizations must simultaneously pursue exploration and exploitation, ambidextrous leadership has emerged as a critical capability for sustaining employee engagement (Esenyel, 2024). By balancing innovation and flexibility with operational stability and performance orientation, ambidextrous leaders create conditions that help employees adapt to change while maintaining clarity and direction (Bailey et.al., 2017). Such leadership is particularly valuable in uncertain environments, where employees require both support and structure to remain engaged. Despite growing scholarly attention, the existing literature provides limited understanding of how ambidextrous leadership functions as a mechanism linking employee capabilities to engagement outcomes. Most studies have examined ambidextrous leadership as a direct antecedent of employee performance or engagement, while resilience and agility have largely been investigated as independent predictors of employee outcomes (Gouda and Tiwari, 2024). Consequently, the interactive role of leadership in translating these adaptive capabilities into sustained engagement remains insufficiently explored. This gap is particularly relevant in VUCA contexts, where employee engagement is unlikely to be driven solely by individual capabilities or leadership practices in isolation. Rather, engagement emerges through the interaction between employees' adaptive resources and leadership behaviours that provide both flexibility and stability. Furthermore, limited research has examined whether ambidextrous leadership mediates the relationships between resilience, agility, and employee engagement (Indrayani and Sihombing, 2025). Addressing this gap may provide a more integrated understanding of how adaptive employee capabilities are transformed into sustained engagement under conditions of uncertainty and change.

Materials and Methods

This study adopted a positivist paradigm and employed a quantitative research design to examine the relationships among resilience, agility, ambidextrous leadership, and employee engagement. The research incorporated exploratory, descriptive, and causal elements, with resilience and agility serving as independent variables, employee engagement as the dependent variable, and ambidextrous leadership as the mediating variable. The target population comprised employees working in private sector organizations in the Klang Valley region of Malaysia. Using a purposive sampling approach, data were collected from employees who met the study criteria and were likely to experience the dynamic and uncertain conditions associated with a VUCA environment. The minimum sample size was determined based on the guidelines of Krejcie and Morgan (1970), which recommend at least 384 respondents for adequate statistical representation. Data were collected using a self-administered questionnaire adapted from established studies. Responses were measured on a six-point Likert scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). The data were analyzed using SPSS for descriptive statistics and SmartPLS for Partial Least Squares Structural

Equation Modeling (PLS-SEM). PLS-SEM was selected due to its suitability for testing complex relationships involving mediation effects and its robustness when analyzing behavioral research data that may not satisfy normality assumptions.

Results and Discussion

Reliability and convergent validity were assessed using Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). All constructs exceeded the recommended thresholds of 0.70 for Cronbach's alpha and CR, and 0.50 for AVE. Cronbach's alpha values ranged from 0.911 to 0.960, Composite Reliability values ranged from 0.927 to 0.964, and AVE values ranged from 0.544 to 0.695. These results indicate strong internal consistency reliability and satisfactory convergent validity across all constructs. Following the measurement model refinement, all retained indicators met the recommended loading requirements. The findings confirm that the measurement model is reliable and valid, supporting further assessment of discriminant validity and structural relationships among the study constructs (*Table 1*).

Table 1. Reliability and validity.

Category	Cronbach's alpha	Composite reliability	AVE	Number of Items
Agility_	0.943	0.950	0.586	19 items
AmbidextrousLeader_	0.911	0.927	0.544	11 items
EmployeeEngagement_	0.960	0.964	0.613	17 items
Resilience_	0.934	0.943	0.695	13 items

Following the assessment of the measurement model, the structural model was evaluated to test the proposed hypotheses. The results indicate that agility and resilience significantly and positively influence both ambidextrous leadership and employee engagement. These findings suggest that employees who are adaptable, responsive to change, and capable of overcoming workplace challenges are more likely to remain engaged and contribute positively to leadership processes within their organizations. Ambidextrous leadership was also found to significantly enhance employee engagement, highlighting the importance of leadership behaviours that balance flexibility, innovation, operational stability, and performance orientation. Such leadership practices provide employees with the support and direction necessary to remain committed and psychologically invested in their work, particularly under conditions of uncertainty. Among the predictor variables, resilience exerted the strongest influence, emphasizing its critical role as a personal resource for sustaining engagement in dynamic work environments. Overall, the findings provide empirical support for the proposed research framework and suggest that employee engagement in VUCA environments is shaped by the combined influence of adaptive employee capabilities and ambidextrous leadership. These results further support the examination of ambidextrous leadership as a mechanism through which resilience and agility contribute to higher levels of employee engagement (*Table 2*).

Table 2. Path coefficient (Employee Engagement and Ambidextrous Leadership).

Category	Mean	Standard deviation	T statistics	P values
Agility_ -> AmbidextrousLeader_	0.220	0.071	3.092	0.002
Agility_ -> EmployeeEngagement_	0.216	0.051	4.204	0.000
AmbidextrousLeader_ -> EmployeeEngagement_	0.298	0.052	5.834	0.000
Resilience_ -> AmbidextrousLeader_	0.495	0.061	7.989	0.000
Resilience_ -> EmployeeEngagement_	0.410	0.056	7.240	0.000

Bootstrapping analysis confirmed that Ambidextrous Leadership significantly mediates the effects of Agility and Resilience on Employee Engagement. The presence of significant direct and indirect effects indicates partial mediation in both relationships. These findings suggest that while agility and resilience directly enhance employee engagement, their influence is strengthened through leadership behaviours that effectively balance innovation, flexibility, and operational stability. Accordingly, Ambidextrous Leadership serves as an important mechanism through which adaptive employee capabilities are translated into higher levels of engagement in VUCA environments (*Table 3*).

Table 3. Path coefficient (Mediation Effects).

Category	Mean	Std. Deviation	T statistics	P values
Agility_ -> AmbidextrousLeader_ -> EmployeeEngagement_	0.065	0.024	2.762	0.006
Resilience_ -> AmbidextrousLeader_ -> EmployeeEngagement_	0.148	0.033	4.514	0.000

Table 4 summarizes the hypothesis testing results. All direct and indirect relationships were statistically significant, supporting the proposed research framework. Resilience, agility, and ambidextrous leadership significantly enhanced employee engagement, while resilience and agility also positively influenced ambidextrous leadership. The mediation analysis confirmed that ambidextrous leadership partially mediates the effects of resilience and agility on employee engagement. These findings suggest that employee engagement is influenced not only by adaptive individual capabilities but also by leadership practices that facilitate the effective utilization of those capabilities. Collectively, the results highlight the importance of resilience, agility, and ambidextrous leadership in sustaining employee engagement in VUCA environments.

Table 4. Path coefficient (Mediation Effects).

No.	Hypothesis Statement	Value	Findings
H1	There is a relationship between resilience and employee engagement in a VUCA environment.	0.000	Supported
H2	There is a relationship between agility and employee engagement a VUCA environment.	0.002	Supported
H3	There is a relationship between ambidextrous leadership and employee engagement a VUCA environment.	0.000	Supported
H4	There is a relationship between agility and ambidextrous leadership a VUCA environment.	0.000	Supported
H5	There is a relationship between resilience and ambidextrous leadership a VUCA environment.	0.000	Supported
H6	There is a mediation effect of ambidextrous leadership on the relationship between resilience and employee engagement a VUCA environment.	Partial Mediation	Supported
H7	There is a mediation effect of ambidextrous leadership on the relationship between agility and employee engagement a VUCA environment.	Partial Mediation	Supported

The findings indicate that resilience, agility, and ambidextrous leadership are significant predictors of employee engagement in VUCA environments. These results suggest that sustaining employee engagement under conditions of uncertainty requires both adaptive employee capabilities and supportive leadership practices. Resilience was found to positively influence employee engagement, indicating that employees who can recover from setbacks and cope effectively with uncertainty are more likely to remain committed and psychologically invested in their work. This finding supports previous studies that identify resilience as an important personal resource for sustaining positive work outcomes in challenging environments (Ludviga and Kalvina, 2024; Shet, 2024).

Consistent with Kahn (1990) Engagement Theory, resilience enhances employees' psychological availability, enabling them to remain engaged despite workplace adversity. Similarly, agility significantly influenced employee engagement. Employees who can adapt quickly, learn continuously, and respond effectively to changing demands are better able to maintain engagement in dynamic work environments. This finding is consistent with Lee and Song (2022), who argued that agility helps employees cope with environmental uncertainty and organizational change. The results also revealed that ambidextrous leadership positively influences employee engagement. This finding supports prior research suggesting that leaders who balance exploration and exploitation create an environment that encourages both adaptability and stability (Jia et al., 2022). Such leadership behaviours provide employees with the flexibility and support needed to remain engaged amid uncertainty. Furthermore, resilience and agility were found to significantly influence ambidextrous leadership, highlighting the complementary relationship between employee capabilities and leadership behaviours. More importantly, ambidextrous leadership partially mediated the relationships between resilience, agility, and employee engagement. This finding suggests that while resilience and agility directly contribute to engagement, their effects are strengthened through leadership practices that provide direction, support, and balance. The findings extend Kahn's Engagement Theory by demonstrating that employee engagement in VUCA environments is shaped by both individual adaptive resources and contextual leadership factors. Specifically, resilience and agility enhance psychological availability, while ambidextrous leadership facilitates the effective translation of these capabilities into sustained employee engagement.

Conclusion

This study examined the relationships between resilience, agility, ambidextrous leadership, and employee engagement within a VUCA environment. The findings revealed that resilience, agility, and ambidextrous leadership significantly contribute to employee engagement. In addition, resilience and agility were found to positively influence ambidextrous leadership, while ambidextrous leadership partially mediated the relationships between resilience, agility, and employee engagement. The results highlight the importance of both individual capabilities and leadership practices in sustaining employee engagement amid uncertainty, complexity, and rapid organisational change. Employees who are resilient and agile are better able to adapt to challenging situations, while leaders who demonstrate ambidextrous behaviours can create an environment that balances stability and innovation. This study contributes to the growing body of knowledge on employee engagement by demonstrating the critical role of resilience, agility, and ambidextrous leadership in navigating VUCA conditions. The findings suggest that organisations should invest in developing these capabilities to build a more engaged, adaptable, and future-ready workforce capable of thriving in an increasingly dynamic business environment.

Recommendations for future research

Several recommendations can be proposed for future research based on the findings of this study. First, future studies may expand the scope of the sample by including employees from different industries and sectors, particularly the public sector and non-profit organisations. This would enhance the generalisability of the findings and provide

a broader understanding of employee engagement in various organisational contexts. Second, future researchers may consider examining additional factors that influence employee engagement in a VUCA environment, such as psychological empowerment, organisational support, job autonomy, digital competencies, and employee well-being. These variables may provide a more comprehensive explanation of employee engagement beyond resilience and agility. Third, future studies could explore other leadership approaches, such as transformational leadership, authentic leadership, or servant leadership, as mediating or moderating variables. Such investigations would contribute to a deeper understanding of how different leadership styles influence employee engagement under uncertain and rapidly changing conditions. Fourth, this study employed a cross-sectional research design, which captures perceptions at a single point in time. Future research may adopt a longitudinal approach to examine how resilience, agility, leadership behaviours, and employee engagement evolve over time, particularly during periods of organisational change or crisis. Future researchers may consider using mixed-methods approaches by combining quantitative and qualitative techniques. While quantitative findings provide statistical evidence, qualitative insights could offer a deeper understanding of employees' experiences and perceptions of working in a VUCA environment, thereby enriching the overall interpretation of the findings.

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Conflict of interest

The author declares that there is no conflict of interest with any parties involved in this study. This research was conducted independently and without any financial, commercial, or personal relationships that could have influenced the research design, data collection, analysis, interpretation, or reporting of the findings.

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