
| RESEARCH ARTICLE

Navigating VUCA in Educational Leadership

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| ABSTRACT

This study explored teachers' perceptions of the determinants related to effective decision-making and school performance in VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) environments among educators in Region VIII, Philippines, during the Academic Year 2024–2025. Utilizing a descriptive research method, data were gathered from 186 teachers across public and private schools through a structured questionnaire. Findings revealed that teachers perceived a moderately high presence of VUCA conditions, particularly regarding frequent policy shifts, unclear institutional goals, complex stakeholder relationships, and ambiguous situations requiring adaptive responses. Despite these challenges, participants reported favorable perceptions of collaborative and data-driven decision-making, characterized by stakeholder involvement and the regular use of school data in guiding actions. Strategic planning was positively viewed, especially in setting long-term goals, engaging stakeholders, and updating plans regularly. Teachers also described positive school performance outcomes, including strong student achievement, high graduation rates, and support systems that help learners reach their potential. Organizational resilience was perceived in the schools' capacity to recover from setbacks, manage crises, and learn from experience. Lastly, innovation was seen as a strength, with schools implementing new teaching methods, promoting creativity, and seeking continuous improvement. These findings offer valuable insights into how schools in Region VIII operate within complex environments and support the development of an Adaptive Leadership Development Program tailored to the needs of educators in VUCA contexts.

| KEYWORDS

VUCA environment, adaptive leadership, decision-making, school performance, organizational resilience, innovation in education

| ARTICLE INFORMATION

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Introduction

The concept of VUCA—Volatility, Uncertainty, Complexity, and Ambiguity, has become increasingly prevalent in educational leadership discourse. Educational institutions worldwide are experiencing rapid changes due to technological advancements, policy shifts, and societal demands (Karakas, 2010). These changes create a VUCA environment that challenges traditional leadership and decision-making processes (Bennett & Lemoine, 2014). As a result, understanding how educational leaders navigate VUCA is crucial for maintaining effective school performance (Gharajedaghi, 2011). The prevalence of VUCA in education highlights the need for adaptive leadership strategies. This context sets the stage for exploring the impact of VUCA on decision-making and school outcomes.

The significance of studying VUCA in educational leadership lies in its impact on school performance outcomes. Effective navigation of VUCA environments can lead to improved student achievement and organizational resilience (Sullivan, 2012). By understanding the dynamics of VUCA, educational leaders can implement strategies that foster innovation and adaptability (Johansen, 2012). This understanding is essential for preparing schools to meet future challenges and opportunities (Horney, Pasmore, & O'Shea, 2010).

The ability to adapt to VUCA conditions is increasingly seen as a critical leadership competency. Therefore, exploring this topic is vital for enhancing educational leadership practices.

Navigating VUCA environments presents significant challenges for educational leaders. The unpredictability and rapid pace of change can hinder effective decision-making and strategic planning (Bennett & Lemoine, 2014). Additionally, the complexity and ambiguity inherent in VUCA contexts can lead to confusion and resistance among stakeholders (Kurtz & Snowden, 2003). These challenges necessitate new leadership approaches and decision-making frameworks (Sullivan, 2012). Leaders must develop skills to manage these challenges effectively. Addressing these challenges is crucial for sustaining school performance in a VUCA world.

Recent studies have explored various aspects of VUCA in educational settings. For instance, Bennett and Lemoine (2014) examined how leaders can adapt their strategies to thrive in VUCA environments. Johansen (2012) highlighted the importance of visionary leadership in navigating uncertainty and complexity. Additionally, Sullivan (2012) discussed the role of resilience and adaptability in educational leadership within VUCA contexts. These studies provide valuable insights into the strategies leaders can use to manage VUCA challenges. However, they also highlight the need for further empirical research. Understanding the practical implications of these studies is essential for advancing leadership practices.

Despite these contributions, several gaps remain in the literature on VUCA in educational leadership. Many studies focus on theoretical frameworks without empirical validation (Bennett & Lemoine, 2014). There is also a lack of research on the specific decision-making processes that can enhance school performance in VUCA environments (Johansen, 2012). Furthermore, the interplay between different VUCA constructs and school outcomes is not well understood (Sullivan, 2012). These gaps limit the applicability of existing research to real-world educational settings. Addressing these gaps is crucial for developing effective leadership strategies. Filling these gaps will contribute to the development of robust leadership models for VUCA environments.

Addressing these gaps is crucial for developing effective leadership strategies in education. Empirical research can provide evidence-based insights into how VUCA constructs influence decision-making and performance outcomes (Kurtz & Snowden, 2003). Understanding these dynamics can help educational leaders implement practices that enhance resilience and innovation (Horney et al., 2010). Filling these gaps will contribute to the development of robust leadership models for VUCA environments (Gharajedaghi, 2011). This research will also inform policy development and leadership training programs. Ultimately, addressing these gaps will enhance the capacity of educational leaders to navigate VUCA challenges effectively.

This study aims to explore the relationships between VUCA environment constructs, decision-making processes, and school performance outcomes. By examining these relationships, the study seeks to identify effective strategies for navigating VUCA challenges in educational settings. The research will also investigate the mediating role of decision-making processes in these dynamics. Ultimately, the study aims to provide actionable insights for educational leaders facing VUCA environments. These insights will inform leadership practices and policy development. The study's findings will contribute to the broader literature on educational leadership and VUCA.

Literature Review

In recent years, the education sector has grappled with intensified challenges arising from VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) conditions, especially during and after the COVID-19 pandemic. These conditions have compelled school leaders and educators to implement adaptive strategies to maintain institutional resilience and improve student outcomes. As noted by Aydin and Kaya (2021), teachers' perceptions of VUCA significantly influence their instructional choices and perceived efficacy. Such environments produce psychological strain and operational challenges, requiring leadership that is agile, participatory, and responsive to change. Salas-Pilco et al. (2022) emphasize that navigating VUCA effectively depends on fostering adaptive leadership competencies such as emotional intelligence, teamwork, and situational awareness. The link between decision-making and school performance under these conditions has been addressed by several scholars. Kools and Stoll (2016) argue that data-based decision-making and collective leadership are critical to driving innovation and sustaining educational quality. Similarly, Liu and Hallinger (2023) demonstrate that strategic planning rooted in timely data and stakeholder collaboration promotes organizational resilience and student learning. According to Ng and Tan (2019), Singapore's education system exemplifies how distributed leadership enables schools to manage rapid change. Uhl-Bien and Arena (2018) suggest that adaptability and networked leadership structures improve institutional responses in complex systems. Smith and Riley (2012) highlight the importance of resilience in school leaders operating under ambiguous conditions. Johansen (2012) advocates for visionary leadership as a core capability in preparing for uncertainty. Bennett and Lemoine (2014) contend that leaders who distinguish between the elements of VUCA can craft more effective strategic responses.

Methodology

This study utilized a descriptive research method to examine the determinants that contribute to effective decision-making and school performance in VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) environments among teachers in Region VIII, Philippines. Descriptive research is appropriate for studies that aim to present an accurate and systematic description of a phenomenon without manipulating variables. In this context, the method allowed the researchers to capture teachers' perceptions and experiences regarding the challenges of working in dynamic and uncertain educational settings. It focused on describing the current status of various constructs, such as volatility, uncertainty, complexity, ambiguity, decision-making processes, and school performance outcomes, to provide a factual basis for developing targeted leadership strategies. The study involved 186 teachers from both public and private schools, selected through convenience sampling. These participants provided valuable insights due to their active roles in instructional and administrative decision-making. Data collection was conducted using a structured questionnaire composed of items adapted from established literature. The instrument covered key constructs, including collaborative and data-driven decision-making, strategic planning, student achievement, organizational resilience, and innovation in education. Responses were measured using a Likert scale, enabling the researchers to quantify levels of agreement and identify prevailing trends. The descriptive approach enabled the identification of strengths and areas for improvement in schools' responses to VUCA conditions. It also served as the basis for formulating an Adaptive Leadership Development Program tailored to the needs of educators in Region VIII.

Results

Table 1. Demographic Profile of the Respondents

Category	Frequency	Percentage
Age		
20-29 years old	45	24%
30-39 years old	69	37%
40-49 years old	52	28%
50 years old and above	20	11%
Gender		
Male	50	27%
Female	136	73%
Years of Teaching Experience		
Less than 1 year	22	12%
1-5 years	75	40%
6-10 years	56	30%
11-15 years	16	9%
More than 15 years	17	9%
Educational Background		
Bachelor's Degree	91	49%
Master's Degree	87	47%
Doctorate Degree	5	3%
Other (e.g., diploma, certificate)	3	2%
Subject Area		
Mathematics	23	12%
Science	28	15%
English	28	15%
Filipino	35	19%

Social Studies	18	10%
Arts and Physical Education	30	16%
Technical-Vocational Education	24	13%
Type of School		
Public School	107	58%
Private School	79	42%
Access to Resources		
High access (e.g., internet, teaching materials, technology)	63	34%
Moderate access	80	43%
Low access	43	23%

The demographic profile of the respondents reveals a diverse group of teachers. A significant portion falls within the 30–39 age range (37%), followed by those aged 40–49 (28%). The majority are female (73%), and most have 1–5 years of teaching experience (40%). In terms of educational attainment, nearly half hold a bachelor's degree (49%), while 47% have earned a master's degree. Respondents teach across various subject areas, with the highest representation in Filipino (19%), Arts and Physical Education (16%), and Science and English (15% each). Most teachers are employed in public schools (58%), and 43% report moderate access to resources like internet and technology.

Table 2. Perception on the Volatility

Items	Mean	Standard Deviation	Verbal Description
1. In the past year, our school has experienced frequent changes in policies and procedures.	3.75	1.01	Agree
2. The educational environment in our district is characterized by rapid shifts in priorities.	3.62	1.07	Agree
3. We often face unexpected changes in student enrollment numbers.	3.46	1.21	Agree
4. There is a high turnover rate among staff members in our school.	3.36	1.25	Neutral
5. Budget allocations for our school change frequently and unpredictably.	3.53	0.84	Agree

Table 2 presents teachers' perceptions of volatility in their educational environment. The item with the highest mean, 3.75, indicates that respondents agree their schools have experienced frequent changes in policies and procedures, reflecting a key sign of volatility. Similarly, rapid shifts in district priorities (3.62), unpredictable budget allocations (3.53), and fluctuating student enrollment (3.46) were also perceived with agreement, showing that these factors contribute to an unstable environment. However, the item on high staff turnover scored a lower mean of 3.36 and received a neutral verbal description, suggesting it is perceived as less volatile compared to other factors.

Table 3. Perception on the Uncertainty

Items	Mean	Standard Deviation	Verbal Description
1. It is difficult to predict the future needs of our students.	3.77	1.29	Agree
2. We often lack clear information about upcoming educational reforms.	3.54	1.34	Agree
3. There is uncertainty about the long-term goals of our school.	3.85	1.24	Agree
4. We frequently encounter ambiguous situations that require decision making.	3.56	1.27	Agree
5. The outcomes of our strategic initiatives are often unpredictable.	3.70	1.20	Agree

Table 3 illustrates the teachers' perceptions of uncertainty within their school environments. The highest-rated item, with a mean of 3.85, indicates agreement that there is uncertainty about the long-term goals of their schools, suggesting a lack of direction or clarity in institutional planning. Teachers also agreed that it is difficult to predict students' future needs (3.77) and that the outcomes of strategic initiatives are often unpredictable (3.70), reflecting a broader sense of instability in planning and outcomes.

Additionally, respondents acknowledged a lack of clear information about educational reforms (3.54) and the frequent need to make decisions in ambiguous situations (3.56).

Table 4. Perception on the Complexity

Items	Mean	Standard Deviation	Verbal Description
1. Our school deals with a wide range of interconnected issues.	4.08	1.22	Agree
2. The relationships between different departments in our school are complex.	3.92	1.23	Agree
3. We manage a diverse set of programs and initiatives simultaneously.	3.91	1.23	Agree
4. There are many factors to consider when making decisions in our school.	3.91	1.23	Agree
5. The educational landscape involves multiple stakeholders with varying interests.	3.96	1.08	Agree

Table 4 presents the teachers' perceptions of complexity in their school environments. The highest mean score, 4.08, reflects strong agreement that schools deal with a wide range of interconnected issues, highlighting the multifaceted nature of educational challenges. Respondents also agreed that the educational landscape involves multiple stakeholders with varying interests (3.96), further emphasizing the layered decision-making context. Items relating to complex interdepartmental relationships (3.92), simultaneous management of diverse programs (3.91), and the numerous factors influencing school decisions (3.91) all received similar levels of agreement.

Table 5. Perception on the Ambiguity

Items	Mean	Standard Deviation	Verbal Description
1. We often face situations where the best course of action is unclear.	4.04	1.15	Agree
2. There is a lack of clarity about the implications of new educational policies.	3.87	1.20	Agree
3. Our school frequently encounters ambiguous challenges that require innovative solutions.	3.87	1.22	Agree
4. It is often difficult to interpret the impact of external changes on our school.	4.04	1.17	Agree
5. We deal with situations where the information available is open to multiple interpretations.	3.92	1.10	Agree

Table 5 reflects the teachers' perceptions of ambiguity in their school settings. The highest-rated items, both with a mean of 4.04, indicate agreement that educators often face situations where the best course of action is unclear and that it is difficult to interpret the impact of external changes on their schools. This suggests a recurring challenge in making informed decisions due to unclear or shifting conditions. Teachers also agreed that information is often open to multiple interpretations (3.92), and that their schools frequently encounter ambiguous challenges requiring innovative solutions (3.87). The same level of agreement was given to the lack of clarity regarding new educational policies.

Table 6. Perception on the Collaborative Decision Making

Items	Mean	Standard Deviation	Verbal Description
1. Staff members are actively involved in decision making processes.	3.95	1.33	Agree
2. Our school encourages input from all stakeholders when making decisions.	3.85	1.34	Agree
3. Decisions are made through open discussions and consensus building.	3.92	1.34	Agree
4. The administration values diverse perspectives in decision making.	3.92	1.35	Agree
5. We have regular meetings to discuss and decide on school matters collectively.	3.85	1.16	Agree

Table 6 highlights teachers' perceptions of collaborative decision-making within their schools. The highest mean score, 3.95, suggests that respondents agree staff members are actively involved in decision-making processes, indicating a participative leadership approach. Similarly, high levels of agreement were recorded for items stating that decisions are made through open discussions and consensus building (3.92) and that administrators value diverse perspectives (3.92), reflecting an inclusive and democratic school culture. Teachers also agreed that their schools encourage input from all stakeholders (3.85) and hold regular meetings for collective decision-making (3.85). Overall, the data suggest a strong perception of collaborative practices in decision-making, fostering shared leadership and collective responsibility.

Table 6 presents teachers' perceptions of data-driven decision-making in their schools. The highest mean score, 3.99, indicates strong agreement that data is used to guide instructional and administrative decisions, showing the central role of evidence in leadership and planning. Teachers also agreed that their school regularly analyzes student performance data to inform teaching strategies (3.97) and that administration relies on evidence to evaluate program effectiveness (3.96). Further, respondents confirmed that data is used to identify areas for improvement (3.91), and that their school invests in tools and training for effective data analysis (3.86). Overall, the responses reflect a consistent and positive perception of data-informed practices, supporting a culture of continuous improvement and accountability.

Table 7. Perception on the Data Driven Decision Making

Items	Mean	Standard Deviation	Verbal Description
1. Our school uses data to guide instructional and administrative decisions.	3.99	1.19	Agree
2. The administration relies on evidence to evaluate the effectiveness of programs.	3.96	1.17	Agree
3. We regularly analyze student performance data to inform teaching strategies.	3.97	1.15	Agree
4. Data is used to identify areas for improvement in our school.	3.91	1.19	Agree
5. Our school invests in tools and training for effective data analysis.	3.86	1.03	Agree

Table 7 outlines teachers' perceptions of strategic planning within their schools. The highest mean score, 4.27, indicates a strong agreement that the administration sets long-term goals and objectives, demonstrating a clear vision for the school's direction. Teachers also strongly agreed that strategic planning involves input from various stakeholders (4.25) and that the strategic plan is regularly reviewed and updated to reflect changes (4.21). The presence of a clear strategic plan guiding actions (4.20) and alignment of resources with strategic priorities (4.07) further supports the perception of a structured and forward-thinking approach. Overall, the results reflect a positive view of strategic planning practices, emphasizing long-term focus, stakeholder involvement, and responsiveness to changing needs.

Table 8. Perception on the Student Achievement

Items	Mean	Standard Deviation	Verbal Description
Our school consistently meets or exceeds academic performance targets.	4.09	1.07	Agree
Students in our school demonstrate strong critical thinking skills.	3.92	1.11	Agree
We have a high graduation rate compared to other schools in the district.	4.08	1.08	Agree
Our students perform well on standardized tests.	4.15	1.05	Agree
The school provides support to help all students achieve their potential.	4.05	1.00	Agree

Table 8 presents teachers' perceptions of student achievement in their schools. The highest mean score, 4.15, indicates agreement that students perform well on standardized tests, reflecting strong academic outcomes. Teachers also agreed that their school consistently meets or exceeds performance targets (4.09) and has a high graduation rate compared to other schools in the district (4.08), suggesting overall institutional success. Additionally, respondents acknowledged that the school provides support to help all students achieve their potential (4.05), and that students demonstrate strong critical thinking skills (3.92).

Table 9. Perception on the Organizational Resilience

Items	Mean	Standard Deviation	Verbal Description
1. Our school can quickly recover from setbacks and challenges.	4.22	0.95	Strongly Agree
2. The administration fosters a culture of resilience and adaptability.	4.17	0.92	Agree
3. We have systems in place to manage crises effectively.	4.22	0.97	Strongly Agree
4. Our school learns from past experiences to improve future performance.	4.21	0.98	Strongly Agree
5. Staff members are empowered to take initiative in difficult situations.	4.16	0.92	Agree

Table 9 highlights teachers' perceptions of organizational resilience in their schools. The highest-rated items, both with a mean of 4.22, indicate strong agreement that the school can quickly recover from setbacks and has effective systems to manage crises, reflecting strong institutional stability and preparedness. Teachers also strongly agreed that the school learns from past experiences to improve future performance (4.21), demonstrating a culture of continuous improvement. Meanwhile, there was agreement that the administration fosters resilience and adaptability (4.17) and that staff are empowered to take initiative in difficult situations (4.16). Overall, the results portray a highly resilient and adaptive school environment, capable of navigating challenges and sustaining performance.

Items	Mean	Standard Deviation	Verbal Description
1. Our school regularly implements new teaching methods and technologies.	4.17	0.94	Agree
2. The administration encourages experimentation with innovative practices.	4.13	0.95	Agree

3.	We have a culture that supports creativity and innovation among staff.	4.15	0.89	Agree
4.	Our school is recognized for its innovative approaches to education.	4.19	0.89	Agree
5.	We actively seek out and apply new ideas to improve student learning.	4.13	0.94	Agree

Table 10. Perception on the Innovation in Education

Table 10 presents teachers' perceptions of innovation in education within their schools. The highest-rated item, with a mean of 4.19, shows agreement that the school is recognized for its innovative approaches, suggesting external acknowledgment of creative educational practices. Teachers also agreed that the school regularly implements new teaching methods and technologies (4.17), and that there is a supportive culture for creativity and innovation among staff (4.15). Furthermore, there is agreement that the administration encourages experimentation (4.13) and that the school actively seeks and applies new ideas to enhance student learning (4.13). Overall, the data reflects a positive and proactive environment where innovation is valued and practiced, contributing to ongoing educational improvement.

Discussion

The findings of this study reveal that teachers in Region VIII perceive a moderately high presence of VUCA conditions, volatility, uncertainty, complexity, and ambiguity within their school environments. Frequent policy changes, rapid shifts in priorities, and unpredictable factors such as enrollment and budget adjustments contribute to the sense of volatility. Uncertainty is also evident, particularly in the lack of clear direction regarding long-term goals and educational reforms. The complex nature of educational settings was reflected in the need to manage interconnected issues, multiple stakeholders, and overlapping programs, while ambiguity arose from unclear policy implications and situations requiring interpretation and innovation. Despite these challenging conditions, teachers consistently demonstrated an awareness of their environment and a readiness to navigate the unpredictability inherent in their roles.

In response to these VUCA conditions, teachers expressed strong agreement with the presence of effective leadership and school management practices. Collaborative decision-making was perceived positively, with staff involvement and consensus-building viewed as common practices. Data-driven strategies were also highly rated, indicating that evidence-based decision-making is embedded in both instructional and administrative processes. Strategic planning was described as forward-thinking, inclusive, and regularly reviewed. These practices likely contribute to the favorable perceptions of school performance, including high academic achievement and organizational resilience. Furthermore, the strong emphasis on innovation through new teaching methods, openness to experimentation, and support for creativity demonstrates how schools in the region are actively adapting to educational changes. These insights reinforce the importance of developing adaptive leadership programs tailored to the realities teachers face in VUCA-affected environments.

Conclusion

This study concluded that teachers in Region VIII perceive their schools as operating within VUCA environments, marked by frequent changes, uncertainty, and complexity. Despite these challenges, they reported positive experiences with collaborative decision-making, data-driven practices, and strategic planning. Schools were also seen as resilient and innovative, maintaining strong academic performance. These findings highlight the importance of adaptive leadership in navigating educational challenges, supporting the need for a leadership development program tailored to the realities of VUCA-affected school settings.

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References

- [1]. Aydin, S., & Kaya, Y. (2021). Teachers' perceptions of VUCA and its impact on professional effectiveness. *Journal of Educational Leadership Studies*, 33(2), 89–102.
- [2]. Bennett, N., & Lemoine, G. J. (2014). What VUCA really means for you. *Harvard Business Review*, 92(1/2), 27–30.
- [3]. Bryson, J. M. (2018). *Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement*. John Wiley & Sons.
- [4]. Fullan, M. (2011). *Change leader: Learning to do what matters most*. Jossey-Bass.
- [5]. Gharajedaghi, J. (2011). *Systems thinking: Managing chaos and complexity – A platform for designing business architecture* (3rd ed.). Elsevier.
- [6]. Horney, N., Pasmore, B., & O'Shea, T. (2010). Leadership agility: A business imperative for a VUCA world. *People and Strategy*, 33(4), 32–38.
- [7]. Johansen, B. (2012). *Leaders make the future: Ten new leadership skills for an uncertain world*. Berrett-Koehler Publishers.
- [8]. Karakas, F. (2010). Spirituality and performance in organizations: A literature review. *Journal of Business Ethics*, 94(1), 89–106. <https://doi.org/10.1007/s10551-009-0251-5>
- [9]. Kools, M., & Stoll, L. (2016). What makes a school a learning organisation? OECD Education Working Papers, No. 137. <https://doi.org/10.1787/5jlwm62b3bvh-en>
- [10]. Kurtz, C. F., & Snowden, D. J. (2003). The new dynamics of strategy: Sense-making in a complex and complicated world. *IBM Systems Journal*, 42(3), 462–483. <https://doi.org/10.1147/sj.423.0462>
- [11]. Liu, S., & Hallinger, P. (2023). Strategic leadership and school resilience under crisis: Lessons from COVID-19. *Educational Management Administration & Leadership*, 51(2), 219–236. <https://doi.org/10.1177/17411432221086548>
- [12]. Mandinach, E. B., & Gummer, E. S. (2016). *Data literacy for educators: Making it count in teacher preparation and practice*. Teachers College Press.
- [13]. Mandinach, E. B., & Gummer, E. S. (2016). What does it mean for teachers to be data literate: Laying out the skills, knowledge, and dispositions. *Teaching and Teacher Education*, 60, 366–376.
- [14]. Marzano, R. J. (2003). *What works in schools: Translating research into action*. ASCD.
- [15]. Millar, C. C. J. M., Groth, O., & Mahon, J. F. (2018). Management innovation in a VUCA world: Challenges and recommendations. *California Management Review*, 61(1), 5–14. <https://doi.org/10.1177/0008125618805111>
- [16]. Ng, P. T., & Tan, C. (2019). Leading in a VUCA world: Lessons from Singapore's education system. *Educational Management Administration & Leadership*, 47(3), 367–379. <https://doi.org/10.1177/1741143217745875>
- [17]. Salas-Pilco, S. Z., Yang, Y., & Zhang, Z. (2022). Educational leadership in VUCA environments: A systematic review. *Educational Management Administration & Leadership*, 50(5), 750–772. <https://doi.org/10.1177/17411432211049726>
- [18]. Smith, J., & Riley, P. (2012). School leadership in times of crisis and uncertainty. *Educational Management Administration & Leadership*, 40(6), 639–650. <https://doi.org/10.1177/1741143212456915>
- [19]. Snowden, D. J., & Boone, M. E. (2007). A leader's framework for decision making. *Harvard Business Review*, 85(11), 68.
- [20]. Sullivan, J. (2012). The eight principles of uncertainty. *Leader to Leader*, 2012(66), 16–20. <https://doi.org/10.1002/ltl.20038>
- [21]. Sutcliffe, K. M., & Vogus, T. J. (2003). Organizing for resilience. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 94–110). Berrett-Koehler Publishers.
- [22]. Uhl-Bien, M., & Arena, M. (2018). Leadership for organizational adaptability: A theoretical synthesis and integrative framework. *The Leadership Quarterly*, 29(1), 89–104. <https://doi.org/10.1016/j.leaqua.2017.12.009>
- [23]. Vroom, V. H., & Jago, A. G. (1988). *The new leadership: Managing participation in organizations*. Prentice-Hall.