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Educational Managers' Competencies in Turbulent Environments (A Meta-Synthesis Study)

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ABSTRACT

The present study aimed to identify key competencies required by educational managers operating in turbulent environments. Two reviewers independently screened titles and abstracts, assessed full-text articles for eligibility, extracted data, and appraised the quality of included studies. Sandelowski and Barroso's (2007) two-step meta-synthesis approach and Naeem and colleagues' (2023) thematic analysis framework were used to analyze and interpret findings from included studies. The quality of these selected documents were evaluated using the Critical Appraisal Skills Programme (CASP) tool to ensure robust and credible insights. The findings reveal that educational managers in turbulent environments require a comprehensive set of competencies across five major domains: Organizational Competencies (strategic and data-driven decision-making, leadership and continuous capacity building, quality assurance in teaching and learning processes, orchestrating learning experiences, and building capacity for blended learning models), Situational Competencies (contingency policymaking, strategic coherence, managing complexity and change, facilitating digital transformation, and maintaining environmental intelligence and awareness), analytical Competencies (cognitive maturity and situational analysis), Communicative competencies (networking, constructive participation, coordination, promoting social cohesion, and providing professional support) and Individual Competencies (self-development, resilience, professionalism, and ethical orientation). This study contributes to the existing literature by identifying and categorizing the competencies that underpin effective educational management in turbulent environments.

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1. Introduction

Environmental turbulence is a prominent feature of the organizational environment in the twenty-first century (Pourkarimi & Azizi, 2024b). The world is becoming increasingly complex and dynamic (Abu, 2023; Jordaan, 2019). Today's world has become incredibly uncertain and turbulent due to the progressive changes that are constantly taking place (Dhillon & Nguyen, 2020). Environmental turbulence is recognized as a key feature of the organizational environment in the twenty-first century (Ambrosat & Grünwald, 2023; Pourkarimi & Azizi, 2024a). Various crises arising from internal or external causes have become integral to the modern business world in today's turbulent and highly uncertain commercial, technological, and social environments (Dubrovski, 2023). Environmental turbulence occurs when the environment changes due to the emergence of new technologies, shifts in economic and political conditions, changes in societal values, and alterations in individual demands. Chatterjee and colleagues (2023) indicate that turbulence—whether stemming from the outbreak of global diseases, financial crises, geopolitical conflicts, or the evolution of technology and markets, such as the emergence of sharing economies (such as Uber and Airbnb) or the expansion of artificial intelligence (such as ChatGPT)—has captured the global attention of businesses. Changes are accelerated by a phenomenon known as "VUCA" which stands for Volatile, Uncertain, Complex, and Ambiguous, and consists of rapid technological advancements, shifting emotional dynamics, migration patterns, biological disasters, and related governmental actions that are increasingly disrupting our lives (Deshpande et al., 2024). For instance, The COVID-19 pandemic has profoundly impacted many aspects of life around the world. While healthcare services were severely affected, education also faced significant challenges. Schools in most countries were closed for an extended period, disrupting children's education and forcing teachers to develop new technical and teaching skills. The consequences were particularly severe for disadvantaged families and communities, and learning gaps widened due to unequal access to learning devices and social resources (Bush, 2023). Based on Mahajan et al. (2023), digital teaching and learning, collaboration and partnership, embracing uncertainty and building resilience, transformation and innovation, and developing an entrepreneurial mindset have provided implications for management education in the turbulent environment. Additionally, the most immediate threats that may emerge within the next two years and become significant concerns include corrosive socioeconomic vulnerabilities that will be amplified in the near term, with looming concerns about an Economic downturn, resurgent risks, such as interstate armed conflict, and rapidly evolving risks like misinformation and disinformation (The Global Risk Report, 2024). Multiple studies have shown that managers are a key factor in a school's success, and their effective leadership improves adaptability to continuous changes and fosters ongoing school improvement (Drysdale et al., 2009; Liu & Werblow, 2019).

Over three decades ago, Morgan (1988) accurately predicted the management landscape of the twenty-first century, marked by tension, ambiguity, and paradox, and suggested that leaders must confront chaotic and unclear situations through innovative actions and solutions. Leaders play a crucial role in all organizations, particularly during challenging times (Anwar, 2021). The concept of educational leadership in the twenty-first century is closely intertwined with turbulence (Myers, 2014). In our increasingly complex world, the turbulent forces affecting teachers have become significantly more dynamic, creating complex challenges; however, they also provide unique opportunities (Gross, 2019). In such situations, leaders often have to utilize competencies they have not used before. The identification of current attitudes and behaviors is determined based on VUCA (Nowacka & Rzemieniak, 2021). Existing Competency models and frameworks for educational leaders have mostly been developed for stable and conventional environments. For instance, many traditional frameworks emphasize professional competencies without adequately considering the need for adaptability and resilience. Redefining the competencies of educational leaders in turbulent environments presents the application of turbulence theory in educational leadership during challenging times, offering future and current educational leaders an understanding of this theory and its application in the context of educational environments.

Applying chaos theory to today's complex systems, such as schools, presents a significant opportunity for change and transformation, given that learning and thinking processes are not linear (Akmansoy & Kartal, 2014). Chaos theory helps explain the turbulence and paradox in VUCA environments (Rimita, 2019). Chaos theory appeals to educators as much of what occurs within

schools often does not align with the expected outcomes. Usually, planned changes are not implemented as intended. While the objectives or goals may eventually be achieved, they rarely unfold in the predictable manner originally envisioned. It may be time to reconsider our assumptions about regularity and control in organizational change. Embracing irregularity as the norm could offer the best opportunity to transform traditional educational practices while also allowing us to identify patterns that can be directed positively (Snyder et al., 1995).

Educational leadership is considered an important variable in determining the success of educational organizations (White, 2022). The responsibility for the progress of learners and the challenges created due to complexity directly influences the managers of these organizations (Jambo & Hongde, 2020). With the emergence of environmental changes and accelerated economic development, organizations face increasing competition and complex, variable prospects, in which the role of leaders becomes even more significant (Dong, 2023). Huayta (2023) states that the current dynamics of organizations indicate a need for professionals trained to work in complex environments, collaborate in multidisciplinary teams, accept tasks beyond their job competencies and operational duties, and develop strategies that help them achieve their goals. In the contemporary landscape characterized by volatility, uncertainty, complexity, and ambiguity (VUCA), crises can arise and put organizations at risk. To prevent such failures, organizations must have capable leaders equipped with the necessary crisis management competencies to handle such situations (Mohd Ariffin et al., 2024).

As James and Wooten (2004) emphasize, leaders play a crucial role by preparing their organizations to deal with difficult times, managing challenges and crises as they arise, and seizing opportunities during crises to initiate changes and foster organizational development. Girma (2022) also believes that the quality of leadership in turbulent environments is of high importance as theories, styles, and actual leadership performance play a crucial role in creating a good educational system. Raffaelli and colleagues (2019), Tubagus and colleagues (2023), and Aslan and Shiong (2023) emphasize that educational leaders play a significant role in changes. As the educational landscape undergoes profound changes due to technological advancements, social changes, and global challenges, the necessity for effective leadership becomes increasingly evident (Sitopu et al., 2024; Miller, 2023). The consequence of these multidimensional transformations is the internal reorganization of organizational units and, consequently, the change of competency models as well as the definition of key behaviors and skills of individuals (Nowacka & Rzemieniak, 2021). Crisis management in educational contexts is defined as a process that includes three stages: (a) before the crisis, which involves strategies for mitigation, prevention, and preparedness, (b) during the crisis, and (c) after the crisis, which exist on a continuum with gradual transitions occurring between them; an effective response to crisis management at each of these stages requires a different level of preparedness and professionalism from school leaders, who must skillfully resort to appropriate leadership methods that are necessary throughout all stages of the crisis event (Chatzipanagiotou & Katsarou, 2023). Data-driven policy frameworks enable policymakers to analyze trends, foresee challenges, and manage assets effectively. Transparency, collaboration, and recognition are vital for enhancing communication among stakeholders and interests during COVID-19 (Yreck, 2024).

Based on conducted studies, educational leaders have significant potential in creating learning environments for teachers and learners, as well as enhancing and improving learners' learning outcomes by influencing teachers and organizational policies and processes (Daniëls et al., 2019; Groenewald et al., 2024). However, Sae-Lim (2019) emphasizes in his study that, unfortunately, the currently recognized leadership competencies are not sufficient to cope with turbulence. At the practical level, school leaders take on the role of school management without adequate preparation to guide their schools in turbulent conditions (Grissom & Condon, 2021). Pannipa et al. (2023) state that various organizations must emphasize the development of leadership characteristics that prepare them to face the challenges arising from the VUCA world and enable them to achieve success.

An examination and analysis of the available research background reveals that so far, no study has been conducted to identify the competencies of educational leaders in turbulent environments encompassing all dimensions of dynamics, change, turmoil, instability, uncertainty, complexity, and ambiguity. Therefore, the present study will address the fundamental question, "What are the competencies of educational managers in turbulent environments?" Given the significance and remarkable role of leaders' competencies in turbulent environments, especially in educational

organizations, this study will be an effective step toward identifying the necessary competencies for educational leaders. The findings of this study will be related to the existing knowledge in the field of effective educational leadership, filling the gap presented in the literature and clarifying the importance and necessity of developing these competencies to guide managers, stakeholders, and practitioners in planning for their development in the current turbulent world.

2. Theoretical Framework

According to chaos theory, the universe is a nonlinear, complex, and unpredictable system. This theory refers to systems that, despite their disorder, possess a kind of hidden order within themselves and exhibit irregular, nonlinear, and unpredictable behavior, believing in a final pattern of order amidst all these disturbances. Due to its nonlinear and complex nature, providing a model for chaotic systems is highly difficult (Namaki, 2018).

Research on environmental turbulence dates back to the early 1960s. It was first introduced by Emery and Trist (1965), who defined the turbulent environment as one that has high levels of interdependence with the organization along with a high degree of change in environmental factors (Kipley et al., 2022). To outline the organizational turbulent environment, John and Thakur (2024) adopt theoretical perspectives related to fluid dynamics. They believe that the four dimensions that describe turbulence in fluid flows, when used metaphorically, provide a comprehensive view of the turbulent organizational environment. In turbulent environments, schools must adapt to constantly changing conditions (Pietsch & Tulowitzki, 2023). The theory of complexity conveys the message to managers that the time for management using hierarchical (pre-determined) goals or pre-determined logic and rigid control is over; systems are continuously moving between various attractions (dynamic equilibrium) in conditions of chaos and disorder, and sometimes, a small change may lead to extensive and fundamental changes in the system (Namaki, 2018).

Ansell (2024, p. 18) concludes from examining the definitions provided across various disciplines and subfields that turbulence refers to "irregular pulsating flows" and "random movements" that lead to "dynamic complexity," which derives from and causes multi-scale nonlinear disruptions. Turbulence is characterized by rapid changes, unpredictability, and unexpected risks; it enhances chaos, stimulation, and stress, produces unstable, inconsistent, and volatile events, and leads to increased instability and continuous change; it is sudden and destructive, creating heightened tensions, policy paralysis, uncertain outcomes, and ambiguous futures; it moves the earth as logics collide with one another; it results in radical structural changes; thus, turbulence is described as a specific form of sudden, astonishing, and accelerated changes that entail complex, dynamic, conflicting, and unpredictable interactions among events, developments, and desires, leading to technical or socio-political challenges, stimuli, and stressful uncertainties.

Chiavenato (2019) argues that facing complex and/or unstable environments requires sustainability skills that do not become obsolete over time. These skills include knowledge (skills, learning how to learn, continuous learning, expanding knowledge, transferring knowledge, and sharing knowledge); ability (application of knowledge, having a global and systematic view, problem-solving, skills, collaborating with others, and proposing solutions); judgment (assessing situations, acquiring data, having a critical spirit, judging facts, consulting in a balanced manner, and defining priorities); and attitude (entrepreneurial attitude, innovation, being a change agent, accepting risks, focusing on results, and Self-actualization).

Competence refers to a set of personal characteristics (skills, knowledge, attitudes, etc.) that an individual must acquire to perform an activity in a specific field at a defined level of performance. Therefore, competence is defined as a quadrilateral of S, K, P, C, where S refers to skills, K refers to knowledge, P refers to the values of performance criteria, and C refers to the context in which the skills are applied (El Asame & Wakrim, 2018). Bill George (2017), a senior member of the Harvard Business School, defines another VUCA response matrix in terms of Vision, Understanding, Courage, and Adaptability, calling it VUCA 2.0. In summary, VUCA includes elements of volatility (rapid large-scale changes), uncertainty (the lack of accurate predictions), complexity (the intricacy and diversity of influencing factors and the scarcity of solutions), and ambiguity (low levels of clarity regarding the meaning of events and their consequences) (Clarke, 2016). Jarosik-Michalak et al. (2024), by examining the competencies required in BANI, conclude that the VUCA theory compels

leaders to acquire new skills such as collaboration, agility, resilience, empathy, adaptability, and initiative to effectively deal with a changing and chaotic environment. For reliable and cautious performance, organizations must be aware of the leadership effective in shaping employees' attitudes and behaviors, as well as the associated opportunities and risks.

3. Empirical Reviews

Pourkarimi and Azizi (2024a) in their study entitled "Leadership Competencies in Turbulent Environments (A Meta-Synthesis Study)" employed a meta-analytic approach to examine published research and introduce a model of competencies for leaders in turbulent environments. According to their findings, the integrated model includes organizational and peripheral knowledge; self-development, mental and analytical abilities, guidance, coherence, understanding of complexities, and cognitive (thinking) abilities; team building skills, communication, empowerment, decision-making (in unstable conditions), and technological skills; individual ethics, organizational (professional) ethics, and psychological ethics; and an attitude of passion for improvement and strategic vision.

Granville-Chapman et al. (2024) in their study entitled "The Development of a New Model of Educational Leadership: Leadership for Teacher Flourishing," employed a mixed-methods approach and indicated that essential elements facilitating the professional development of educators, which were subsequently integrated into the 'LFTF' framework, included constructive interpersonal relationships; opportunities for professional advancement; a favorable influence on subjective well-being; and the enhancement of educators' sense of purpose within their occupational roles. The mechanisms through which educational leaders could influence these determinants were identified as demonstrating support and empathy; establishing trustworthiness; granting educators' autonomy; fostering professional growth; expressing appreciation while emphasizing strengths; and facilitating educators' engagement in purposeful work.

Based on Oliveira and Saraiva's (2023) systematic literature review entitled "Leader skills interpreted in the lens of education 4.0," the paramount competencies required for leaders in Higher Education Institutions (HEIs) within the framework of Education 4.0 include adaptability, strategic foresight, continuous learning, digital-analytical proficiency, social accountability, effective problem-solving, visionary thinking, emotional intelligence, stakeholder engagement, institutional-legal acumen, process optimization, and ultimately, systemic knowledge management.

4. Research Method

To examine the competencies of educational leaders in turbulent environments, an interpretive paradigm, qualitative approach, and meta-synthesis method have been employed. Meta-synthesis involves studying various qualitative findings in relevant studies, comparing different types of data according to their quality and applicability, as well as combining and interpreting research findings related to the same phenomenon (Dawson, 2019). Meta-synthesis method provides a comprehensive and valuable overview of existing findings and offers new insights regarding a specific topic (Edwards & Kaimal, 2016). Meta-synthesis is conducted using integrating qualitative findings to achieve broader insights, conceptual development, or practical utility, going beyond the findings of distinct studies (Malterud, 2019). This method serves as a structured model for analyzing qualitative literature and extracting concepts (Afshari et al., 2024).

Since the review of the literature significantly enhances our understanding of how strategic leaders guide and influence these changes, especially in the context of sustainability (Akbar et al., 2024), the meta-synthesis method in the present research facilitates the integration and examination of the findings from qualitative studies conducted on the competencies of educational leaders in turbulent environments, resulting in a deep and comprehensive understanding of the subject. To this end, the seven-step method of Sandelowski and Barros (2007) has been used for the meta-synthesis.

4-1. Search Strategy

Eleven databases (Sage, PubMed, ResearchGate, Google Scholar, ScienceDirect, Emerald, Springer, ProQuest, Irandoc, SID, Noormags, and Magiran) were searched from 2015 to November 2024 using specific keywords. The main concepts included (“Educational leadership” OR “Educational management”) AND (“Turbulent” OR “Chaos” OR “VUCA” OR “Changing” environment) AND

("Competency" OR "capital" OR "capacity" OR "ability"). Subsequently, a backward citation tracking method was conducted by hand-searching the reference lists of selected studies to identify other eligible studies that may have been missed during the comprehensive search. Any discrepancies that surfaced were resolved through discussion between reviewers and the content experts (co-authors with extensive research experience).

4.2. Eligibility Criteria

The inclusion criteria for this review were English-language published and unpublished qualitative studies of qualitative designs (e.g., grounded, descriptive, and phenomenology), exploring the factors of educational managers' competencies in turbulent settings. Quantitative studies, correlation studies, exploratory studies, conference proceedings, opinion reports, and reviews were excluded.

Study quality was assessed using the PRISMA steps. PRISMA is a guideline for assessing and improving the quality of review articles and scientific research based on systematic reviews and meta-analyses. Based on this guideline, the quality of articles derived from library studies is expected to improve significantly. PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

The initial search yielded 1,107 studies. After the exclusion of 549 duplicates, 558 titles and abstracts were screened, and 465 were excluded due to irrelevance. The remaining 93 full texts were further assessed for eligibility, and 30 qualitative studies were selected and included in the final synthesis. The screening process is displayed in Figure 1.

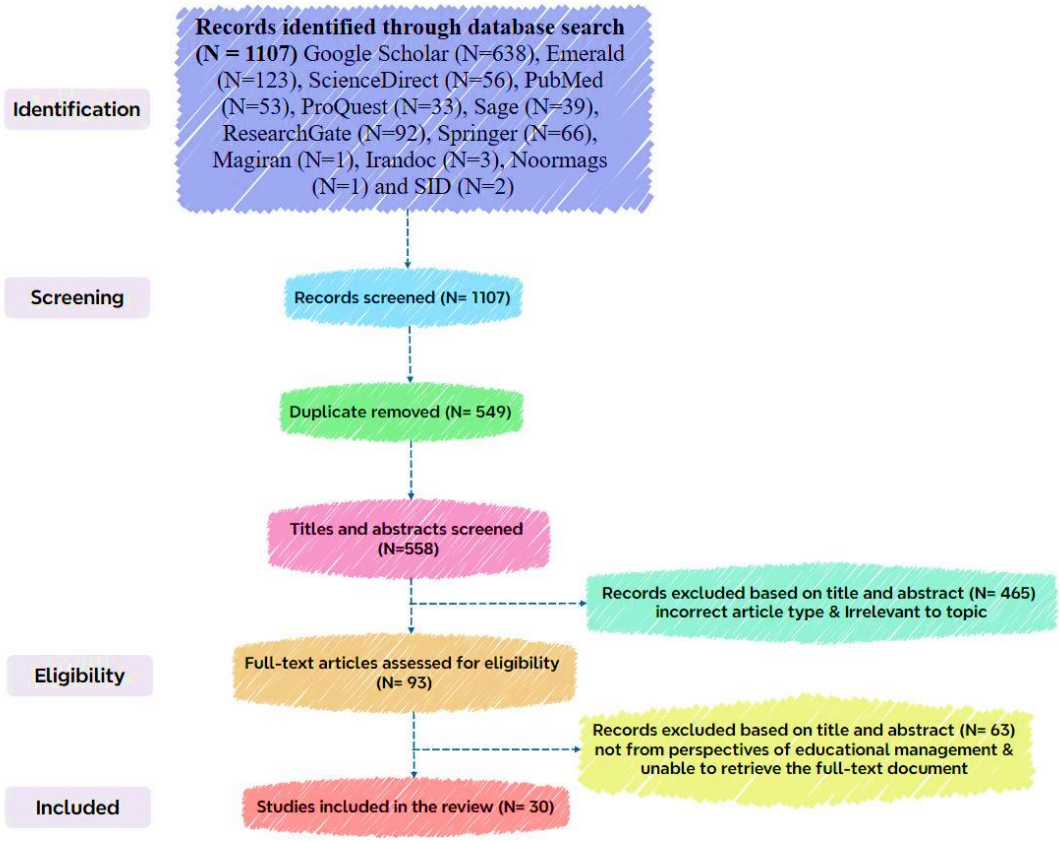

Fig. 1. PRISMA Flow Chart

4-3. Quality Appraisal

Two reviewers independently appraised the quality of the included studies using the Critical Appraisal Skills Program (CASP) Qualitative Research Checklist (CASP, 2018). The design, methods, and reporting of the studies were evaluated for their relevance, reliability, and validity using the CASP checklist (Nadelson & Nadelson, 2014). Inter-rater reliability checks were conducted to improve the credibility of the thematic analysis findings. Two reviewers independently coded a subset of the data, and their codes

were compared to evaluate consistency. Discrepancies between the reviewers were resolved through discussion or by consulting a third reviewer. To assess the reliability of the extracted codes, three sources were randomly selected and provided to a PhD graduate in Higher Education Development Planning for coding, who has relevant experience in this field. The inter-rater reliability for the three sources included in this meta-synthesis was calculated using the percent agreement between the coders, resulting in an agreement of approximately 86%, which indicates a desirable level of reliability for the findings.

4-4. Data Extraction

The data extracted by two reviewers was guided by an extraction form adapted from a review by Munro et al. (2007). The extracted data included author(s), publication year, study title, country, aims, ethics, recruitment context, sampling, sample (participants) characteristics, data collection, data analysis, results, discussion, and recommendation.

4-5. Data Synthesis

Data synthesis followed the two-step approach outlined by Sandelowski and Barroso (2007). It involves research question identification, literature review, study selection, data extraction, analysis and synthesis of qualitative findings, quality control, and presentation of findings.

Subsequently, Naeem and colleagues' (2023) thematic analysis approach was employed to analyze and synthesize the extracted data, leading to the generation of themes for this review. Two independent reviewers engaged in a thorough process of reviewing the text findings, which involved multiple readings and coding of key concepts, followed by the categorization of similar concepts and the inductive generation of the main themes of the review (Figure 2).

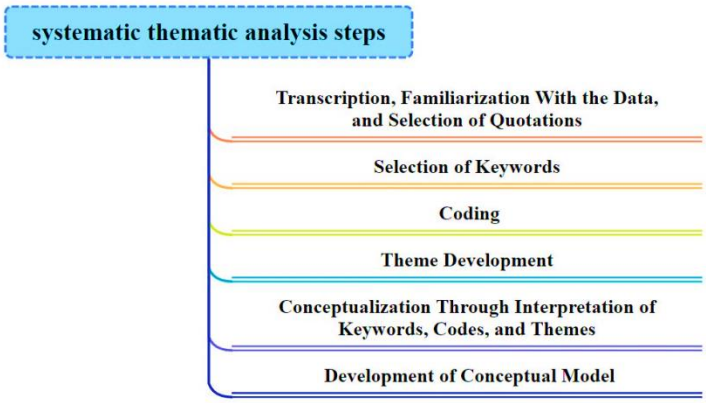

Fig. 2. A Systematic Thematic Analysis Process (Naeem et al., 2023)

Due to the length limitations of the article, the initial coding of findings is presented in three of the reviewed documents (see Table 1).

Table 1. Initial Coding of Findings

Reference codes	Main text	Initial codes
07	promote care, collaboration and resilience among school stakeholders by providing support for and genuine interest in the inner world of the students, staff and community, fostering collaborations among all school stakeholders and building resilience among students, teachers and principals.	promoting care, collaboration/ providing support for and genuine interest in the inner world of the students, staff and community/ fostering collaborations among all school stakeholders/ building resilience among students, teachers and principals.
28	Effective planning is indispensable during challenging times. School administrators stated that, normally, there should be a crisis plan; however, the plan should be reviewed in cases of a crisis, revised according to the situation and some planning should be made according to the current conditions.	Effective planning/ contingency planning
19	In such cases, practices of building trustworthy connections, more distributive forms of leadership and robust communication, helping the leaders to navigate the turbulence at times of crises, are significant.	building trustworthy connections, more distributive forms of leadership/robust communication

5. Research Findings

Thematic analysis of findings is presented in Table 2.

Table 2. Thematic Analysis of Findings

Main Themes	Secondary Themes	Primary Themes	Reference codes
Organizational Competencies	Strategic and data-driven decision-making	Careful examination of options, implications, and side effects of actions	1/18/6/12
		Obtaining high-quality information	27/6/9/10/11
		Strategic future study	3/18/7/12
		Foresight scenario-planning	18/14/3/15/2/6/9
	Leadership and continuous capacity building	Building the collective-organizational resilience	14/6/3/7/11
		School's community empowerment	6/18/17/7
		Promoting collective teacher efficacy	24/13/18
		Distribution of leadership	29/27/25/197/17/6
		Teacher supervision	13/7/5
	Quality assurance in teaching and learning processes	Educational quality assurance	5/29/21/15
		Reviewing and redesigning the school plans and curriculums	27/3/15/5/7/11
		Facilitating innovation and improvement in teaching and learning	6/27/17/11
		Creating a safe, supportive and dynamic learning environment	26/27/1/17/7/11
		Student coaching	21/15/5/7
	Orchestrating learning experiences	Learning from experiences	9/16/6/7/10/12
		Creating an open-learning culture	8/21/6/11
		Managing teachers' professional learning	28/24/11/13/6/1/7
		Turning challenges into opportunities	16/15/14
		Encouraging excellence	2/5/9
		up-to-date pedagogical knowledge	18/11/17
	Building capacity for blended learning models	Building professional online communities	25/17/19/15
		Mapping of digital pedagogies	15/6/17/13
		Developing distance education	29/27/23/17/18/12
Situational Competencies	Contingency policymaking	Shared vision	24/21/3/17/1/5/6/7/8
		Goal-setting and prioritizing	24/27/17/5/6
		Contingency planning	25/5/7/9/12
		Mobilization, allocation and utilization of resources	29/1/22/15/10/5/7/9
	Strategic coherence	Timely and immediate action	22/24/6/14/5/7
		Rapid review of educational instructions	27/6/15/7
		Giving and receiving feedback	22/3/17/5/7/10
	Complexity and change	Crisis management	24/18/20/5/16/17/9/11/12
		Managing complexity and ambiguity	18/7/6/12
		Overcoming obstacles and limitations	6/20/19/7/8
		Search to generate new ideas	22/29/7/16/8/12
		Effective organizational change management	13/20/16/6
	Digital transformation	Innovative use of ICT and e-learning strategies	29/27/11/19/18/15
		Digital literacy	25/2/19/15/17/18/5/12
		Developing digital platforms	27/15/6/13/7/9/11/5
		Ensuring cyber security	11/13/7
	Environmental awareness and attentiveness	Identifying the stakeholders' needs	5/24/6/8/9/13
		Mapping the strengths and weaknesses in the system	7/17/5/6
		Global and local awareness	12/3/13/7/11
		Knowledge of legislation and educational laws	13/29/18
		Avoiding rumors and misinformation	27/6/7
Analytical Competencies	Cognitive maturity	Systematic thinking	18/6/7/8/12
		Critical thinking	2/3/7/10/12
		Learning agility	10/16/3/1
		Problem-solving	27/1/24/2/3/5/7/8/11/12
		Innovation and creativity	13/18/16/7/1/3/6/11/10/12
		Emotional intelligence	11/29/14/13/7
	Situational analysis	Analysis of situation and environmental changes	3/18/5/9/10/12/7
		Identify potential risks, threats and opportunities	7/24/18/9
		Identifying the primary signals of environmental turbulence	29/22/3/9

Table 2.

Main Themes	Secondary Themes	Primary Themes	Reference codes
Communicative Competencies	Networking and constructive participation	Continuous influence and communication	13/24/16/17/4/1/5/6/7/9
		Awareness-raising	28/17/7/5/9
		Building a culture of participation	25/11/13/7/6
		Team building and teamwork	28/5/21/19/17/7/6/9
		collaborative decision-making	28/7/21/6
	Coordination and promoting social cohesion	Motivating employees	7/28/24/8/11
		Sense-making and giving hope	29/24/7/17/18/12
		Creating a sense of belonging	29/25/6/24/21/17/13/7/11
		Building collective resilience	25/29/6/7/11
		Building an integrated alliance	25/30/29/5/17/7
		Empathy	13/17/6/5/7/8/9/11/12
		Conflict and stress management	17/24/5/16/6/3/7
		Considering collective and individual interests	25/7/21/17
		Responding to the diverse needs	17/13/3/6/11
	Professional support	Supporting underprivileged and vulnerable learners	29/25/7/24/21/5/9
		Supporting teachers and staff	25/13/24/21/16/17
		Benefiting from collective wisdom	13/14/7/6
		Building trust and providing reassurance	13/25/21/19/7/6/1
		Social justice and inclusion in educational systems	24/7/12/11
		Improving the physical and mental health of people	23/24/18/15/7/17
Individual Competencies	Self-development	Growth mindset	24/10/13
		Agile and adaptive mindset	13/29/19
		Optimism and positive attitude	17/18/7
		Learning	17/7/12
		Self-leadership (self-management, self-regulation and self-awareness)	17/18/5/7
		Readiness and responsiveness	6/24/16/17/7/9/10/11/3
		Adaptability	17/24/16/13/1/7/10/11/12
		Self-efficiency	13/24/18/12
	Resilience	Tolerance of ambiguity	18/1/16/6/7/9/12
		Boldness and courage	24/18/16/7/12
		Sensitivity and attentiveness	17/18/6/7/9
		Decisiveness	7/13/8
		Tenacity	24/18/13/14/16/3/7/8/10/11
		Calmness	7/17/8
		Risk-taking	24/18/7/16/10/12
		Flexibility and adjustment	25/24/18/15/13/7/10/12
	Professionalism	Resourcefulness	8/7/11
		Transparency	24/10/19/17/11/7
		Genuine interest in school community	6/17/8/7
	Ethical orientation	Value-orientation	30/29/24/25/7/8
		Accountability	17/16/3/7/10
		Conscientiousness and commitment	5/25/21/1

The findings reveal that educational managers in turbulent environments require a comprehensive set of competencies across five major domains: Organizational Competencies (strategic and data-driven decision-making, leadership and continuous capacity building, quality assurance in teaching and learning processes, orchestrating learning experiences, and building capacity for blended learning models), Situational Competencies (contingency policymaking, strategic coherence, managing complexity and change, facilitating digital transformation, and maintaining environmental intelligence and awareness), Analytical Competencies (cognitive maturity and situational analysis), Communicative Competencies (networking, constructive participation, coordination, promoting social cohesion, and providing professional support), and Individual Competencies (self-development, resilience, professionalism, and ethical orientation). This study contributes to the existing literature by identifying and categorizing the competencies that underpin effective educational management in turbulent environments. The final model of educational managers' competencies in turbulent environments is presented in Figure 3.

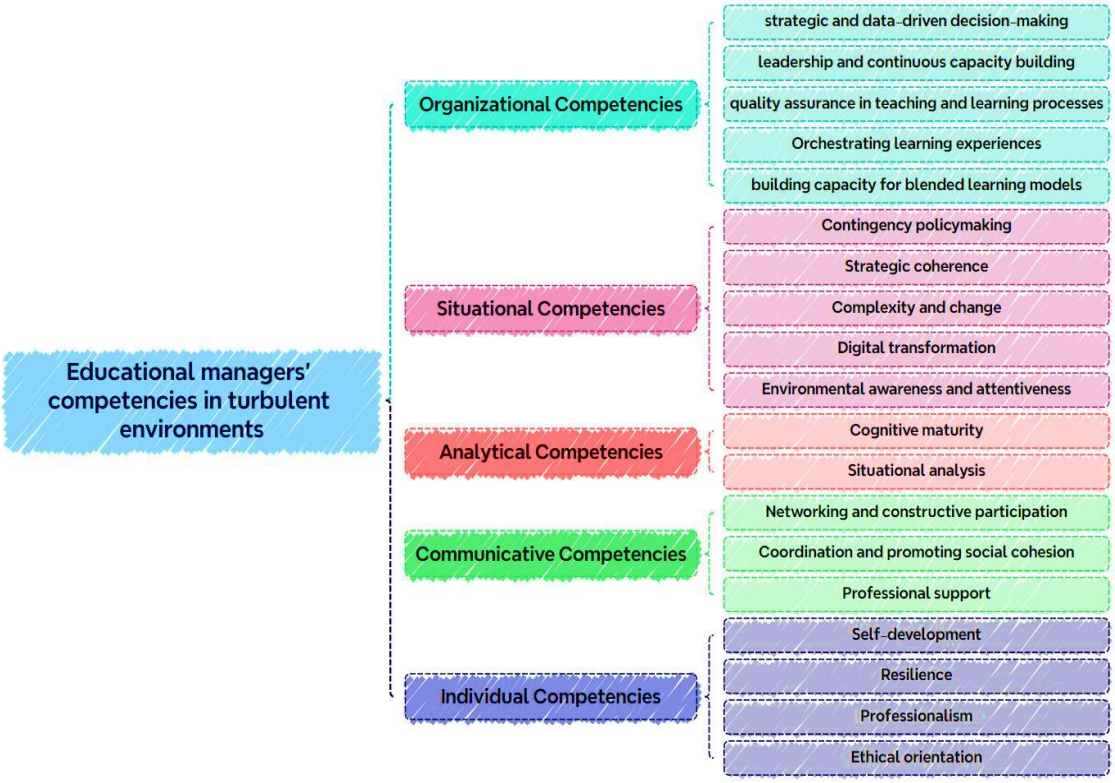

Fig. 3. Educational Managers' Competencies Model in Turbulent Environments

6. Discussion

The turbulent world, which is constantly changing, has brought various internal and external challenges for organizations (Jiao & Bu, 2024). In the contemporary landscape, characterized by VUCA, crises can arise and put organizations at risk. To prevent such failures, organizations must have competent leaders who possess the necessary competencies to manage such situations (Mohd Ariffin et al., 2024). Despite the significant importance of managers' competencies in turbulent environments, a review of related studies revealed that this issue has not received attention from researchers in educational organizations. Therefore, the present study aims to identify the competencies of educational managers in turbulent environments using a meta-synthesis method.

The findings of this research align with those of Pourkarimi and Azizi (2024), particularly regarding self-development components, cognitive and analytical abilities, coherence skills, communication skills, and team building. Furthermore, the findings are consistent with the research by Smith and Riley (2012) regarding the components of optimism, resilience, flexibility, empathy, respect, communication skills, assertiveness, and creativity. To overcome the challenges of environmental turbulence, Baiyeshea and McGregor (2024) suggest fostering motivation in employees, shared leadership, encouraging team members to reach their full potential, establishing an environment where leaders are open to personal and professional growth as well as the development of their colleagues, and also effective communication, understanding others, trust and respect, exchanging innovative ideas, and problem-solving, which aligns with the findings of the present study.

The findings of this study reveal that competencies such as contingency policymaking, resilience, adaptability, managing complexity and ambiguity, strategic vision, effective communication etc. are essential for educational leaders operating in turbulent environments. This insight underscores the importance of these competencies in navigating complexity and uncertainty, areas that have been relatively underexplored in the existing literature.

The organizational competencies of educational managers in turbulence include strategic and data-driven decision-making competencies, leadership, continuous capacity building, ensuring the quality of the teaching-learning process, managing learning opportunities, and capacity building for blended learning. For strategic and data-driven decision-making, it is essential to carefully examine options,

implications, and side effects of actions, as well as to obtain high-quality information. Strategic future studies, including foresight and scenario planning, are necessary. As organizational environments become more complex and unstable, the concept of "organizational resilience" has emerged as a new norm for improving performance in uncertain conditions (Evenseth et al., 2022). In very unstable and uncertain times, organizations need to develop resilience capacity that enables them to effectively cope with unexpected events, recover from crises, and even enhance future successes (Duchek, 2020). The results indicate that many teachers face significant challenges in dealing with VUCA. Circumstances appear to lack adequate training in social-emotional competencies (Hadar et al., 2020). Managers can engage in continuous leadership and capacity building in turbulent environments by fostering collective and organizational resilience, empowering the school community, nurturing teachers' collective self-efficacy, distributing leadership, and guiding and supervising teachers. The findings of the study conducted by Borazon and Chuang (2023) highlight the role of the environment, individual experiences and backgrounds, and educational institution programs as enablers of organizational resilience in educational organizations. Essential components include educational quality assurance, reviewing and redesigning school plans and curricula, facilitating innovation and improvement in teaching and learning, and creating a safe, supportive, and dynamic learning environment. Additionally, student coaching is crucial to ensure the quality of the teaching-learning process in turbulent educational settings.

Managers can learn from experiences by fostering an open-learning culture, managing teachers' professional development, turning challenges into opportunities, and encouraging excellence. They should also acquire up-to-date pedagogical knowledge to orchestrate learning experiences and build capacity for blended learning models through professional online communities, mapping digital pedagogies, and developing distance education.

Knowledge workers must recognize that operating in a VUCA (Volatile, Uncertain, Complex, Ambiguous) environment requires audacity, agility, alertness, exploration of new solutions, innovation, and a willingness to learn from mistakes (Pultoo & Oojorah, 2020). Educating digital natives—new-generation learners born into a digitalized world—will empower them to navigate the VUCA-driven information landscape effectively (Panthalookaran, 2022). Cabanlit (2024) recommends reshaping the current educational curriculum by integrating courses that address lessons from the unprecedented past, such as innovative mental anxiety management, catastrophic crisis management, spiritual boosters, work-life balance, hygiene and sanitation, and new methodologies for assessing student outcomes with a futuristic approach.

According to Evenseth et al. (2022), effective learning depends on the appropriate management of experiential learning, a systemic approach to education, the organizational ability to unlearn, and an environment that facilitates organizational learning. Garavan et al. (2024) argue that learning and development play a critical role in enabling organizations, individuals, and the societal context in which they operate to thrive within and navigate VUCA environments.

Situational competencies include contingency policymaking, strategic coherence, complexity and change, digital transformation, environmental awareness and attentiveness. Contingent policymaking in an unstable environment is achieved through shared vision, goal setting and prioritizing, contingency planning, mobilization, allocation, and utilization of Resources. Strategic coherence is defined as the development of a system of mutually compatible meanings among members about desirable organizational directions (Lusiani & Langley, 2019). Strategic coherence encompasses timely and immediate action, rapid review of educational instructions, and giving and receiving feedback. Learning is at the heart of feedback as it is the delivery of information based on direct observation that is meant to improve performance (Jug et al., 2019). Complexity and change encompass crisis management, managing complexity and ambiguity, overcoming obstacles and limitations, searching to generate new ideas, and effective organizational change management. Digital transformation includes innovative use of ICT and e-learning strategies, digital literacy, developing digital platforms and ensuring cyber security. Ramsetty and Adams (2020) state that the opportunity to be adequately capacitated with digital-technological skills is dependent on the presence of technology in a certain community. Educational managers, by identifying the stakeholders' needs, mapping the strengths and weaknesses in the system, global and local awareness, knowledge of legislation and

educational laws and avoiding rumors and misinformation, possess the environmental awareness and attentiveness competency.

Educational managers equipped with analytical competencies, cognitive maturity, and situational (environmental) analysis—essentially systematic thinking, critical thinking, learning agility, problem-solving, innovation and creativity, emotional intelligence, and the ability to analyze environmental changes—are effective in identifying potential risks, threats, and opportunities. They excel in recognizing the primary signals of environmental turbulence, which is crucial for managing turbulent environments. A crisis can serve as a catalyst for educational institutions to consider the future, adapt to potential threats, and enhance their capabilities (Pultoo & Oojorah, 2020).

Leaders and administrators must comprehend the complexities of sensitive situations. This understanding enables them to select the appropriate course of action and make swift decisions regarding resource allocation, human capital, and the flow of information (Pannipa et al., 2023). Based on the findings, networking, constructive participation, coordination, promoting social cohesion, and professional support have been identified as essential communicative competencies.

Educational managers must create an environment conducive to continuous influence and communication, awareness-raising, building a culture of participation, team building, and collaborative decision-making. They should also cultivate motivation, sense-making, and hope; create a sense of belonging; build collective resilience and integrated alliances; show empathy; manage conflict and stress; consider both collective and individual interests; and respond to diverse needs.

Brion and Kiral (2021) emphasized that communication has become essential for stress management and fostering a sense of belonging among both teachers and students while planning for the school year. Gupta et al. (2023) explore the motivational drivers for knowledge workers at the bottom of the organizational hierarchy impacted by turbulence. Their findings introduce networking for acquiring more projects, absolute autonomy, and content-specific payment as key motivational factors. Furthermore, by supporting underprivileged and vulnerable learners, supporting teachers and staff, benefiting from collective wisdom, building trust and providing reassurance, social justice and inclusion in educational systems, and improving the physical and mental health of people, they should engage in professional support amidst environmental turbulence.

The individual competencies of educational managers encompass self-development, resilience, professionalism, and ethical orientation in turbulent environments. Managers focused on self-development possess a growth mindset, an agile and adaptive approach, optimism, a positive attitude, learning ability, and self-leadership (self-management, self-regulation, and self-awareness), readiness and responsiveness, adaptability and self-efficacy. Tolerance of ambiguity, boldness, courage, sensitivity and attentiveness, decisiveness, tenacity, calmness, risk-taking, flexibility, and adjustment enhance the resilience of educational managers. Anderson et al. (2018) believe that students and educators may need to develop resilience during turbulent times, and developing adaptive and reflexive approaches can support personal resilience and flexibility. Resilient leadership refers to the ability of leaders to quickly recover and continuously drive the organization forward when faced with pressure, adversity, and change (Zhang, 2024). Moreover, educational organizations in such environments require professional and ethical managers who engage in resourcefulness, transparency, genuine interest in the school community, value orientation and accountability, as well as conscientiousness and commitment.

This study enhances our understanding of educational leadership by introducing a competency framework specifically designed for turbulent environments, marked by uncertainty, complexity, and rapid change. It challenges traditional leadership models by highlighting the necessity for adaptive, dynamic, and context-sensitive competencies that extend beyond static or predefined skill sets. The framework incorporates dimensions of ambiguity, instability, and complexity into leadership theory, providing a fresh perspective on how leaders can sustain organizational resilience and effectiveness in challenging settings.

7. Conclusion

This study provides a comprehensive framework for understanding the competencies required for educational leaders in turbulent environments. This research fills a significant gap in the literature by integrating dimensions such as dynamics, change, turmoil, instability, uncertainty, complexity, and

ambiguity. The findings challenge assumptions that existing competencies alone are sufficient for leadership in these contexts. Instead, this study highlights the need for a nuanced set of skills that enable educational leaders to manage and thrive in turbulent environments. The findings reveal that educational managers in turbulent environments require a comprehensive set of competencies across five major domains: Organizational Competencies (strategic and data-driven decision-making, leadership and continuous capacity building, quality assurance in teaching and learning processes, orchestrating learning experiences, and building capacity for blended learning models), Situational Competencies (contingency policymaking, strategic coherence, managing complexity and change, facilitating digital transformation, and maintaining environmental intelligence and awareness), Analytical Competencies (cognitive maturity and situational analysis), Communicative Competencies (networking, constructive participation, coordination, promoting social cohesion, and providing professional support), and Individual Competencies (self-development, resilience, professionalism, and ethical orientation).

The practical implications of this study are far-reaching for educational institutions. Administrators and policymakers can leverage these insights to develop targeted professional development programs that enhance the identified competencies. By doing so, educational organizations can better prepare their leaders to navigate and succeed in turbulent times. Furthermore, this research would help link theory to practice through policies that support the continuous development of these competencies among educational leaders, ensuring that leaders remain equipped to address future challenges effectively.

8. Future Suggestions and Limitations

While this study is unique, it also has some limitations. This meta-synthesis relied on a limited number of studies due to the scarcity of research explicitly addressing educational leadership in turbulent times. This may restrict the generalizability of the findings to diverse contexts.

Building on the findings of this study, future research can explore longitudinal studies that could provide deeper insights into how these competencies evolve and influence organizational performance in turbulent environments. Future research should focus on validating the proposed competency framework across diverse cultural and institutional contexts. Investigating how these competencies can be effectively applied and adapted to different educational settings will further enhance the generalizability of the findings. Future studies may also explore the relationship between these competencies and organizational outcomes, offering actionable strategies for the development of educational leadership.

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