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From Crisis Response to Adaptive Capacity: Mapping Organizational Resilience Research in Educational Institutions

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Abstract. Organizational resilience has emerged as a critical construct for sustaining learning, teaching, and institutional functioning. However, research on organizational resilience in education remains dispersed across disciplines and lacks an integrated synthesis of its development and thematic focus. This study addressed this gap through a Bibliometric-Systematic Literature Review of 80 publications indexed in Scopus and Web of Science and covering the period from the first identified publication in 2014 to 2025. The findings reveal that publication growth increased sharply after 2020, particularly following the global pandemic. The results also indicate rapidly expanding and evolving collaborative networks, although the research domain remains conceptually concentrated. The trends highlight a shift from crisis-oriented perspectives toward leadership-driven approaches, digital capacity, social capital, and organizational learning, emphasizing dynamic capability-based perspectives. This study proposes a conceptual framework for future empirical research and provides insights for educational leaders to strengthen institutional resilience in teaching and learning environments.

Keywords: organizational resilience; educational institutions; bibliometric-systematic; adaptive capacity; crisis response

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1. Introduction

Organizations resemble complex living systems that continuously interact with and are shaped by their surrounding environments. While organizations may appear as solid and stable entities, they are inherently vulnerable and can quickly become fragile when confronted with unexpected social, economic, and environmental turbulence (Young et al., 2024). Managing such disruptions is far from straightforward, and the pursuit of a sustainable organizational environment should not be taken for granted.

Rather, deliberate structural arrangements, adaptive capabilities, and effective leadership are required to enable institutions to absorb shocks while continuing to fulfill their core missions (Shaya et al., 2023). The recent global pandemic starkly exposed the vulnerability of organizational systems, including educational institutions, to confront unprecedented disruptions and re-evaluate their adaptive capacities (Țiclău et al., 2021). Despite growing efforts to accelerate resilience-building initiatives across various sectors, resilience development within educational institutions remains comparatively underexplored and at the nascent stage of scholarly and practical advancement.

Recent conceptualizations of organizational resilience (OR) have shifted attention from merely focusing on recovery to a more dynamic and developmental perspective that emphasizes anticipation, learning, and transformation. Duchek (2020) reconceptualized resilience as a multi-stage process encompassing the capacity to anticipate potential threats, cope with adverse events, and adapt by evolving stronger following disruption. This perspective extended resilience beyond the notion of merely bouncing back to a more progressive understanding of bouncing forward. In this sense, organizations are able to reconfigure resources, routines, and strategies continually in response to both sudden crises and gradual environmental changes (Darkow, 2019; McLeod & Dulsky, 2021; Vogus & Sutcliffe, 2007). Such adaptive capabilities have become increasingly vital in environments characterized not only by volatility, uncertainty, complexity, and ambiguity (VUCA) but also by brittle, anxious, non-linear, and incomprehensible (BANI) organizational environments.

While the mechanisms underpinning OR are widely acknowledged across multiple fields of study, their development within educational settings remains a central concern of scholarly inquiry. Research in economics, business, management (Gichuhi, 2021), and tourism (Prayag et al., 2024) has consistently demonstrated the pivotal role of leadership in developing OR. However, empirical evidence examining these dynamics within educational institutions remains comparatively limited. Leaders play a critical role in sensemaking during crises, fostering psychological safety, mobilizing resources, and sustaining collective commitment under conditions of pressure and uncertainty (Chaaban et al., 2023; Weick & Sutcliffe, 2017). Despite the growing recognition of resilience as a strategic organizational capability in various organizational studies, empirical investigations within educational settings remain scarce and fragmented, especially at the school level.

In education, the stakes of OR are particularly high. Schools and higher education institutions are not only responsible for maintaining operational continuity but also for safeguarding learning quality, staff well-being, and student development during periods of instability (Shaya et al., 2023). The Global Education Monitoring Report emphasizes the critical role of educational leaders in interpreting challenges, mobilizing resources, maintaining trust-based relationships, and sustaining momentum toward shared goals in turbulent environments (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2024). At the school level, resilience assumes added significance, as it shapes the foundations upon which future generations are developed (Zakwan & Abdullah, 2025). Consequently, the interaction across multiple levels and the process through which OR is cultivated warrant more systematic and theory-driven investigation.

Previous studies on OR in educational institutions primarily focus on leadership responses during crises, institutional adaptability, and the maintenance of teaching and learning continuity (Harris & Jones, 2025). Their findings generally highlight that effective leadership, collaborative culture, and resource mobilization significantly contribute to strengthening institutional resilience during periods of disruption. However, despite these insights, the existing literature remains fragmented and lacks a comprehensive synthesis that systematically maps the intellectual structure, dominant themes, and research trends within OR research in the education sector.

Against this setting, this study presents a comprehensive synthesis of bibliometric data and a systematic review of OR research within the education sector. The literature was systematically mapped to examine its intellectual structure, evolution, and dominant themes, thereby identifying critical gaps and directions for future inquiry. While traditional narrative and standalone literature reviews offer valuable insights, they are constrained in their ability to capture the structural development and relational dynamics of an expanding body of research. Both approaches offer distinct analytical strengths and integrating them enables a more comprehensive understanding of the research domain.

Taking advantage of these complementary strengths, this study adopts the Bibliometric-Systematic Literature Review (B-SLR) approach and further refines subsequent methodological scholarship to answer the following research questions:

- RQ1:** What are the publication trends, patterns, and characteristics of organizational resilience research within educational contexts?
- RQ2:** Which authors and countries constitute the collaborative foundations of organizational resilience research in education?
- RQ3:** What thematic structures underpin organizational resilience research in education?
- RQ4:** How do educational institutions operationalize organizational resilience as a dynamic capability-driven process?

2. Literature Review

2.1 Evolution of the Organizational Resilience Concept

The concept of organizational resilience has evolved from recovery-oriented perspectives centered on 'bouncing back' to more dynamic, capability-driven conceptualizations that emphasize anticipation, coping, and adaptive transformation. The influence of post-pandemic scholars increasingly conceptualizes resilience as a multi-stage organizational capability rather than an outcome.

The proposed capability-based model of Ducheck (2020) in which resilience emerges through interconnected processes of anticipation, coping, and adaptation, has advanced the field from a narrow focus on recovery to processes of bouncing forward. This aligns with the Dynamic Capabilities Theory, emphasizing the continuous integration and reconfiguration of competencies under uncertainty. Earlier work by Lengnick-Hall et al. (2011), who conceptualized resilience as a strategic organizational capability, embedded similarly conceptualized resilience as a strategic organizational capability embedded in human capital, flexible structures, and adaptive routines.

This conceptual shift reflects the growing recognition among today's organizations that increasingly operate in VUCA and BANI environments. From an organizational psychology perspective, resilience is also shaped by collective cognitive and behavioral processes such as sensemaking, leadership, and psychological safety in times of crisis (Harris & Jones, 2025). These micro-level processes influence how organizations interpret disruptive events and mobilize their resources during crises. Previous scholars in organizational studies mostly refer to the High-Reliability Organization (HRO) approach, which helps organizations to sustain their operations through mindful organizing and continuous learning (Liah et al., 2025; Weick & Sutcliffe, 2017). These perspectives suggest that resilience emerges not only from structural capabilities but also from behavioral routines and learning processes embedded within organizations.

2.2 Organizational Resilience in Educational Contexts

Despite significant conceptual advancements, literature remains fragmented, particularly within the education sector. The multilevel interaction between leaders, employees, and middle leaders has been consistently identified as a central mechanism underpinning OR across sectors (Do et al., 2022). This perspective aligns with the framework proposed by Crossan et al. (1999) in Organizational Learning Theory, which allows institutions to interpret complex events and adjust their strategies accordingly. Through such processes, sensemaking, trust, and psychological safety become critical mechanisms that support collective adaptation during crises (Harris & Jones, 2025). Together, these theoretical perspectives provide a comprehensive foundation, particularly for educational institutions.

These relational and cognitive processes are further reinforced through continuous organizational learning, which enables knowledge and resources to circulate effectively and support post-crisis adaptation (Crossan et al., 1999).

Hillman and Guenther (2021) argue that these relationships integrate resilience across organizational levels, aligning short-term coping with long-term adaptation. However, much of the existing evidence originates from private-sector organizations, while public-sector institutions such as schools face greater bureaucratic constraints and resource limitations. These structural differences may shape how resilience capabilities are developed, underscoring the need for context-specific investigation within educational settings (Zakwan & Abdullah, 2025).

2.3 Empirical Evidence and Research Gaps

Existing studies suggest that resilience research within higher education is comparatively more developed than at the school level, offering emerging insights into institutional resilience processes. Ayebi-Arthur (2017) demonstrated how universities use digital infrastructure to sustain teaching continuity following crises, highlighting technology readiness as a key resilience resource. Similarly, Dohaney et al. (2020) demonstrated that flexible pedagogical models and decentralized decision-making support institutional continuity during disruption. Evidence from the COVID-19 pandemic further emphasizes the role of adaptive leadership, informal coordination, and governance flexibility in enabling OR in higher institutions (Bento et al., 2021; Shaya et al., 2023).

Nevertheless, comparable empirical evidence at the school level remains sparse. Many studies rely on the single-case or descriptive approach, which restricts the generalizability of findings (Beltman et al., 2011; Benoliel & Schechter, 2023). As a result, resilience processes in educational institutions, especially at the school level, remain insufficiently theorized and empirically examined, particularly regarding how leadership interactions and organizational learning jointly shape resilience. Addressing these gaps requires a systematic synthesis of existing research, for which the B-SLR approach provides a rigorous and integrative method.

3. Methodology

3.1 Research Design

This study employed the B-SLR approach proposed by Marzi et al. (2025) and follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This approach integrates quantitative bibliometric mapping with qualitative synthesis to examine knowledge structure, evolution, and future research directions of OR research within educational contexts. Moreover, a structured procedure for identifying, screening, and selecting relevant studies in systematic reviews is provided by the PRISMA guidelines. The procedure involves removing duplicate records, screening titles and abstracts, and applying predefined inclusion and exclusion criteria to identify the final set of eligible articles (Page et al., 2021). Bibliometric analysis is conducted in the initial phase to inform the identification and selection of core studies for the subsequent systematic review (Marzi et al., 2025).

3.2 Data Sources

Bibliographic data were retrieved from Scopus and Web of Science (WoS), which were selected for their credibility and comprehensive coverage of high-quality literature. The search string was designed to yield results for the OR topic focusing on education. No publication year restrictions were imposed to capture the full evolution of the field. Search string development and screening procedures followed PRISMA guidelines (Moher et al., 2009; Page et al., 2021), with detailed reporting provided in the PRISMA flow diagram as seen in Figure 1. The initial Scopus search yielded 131 publications, with the earliest record dated 2014. Meanwhile, only 8 publications were published in WoS, with the earliest document found in 2016. This resulted in a total of 139 records. Given the restricted number and overlap with Scopus records, WoS data were used to complement and validate the Scopus dataset.

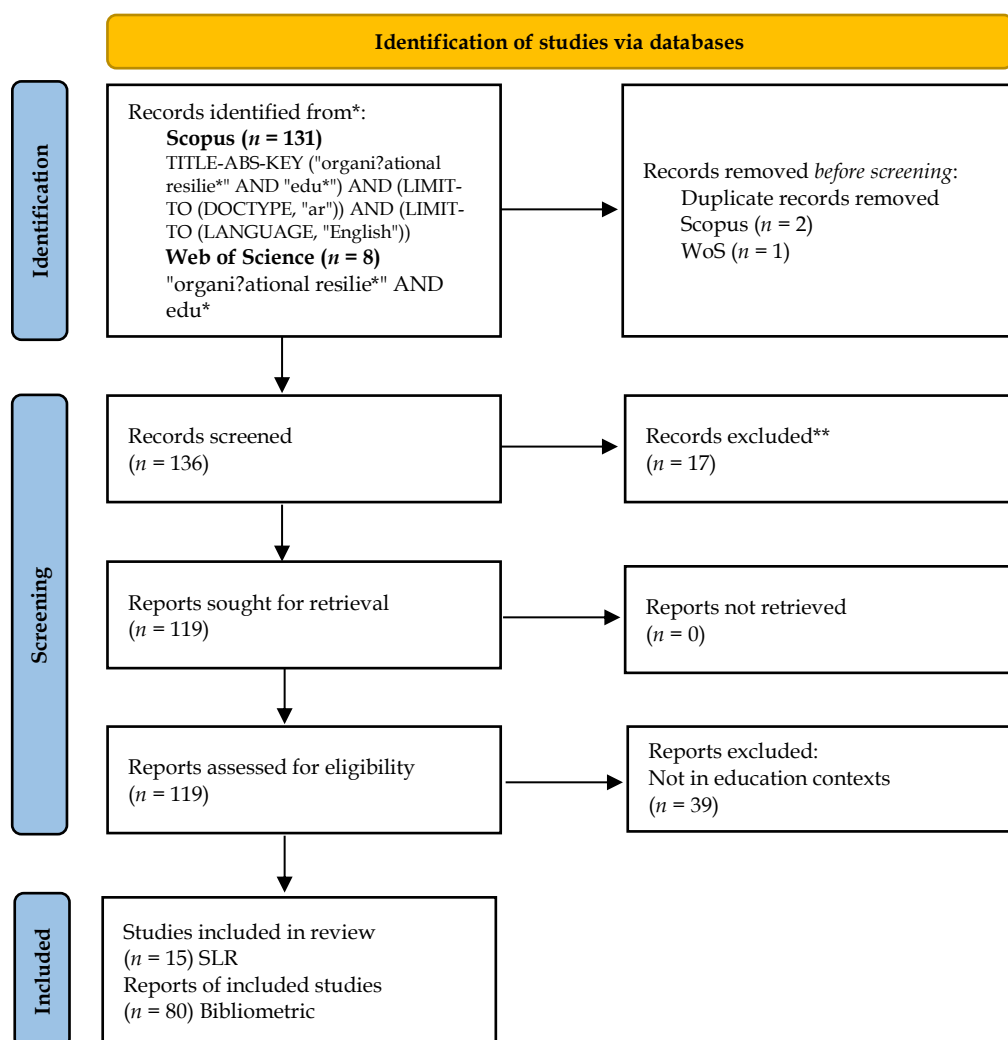


Figure 1: PRISMA protocol for the study

3.3 Data Cleaning and Preparation

Records retrieved from Scopus and WoS were merged into a single dataset and subjected to a rigorous data cleaning process to ensure accuracy and consistency.

Bibliomagika tools were used to harmonize bibliographic metadata across sources, with OpenRefine tools to identify and remove duplicate records and refine author names, keywords, and affiliations (Ahmi, 2024). From the 139 documents that were retrieved, 3 duplicates were removed and 17 records were excluded after title and abstract screening. The remaining 119 articles were assessed for eligibility, of which 39 were not related to the educational context and were thus excluded, resulting in 80 documents being included in this study. For the systematic review, the top 15 most-cited articles focusing on educational institutions were selected to provide deeper insights into the development of research in this field. This data preparation process was essential to enhance the reliability and validity of subsequent Lotka's Law bibliometric analyses (Liah et al., 2025).

3.4 B-SLR Procedures

This study followed the 3-phase, 10-step B-SLR protocol proposed by Marzi et al. (2025). In the first phase, bibliometric analysis was conducted using Bibliomagika and VOSviewer to examine publication growth patterns and identify influential sources within OR research. Subsequently, co-occurrence analysis was performed to detect thematic clusters and map the field's intellectual structure. Guided by the bibliometric findings, the second phase focused on the highly cited documents for an in-depth systematic literature review. The integration of bibliometric mapping and thematic synthesis ensured transparency, coherence, and methodological rigor, consistent with the B-SLR protocol. The 15 highly cited documents were selected based on their primary focus of educational institutions' development and their citations count. Based on this integrated synthesis, a conceptual framework was proposed to advance future research on OR in educational institutions.

4. Results and Discussion

4.1 Bibliometric Overview and Publication Trends

The authorship profile of OR research, as shown in Table 1, reflected a moderate yet rapidly developing field. A total of 80 publications were produced by 257 contributing authors between 2014 and 2025, yielding 687 total citations globally. This authorship density suggested a collaborative research culture and indicated a steady growth in scholarly impact. Productivity and impact indicators further supported this trend, with an h-index of 15 and a g-index of 24 derived from 621 citations, indicating that the field has begun to consolidate its academic relevance among scholars. An m-index value of 1.25 suggested sustained citation growth over time, despite OR research within educational contexts remaining at a relatively early stage of development.

Table 1: Main information of publication dataset

Main Information	Data
Publication Years	2014–2025
Total Publications	80
Citable Year	12
Number of Contributing Authors	257
Number of Cited Papers	60
Total Citations	687
Citation per Paper	7.39
Citation per Cited Paper	11.45
Citation per Year	62.45
Citation per Author	2.67
Author per Paper	3.21
Citation sum within h-Core	621
h-index	15
g-index	24
m-index	1.250

The analysis of publication trends, as shown in Table 2, revealed how the research output remained limited between 2014 and 2018. Notably, no publications were recorded in 2019, indicating a temporary stagnation in scholarly contributions within educational contexts. However, from 2020 to 2024, publication output increased sharply, accounting for more than two-thirds of the total output. This surge coincided with the global pandemic in 2020, which marked a significant expansion in research on organizational resilience in educational institutions. (Mhlanga & Dzingirai, 2024). The impact of scholarly intellectual contributions in the pandemic era has become increasingly influential and significantly recognized among researchers, as the citation sum within the h-core scored as high as 150 in 2020.

This trend indicates that scholars increasingly sought both theoretical and practical insights into institutional adaptability in response to large-scale disruptions (Bento et al., 2021; Nielsen et al., 2023; Shaya et al., 2023). Rapid growth, especially in crisis preparedness, leadership sensemaking, governance flexibility, and the long-term adaptive capacities of education systems under conditions of extreme uncertainty, has emerged (Bento et al., 2021; Eisenschmidt et al., 2024). The year 2024 showed significant progress, with 27 total publications and 86 total citations from 99 cited authors and collected an impressive m-index of 2.500. The inverse trend in the 2025 data was due to the publication and citation lag effect.

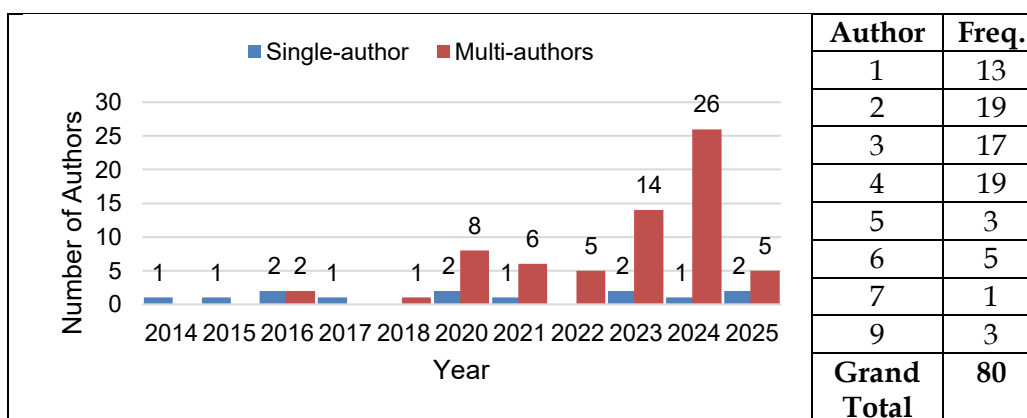
Table 2: Publications trend analysis

Year	TP	NCA	TC	C/P	h	g	m
2014	1	1	7	7.00	1	1	0.083
2015	1	1	0	0.00	0	0	0.000
2016	4	6	73	18.25	4	4	0.400
2017	1	1	96	96.00	1	1	0.111
2018	1	4	42	42.00	1	1	0.125
2020	10	29	165	16.50	5	10	0.833
2021	7	24	94	13.43	4	7	0.800
2022	5	18	21	4.20	3	4	0.750
2023	16	55	100	6.25	5	9	1.667
2024	27	99	86	3.19	5	8	2.500
2025	7	19	3	0.43	1	1	1.000

Note: TP=total number of publications; NCA=number of cited authors; TC=total citations; C/P=average citations per publication; h=h-index; g=g-index; m=m-index

Further insight into scholarly collaboration was provided by the distribution of single and multi-authored publications, as illustrated in Figure 2. Following the complete absence of publications in 2019, multi-authored works increased markedly from 2020 onwards, reaching their highest concentration in 2023 and 2024. Of the 80 publications analyzed, 67 were multi-authored, while only 13 were single-authored, indicating a clear shift toward collaborative research practices within the field.

This collaborative trend reflected the growing complexity and interdisciplinary nature of OR research, which increasingly requires collective expertise and cross-institutional engagement (Duchek, 2020). As shown in Figure 2, 19 publications were authored by 4 researchers, while a smaller number involved larger research teams, including 3 publications with 9 authors. Although the dominance of multi-authored publications was expanding, it also highlighted the need for sustained intellectual engagement to avoid episodic or trend-driven contributions.

**Figure 2: Authors' trends and frequency**

The Lotka's Law analysis presented in Table 3 revealed a contrasting pattern of author productivity. The majority distribution of author productivity with a single publication reached 96.44% and led to a smaller proportion of authors who had produced 2 or more documents. As illustrated in Figure 3, the observed distribution of author productivity did not conform to the theoretical inverse-square distribution predicted by Lotka's Law. This deviation indicated that author productivity within the field does not yet exhibit the maturity typically associated with established research domains.

Instead, it indicated that knowledge production in the field is dominated by a regulated group of recurring contributors, with most authors participating sporadically rather than consistently. Although such divergence from Lotka's theoretical proportions is not unexpected in emerging research areas, the overall pattern suggested that OR research in educational contexts is currently positioned at an early to intermediate stage of development and is characterized by a small but influential group of productive scholars.

Table 3: Productivity patterns of authors and research contributions

Document Written	No. of Authors	Proportion of Authors	Lotka's Law
1	298	96.44%	60.00%
2	9	2.91%	15.00%
3	2	0.65%	6.67%
Grand Total	309	100.00%	81.67%

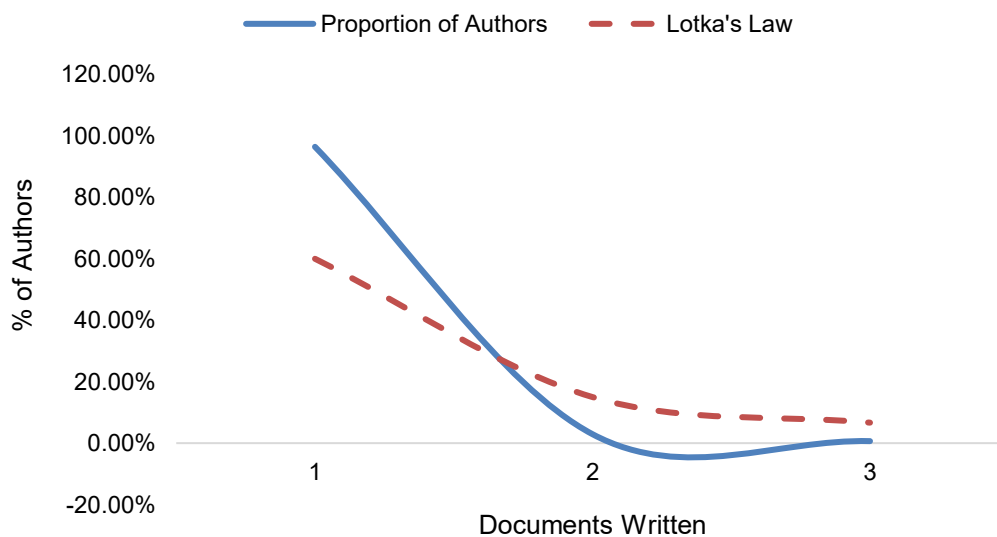


Figure 3: Lotka's Law predictions

4.2 Authorship Analysis

The bibliographic coupling analysis, which measures how closely related 2 research papers are based on the references they cite, is presented in Figure 4. Analysis revealed a moderately fragmented knowledge structure that remains

conceptually anchored through collaborative scholarly networks. Multiple interconnections were identified among clusters, indicating the sharing of foundational, context-specific characteristics across studies. A prominent cluster was found that was centered on scholars such as Julia Hillman, Stephanie Duchek, and Julian Meyr, who are among the influential scholars in the study of OR. Their works published in 2018 became one of the references among scholars, including scholars in the field of education. The Dynamic Capabilities Theory discussed in these studies demonstrates strong conceptual alignment with the needs of educational institutions and can be effectively integrated with insights from the Organizational Learning Theory.

This cluster exhibited strong internal linkages that reflect a shared reliance on theory-driven stream grounded in capability-based and process-oriented conceptualizations of OR. These clusters appeared as the anchors that inform subsequent cumulative theory building and empirical studies. Previous research in schools and universities use this model to anticipate threats, cope with events, and adapt to change (Lörz et al., 2024). Shaya et al. (2023) expanded this model to include crisis leadership traits and employee resilience as moderators that further strengthen the transition between stages.

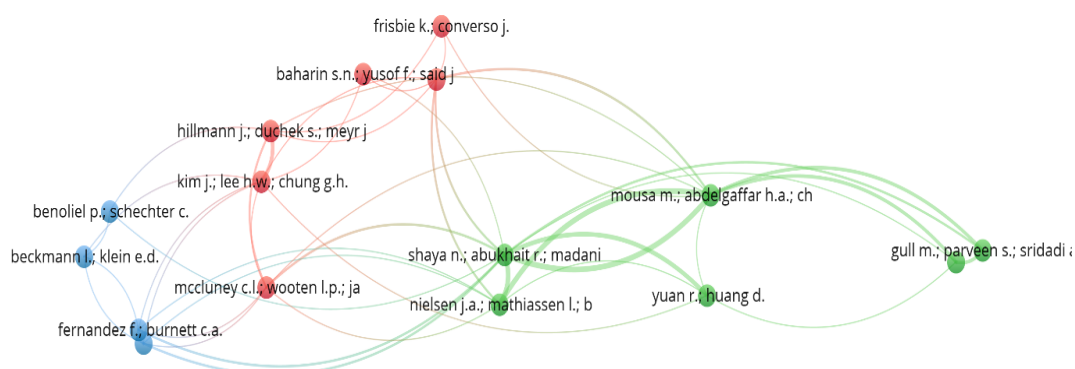


Figure 4: Authorship bibliographic coupling analysis

Research focusing specifically on the educational sector that bridges all identified clusters can be traced to the work published in 2020 by McCluney, Wooten, and James. Their study contributed to a meaningful scholarly network by connecting 2 major clusters that position themselves at the center of conceptual and empirical development. Authors such as Shaya, Abukhait, and Madani have emerged as influential contributors to the progressive advancement of resilience theory and its empirical validation, particularly within educational contexts. Their efforts to translate theoretical frameworks into practical applications across higher education and other levels of educational institutions accentuated their critical

role in integrating resilience theory with educational research rather than relying on isolated conceptual borrowing. A summary of prominent authors centered on each cluster is presented in Table 4.

Table 4: Authorship cluster

Cluster	Centered Authors	Focus	Context
Red	Hillman, Duchek & Meyr	Foundational theorist	Capability-based approach
Blue	Shaya & Abukhait	Educational leadership scholars	Application in higher education
Green	Benoliel & Schechter	School-context researchers	School context

Notably, another scholarly network associated with influential authors (presented in Table 5) revealed a decentralized structure within OR research. This structure was parallel yet interconnected with academic discourses. The body of work has not yet converged around a unified theoretical paradigm, with management-oriented theories continuing to exert a strong influence across studies at all levels of educational resilience research (Mousa et al. 2020). This pattern highlighted the absence of a clearly articulated, education-specific OR framework (Shaya et al., 2023).

Previous studies usually adopted High-Reliability Organizations (HROs), complex adaptive systems, and capability-based resilience not developed for educational institutions. However, repurposing these management-oriented frameworks demonstrated how these adapted theories help leaders to navigate crises by the mobilization of social capital to promote continuity (Duchek, 2020; Lengnick-Hall et al., 2011). Overall, these observations point to the need for integrative synthesis to bridge existing theoretical and empirical gaps and to provide a more robust foundation for OR research in educational settings.

Table 5: Most influential authors by h-index

Full Name	Current Affiliation	TP	TC	C/P	h	g	m
Benoliel, Pascale & Schechter, Chen	Bar-Ilan University	3	23	7.67	3	3	1.000
Said, Jamaliah	Universiti Teknologi MARA	2	14	7.00	2	2	0.400
Pinheiro, Rómulo	University of Agder	2	16	8.00	2	2	0.667
Zahari, Afzal Izzaz	Universiti Sains Malaysia	2	14	7.00	2	2	0.400
Drossel, Kerstin	Paderborn University	2	74	37.0	1	2	0.167

Note. TP=total number of publications; TC=total citations; C/P=average citations per publication; h=h-index; g=g-index; m=m-index

Benoliel and Schechter focus on school organizations and educational management and are the most consistent contributors with the highest h-index and m-index values. Their highly cited work has shaped subsequent research and

has advanced knowledge in the field. Their contributions have played a pivotal role in shaping subsequent research and advancing knowledge development within the field. Similarly, Said, Pinheiro, and Zahari reflect emerging scholarly leadership in Eastern collectivist contexts, highlighting the internationalization of resilience research. Collectively, the development of OR research in education was driven by a small yet influential group of authors whose work continually shaped and sustained knowledge in the field through high-impact contributions. However, these influential authors often drew from established organizational and leadership theories, thus keeping it in a theory-borrowing phase. This may explain why particular works demonstrate high citation impact despite inadequate publication counts.

Scholarly influence was geographically influenced by central hubs in the United States and the United Kingdom based on their strong coupling strength and extensive cross-national linkages, especially from 2020 to 2023. Most of the authors sustained their productivity and influence in foundational and theory-oriented contributions that are largely anchored in established research systems. The overlay visualization in Figure 5 further highlights emerging contributions from Asian collectivist countries, particularly Malaysia, China, Pakistan, and Indonesia. Their stronger coupling intensities became more evident after 2021, during the post-pandemic era. This trend aligns with the analysis of highly influential authors, indicating that scholars from these regions made increasingly significant contributions to the field. These countries also facilitated the exchange of cross-regional knowledge and acted as a bridge in the establishment of theoretical cores and applied educational systems.

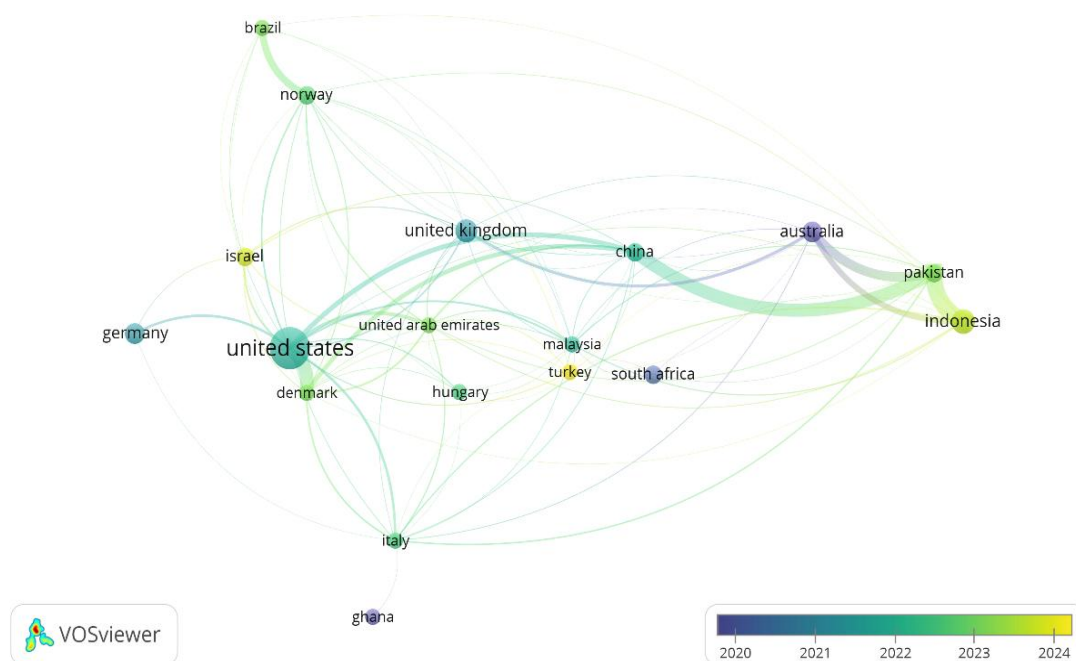


Figure 5: Overlay analysis of authorship countries

4.3 Publication Analysis

The thematic synthesis in Table 6 summarizes 15 highly cited publications from Appendix A and reveals the conceptualization of OR as a dynamic, multilevel, and capability-driven process rather than a static outcome in educational contexts. Across literature OR was consistently framed as an ongoing process shaped by leadership, digital capacity, social relations, and organizational learning, especially in response to major disruptions. Six themes emerged, and OR was dominantly conceptualized as a multi-stage process unfolding over time. Scholars converged on anticipation and coping and adaptation, which were progressive phases rather than merely recovering from the crisis.

Educational institutions should evolve through structured learning and reconfiguration (Nielsen et al., 2023; Shaya et al., 2023). This process aligns well with broader Organizational Resilience Theory and supports Ducheck's (2020) perspective, which emphasizes a shift from short-term response to long-term institutional development.

Table 6: Thematic summary of top 15 highly cited documents

No.	Theme	Key Focus	Authors	Key Insights
1	Resilience as a Dynamic Multi-Stage Process	Organizational resilience conceptualized as a temporal process involving anticipation, coping, and adaptation rather than a static outcome	Nielsen et al. (2023); Shaya et al. (2023); Bento et al. (2021)	Resilience develops through progressive stages in which institutions anticipate disruptions, maintain core operations during crises, and adapt through learning and reconfiguration.
2	Digital Capacity as a Structural Enabler	Role of digital infrastructure, e-learning platforms, and digital literacy in sustaining teaching and learning continuity	Ayebi-Arthur (2017); Drossel et al. (2020); Nielsen et al. (2023); Lörz et al. (2024)	Technological readiness enables rapid transitions to alternative learning modalities and supports continuity of educational delivery during disruptions.
3	Leadership Capability and Crisis Coordination	Leadership sensemaking, strategic prioritization, communication, and	Eisenschmidt et al. (2024); Shaya et al. (2023); Lambiase & English (2021);	Adaptive leadership facilitates sensemaking, mobilizes

		coordination across crisis phases	Dohaney et al. (2020)	institutional resources, and sustains stakeholder trust during periods of uncertainty.
4	Social Capital and Stakeholder Networks	Internal collaboration and external partnerships enabling coordinated responses and resource mobilization	Mousa et al. (2020); Shani (2020); Wang et al. (2020)	Collaborative networks among educators, communities, and stakeholders strengthen collective coping capacity and expand institutional support systems.
5	Organizational Learning and Mindfulness	Learning processes and reflective practices that convert crisis experiences into preparedness knowledge	Bento et al. (2021); Mousa et al. (2020); Shani (2020)	Learning and mindfulness practices enhance risk awareness, support inclusive decision-making, and enable institutions to refine resilience capabilities over time.
6	Institutional Adaptation and Strategic Renewal	Long-term institutional transformation including academic restructuring, program renewal, and mission-driven innovation	Frisbie & Converso (2016); Moran (2016); Young et al. (2024)	Organizational resilience extends beyond crisis response toward strategic repositioning, institutional renewal, and sustainable development.

Closely connected with Duchek's (2020) capability-based perspective of organizational resilience is the role of digital resources and infrastructures, particularly in today's rapidly evolving technological environment. Multiple studies highlight how technological capacity functions as a buffering mechanism that enables continuity of teaching and learning during disruption (Ayebi-Arthur,

2017; Drossel et al., 2020). This further aligns with the Organizational Resilience Theory of Kantabutra and Ketprapakorn (2021) and supports the rapid deployment of learning management systems and video conferencing platforms.

Furthermore, it is combined with high digital literacy as a critical enabler of resilience (Nielsen et al., 2023). These findings indicated that technological readiness is not merely operational but constitutes a strategic resilience capability. A primary driver in shaping these processes was consistently identified by the leadership traits. Rather than privileging a single leadership style, literature emphasizes adaptive leadership strategies that shift across crisis phases, especially from directive coordination during disruptions to participatory and reflective practices during adaptation (Eisenschmidt et al., 2024; Shaya et al., 2023). Future-oriented and emphatic communication often helps to sustain trust, legitimacy, and collective commitment during prolonged uncertainty (Lambiase & English, 2021).

Beyond leadership in organizations, social capital and multi-stakeholder networks in educational environments consistently demonstrate the strength of collective coping capacity (Mousa et al., 2020; Shani, 2020). Collective coping capacity enables educational institutions to mobilize resources across parents, communities, industry, and government, thereby facilitating coordinated responses beyond organizational boundaries (Wang et al., 2020). This reflects how it is a socially constructed capability rather than only individual resilience.

From this, collective coping capacity further aligns with organizational learning and the mindfulness aspect that emerges as a critical micro foundation of OR. Studies highlight how the learning process enables institutions to convert experiences into preparedness knowledge for the future (Bento et al., 2021; Mousa et al., 2020). These mindfulness-related practices serve as early warning signals, deference to expertise, and awareness of inequality and allow organizations to avoid oversimplified responses. They also enable institutions to recognize differential student and educator needs, especially during digitally mediated learning transitions (Shani, 2020).

Structural and academic adaptation is critical in reflecting the growth of OR in educational institutions. Research shows that resilient institutions engage in selective program renewal, academic restructuring, and mission-driven innovation to align with evolving educational demands, which have become the core functions (Frisbie & Converso, 2016; Moran, 2016; Young et al., 2024). These adaptive strategies illustrate how resilience extends beyond emergency response and encompasses strategic repositioning and long-term sustainability.

The reviewed studies show a stronger emphasis on crisis-response mechanisms, particularly digital continuity, emergency leadership coordination, and short-term institutional stabilization during disruptions (Ayebi-Arthur, 2017; Drossel et al., 2020; Eisenschmidt et al., 2024). In contrast, fewer studies address long-term adaptive capacity such as organizational learning, structural transformation, and strategic renewal, highlighting an important area for future research (Bento et al.,

2021; Young et al., 2024). Taken together, it demonstrates that OR in education is characterized as an integrated system of capabilities spanning from technology, leadership, social relations, learning, and adaptation. The need for integrated frameworks that connect these capabilities is critical in advancing knowledge in this development.

Keyword co-occurrence analysis further supports the synthesis by providing robust bibliometric evidence for the six thematic findings. As illustrated in Figure 6, the central hub positioning OR strongly links with leadership, crisis management, continuous improvement, and adaptation. This perspective conceptualizes resilience as a dynamic capability that enables organizations to prepare for disruptions, respond effectively, and adjust to changing conditions (Duchek, 2020). The prominence of technology-related keywords such as e-learning, digital transformation, and innovation reinforces the role of digital capacity as a structural enabler of resilience. Additionally, the co-occurrence of organizational learning, trust, and mindfulness-related constructs reflects the emphasis on learning-driven and social capital regarding reflective practices, which are widely recognized as critical foundations of resilient organizations (Weick & Sutcliffe, 2017).

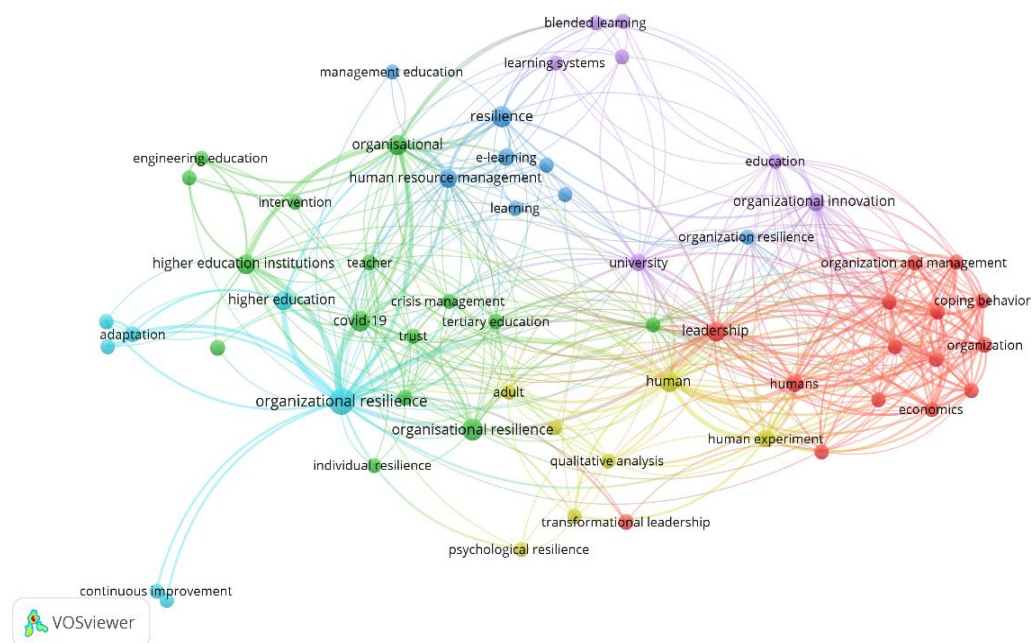


Figure 6: Analysis of keywords

4.4 Proposed Conceptual Framework

Drawing from a systematic synthesis of highly cited documents, this study proposed the Cyclical Organizational Resilience Framework for Educational Institutions, an integrative conceptual framework of dynamic capability. Rather than treating resilience as an outcome, the framework conceptualized OR as a dynamic, cyclical, and capability-driven process. The proposed framework, as illustrated in Figure 7, aligns with the current perspective of OR development and

adopts the process proposed in the Organizational Learning Theory (Crossan et al., 1999; Ducheck, 2020; Kantabutra & Ketprapakorn, 2021).

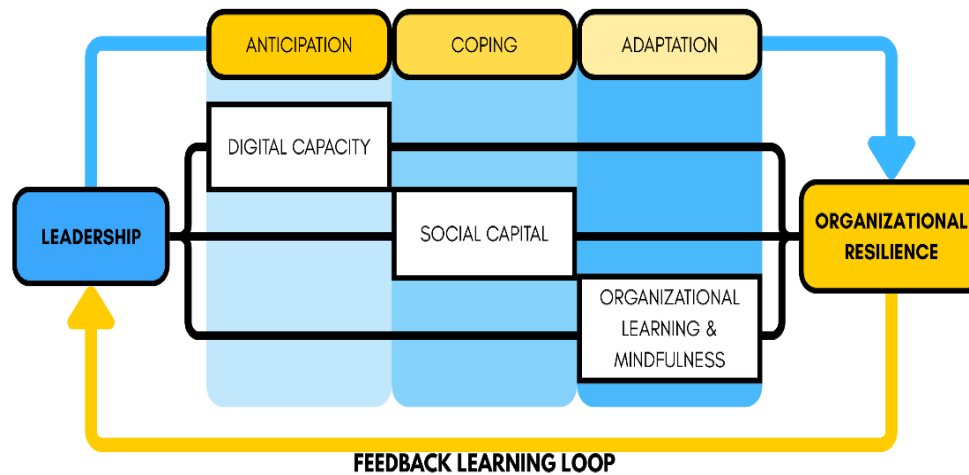


Figure 7: Cyclical Organizational Resilience Framework for educational institutions

The three-stage resilience trajectory served as the core of the framework comprising anticipation, coping, and adaptation. The anticipation stage was defined as organizational preparedness, early sensing, and proactive capacity development prior to disruption (Shaya et al., 2023). The coping stage enables institutions to maintain core teaching and learning functions during a crisis as the short-term stabilizing functions (Nielsen et al., 2023). Meanwhile, the adaptation stage represents longer-term learning, innovation, and institutional reconfiguration that support future development for a new operational equilibrium (Shaya et al., 2023). All these stages are interconnected and cyclical to help educational institutions to remain adaptive and to inform future preparedness rather than marking the end of the resilience process.

Leadership capability operates as the primary activating mechanism that influences the development and mobilization of resource structures in institutions (Eisenschmidt et al., 2024). This is consistent with the systematic literature review, which indicates that leadership influences resilience not through direct control but by enabling, aligning, and mobilizing capacities across organizations. Their central role in sensemaking, strategic prioritization, and coordination in sustaining trust and legitimacy during uncertainty is vital. These capacities shape the ability of institutions to sustain core functions and thus achieve long-term adaptation (Frisbie & Converso, 2016; Shani, 2020). The inclusion of feedback loops from adaptation to anticipation further advances resilience theory by emphasizing learning-driven preparedness, an aspect often underdeveloped in education-focused studies.

The roles of digital capacity, social capital, and organizational learning are interrelated and operate as enabling mechanisms. Digital capacity functions as a structural enabler that supports both anticipation and coping by facilitating instructional continuity and rapid transition to alternative solutions (Ayebe-

Arthur 2017; Mousa et al., 2020). It functions not only as technological infrastructure but also as a strategic capability, routines, and pedagogical integration in a ready mode. Currently, the use of artificial intelligence (AI) in educational institutions is increasing rapidly, enhancing the capacity of educators and leaders to perform their roles effectively (Zawacki-Richter et al., 2019). The development of organizational resilience is further supported by social capital, which represents the relational foundations of OR. In addition, internal collaboration, trust, and networking among educators will enhance a coordinated response (Shani, 2020). Meanwhile, external stakeholder networks involving parents, communities, and institutional partners expand access to resources and support. Social capital mediates the influence of leadership by translating strategic intent into collective action during periods of heightened uncertainty (Shani, 2020; Wang et al., 2020).

For long-term adaptation and sustainable development, organizational learning and mindfulness act as learning mechanisms to reflect on crisis experiences, to institutionalize lessons learned, and to avoid oversimplified responses. Mindfulness-related practices enhance risk awareness and support inclusive decision-making in addressing inequality and different student needs (Grissom et al., 2021; Young et al., 2024). The interaction between leadership, organizational capacities, and process stages helps the organization to sustain core functions rather than returning to pre-crisis conditions. The feedback mechanism connecting resilience practices to leadership highlights the cumulative and developmental nature of OR overtime (Eisenschmidt et al., 2024).

Overall, the proposed framework integrates fragmented strands of OR research into a coherent, education-sensitive model that bridges leadership, capability development, and temporal processes. It offers a theoretically grounded and empirically applicable foundation for future research while providing practical guidance for educational leaders seeking to strengthen institutional resilience beyond short-term crisis management.

5. Conclusion

This study provided a comprehensive synthesis of OR research within education. The study findings addressed RQ1 by revealing how the field has developed steadily since 2014. The findings demonstrated a significant surge in publications after 2020, which was driven by global disruptions that heightened scholarly interest in institutional adaptability. Regarding RQ2, the collaborative structure of the field is shaped by a relatively small group of influential scholars and research hubs, particularly in the United States and the United Kingdom, while emerging contributions from Asian countries indicate a growing internationalization of resilience research in education.

In response to RQ3, the thematic analysis demonstrates that OR in educational institutions is conceptualized as a dynamic capability that is shaped by adaptive leadership, digital capacity, social capital, and organizational learning across the stages of anticipation, coping, and adaptation. This research presents the first B-SLR study to map OR in education systematically. It proposes the Cyclical

Organizational Resilience Framework, which conceptualizes leadership as a catalyst for enhancing digital capacity, social capital, and organizational learning across the stages of anticipation, crisis management, and adaptation, thereby contributing to the advancement of the field. Importantly, OR emerged not only as a temporary response to disruptions but as an ongoing capability that is embedded in organizational structures.

Building on these pinpoint findings, this study advanced an integrative conceptual framework by positioning leadership as a catalyst to activate digital- and learning-based capacities. Leaders play a significant role in adapting the development of the learning organization in this fast-paced era. The framework further contributes to theoretical clarity and offers a structured basis for future empirical investigation. It also offers a testable foundation for advancing quantitative, qualitative, and mixed-method studies across diverse educational contexts. The inclusion of adaptive feedback loops highlights the role of learning-driven preparedness in strengthening long-term resilience and supports the current perspectives of OR.

6. Recommendation, Implications, and Limitations

Theoretically, this study advances OR research in educational contexts by integrating fragmented literature into a coherent framework and demonstrating how leadership, digital capacity, social capital, and organizational learning interact across the stages of anticipation, coping, and adaptation. The findings extend Duchek's model further into educational institution contexts. From a practical perspective, this study highlights that educational institutions require strategic investment beyond emergency planning or technological resources to build resilient organizations.

Policymakers and leaders should prioritize leadership development, digital readiness, collaborative networks, and organizational learning environments and infrastructures to enable sustained adaptability in increasingly complex environments. Despite its contributions, this study is subject to limitations. The analysis is only based on publications indexed in Scopus and WoS and may not have captured non-indexed relevant work beyond the highly cited publications. Additionally, while the B-SLR approach enables robust synthesis, future researchers could extend this work through longitudinal and comparative studies across educational institutions.

Conflict of Interest

No potential conflict of interest is reported by the authors.

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Appendix A

Table A1: Systematic literature review of top highly cited articles

No.	Author(s)	Title	Methodology	Contributions	Context	theory	D/B	TC
1	Ayebi-Arthur (2017)	E-learning, resilience and change in higher education: Helping a university cope after a natural disaster	Qualitative (Intrinsic, single-case study)	Provides an illustration of how learning technologies assist academic institutions in the face of natural catastrophes	University of Canterbury, New Zealand (2010–2011 earthquakes)	Technology Acceptance Model 2 (TAM2) and Indicator of Resilience Model (IRM)	Scopus	96
2	Dohaney et al. (2020)	Benefits, barriers, and incentives for improved resilience to disruption in university teaching	Mixed Methods (Interviews, focus groups, and questionnaires)	Supports the design and implementation of resilience-building strategies for academics and institutional leaders	Victoria University of Wellington, New Zealand	Post-positivist pragmatic and Multilevel theory	Scopus	54
3	Bento et al. (2021)	Resilience in higher education: A complex perspective to lecturers' adaptive processes in response to the COVID-19 pandemic	Qualitative (Basic exploratory research)	Describes complex adaptive processes and discusses management practices for retaining new practices post-pandemic	University College in Brazil	Socio-ecological resilience and Complex Systems theory	Scopus	41
4	Moran (2016)	Organizational resilience: Sustained institutional effectiveness among smaller, private, non-profit US higher education institutions experiencing organizational decline	Quantitative (Multiple regression analysis)	Provides administrators with an alternative resilience-based approach for dealing with organizational decline	Smaller, private non-profit undergraduate institutions in the United States	Threat-Rigidity hypothesis and Organizational Resilience	WoS	35
5	Mousa et al. (2020)	Organizational learning, organizational resilience and the mediating role of multi-stakeholder networks: A study of Egyptian academics	Quantitative (Structural equation modeling)	Fills a gap in HRM literature regarding the relationship between organizational learning (OL), stakeholder networks, and resilience in higher education	Three private international universities in Cairo, Egypt	Collaborative constructivist approach and Stakeholder Network Theory	Scopus	32
6	Drossel et al. (2020)	Schools overcoming the digital divide: In-depth analyses towards organizational resilience in the computer and information literacy domain	Quantitative (Latent Profile Analysis)	Lays the foundation for an in-depth examination of school conditions under which students acquire digital competencies	14 educational systems (International comparison)	School Effectiveness Research (SER) and Organizational Resilience	Scopus	31
7	Nielsen et al. (2023)	Organizational resilience and digital resources: Evidence from responding to exogenous shocks by going virtual	Qualitative (Case study with interviews and documents)	Advances and substantiates a process view of the role of digital resources in organizational resilience	Aalborg University, Denmark (COVID-19 response)	Digital Resourcing perspective	Scopus	24
8	Eisenschmidt et al. (2024)	Exploring leaders' perceptions of school resilience during COVID-19: Constructing the framework for school development	Quantitative (Multilevel linear regression)	Develops a resilience framework that serves as a research and self-evaluation tool for schools	Comprehensive schools in Estonia	Resilience potentials: respond, monitor, learn, and anticipate	Scopus	23
9	Shaya et al. (2023)	Organizational Resilience of Higher Education Institutions: An Empirical Study	Qualitative (Phenomenological research)	Clarifies the notion of resilience as a meta-capability and expands theoretical models for	Private higher education institutions in the UAE	Organizational Resilience Theory (expanding Duchek, 2020)	WoS	22

No.	Author(s)	Title	Methodology	Contributions	Context	theory	D/B	TC
		during the COVID-19 Pandemic		the UAE higher education context				
10	Lörz et al. (2024)	Against all expectations? What are the differences between resilient and non-resilient schools in the CIL domain	Quantitative (Regression analysis)	Identifies factors inside and outside schools that contribute to or hinder organizational resilience in computer literacy	Secondary schools in Germany	Organizational resilience and Digital Divide Theory	Scopus	20
11	Wang et al. (2020)	Conducting an evaluation framework for disaster management under adaptive organization change in a school system	Quantitative (Choice experiment method)	Assists in the development of evaluation frameworks for organization-based management strategies in school disaster systems	Elementary and junior high schools in Taiwan (high-disaster-potential areas)	Adaptive organizational change and Community Capital (CC) framework	Scopus	18
12	Shani (2020)	Organizational resilience: Antecedents, consequences, and practical implications - for managers and change leaders	Quantitative (Structural equation modeling)	Advances a comprehensive model for developing resilience for policymakers and change leaders	Schools in Israel	High-Reliability Organization approach and Organizational mindfulness	Scopus	15
13	Frisbie & Converso (2016)	Organizational resilience and enrollment trends of independent, for-profit higher education institutions	Quantitative (Multiple regression analysis)	Fills a research gap for higher education and for-profit institutions regarding workplace resilience	Independent for-profit "career colleges" in the United States	Complexity management and Mallak's 6 factors of organizational resilience	WoS	14
14	Lambiase & English (2021)	Passing the test: Lessons from a school district's discourse of renewal before, during and after Hurricane Harvey	Qualitative (Rhetorical analysis of digital texts and time-series analysis)	Tests discourse of renewal and social legitimacy frameworks in a non-corporate, public-school context	Fort Bend Independent School District, Texas, USA (Hurricane Harvey)	Discourse of Renewal Theory and Social Legitimacy Theory	Scopus	11
15	Young et al. (2024)	Unpacking resilience in higher education: Investigating twenty-first-century shifts in universities' academic cores	Qualitative sub-categorization and quantitative tracking (Longitudinal case study)	Links higher education system changes to organizational resilience literature and advances insights for a theory of academic core adaptation	Two "flagship" research universities in Northern Europe (Oslo and Copenhagen)	Historical institutionalism and Complex Adaptive Systems Theory	Scopus	10