Journal of Education and Learning (EduLearn)
Vol. 19, No. 4, November 2025, pp. 2342~2350
ISSN: 2089-9823 DOI: 10.11591/edulearn.v19i4.23239

Educational leadership innovation: a recent comprehensive structured review

Suhaibah Mukhtar[1], Ahmad Zabidi A. Razak[1], Ninik Setiyowati[2], Mohd Azizul Adni[1]
[1]Department of Educational Management, Planning, and Policy, Faculty of Education, Universiti Malaya, Kuala Lumpur, Malaysia
[2]Department of Psychology, Universitas Negeri Malang, Malang, Indonesia

Article Info

Article history:

Received Sep 5, 2024
Revised Jan 28, 2025
Accepted Mar 19, 2025

Keywords:

Educational
Innovation
Leadership
PRISMA diagram
Systematic literature review

ABSTRACT

This study provides a systematic review of innovation in educational leadership, a pivotal domain in the dynamic field of educational practices. Despite increasing interest, a comprehensive understanding of how innovation shapes educational leadership and its outcomes remains limited. To address this gap, this review examines studies published up to 2024, retrieved from reputable databases such as Scopus and Web of Science. Using the preferred reporting items for systematic reviews and meta-analyses (PRISMA) framework, 33 primary studies were selected for in-depth analysis. The findings are categorized into three key themes: i) digital and technological transformation in education, ii) leadership styles and professional development, and iii) innovative strategies and change management. The review highlights significant advancements in these areas, yet underscores the need for further exploration of their long-term impacts, particularly in diverse educational settings. This work contributes by synthesizing current trends and practices in educational leadership innovation, identifying existing challenges, and proposing pathways for future research. These insights aim to support the development of effective and scalable leadership innovations, ensuring adaptability and impact across various educational environments. This review ultimately serves as a foundation for advancing educational leadership to meet the evolving demands of the 21st-century education landscape.

This is an open access article under the CC BY-SA license.

Corresponding Author:

Ahmad Zabidi A. Razak
Department of Educational Management, Planning, and Policy, Faculty of Education, Universiti Malaya
Kuala Lumpur, Malaysia
Email: zabidi@um.edu.my

1. INTRODUCTION

In the rapidly evolving landscape of 21st-century education, leadership faces both unprecedented challenges and opportunities [1], [2]. The integration of technology, the diversification of student populations, and the increasing demands for accountability and inclusivity have fundamentally transformed educational environments. In this context, educational leaders must not only adapt but also innovate to ensure that schools and institutions are equipped to meet these growing demands [3]–[5]. Innovation in educational leadership is no longer a luxury; it is a necessity, as traditional leadership models often fall short in addressing the complexities of modern education.

Educational leadership innovation requires a complete rethinking and redesigning of leadership practices to foster environments where both students and educators can thrive. It extends beyond adopting new technologies or practices and requires a fundamental shift in mindset. Leaders must cultivate a culture of continuous learning, collaboration, and creativity, encouraging their teams to experiment with new ideas and

strategies. This innovative approach is crucial for developing the capacity of schools and institutions to respond to their community's changing needs and to prepare students for an increasingly interconnected and uncertain world.

At the core of educational leadership innovation is the creation of inclusive and equitable learning environments. As schools grow more diverse, leaders must ensure that all students have access to the resources and support they need [6]–[8]. This process requires innovative curriculum design, professional development, and approaches to community engagement. By embracing diversity and promoting equity, educational leaders can create more effective and just learning spaces. While technology plays a significant role in driving educational leadership innovation, it is not the only factor [9]–[11]. Digital tools and platforms have opened new avenues for teaching, learning, and administration, but visionary leadership is essential in leveraging these tools effectively and ethically to enhance educational outcomes.

In conclusion, educational leadership innovation is a multifaceted and dynamic process that requires a deep understanding of the challenges and opportunities of modern education. It involves adopting new practices and technologies and a commitment to creating inclusive, equitable, and sustainable learning environments [12]–[14]. As the educational landscape continues to evolve, innovative leadership will be essential in shaping the future of education and ensuring that all students have the opportunity to succeed.

In light of these considerations, the objective of this study is to review and synthesize the current literature on educational leadership innovation. This review aims to identify key themes, trends, and strategies that characterize innovative practices in educational leadership. By examining various approaches and frameworks, the study provides a comprehensive understanding of how leadership innovation can address the evolving demands of the educational sector. The analysis will focus on how educational leaders can implement innovative practices to foster inclusive, equitable, and technologically advanced learning environments, ultimately enhancing educational outcomes and preparing institutions to thrive in a dynamic and interconnected world.

2. PROPOSED FRAMEWORK

This research proposes a structured framework for educational leadership innovation, synthesized from a systematic review of 33 primary studies. This framework emphasizes three key pillars: i) digital and technological transformation, ii) leadership styles and professional development, and iii) innovative strategies and change management. The proposed framework serves as a guide for educational leaders aiming to address the complexities of modern education while ensuring adaptability, equity, and technological advancement. This structured approach is positioned to meet the evolving demands of 21st-century educational environments effectively.

3. METHOD

The literature review process involves four stages: identifying keywords and searching for related terms, screening, determining eligibility, and conducting data abstraction analysis. The details of each stage are outlined below:

3.1. Identification

This research followed the key stages of the systematic review process to gather an extensive collection of pertinent literature. The initial step involved identifying keywords, which were then broadened using related terms derived from dictionaries, thesauri, encyclopedias, ChatGPT, and prior studies. These terms were used to construct search strings customized for querying the Scopus and Web of Science databases (refer to Table 1). During this initial phase, 2,696 publications relevant to the study's focus were retrieved from these databases.

Table 1. The search strings

Scopus	Web of Science
TITLE-ABS-KEY (educational AND leadership AND innovation) AND (LIMIT-TO (PUBYEAR, 2024)) AND (LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (LANGUAGE, "English")) Date of Access: 16 August 2024	TI= KEY (educational AND leadership AND innovation) AND (LIMIT-TO (PUBYEAR, 2024)) AND (LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (LANGUAGE, "English")) Date of Access: 16 August 2024

3.2. Screening

In the screening phase, research items were evaluated to ensure they aligned with the predefined research questions. This step involved selecting studies related to educational leadership innovation and eliminating duplicate entries. As a result, 2,571 publications were excluded, leaving 125 studies for detailed analysis based on specific inclusion and exclusion criteria (see Table 2). The primary criterion emphasized literature that offered practical recommendations, encompassing reviews, meta-syntheses, meta-analyses, books, book series, chapters, and conference proceedings not addressed in the most recent studies. The review focused exclusively on English-language publications from 2024. Ultimately, twenty-four entries were removed due to duplication.

Table 2. The criteria identify studies matching the research goals

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2024	Before 2024
Literature type	Journal (article)	Conference papers, books, reviews
Document type	Article	Non-article formats
Subject	Social Science	Non-social science studies

3.3. Quality of appraisal

Following the guidelines from [15], the selected PSs were evaluated for research quality and quantitatively compared. This study adopts the quality assessment (QA) approach from [16], which includes six QAs for the systematic literature review (SLR). Each criterion is rated as "yes" (Y) with a score of 1 for full compliance, "partly" (P) with a score of 0.5 for partial compliance with some gaps, or "no" (N) with a score of 0 for non-compliance.

Table 3 presents the QA process for evaluating studies based on specific criteria. Three experts independently score the study on each criterion as "yes" (Y), "partly" (P), or "no" (N). Below are the details of the criteria:

- Is the purpose of the study clearly stated? Assesses whether the study's objectives are clearly defined, ensuring a focused research direction.
- Are the relevance and usefulness of the work effectively demonstrated? Evaluates the study's significance and potential contributions, highlighting its relevance and impact.
- Is the study methodology well-defined and established? Check if the research methodology is clearly described and appropriate for achieving the study's goals, ensuring validity and reproducibility.
- Are the approach's concepts clearly defined? Examines whether key concepts and theoretical frameworks are well-defined, facilitating understanding of the study's approach.
- Is the study compared and evaluated against similar research? Determines if the study is benchmarked against existing research, positioning it within the broader academic context and showcasing its contributions.

Each expert's scores are summed, and the total score across all experts determines the study's acceptance. A combined score above 3.0 is required for a study to proceed to the next stage, ensuring only high-quality research advances.

Table 3. Quality assessment

QA	Expert 1	Expert 2	Expert 3	Total mark
Is the purpose of the study clearly stated?	Y	Y	Y	3
Are the relevance and usefulness of the work effectively demonstrated?	Y	Y	Y	3
Is the study methodology well-defined and established?	Y	Y	Y	3
Are the approach's concepts clearly defined?	Y	Y	Y	3
Is the study compared and evaluated against similar research?	Y	Y	Y	3

3.4. Data abstraction and analysis

This study utilized an integrative analysis to assess and synthesize various research designs, focusing on quantitative methods [17]. The comprehensive survey aimed to identify key topics and subtopics [18]. Data collection marked the initial step in theme development [19]. As shown in Figure 1, the authors systematically analyzed 33 publications to extract assertions or content relevant to the study's topics. Significant studies on educational leadership innovation were then reviewed, examining methodologies and research findings. The authors collaborated to develop themes based on the study's context, maintaining a log

to document analyses, perspectives, challenges, and insights during data interpretation. Finally, results were compared to identify any inconsistencies in the theme development process, with any conceptual disagreements resolved through discussion among the authors.

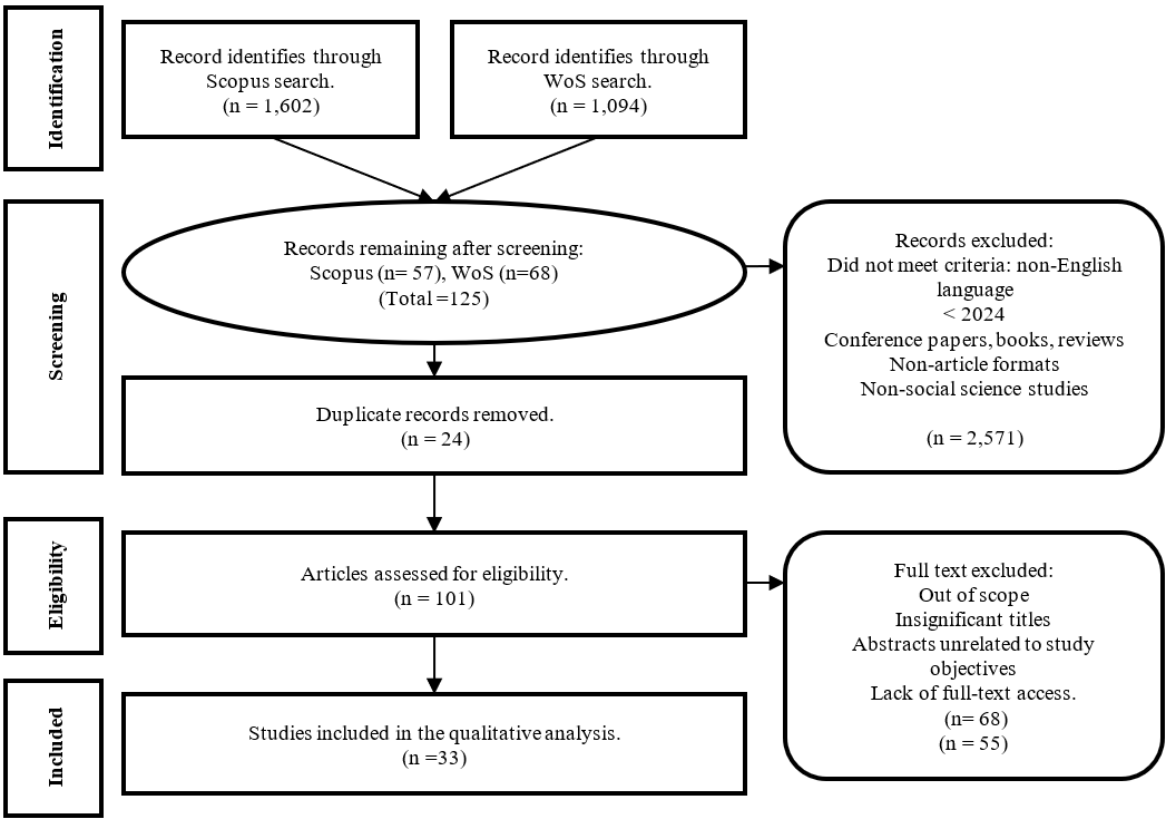

Figure 1. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) diagram of the proposed search study [1]

4. RESULT AND DISCUSSION

This section outlines the findings of 2024 studies conducted using the SLR method, summarized in Table 3. From the analysis of 33 articles, three primary themes emerged. The selection of these themes was validated by three experts in leadership and educational management-two with expertise in leadership and one in educational management-to ensure the accuracy and relevance of the identified issues. This expert review confirmed each subtheme's clarity, relevance, and appropriateness, establishing domain validity. The three main themes identified are: i) digital and technological transformation in education, ii) leadership styles and development in education, and iii) innovative strategies and change management in education.

4.1. RQ1: how do educational leaders facilitate adopting and integrating digital and technological transformation in educational institutions?

To address research question 1, theme 1 and theme 2 offer complementary insights into how educational leaders facilitate digital and technological transformation in educational institutions. The first theme, digital and technological transformation in education, highlights the importance of structured digital leadership and innovative practices in effectively implementing digital initiatives. This involves understanding the critical role of leadership in driving digital adoption, managing change, and ensuring the successful integration of advanced technologies such as artificial intelligence.

4.1.1. Theme 1: digital and technological transformation in education

The reviewed studies highlight the pivotal role of structured digital leadership in facilitating successful digital and technological transformations in educational institutions. underscores the significance of leadership and pedagogical innovation in promoting effective digital change [20], while Tungpantong *et al.* [21] emphasizes how digital leadership enhances knowledge sharing and emotional

intelligence in academic environments. The findings from Abouzahra *et al.* [16] further reinforce the necessity of a robust e-leadership framework to manage change and accommodate continuous innovation, as seen in policies like *Merdeka Belajar*. Similarly, Al Nuaimi *et al.* [22] work demonstrates the decisive role that school principals play in the digital transformation process, mainly through their influence on the perceived benefits of digital resources and the support environment.

Additionally, Nagy *et al.* [23] address the complexities surrounding adopting advanced technologies such as artificial intelligence, identifying key factors like risk perception and performance expectations as critical to successful integration. These collective insights advocate for a strategic approach to digital leadership, emphasizing visionary leadership, systematic improvement, and digital citizenship as essential components for enhancing the educational landscape. Together, these studies provide a comprehensive understanding of how educational leaders can optimize digital transformation through focused leadership and well-structured policy implementation in higher education.

The second theme, leadership styles and development in education underscores the impact of various leadership styles, such as distributed and transformational leadership, in creating a supportive and adaptive environment for digital transformation [24], [25]. Effective leadership styles not only influence the motivation and engagement of educators and students but also enhance the overall readiness of institutions to embrace technological advancements [26]. Together, these themes demonstrate that the success of digital transformation in education hinges on both strategic digital leadership and cultivating leadership qualities that foster innovation and collaboration within educational settings.

4.1.2. Theme 2: leadership styles and development in education

The adaptability and motivation of learners in Malaysia's online educational environments are influenced by various leadership factors, as highlighted by recent studies. Ruiz-Vázquez *et al.* [27] emphasize the connection between personality traits like openness and conscientiousness and leadership styles that enhance online learning engagement. This is supported by Kyambade *et al.* [28], who underscore the importance of psychological safety and socially responsible leadership in creating an inclusive online learning environment. Additionally, Ho *et al.* [29] explore how distributed and ecological leadership models can be adapted to improve collaborative learning experiences while Malin *et al.* [30] highlight the role of leadership in fostering a culture of innovation and collaboration for deeper learning further insights from [25] and [31] demonstrate that distributed and transformational leadership styles are crucial in enhancing the innovativeness of teaching staff, particularly in adapting strategies for online platforms. Collectively, these studies emphasize the pivotal role of effective leadership in shaping educational innovations, fostering a conducive online learning environment, and enhancing student engagement in higher education settings [31]. Next, the third theme effectively addresses research question 2 regarding the most effective leadership styles and innovative strategies for managing change and driving innovation in educational institutions within the Malaysian context.

4.2. RQ2: what leadership styles and innovative strategies are most effective for managing change and driving innovation in educational institutions?

4.2.1. Theme 3: innovative strategies and change management in education

Recent studies emphasize the critical role of leadership styles and innovative strategies in effectively managing change and driving innovation within Malaysian educational institutions. Tweedie *et al.* [32] underscoring the importance of educational leaders who skillfully navigate and implement new curricula, stressing the value of trial and observation to verify the success of educational transformations. Steinert *et al.* [33] reinforce this perspective, and highlight the significance of strategic leadership and faculty development in supporting organizational changes. Leaders who focus on continuous professional development ensure that educators remain at the forefront of pedagogical innovations, facilitating effective adaptation to new challenges. Additionally, Kompella [34] identifies integrating information and communication technology (ICT) as essential for driving service innovations and enhancing sustainability in higher education. It demonstrates how technology can transform educational practices and create more efficient learning environments [35].

Furthermore, Kim *et al.* [36] highlights the transformative impact of technological advancements on student outcomes, noting that the effective integration of technology in education substantially enhances student performance, especially in terms of engagement and retention. In [37]–[39], complements this by demonstrating how equity-focused leadership fosters inclusive environments that support deeper learning, a crucial consideration in Malaysia's diverse educational landscape. Additionally, [40]–[43] emphasize the importance of cultivating a psychologically safe culture for innovation, where open dialogue and experimentation are encouraged [44], [45]. This environment is essential for fostering innovative thinking, which drives educational change and improvement [46], [47]. These studies reveal that successful change and

innovation management in Malaysian educational institutions requires a strategic blend of technologically adept, inclusive, and equity-focused leadership approaches [48]–[50].

5. CONCLUSION

Examining the influence of leadership styles and innovative strategies on change management and innovation within Malaysian educational institutions provides valuable insights into effective leadership practices. This SLR offers several key implications for educational leadership. Primarily, the focus on digital leadership underscores the essential role leaders play in leveraging advanced technologies to enhance educational outcomes. Leaders who strategically implement digital initiatives can better align these innovations with institutional goals, which is crucial for fostering adaptive and resilient learning environments. This underscores the need for structured leadership that not only facilitates smooth digital transformation but also prepares institutions to manage technological disruptions effectively.

Additionally, the research highlights the significance of leadership styles, such as distributed and transformational leadership, in fostering innovation within educational institutions. Distributed leadership encourages collaboration and shared decision-making and enhances engagement across various institutional levels, leading to more inclusive and creative learning environments. In contrast, transformational leadership is key in inspiring educators and students to adopt innovative practices, fostering continuous improvement and a forward-thinking mindset. These leadership approaches contribute to a culture of psychological safety, where educators and students feel empowered to explore new ideas and take risks-particularly important in online and technologically driven settings.

ACKNOWLEDGEMENTS

We extend our gratitude to the Ministry of Education for providing financial support through the research grant (reference no. KPM.BT.700-30/21/114(3)). This research grant has been instrumental in facilitating this study and is anticipated to pave the way for future research. The researcher also deeply appreciates the contributions of the organizations and individuals involved, whose support was invaluable in completing this study.

FUNDING INFORMATION

This study received no external funding. The author conducted all aspects of the research and manuscript preparation. No conflicts of interest are declared. Informed consent was obtained from all participants. Ethical approval was granted by the university's ethics committee. Data supporting the findings are available upon reasonable request. The author also extends sincere thanks to the participating schools and teachers.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Suhaibah Mukhtar	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓	
Ahmad Zabidi A. Razak	✓	✓		✓		✓	✓	✓	✓	✓		✓	✓	✓
Ninik Setiyowati			✓	✓	✓					✓	✓	✓	✓	
Mohd Azizul Adni			✓	✓	✓					✓	✓		✓	✓

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

To ensure transparency and uphold the integrity of the research, the authors affirm that there are no conflicts of interest-financial, personal, or professional-related to the content and findings of this manuscript.

INFORMED CONSENT

To protect the privacy and rights of all participants', informed consent was obtained prior to their involvement in this study.

ETHICAL APPROVAL

The research related to human use has been complied with all the relevant national regulations and institutional policies following the tenets of the Helsinki Declaration and has been approved by the authors' institutional review board or equivalent committee.

DATA AVAILABILITY

Data availability does not apply to this paper, as the study did not involve the generation or analysis of any new datasets. The content and findings presented are based entirely on existing literature and conceptual frameworks, without the collection of empirical data. As such, there are no datasets associated with this work that can be shared or accessed.

REFERENCES

[1] S. Özdemir, Ö. Çoban, and S. Bozkurt, "Examination of the relationship between school principals' 21st century skills and their strategic leadership according to teachers' opinions," *Pegem Egitim ve Ogretim Dergisi*, vol. 10, no. 2, pp. 399–426, 2020, doi: 10.14527/PEGEGOG.2020.014.

[2] B. Girma, "A review of educational leadership challenges in the 21st century," *International Journal of Education, Technology, and Science*, vol. 2, no. 4, pp. 486–501, 2022.

[3] L. D. Mubarik, B. K. Iskamto, and K. N. Sakib, "Entrepreneurial competencies and success of SMEs in Changwon, South Korea," *Journal of Entrepreneurship and Project Management*, vol. 7, no. 8, pp. 1–11, Jul. 2023, doi: 10.53819/81018102t5206.

[4] N. Jamil, M. I. M. Hamzah, and A. H. A Hamid, "Innovative work behaviour among Malaysian education officials: a manova analysis," *e-Bangi Journal of Social Science and Humanities*, vol. 20, no. 4, Nov. 2023, doi: 10.17576/ebangi.2023.2004.07.

[5] R. R. Onilongo, "A survey on instructional leadership framework (ILF) status at Margarito A. Duavit Memorial and Vicente Madrigal National High Schools," *Journal of Education and Practice*, vol. 12, no. 21, Jul. 2021, doi: 10.7176/JEP/12-21-09.

[6] E. Berger, N. Chionh, and A. Miko, "School leaders' experiences on dealing with students exposed to domestic violence," *Journal of Family Violence*, vol. 37, no. 7, pp. 1089–1100, 2022, doi: 10.1007/s10896-021-00310-4.

[7] M. R. van der Ross, C. Olckers, and P. Schaap, "Student engagement and learning approaches during COVID-19: the role of study resources, burnout risk, and student leader–member exchange as psychological conditions," *Higher Learning Research Communications*, vol. 12, pp. 77–109, 2022, doi: 10.18870/hlrc.v12i0.1330.

[8] B. Bai, M. Li, and X. Lyu, "Sustainable career and employability of student leaders in China," Frontiers *in Psychology*, vol. 13, pp. 1–13, 2022, doi: 10.3389/fpsyg.2022.1033401.

[9] S. Sauphayana, "Innovation in higher education management and leadership," *Journal of Educational and Social Research*, vol. 11, no. 6, pp. 163–172, 2021, doi: 10.36941/jesr-2021-0137.

[10] M. Schophuizen, A. Kelly, C. Utama, M. Specht, and M. Kalz, "Enabling educational innovation through complexity leadership? Perspectives from four Dutch universities," *Tertiary Education and Management*, vol. 29, no. 4, pp. 471–490, 2023, doi: 10.1007/s11233-022-09105-8.

[11] B. Deacon, M. Laufer, and L. O. Schäfer, "Infusing educational technologies in the heart of the university—a systematic literature review from an organisational perspective," *British Journal of Educational Technology*, vol. 54, no. 2, pp. 441–466, 2023, doi: 10.1111/bjet.13277.

[12] E. S. O'Leary *et al.*, "Creating inclusive classrooms by engaging STEM faculty in culturally responsive teaching workshops," *International Journal of STEM Education*, vol. 7, no. 1, p. 32, Dec. 2020, doi: 10.1186/s40594-020-00230-7.

[13] L. Cerna *et al.*, "Promoting inclusive education for diverse societies: a conceptual framework," *OECD Education Working Papers*, no. 260, pp. 0_1,1-4,6-57, 2021.

[14] N. M. Islam *et al.*, "Adopting artificial intelligence in dental education: a model for academic leadership and innovation," *Journal of Dental Education*, vol. 86, no. 11, pp. 1545–1551, Nov. 2022, doi: 10.1002/jdd.13010.

[15] A. García-Holgado, S. Marcos-Pablos, and F. J. García-Peñalvo, "Guidelines for performing systematic research projects reviews," *International Journal of Interactive Multimedia and Artificial Intelligence*, vol. 6, no. 2, pp. 136–144, 2020, doi: 10.9781/ijimai.2020.05.005.

[16] A. Abouzahra, A. Sabraoui, and K. Afdel, "Model composition in model driven engineering: a systematic literature review," *Information and Software Technology*, vol. 125, p. 106316, Sep. 2020, doi: 10.1016/j.infsof.2020.106316.

[17] S. M. Yusoff, A. F. M. Marzaini, M. H. Hassan, and N. Zakaria, "Investigating the roles of pedagogical content knowledge in music education: a systematic literature review," *Malaysian Journal of Music*, vol. 12, no. 2, pp. 95–114, 2023, doi: 10.37134//MJM.VOL12.2.6.2023.

[18] G. J. Hwang, D. Zou, and J. Lin, "Effects of a multi-level concept mapping-based question-posing approach on students' ubiquitous learning performance and perceptions," *Computers and Education*, vol. 149, 2020, doi: 10.1016/j.compedu.2020.103815.

[19] W. M. Lim, "A typology of validity: content, face, convergent, discriminant, nomological and predictive validity," *Journal of Trade Science*, vol. 12, no. 3, pp. 155–179, Sep. 2024, doi: 10.1108/jts-03-2024-0016.

[20] I. F. Rahmadi, "Research on digital transformation in higher education: present concerns and future endeavours," *TechTrends*, vol. 68, no. 4, pp. 647–660, Jul. 2024, doi: 10.1007/s11528-024-00971-0.

[21] C. Tungpantong, P. Nilsook, and P. Wannapiroon, "A conceptual framework of factors for information systems success to digital transformation in higher education institutions," in *2021 9th International Conference on Information and Education Technology, ICIET 2021*, Mar. 2021, pp. 57–62, doi: 10.1109/ICIET51873.2021.9419596.

[22] H. Al Nuaimi, S. Z. Ahmad, and K. Khalid, "The importance of the school principals' role in the digital transformation of the education sector," *International Journal of Comparative Education and Development*, vol. 26, no. 1, pp. 17–37, Feb. 2024, doi: 10.1108/IJCED-05-2023-0044.
[23] A. S. Nagy, J. R. Tumiwa, F. V. Arie, and L. Erdey, "An exploratory study of artificial intelligence adoption in higher education," *Cogent Education*, vol. 11, no. 1, pp. 1–15, 2024, doi: 10.1080/2331186X.2024.2386892.
[24] Y. Teng, R. Pu, and Y. Hao, "How can an innovative teaching force be developed? The empowering role of distributed leadership," *Thinking Skills and Creativity*, vol. 51, pp. 1–15, 2024, doi: 10.1016/j.tsc.2024.101464.
[25] J. Cao, Y. Huang, X. Shao, and Y. Zhong, "Driving innovation: exploring the effect of distributed leadership on collective teacher innovativeness in Chinese schools," *Asia-Pacific Education Researcher*, pp. 1–14, 2024, doi: 10.1007/s40299-024-00866-x.
[26] A. Ç. Kılınç, N. Özdemir, M. Polatcan, G. Savaş, and E. Dolapcı, "Linking transformational leadership to teacher commitment and alienation: Do motivational climate profiles moderate?" *Educational Management Administration and Leadership*, pp. 1–24, 2023, doi: 10.1177/17411432231184602.
[27] M. H. Ruiz-Vázquez, F. G. Rodríguez-González, and J. C. Trujillo-Reyes, "Personality and leadership style in generation Z: A quantitative study in a higher education institution in Mexico," *Intangible Capital*, vol. 20, no. 1, pp. 170–192, 2024, doi: 10.3926/IC.2383.
[28] M. Kyambade, R. Namuddu, J. Mugambwa, and A. Namatovu, "I can't express myself at work: encouraging socially responsible leadership and psychological safety in higher education setting," *Cogent Education*, vol. 11, no. 1, pp. 1–17, 2024, doi: 10.1080/2331186X.2024.2373560.
[29] J. Ho, D. Hung, P. H. Chua, and N. B. Munir, "Integrating distributed with ecological leadership: through the lens of activity theory," *Educational Management Administration and Leadership*, vol. 52, no. 2, pp. 304–324, 2024, doi: 10.1177/17411432221077156.
[30] J. R. Malin, T. S. Poetter, J. Graft, M. Durham, and W. T. Sprankles, "Culture–leadership intersections in support of deeper learning at a career and technical education center," *Journal of Educational Administration*, vol. 62, no. 1, pp. 23–39, 2024, doi: 10.1108/JEA-02-2023-0034.
[31] S. Hadi, Purnomo, A. Imron, R. Pristian, M. E. Ranu, and A. S. Jamil, "Adapted integrated transformational-instructional leadership behaviors: construct validity and perceptions among teachers and principals in Indonesian vocational schools," *Eurasian Journal of Educational Research*, vol. 2024, no. 109, pp. 238–259, 2024, doi: 10.14689/ejer.2024.109.013.
[32] J. Tweedie, F. Pelly, H. Wright, and C. Palermo, "Exploring the adoption of concept-based curricula: insights from educators and implications for change," *Advances in Health Sciences Education*, pp. 1–15, 2024, doi: 10.1007/s10459-024-10346-y.
[33] Y. Steinert, P. S. O'Sullivan, and D. M. Irby, "The role of faculty development in advancing change at the organizational level," *Academic Medicine*, vol. 99, no. 7, pp. 716–723, 2024, doi: 10.1097/ACM.0000000000005732.
[34] L. Kompella, "Service innovations, value-driven business model, and institute growth: insights from a higher-education institute," *International Journal of Educational Management*, pp. 1–17, 2024, doi: 10.1108/IJEM-06-2023-0279.
[35] A. Uzorka and K. Kalabuki, "The transformative impact of technological advancements in educational leadership on student experiences and outcomes," *Education and Information Technologies*, pp. 1–22, 2024, doi: 10.1007/s10639-024-12714-y.
[36] T. Kim, M. Yang, and Y. Oh, "Leading from equity: changing and organizing for deeper learning," *Journal of Educational Administration*, vol. 62, no. 1, pp. 138–156, Jan. 2024, doi: 10.1108/JEA-02-2023-0045.
[37] K. A. Porter-Stransky, K. J. Horneffer-Ginter, L. D. Bauler, K. M. Gibson, C. M. Haymaker, and M. Rothney, "Improving departmental psychological safety through a medical school-wide initiative," *BMC Medical Education*, vol. 24, no. 1, p. 800, Jul. 2024, doi: 10.1186/s12909-024-05794-4.
[38] W. Sandy, "Navigating uncharted waters: leadership insights from successfully reopened schools amid the COVID-19 pandemic," *School Leadership and Management*, vol. 44, no. 4, pp. 494–517, Aug. 2024, doi: 10.1080/13632434.2024.2345068.
[39] S. Anwar and U. N. Saraih, "Digital leadership in the digital era of education: enhancing knowledge sharing and emotional intelligence," *International Journal of Educational Management*, vol. 38, no. 6, pp. 1581–1611, Dec. 2024, doi: 10.1108/IJEM-11-2023-0540.
[40] H. Suharyati *et al.*, "Exploring the role of e-learning, digital leadership and digital innovation behavior on schools' performance during society 5.0 era," *International Journal of Data and Network Science*, vol. 8, no. 4, pp. 2527–2538, 2024, doi: 10.5267/j.ijdns.2024.5.005.
[41] M. Laufer, B. Deacon, M. A. Mende, and L. O. Schäfer, "Leading with trust: how university leaders can foster innovation with educational technology through organizational trust," *Innovative Higher Education*, vol. 50, no. 1, pp. 303–327, Feb. 2024, doi: 10.1007/s10755-024-09733-5.
[42] T. Chakraborty, A. Natarajan, M. Ganguly, and N. Mishra, *Digitalization of higher education: opportunities and threats*. New York: Apple Academic Press, 2024, doi: 10.1201/9781003412151.
[43] L. Huang, D. Zhao, and S. Zhou, "Examining principal instructional leadership effects on the rural-urban instructional quality gap in China: The mechanism of teacher professional learning," *Studies in Educational Evaluation*, vol. 81, p. 101346, Jun. 2024, doi: 10.1016/j.stueduc.2024.101346.
[44] A. Johnson and K. Miller, "Shared transformation: the one door approach at cuyahoga community college," in *Shared Leadership in Higher Education: A Framework and Models for Responding to a Changing World*, New York: Routledge, 2023, pp. 169–181, doi: 10.4324/9781003446965-13.
[45] A. Iatsyshyn, I. Deinega, M. Aleksandrova, S. Atamanyuk, T. Hryhorenko, and D. Suprun, "Knowledge management in the context of digital transformation of education and science in Ukraine: challenges in professional training," in *Studies in Systems, Decision and Control*, vol. 529, 2024, pp. 165–184, doi: 10.1007/978-3-031-57422-1_12.
[46] S. Carrasco and I. P. Lopez, "Linking education and practice gaps for inclusive architecture in the AEC industry," *Archnet-IJAR: International Journal of Architectural Research*, vol. 19, no. 1, pp. 128–148, Mar. 2024, doi: 10.1108/ARCH-11-2023-0297.
[47] A. Ersozlu, M. Karakus, F. Karakas, and D. L. Clouder, "Nurturing a climate of innovation in a didactic educational system: a case study exploring leadership in private schools in Turkey," *Leadership and Policy in Schools*, vol. 23, no. 2, pp. 275–295, 2024, doi: 10.1080/15700763.2022.2129074.
[48] R. Hidayat and Y. E. Patras, "Teacher innovativeness: The effect of self-efficacy, transformational leadership, and school climate," *Journal of Pedagogical Research*, vol. 8, no. 1, pp. 208–222, Jan. 2024, doi: 10.33902/JPR.202424547.
[49] R. Hofmann, C. P. K. Chu, A. Twiner, and J. D. Vermunt, "Patterns in clinical leadership learning: understanding the quality of learning about leadership to support sustainable transformation in healthcare education," *Sustainability (Switzerland)*, vol. 16, no. 10, p. 4165, May 2024, doi: 10.3390/su16104165.
[50] L. Johnson, D. Devis, C. Bacholer, and S. N. Leonard, "Closing the loop by expanding the scope: using learning analytics within a pragmatic adaptive engagement with complex learning environments," *Frontiers in Education*, vol. 9, May 2024, doi: 10.3389/feduc.2024.1379520.

BIOGRAPHIES OF AUTHORS

Suhaibah Mukhtar is a full-time PhD candidate in the Department of Educational Management, Planning, and Policy at the Faculty of Education, Universiti Malaya, Kuala Lumpur, Malaysia. She holds a master's in applied linguistics from Universiti Utara Malaysia (UUM) in Sintok, Kedah, Malaysia, and a bachelor's in Teaching English as a Second Language (TESL) from the Universiti Malaya. Before pursuing her doctorate, she worked as an assistant district education officer in the School Management Sector at Gua Musang District Education Office (PPD), Kelantan. She has published several academic papers on leadership and educational development and presented her work at national and international conferences. Her research interests include educational policy, planning, management, and advanced data analysis techniques, particularly in partial least squares structural equation modeling (PLS-SEM). For inquiries or collaboration. She can be contacted at email: suhaibah@siswa.um.edu.my.

Ahmad Zabidi A. Razak is a professor in the Department of Educational Management, Planning, and Policy at the Faculty of Education, Universiti Malaya, Kuala Lumpur, Malaysia. He currently serves as the dean of the Faculty of Education, a position he has held since January 1, 2024. He earned his PhD from Massey University, New Zealand. He also holds a master of Education (M.Ed.) in Educational Planning and Administration and a Bachelor of Islamic Education (Hons) from the Universiti Malaya. His areas of expertise encompass education policy, management, and administration, specifically focusing on educational management and leadership, human resources in educational management, personal leadership and organization, educational management from an Islamic perspective, and school effectiveness. He has made significant contributions to the field through his research and leadership in educational management. He can be contacted at email: zabidi@um.edu.my.

Ninik Setiyowati is a lecturer and psychologist at the Faculty of Psychology, Universitas Negeri Malang. She holds a bachelor's and master's degree from Universitas Airlangga, Indonesia, and earned her PhD in educational psychology from Universiti Malaya, Malaysia. Her research focuses on educational psychology, leadership, management, public policy, and Indigenous psychology, particularly exploring the role of culture in education. She has published numerous papers and book chapters that contribute significantly to her field of study. Her passion lies in improving the quality of teaching and the well-being of educators and learners in Indonesia while delving into her country's rich cultural diversity and indigenous wisdom. She can be contacted at email: ninik.setiyowati.fppsi@um.ac.id.

Mohd Azizul Adni is a PhD candidate who is currently in his 3rd year at Universiti Malaya (UM), Malaysia. He is studying education leadership. He earned his bachelor's degree in Islamic Jurisprudence and law from the Al Al-Bayt University, Jordan in 2002. He obtained his master of shari'a from Universiti Malaya in 2015. He has 15 years of experience as a teacher and part time lecturer in Foundation of Islamic Law, Arabic Language and Methodology in Teaching Arabic Language subjects. He also served as an administrative officer and appointed as head in examination and assessment unit in the IPGM Kampus Tengku Ampuan Afzan, Kuala Lipis, Pahang for 9 years. He is deeply passionate about strengthening educational leadership and emphasizing the pivotal role of school leaders in contributing to the education leadership success. He can be contacted at email: mohdazizuladnihlp2021@gmail.com.