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THE INTEGRATION OF ARTIFICIAL INTELLIGENCE IN PRINCIPAL LEADERSHIP: A SYSTEMATIC LITERATURE REVIEW OF TRENDS, TOOLS, AND IMPACTS

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ABSTRACT

As schools move further into the digital age, Artificial Intelligence (AI) is starting to play a growing role in how principals lead and make decisions. This systematic literature review explores how AI is being integrated into school leadership, focusing on the trends, tools, and impacts reported in peer-reviewed studies published between 2010 and 2025. Using the PRISMA method, we reviewed research from sources like Scopus, Google Scholar, and Dimensions to understand how AI is changing the responsibilities of school leaders. The findings show that AI is helping principals in several key areas: automating routine tasks, using data to make better decisions, supporting teachers, and creating more personalized learning environments for students. Digital Tools like smartboards, projectors and dashboards are becoming more common in schools. At the same time, challenges such as lack of training, concerns about data privacy, and ethical use of AI are also highlighted. Overall, the study shows that while AI offers many opportunities to support effective school leadership, there is a clear need for professional development, thoughtful policies, and further research. By understanding how AI is currently being used, this review helps educators, policymakers, and developers move toward smarter and more responsible use of technology in schools.

Keywords: Artificial Intelligence (AI), Principal Leadership, Digital Leadership

1. INTRODUCTION

Principals in today's changing world of education play an important role where they make their schools succeed, improve student learning, and build a positive school culture. Being the school heads the principals are highly expected to make smart, data-based decisions, handle the whole system, and updated with current technology Leithwood et al. (2020). With these increasing expectations, Artificial Intelligence (AI) is beginning to make a significant difference. It recommends latest ways to help principals to manage day-to-day tasks, future planning, individual

learning for students, and maintain connection with staff members, students, and their parents Chen et al. (2022).

Some of the schools are now slowly opening the doors to AI tools such as smart dashboards, virtual assistants and data analysis Luckin et al. (2016). Principals are helped by these technologies to track their students' progress, wise use of school resources, observe beforehand the signs of students struggling and make easy communication. New possibilities and concerns arise with the increasing number of schools using AI more commonly. AI in education also comes with issues like protecting the school data, making ethical decisions, avoiding biasness, and to make sure school staff understand how to use these tools Williamson and Eynon (2020).

Even though there are numerous researches on technology in education, there is not much studies specifically about how AI is being integrated in principal leadership. The existing studies are all across different fields and use different methods, ideas, and goals Zawacki et al. (2019). That's why a systematic literature review (SLR) is so important it helps pull everything together, highlight key trends, show which AI tools are being used, and understand how they're affecting the way principals lead their schools.

This review aims to help fill that gap by looking closely at how AI is being used in principal leadership. It focuses on the latest trends, the tools principals are using, and the impact these tools are having or could have in the future. It also goes through at what's supporting or restraining the AI applications in educational settings. The purpose of this study is to provide relevant insights to school leaders, educators, and those making decisions who take an interest in how technology is aiding and converting leadership. This review has focused on the following key questions:

- RQ1: What kinds of AI tools and technologies are principals using in their leadership roles?
- RQ2: What patterns or trends are showing up in the research about how AI is being used in school leadership?
- RQ3: What are the main challenges and supports that influence how AI is being adopted by school leaders?

This review helps with a clear picture how AI is slowly entering into the world of school principal leadership and changing their role by carefully reviewing a wide range of studies. It also provides useful direction and offers ideas for how principals can make the most of AI in their leadership.

2. METHODOLOGY

2.1. REVIEW FRAMEWORK

To present a clear and organised way to search, select and report research studies this review is used the PRISMA framework Page et al. (2021). It helps in knowing the process is fair, transparent and convenient to follow. The steps in PRISMA include searching, sorting and deciding that fits to the aim after that selecting the final ones to include. These steps are shown in a PRISMA flow diagram.

2.2. SEARCH STRATEGY

The review implemented a careful search across academic databases to find the articles which are of peer-reviewed journal related to our topic. The databases are used:

- Scopus

- Google Scholar
- Dimensions

2.2.1. KEYWORDS AND BOOLEAN STRINGS

The following combination of keywords and Boolean operators was used:

("artificial intelligence" OR "AI") AND

("Principal" OR "school leader" OR "educational leadership") AND

("Principal leadership " OR "decision-making")

Filters were applied to limit results to English-language, peer-reviewed articles, and publication years between 2010 and 2025.

2.3. CRITERIA FOR INCLUSION AND ELIMINATION

Table 1

Table 1 Inclusion Elimination Condition

Inclusion Condition	Elimination Condition
Peer-review journal articles	Sources that have not been peer-reviewed (blogs, opinion pieces)
Focus on Principal leadership	Studies unrelated to Principal leadership
Research on AI tools in Principal leadership	Articles not involving AI
Published between 2010 and 2025	Non-English publications

While the primary focus is on the integration of AI in principal leadership, relevant studies exploring digital leadership and discussing ICT in the context of school leadership were also included, as they provide insight into the foundational skills, strategies, and mindsets necessary for adopting AI tools in schools.

2.4. STUDY SELECTION

Table 2

Table 2 Summary of the Relationship

Concept	Relevance
ICT	Basic tech infrastructure and tools prepare ground for digital transformation
Digital Leadership	Strategic and pedagogical use of tech builds vision and capacity
AI	Advanced, data-driven tools represent the next step in digital transformation leadership

At first, our database search found 314 articles. After taking out duplicate entries, we had 124 studies left to check by reading their titles and abstracts. We then reviewed the full text of those studies and selected 22 papers that fully met our criteria. The full selection process is shown in the PRISMA flow diagram.

Figure1

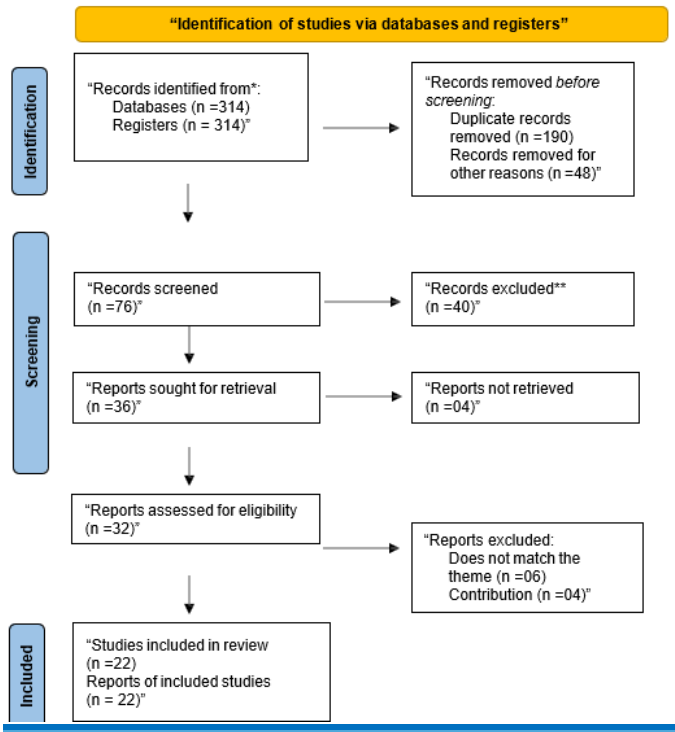

Figure 1 PRISMA Flow Diagram Detailing Steps in the Identification and Screening
Source Page MJ, et al.

2.5. QUALITY ASSESSMENT

Each study was carefully reviewed using a simple scoring guide based on Gough's Weight of Evidence (WoE) framework (2007). The review examined four main things:

- Whether the purpose of the research was clear
- How closely it related to our research questions
- How strong and reliable the data and methods were
- Is the study clearly about AI in principal leadership, or only loosely related?

Each study was rated as high, moderate, or low quality. Only the studies that were rated moderate or high were included in the final review.

2.6. DATA EXTRACTION AND SYNTHESIS

A table is created to keep track of important details from each study. This included:

- Who wrote the study and when it was published
- Where the study took place and in what kind of school setting
- What research method was used
- What type of AI tool or technology was involved
- What the study found about how AI affects principal leadership

Certain patterns were found across all the studies. Using a thematic approach, the findings were grouped into common themes like the types of tools used, how leadership was affected, overall trends, and the main challenges and supports schools faced when using AI.

2.7. LIMITATIONS OF THE METHODOLOGY

This review included open access and peer reviewed articles written in English, included in the databases namely Scopus, Google Scholar and Dimensions so it might have missed useful research published in other languages or databases.

3. RESULT AND DISCUSSION

Article Mapping: Integrating Artificial Intelligence into Principal Leadership

Review began by searching the Scopus, Google Scholar, and Dimensions databases with the keywords "Artificial Intelligence AND Principal Leadership." This initial search brought up 314 articles. After a thorough screening procedure and application of inclusion and elimination condition, we limited it down to 22 publications that best fit our study focus.

The table below provides an overview of these selected articles, including information about the authors, year of publication, title, journal details, country and research methods, and how each study relates to our research questions. This mapping provides a clear picture of the current landscape in this field.

Table 3

Table 3 Article Mapping on the Integration of Artificial Intelligence

S. No.	Author(s) & Year	Title	Publication/ Journal	Country/ Context	Research Design/Method
1	Raman et al. (2019)	"Principals' Technology Leadership and its Effect on Teachers' Technology Integration in 21st Century Classrooms"	"International Journal of Instruction October 2019 ● Vol.12, No.4 pp. 423-442"	Malaysia (Secondary Schools, Kedah)	Quantitative; cross-sectional survey; SPSS, Smart PLS analysis
2	Nurjaningsih (2020)	"Analysis of Principal's Motivation and Leadership Technology Pathway Through Mediator Learning Strategies with Gender Moderators in Maya Seesaw Classes"	"Science, Engineering, Education, and Development Studies (SEEDS): Conference Series Vol.4 no.1 (2020)."	Indonesia (Vocational schools)	Quantitative; cross-sectional design; path analysis; survey of 30 principals
3	Alif et al. (2022)	"Principal Management in Increasing the Quality of Education in the Society 5.0 Era"	"Indonesian Journal of Educational Research and Review, 5(3), 438-448"	Indonesia	Qualitative literature review
4	A'mar and Eleyan (2022)	"Effect of Principal's Technology Leadership on Teacher's Technology	"International Journal of Instruction, 15(1), 781-798"	Palestine (West Bank)	Quantitative cross-sectional survey

		Integration"			
5	Bang et al. (2022)	"Modelling the Nonlinearities Between Coaching Leadership and Turnover Intention by Artificial Neural Networks"	"SAGE Open, Oct-Dec 2022, 1–12"	South Korea (Schools)	Quantitative; Artificial Neural Networks (ANN); Survey
6	Lambot and Yango (2023)	"Secondary School Heads' Technology Leadership Skills, Educational Motivation, Teachers' Techno-Pedagogical Competence in the City Schools Division of Laguna"	"Technium Social Sciences Journal, Vol. 44, 449-476"	Philippines (Laguna, public secondary schools)	Quantitative; descriptive correlational survey
7	McCarthy et al. (2023)	"Digital transformation in education: Critical components for leaders of system change"	"Social Sciences & Humanities Open, 8(1), 100479"	Australia, USA; Global (primary & secondary education)	Thematic synthesis; Framework analysis
8.	Alghamdi (2024)	"Academic Leaders' Attitudes Toward Artificial Intelligence Applications in Leadership Work in Light of The Diffusion of Innovation Theory: The Impact of Possession of Digital Literacy"	"Journal of Educational Leadership and Policy Studies, 8(1)"	Saudi Arabia (Umm Al-Qura University)	Descriptive correlational survey
9.	Hou et al. (2024)	"Integrating Transformational Leadership with Artificial Intelligence: Driving a New Future for Chinese K-12 Education"	"International Journal of Educational Organization & Leadership, 2024, Vol 31, Issue 1, p123"	China (K-12 Education)	Theoretical/conceptual analysis; literature review;
10.	Karakose (2024)	"Will Artificial Intelligence (AI) Make the School Principal Redundant? A Preliminary Discussion and Future Prospects"	"Educational Process: International Journal, 13(2): 7-14"	Türkiye (School Leadership)	Theoretical/conceptual analysis; literature review
11.	Kilcoyne (2024)	"Navigating Through Disruption: How are School Principals Leading Digital Learning in Secondary Schools in Ireland"	"Computers in the Schools (Taylor & Francis), 2024"	Ireland (Secondary Schools)	Qualitative; semi-structured interviews thematic analysis

12.	Kurkan and Çetin (2024)	"The Perceptions of Educational Administrators towards Digital Leadership in the Age of Artificial Intelligence: A Qualitative Study"	"International Journal of Contemporary Educational Research, 11(3), 425-439"	Türkiye (Educational Administrators)	Qualitative; phenomenological; semi-structured interviews
13.	Mireles-Hernández et al. (2024)	"Improving Leadership in the Digital Era: A Case Study from Rural Mexico"	"Systems, 2024, 12, 559"	Mexico (Rural elementary schools)	Mixed methods case study
14.	Nhlumayo (2024)	"Rural Primary School Principal's Leadership Strategies for ICT Integration"	"Research in Social Sciences and Technology, 9(1), 171-184"	South Africa (Rural primary schools)	Qualitative (multiple case study)
15.	Ridho et al. (2024)	"Digital leadership of school principals to improve the quality of learning in the industrial revolution era 4.0"	"INSANIA: Journal Pemikiran Alternatif Kependidikan, 29(1), 17-34"	Indonesia (SMA Muhammadiyah 1 & MA Al Irtiqo', Malang)	Qualitative; multi-site study; observation, interviews, documentation; case/cross-site analysis
16.	Safranovi and Usman (2024)	"The Influence of School Principal Management on Increasing Digital- Based Teachers' Capability in MIN City of Banda Aceh"	"Journal of Education, Teaching, and Learning, 9(2), 188-195"	Indonesia (MIN Banda Aceh)	Experimental (one group pretest-post-test)
17.	Suratman et al. (2024)	"The Influence of Digital Leadership Toward Digital Transformation of Education"	"Southeast Asian Journal of Islamic Education, 7(2), 139–153"	Indonesia (Madrasah Aliyah)	Quantitative (survey, correlation, regression)
18.	Tømte (2024)	"Conceptualisation of professional digital competence for school leaders in schools with 1:1 coverage of digital devices"	"Computers & Education 222 (2024) 105151 "	Norway (schools with 1:1 device coverage)	Qualitative; longitudinal interviews Reflexive thematic analysis
19.	Yani et al. (2024)	"Application of Learning Technology as a Strategy for New School Principals to Gain Acceptance"	"Journal Panellation Pendidikan IPA, 10(Special Issue), 259-265"	Indonesia (Elementary Schools)	Qualitative descriptive (multi-site case study)
20.	Zhou and Schofield (2024)	"Developing a conceptual framework for Artificial Intelligence (AI) literacy in higher education"	"Journal of Learning Development in Higher Education ISSN: 1759-667X Issue 31 September 2024 "	UK (Queen Mary University of London); Higher Education	Case study

21.	Rodgers (2025)	"Technology Leadership for Pandemic STE-Management in Computer Science: A PK12 Case Study"	"Education Sciences, 15(1), 34"	USA (Urban PK- 12 school district)	Qualitative case study; ethnographic lens; document review; content analysis
22.	Ruloff and Petko (2025)	"School principals' educational goals and leadership styles for digital transformation: results from case studies in upper secondary schools"	"International Journal of Leadership in Education, 28(2), 422-440."	Switzerland (Upper secondary schools)	Qualitative; Exploratory case studies; interviews Qualitative content analysis

Mapping of Included Articles with Scopus Accreditation

Some of the studies that reviewed were published in journals that are indexed in Scopus, a well-known and trusted academic database. The researches that are included in Scopus database provides the assurance of being gone through a strict review process and is known for its quality by the global academic community. These Scopus-indexed articles, that are included in the present study along with details are listed in the table given below. This helps in knowing the academic value of these studies along with their contribution to understand the topic.

Table 4

Table 4 Mapping of Included Articles with Scopus Accreditation

Author(s)	Year	Journal/Source	Scopus Accredited?	Accreditation Details/Source
A'mar and Eleyan	2022	International Journal of Instruction	Yes	SJR 0.612, ISSN 1694609X
Bang et al.	2022	SAGE Open	Yes	SJR 0.324, ISSN 21582440
Karakose	2024	Educational Process: International Journal	Yes	SJR 0.294, ISSN 25648020
Kilcoyne	2024	Computers in the Schools	Yes	Scopus indexed
Mireles-Hernández et al.	2024	Systems (MDPI)	Yes	MDPI, Q2/Q1, Scopus
Tømte	2024	Education and Information Technologies	Yes	SJR 0.782, ISSN 13602357
Rodgers	2025	Education Sciences (MDPI)	Yes	ISSN 2227-7102
Ruloff and Petko	2025	International Journal of Leadership in Education	Yes	Scopus indexed

4. DISCUSSION

This section provides a thematic synthesis of the systematic literature review findings, organized around three research questions.

AI Tools and Technologies Utilized in Principal Leadership (RQ1)

The reviewed studies disclose that School principals are seeming to be engaged themselves with a wide range of digital tools that are relied on AI related functions still these actions are in its early stage in principal leadership in the direct application of advanced AI technologies. School principals employ AI technologies,

including educational learning management systems (LMS) like Google Classroom and Moodle, which are extensively used to facilitate communication, track student involvement, and manage instructional content. Yani et al. (2024). In addition to principals have begun to use data dashboards and analytics platforms so that they can track teacher performance, student learning progress, and school outcomes Ridho and Wiyono (2024), Ruloff and Petko (2025).

The transition towards the distance and blended learning system accelerated during COVID- 19 pandemic and was in totally under the technology supported principal leadership where principals played a central role in guiding the whole process of transition Rodgers (2025). Furthermore, several authors researched and stressed the relevance of principal engagement in adopting professional digital competence (PDC) frameworks, which underlined the importance of school leaders in supporting digital technology across all levels of school Tømte (2024). While these authors were not referenced especially the AI-based tools such as predictive analytics or adaptive learning systems, most of them point to the foundational use of ICT and data-driven tools that open the way for future AI adoption in schools.

Figure 2

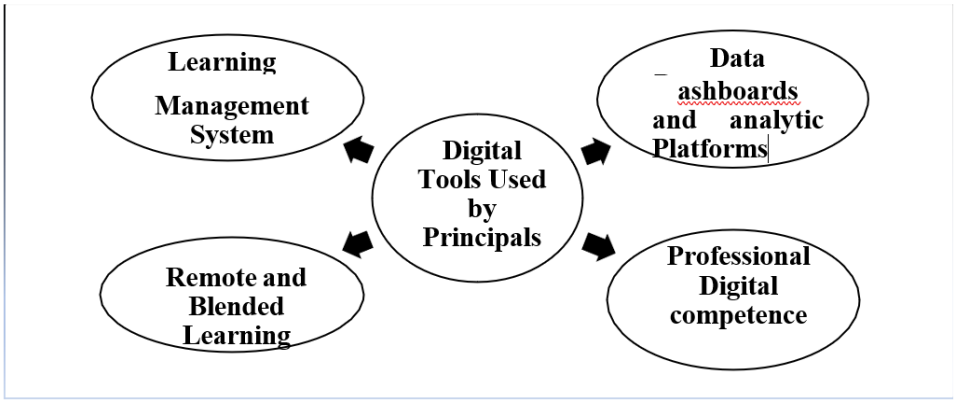

Figure 2 Digital Tools used by Principals

Trends in the Utilization of AI and Digital Tools in Principal Leadership (RQ2)

A lot of patterns came across regarding the evolving role of AI and digital tools in principal leadership. Foremost the principals are now expected to serve as digital leaders instead of having technology awareness. This brought about not only adopting new tools but also infused a digital culture among staff, carving best practices, and moving towards the digital transformation efforts all across the school Raman et al. (2019), Ridho and Wiyono (2024). In most of the cases, principals instead of simply guiding prefer inspiring their staff and promoting innovation where their digital leadership is associated with transformational leadership styles Ruloff and Petko (2025).

Another trend that was observed is the use of technology strategically by new principals to build rapport and trust with staff and stakeholders. Digital tools are often used by principals to build their credibility, convey the messages clearly, and display the responses Yani et al. (2024). In addition to, professional development is a crucial factor which is consistently highlighted in supporting principals to lead technological change Raman et al. (2019), Safranovi and Usman (2024). Those Schools that offer targeted training for leaders likely to show better results in terms of technology adoption and staff engagement.

Figure 3

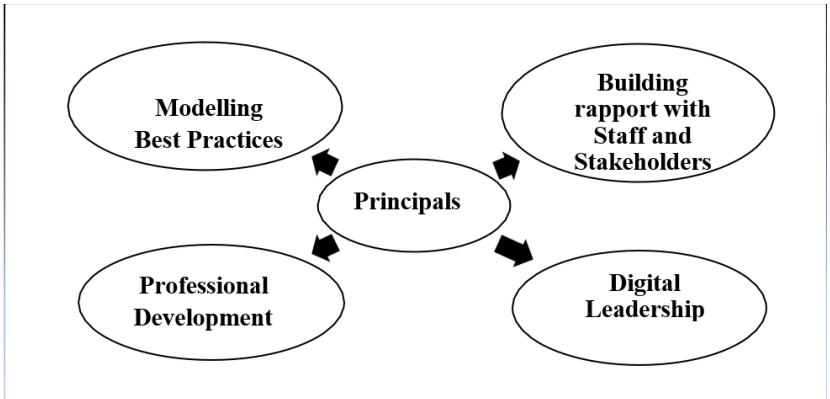

Figure 3 Trends in the Evolving Role of AI in Principal Leadership

Barriers and Enablers of AI Integration in School Leadership (RQ3)

In-spite of developing interest in using AI and digital tools there are numerous barriers which limit their effective use in principal leadership. The key challenge that is identified is the lack of digital training among principals. Many principals are in trouble to implement and manage new technologies, especially those who involve in data analysis or emerging AI systems Raman et al. (2019), Tømte (2024). The rural or under-resourced schools report generally this kind of technical skill gap, so they often have limited access to infrastructure Nhlumayo (2024).

There are principals or school leaders who are hesitant to adopt this digital change due to their cultural resistance and having fear about workload, data privacy, or the dehumanization of education Rodgers (2025), Safranovi and Usman (2024). Furthermore, some studies find a deep disconnect between leadership preparation programs and the real-world demands of digital leadership in schools Nurjaningsih (2020).

On the contrary, to integrate the AI and digital tools in leadership several principals and school leaders have got supports that help them to navigate handling the digital tools. These include their access to professional development, collaborative leadership networks, and institutional policies Kurkan and Çetin (2024), Rodgers (2025). Leadership support in the form of clear guidelines and funding from district or ministry-level organizations plays a crucial role in enabling AI adoption Ridho and Wiyono (2024).

Figure 4

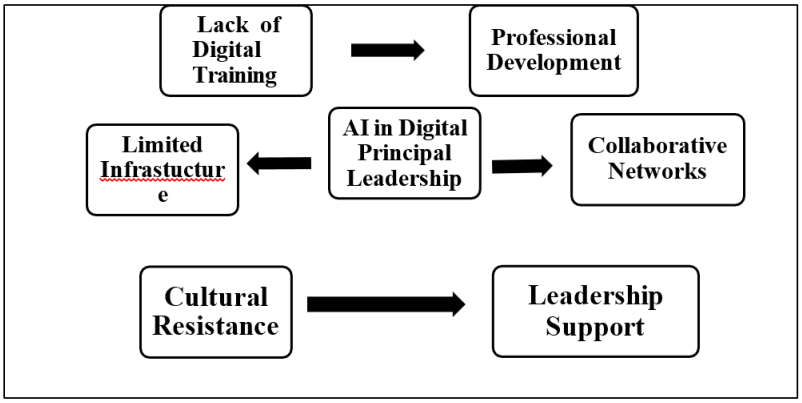

Figure 4 Barriers and Support to AI and Digital Tools in Principal Leadership

5. SUMMARY AND INTERPRETATION OF FINDINGS

The outcomes of this analysis show that principals are gradually shifting from basic digital usage to more strategic and data-driven leadership tactics. While actual AI application in schools remains restricted, many principals are establishing the groundwork using data analytics, ICT tools, and collaborative planning. The path from digital literacy to digital leadership, and finally to AI-enabled leadership, is clearly visible across research. However, this transformation is significantly influenced by contextual factors such as training availability, infrastructure, leadership style, and school culture.

Finally, incorporating AI into principal leadership should be viewed as a mentality shift toward a more educated, responsive, and future-ready approach to school management, rather than a technological improvement. More research is needed to investigate real-world applications of AI in leadership and to develop models that allow for the trustworthy, inclusive, and effective use of these tools in education.

Table 5

Table 5 Summary of Key Findings

Theme	Key Insights
AI Tools	Dashboards, predictive analytics, automation, chatbots, data visualization
Impacts	Improved decisions, efficiency, personalized learning, but concerns over ethics and privacy
Trends	Shift toward strategic/pedagogical use, rise of digital leadership, emphasis on context
Barriers and Enablers	Training gaps, ethical concerns, infrastructure limits vs. professional development and policies

6. CONCLUSIONS

This systematic literature analysis examined the use of Artificial Intelligence (AI) in primary leadership by reviewing current trends, tools, and obstacles. The findings highlight that, while the actual utilization of advanced AI technologies in school leadership is still in the beginning stages, principals are increasingly connecting with digital systems such as dashboards, learning platforms, and data tools that provide the framework for AI-driven practices. According to the examined literature, principals are expected to become digital leaders who not only manage school operations but also drive the use of technology and innovation.

Several studies demonstrate that school administrators are shifting from traditional administration to more strategic, data-driven approaches that employ digital tools. However, this change differs according on training, school culture, infrastructure, and leadership style. While AI can improve school performance, difficulties such as limited availability, ethical concerns, and a lack of knowledge persist. These findings emphasize the evolving role of principals and the critical actions required to prepare educational leaders for AI integration.

7. IMPLICATIONS

These findings suggest that in order to successfully direct the integration of technology in schools, school principals must be interested in developing digital and artificial intelligence skills. AI and digital literacy should be taught in leadership

development programs. In addition to providing infrastructure, professional development, and unambiguous ethical standards, policymakers must address disparities in access to technology, especially in underserved or rural areas. Lastly, further study is required to understand the practical applications of AI in school leadership and how it affects stakeholders and schools.

8. RECOMMENDATIONS

Following this review, there are numerous practical steps that are advised. First, principal training and professional development programme should integrate AI and digital leadership abilities, as well as provide practical experience to make them skilled with data technologies. Second, principals in schools should develop a culture of data-driven decision-making by adopting user-friendly digital tools and promoting cooperation. Third, governments should take care in establishing explicit ethical criteria for AI usage in schools, that should include data privacy and responsible automation. Finally, under-resourced schools should receive targeted assistance in accessing digital infrastructure and AI tools along with in every aspect they are in need of, and continuous research should monitor the long-term benefits of AI that offers long-term benefits for school leadership and outcomes.

CONFLICT OF INTERESTS

None.

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None.

REFERENCES

A'mar, F., & Eleyan, D. (2022). Effect of Principal's Technology Leadership on Teacher's Technology Integration. International Journal of Instruction, 15(1), 781–798. https://doi.org/10.29333/iji.2022.15145a

Alghamdi, A. M. (2024). Academic Leaders' Attitudes Toward Artificial Intelligence Applications in Leadership Work in Light of the Diffusion of Innovation Theory: The Impact of Possession of Digital Literacy. Journal of Educational Leadership and Policy Studies, 8(1), n1.

Bang, W. S., Hoan, W. K., Park, J. Y., & Reddy, N. G. S. (2022). Modeling the Nonlinearities Between Coaching Leadership and Turnover Intention by Artificial Neural Networks. SAGE Open, 12(4), 21582440221126885. https://doi.org/10.1177/21582440221126885

Chen, L., Xie, H., Zou, D., & Hwang, G.-J. (2022). Application and Research Trends of Artificial Intelligence in Education: A Review of Selected Journals from 2010 to 2020. Interactive Learning Environments, 30(2), 263–278.

Gough, D. (2007). Weight of Evidence: A Framework for the Appraisal of the Quality and Relevance of evidence. Research Papers in Education, 22(2), 213–228. https://doi.org/10.1080/02671520701296189

Hou, M., Ahmad, J. B., & Zhao, Y. (2024). Integrating Transformational Leadership with Artificial Intelligence: Driving a New Future for Chinese K-12 Education. International Journal of Educational Organization & Leadership, 31(1). https://doi.org/10.18848/2329-1656/CGP/v31i01/123-144

Karakose, T. (2024). Will Artificial Intelligence (AI) Make the School Principal Redundant? A Preliminary Discussion and Future Prospects. Educational

Process: International Journal (EDUPIJ), 13(2), 7–14. https://doi.org/10.22521/edupij.2024.132.1

Kilcoyne, A. (2024). Navigating Through Disruption: How are School Principals Leading Digital Learning in Secondary Schools in Ireland. Computers in the Schools, 1–19. https://doi.org/10.1080/07380569.2024.2374262

Kurkan, G., & Çetin, M. (2024). The Perceptions of Educational Administrators Towards Digital Leadership in the Age of Artificial Intelligence: A Qualitative Study. International Journal of Contemporary Educational Research, 11(3), 425–439. https://doi.org/10.52380/ijcer.2024.11.3.602

Lambot, G. V., & Yango, A. R. (2023). Secondary School Heads' Technology Leadership Skills, Educational Motivation, Teachers' Techno-Pedagogical Competence in the City Schools Division of Laguna. Technium Soc. Sci. J., 44, 449. https://doi.org/10.47577/tssj.v44i1.8927

Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven Strong Claims About Successful School Leadership Revisited. School Leadership & Management, 40(1), 5–22. https://doi.org/10.1080/13632434.2019.1596077

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). Intelligence Unleashed: An Argument for AI in Education. Pearson Education.

McCarthy, A. M., Maor, D., McConney, A., & Cavanaugh, C. (2023). Digital Transformation in Education: Critical Components for Leaders of System Change. Social Sciences & Humanities Open, 8(1), 100479. https://doi.org/10.1016/j.ssaho.2023.100479

Mireles-Hernández, J., Rey-Benguría, C. F., Macedo-Lavanderos, M. L., Villuendas-Rey, Y., & Aldape-Pérez, M. (2024). Improving Leadership in the Digital Era: A Case Study from Rural Mexico. Systems, 12(12), 559. https://doi.org/10.3390/systems12120559

Nhlumayo, B. S. (2024). Rural Primary School Principal's Leadership Strategies for ICT Integration. Research in Social Sciences and Technology, 9(1), 171–184. https://doi.org/10.46303/ressat.2024.10

Nurjaningsih, S. (2020). Analysis of Principal's Motivation and Leadership Technology Pathway Through Mediator Learning Strategies with Gender Moderators in Maya Seesaw Classes. Social Science Learning Education Journal, 5(1), 231–242.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews. BMJ, 372, n71.

Raman, A., Thannimalai, R., & Ismail, S. N. (2019). Principals' Technology Leadership and its Effect on Teachers' Technology Integration in 21st-Century Classrooms. International Journal of Instruction, 12(4), 423–442. https://doi.org/10.29333/iji.2019.12428a

Ridho, M. R., & Wiyono, B. B. (2024). Digital Leadership of School Principals to Improve the Quality of Learning in the Industrial Revolution Era 4.0. https://doi.org/10.24090/insania.v29i1.9566

Rodgers, D. J. (2024). Technology Leadership for Pandemic Stemgagement in Computer Science: A PK-12 Case Study. Education Sciences, 15(1), 34. https://doi.org/10.3390/educsci15010034

Ruloff, M., & Petko, D. (2022). School Principals' Educational Goals and Leadership Styles for Digital Transformation: Results from Case Studies in Upper Secondary Schools. International Journal of Leadership in Education, 1–19.

Safranovi, S., & Usman, N. (2024). The Influence of School Principal Management on Increasing Digital-Based Teachers' Capability in Min City of Banda Aceh.

Journal of Education, Teaching and Learning, 9(2), 188–195. https://doi.org/10.26737/jetl.v9i2.5385

Suratman, S., Torres, J. M., Salehudin, M., Susmiyati, S., & Sugiyono, S. (2024). The Influence of Digital Leadership Toward Digital Transformation of Education. Southeast Asian Journal of Islamic Education, 7(2), 139–153.

Tømte, C. E. (2024). Conceptualisation of Professional Digital Competence for School Leaders in Schools with 1:1 Coverage of Digital Devices. Computers & Education, 222, 105151. https://doi.org/10.1016/j.compedu.2024.105151

Williamson, B., & Eynon, R. (2020). Historical Threads, Missing Links, and Future Directions in AI in Education. Learning, Media and Technology, 45(3), 223–235. https://doi.org/10.1080/17439884.2020.1798995

Yani, D., Hadi, S., & Pristiani, R. (2024). Application of Learning Technology as a Strategy for New School Principals to Gain Acceptance. Journal Penelitian Pendidikan IPA, 10(SpecialIssue), 259–265. https://doi.org/10.29303/jppipa.v10iSpecialIssue.8041

Zhou, X., & Schofield, L. (2024). Developing a Conceptual Framework for Artificial Intelligence (AI) Literacy in Higher Education. Journal of Learning Development in Higher Education, 31. https://doi.org/10.47408/jldhe.vi31.1354