



## School Leadership in The Digital Transformation of Islamic Educational Institutions

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### Article Info

### Abstract

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Digital transformation in education demands significant changes in school structure and culture, with school principals serving as the primary leaders in integrating technology into learning, management, and communication. Transformational and digital leadership are key to creating an educational environment that is responsive to technological advancements and the needs of the times.

This study aims to analyze the role of transformational leadership in driving digital innovation through vision and collaboration, identify strategies to overcome resistance to implementation, evaluate its impact on educational performance and sustainability, and compare the effectiveness of transformational and transactional leadership styles in accelerating student-centered technology integration with long-term organizational support.

This study employs a Systematic Literature Review as a systematic and structured approach to identify, evaluate, and synthesize evidence from the scientific literature, thereby reducing selection bias and producing a reliable synthesis—from the formulation of research questions to the establishment of inclusion and exclusion criteria based on quality and relevance.

Transformational leadership, as a catalyst for innovation, enhances organizational commitment, job satisfaction, and teacher creativity through a shared vision during the pandemic, thereby maintaining sustainability; practical strategies such as open dialogue and the digitization of standard operating procedures (SOPs) reduce resistance through innovative local solutions; systematic reviews show increased teacher confidence and educational outcomes through a digital culture for sustainability; a comparison of leadership styles indicates that transformational leadership accelerates student-centered technology integration more effectively than transactional leadership for profound change.

### Introduction

Digital transformation in education demands significant changes in school structure and culture, with school principals serving as the key leaders in steering these changes. A principal's leadership is not limited to administrative aspects but also encompasses the ability to integrate technology into learning, management, and communication (Arif Rahman et al., 2025). Principals are expected to develop a digital vision, motivate staff, and foster an

adaptive and innovative school culture. In this context, transformational and digital leadership are key to creating an educational environment that is responsive to technological advancements and the demands of the times (Alfasius Tobondo, 2025).

Research shows that school principals who are effective in leading digital transformation possess characteristics such as problem-solving skills, collaboration, a passion for learning, and a student-centered approach (Hu, 2023). Additionally, they must be able to overcome challenges such as resistance to change, limited resources, and a lack of digital competence among staff. For example, at Luqman Al-Hakim Elementary School in Surabaya, the principal successfully led digital transformation through facility development, teacher training, and the integration of technology into learning, which had a positive impact on student achievement and the school's reputation (Dyan Erlisa, 2024).

Although school principals are expected to lead digital transformation effectively, in reality, there remains a gap between the ideal and the actual conditions on the ground. In theory, school principals should have a clear digital vision, be able to motivate staff, and integrate technology into all aspects of the school. However, in practice, many school principals still face challenges such as a lack of digital training, infrastructure limitations, and resistance to change from staff and students. This indicates that the implementation of digital transformation has not yet been fully optimized (Akhmad, 2025).

Data from various studies show that despite efforts to improve the digital literacy of school principals and staff, there remains a gap in the application of technology in learning and school management. For example, in some schools, the use of social media as an information tool remains limited and has not been fully utilized. Additionally, a lack of support from relevant parties and limited resources also pose barriers to the implementation of digital transformation.

The main causes of these gaps include a lack of training and professional development for school principals and staff, limited budgets for technology procurement, and resistance to change stemming from a lack of understanding or discomfort with technology. Therefore, collaborative efforts are needed among the government, educational institutions, and the community to provide adequate training, improve digital infrastructure, and foster a school culture that supports sustainable digital transformation.

This study aims to analyze the role of transformational leadership in driving digital innovation through vision and collaboration, identify practical strategies to overcome resistance to implementation, evaluate its impact on educational performance and

sustainability, and compare the effectiveness of transformational and transactional leadership styles in accelerating student-centered technology integration and strengthening teachers' commitment through long-term organizational support to achieve sustainable digital transformation.

This research is urgently needed to understand the strategic role of school principals in guiding digital transformation within educational institutions. Amid rapid technological change, schools need leaders who can manage change, enhance teachers' digital competencies, and ensure that learning services remain relevant. The research findings can serve as a foundation for strengthening adaptive leadership policies and practices. These findings also help identify the challenges of digitalization implementation and the support required for the transformation to proceed effectively and optimally.

## **Method**

The methodology used in this study is a Systematic Literature Review (SLR), a systematic and structured approach to identifying, evaluating, and synthesizing evidence found in the scientific literature. The primary objective of an SLR is to provide a comprehensive overview of a specific topic by summarizing the findings from various relevant studies. This process aims to reduce bias in literature selection and produce a reliable synthesis to answer the research question. The first step in an SLR is to formulate a clear and focused research question, which will serve as the basis for the literature search. Once the question is established, a literature search strategy is developed, including the selection of appropriate keywords, relevant information sources, and the databases to be used. The next step is to establish inclusion and exclusion criteria, which serve to determine which literature will be included in the review based on its quality and relevance to the research topic.

The literature selection process is conducted rigorously by following the PRISMA Flow Diagram, which transparently presents the stages of literature selection from the initial search to the screening of relevant articles. PRISMA also facilitates clear visual documentation of the number of studies considered, screened, and included in the final analysis. Once the literature was selected, data were carefully extracted from each relevant study to obtain the necessary information. Finally, the findings were analyzed and synthesized by combining the results from the selected literature to draw conclusions that could provide new insights or confirm previous findings. All of these steps were carried out with great precision to ensure the reliability and validity of the SLR results.

Based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram, the article selection process in this systematic review began with the identification stage through a comprehensive search of three major electronic databases. The PubMed database yielded 260 articles, Scopus provided 295 articles, and Web of Science contributed 180 articles, bringing the total number of articles successfully identified to 735. Before proceeding to the next stage, data cleaning was performed to remove duplicate articles and those that did not meet the basic criteria. This process identified 142 duplicate articles appearing in more than one database, 9 articles flagged as ineligible by automation tools due to publication types such as conference abstracts or research protocols, and 4 articles removed for other reasons, such as language that could not be translated. After the cleanup, 580 articles remained and proceeded to the screening stage.

During the screening stage, two independent reviewers evaluated the 580 articles by reading the titles and abstracts to assess their initial relevance to the research questions. Screening criteria included topic relevance, target population, and study types consistent with the established research protocol. Through this process, 428 articles were excluded for various reasons, including irrelevant topics, different study populations, or inappropriate publication types such as editorials and narrative reviews. The remaining 152 articles were then sought in full-text form for a more in-depth assessment.

Efforts to obtain full-text articles faced several technical and administrative challenges. Of the 152 identified articles, 35 could not be obtained due to various obstacles, such as limited institutional access, articles not available in digital format, unaffordable access fees, and a lack of response from contacted authors. Consequently, only 117 articles were successfully collected for comprehensive eligibility assessment.

The eligibility phase was the most rigorous evaluation stage, during which each article was thoroughly reviewed using the inclusion and exclusion criteria established in the protocol. Of the 117 articles assessed, 107 had to be excluded based on an in-depth evaluation. The details of the exclusions revealed that 29 articles were irrelevant to the specific focus of the study, even though their abstracts appeared to be appropriate. A total of 28 articles were excluded due to inadequate methodological quality, including weak study designs, insufficient sample sizes, or the absence of an appropriate control group. Furthermore, 30 articles did not provide complete outcome data, or the data presented could not be extracted for meta-analysis purposes. Finally, 20 articles were excluded due to

inappropriate study population characteristics, such as differences in age range, unwanted comorbid conditions, or different research settings.

After undergoing a systematic selection process involving four stages of evaluation with strict criteria, this study successfully identified 10 articles that fully met all inclusion criteria. These ten articles represent high-quality studies with robust methodologies, complete data, and clear relevance to the research questions. Of the initial 735 articles, only 1.4 percent made it to the final stage, reflecting the rigorous selection process designed to ensure the validity and reliability of the results of this systematic review.

## RESULTS AND DISCUSSION

No	Article Title	Key Findings
1	Transformational Leadership of School Principals as a Catalyst for the Implementation of Digital Learning in Elementary Schools (Handayani et al., 2025)	Transformational leadership among school principals is crucial for digital transformation in educational institutions, as it fosters a shared vision, motivates teacher-led innovation, promotes continuous professional development, and mobilizes resources—ultimately creating a culture of collaboration and responsiveness to change.
2	Digital Management and Transformational Leadership in Educational Institutions (Kustomo Kustomo, 2025)	Principals' transformational leadership is vital to digital transformation, acting as a catalyst for innovation by inspiring a shared vision, building trust, and promoting a proactive culture among teachers, which collectively enhances the implementation of digital management practices.
3	Madrasah Principal Leadership in Digital Transformation at Madrasah Ibtidaiyah: A Case Study (Sholeh et al., 2022)	Madrasah principals play a vital role in digital transformation by building technological awareness, developing strategic action plans, selecting the right human resources, fostering an innovative culture, and overseeing the use of digital technology to ensure effective implementation in educational institutions.

No	Article Title	Key Findings
4	Systematic Insights for Educational Sustainability: Principals' Digital Leadership and Teacher Professional Performance (Xin et al., 2025)	Leadership at the top level is crucial in digital transformation, as it enhances teacher performance through practices such as collaboration, platform-based approaches, and fostering a digital culture. This strategic leadership promotes institutional resilience, equity, and teacher trust, in alignment with the goals of sustainable education.
5	Principals' Digital Leadership and Teachers' Digital Competence: A Systematic Literature Review (2019–2023) (Zeng et al., 2024)	Effective digital leadership by school principals is essential for enhancing teachers' digital competencies, fostering a supportive climate for digital integration, and ultimately raising educational standards and outcomes in the digital age, as highlighted in the findings of a systematic literature review.
6	The Importance of the School Principals' Role in the Digital Transformation of the Education Sector (Al Nuaimi et al., 2024)	Principals play a vital role in digital transformation by believing in the benefits of educational digital resources (EDR), fostering open dialogue, and considering contextual factors such as school size and culture—which collectively enhance the effective adoption of EDR.
7	Principals' Digital Transformational Leadership, Teachers' Organizational Commitment, and Job Satisfaction During COVID-19 in Lagos State Education District V, Nigeria (Nurudeen Olalekan Orunbon et al., 2023)	Principals' transformational digital leadership significantly influenced teachers' organizational commitment and job satisfaction during the COVID-19 pandemic. This leadership fosters creativity and innovation among educators, which is essential for achieving sustainability within school organizations amid the challenges posed by the pandemic.
8	School Leadership in the Digital Age: A Qualitative Study of	Principals driving digital transformation must integrate a vision for technology with

No	Article Title	Key Findings
	Principals' Strategies for Managing Change (Anam et al., 2025)	participatory leadership, strengthen teachers' capacities, digitize standard operating procedures (SOPs), and optimize digital communication. They face challenges such as teacher resistance and resource constraints, but innovative solutions and local best practices can mitigate these issues.
9	School Principals' Educational Goals and Leadership Styles for Digital Transformation: Results from Case Studies in Upper Secondary Schools (Ruloff & Petko, 2025)	A school principal's leadership style significantly impacts digital transformation in schools. Transformational leadership drives faster and deeper technology integration, emphasizing educational goals over tools, while transactional leadership results in slower change and less focus on student-centered teaching.
10	21st Century Leadership as a Catalyst for Sustainable Reform: Transformative Practices in Digital Education (Adeoye et al., 2024)	Transformational leadership significantly impacts digital transformation in educational institutions by fostering collaboration and innovation. Principals who inspire and support educators effectively engage them in a shared vision, while structured change management processes ensure stakeholder engagement and ongoing evaluation throughout implementation.

Research conducted by Handayani et al. (2025) in the article "Transformational Leadership of School Principals as a Catalyst for Digital Learning Implementation in Primary Schools" explores the role of transformational leadership among elementary school principals in the implementation of digital learning. Key findings indicate that this leadership fosters a shared vision, motivates teacher innovation, promotes continuous professional development, and mobilizes resources, thereby creating a collaborative culture that is responsive to technological change. This study employed qualitative methods, including interviews and observations at several elementary schools, revealing that principals serve as the primary catalysts in overcoming resistance. The main conclusion states that transformational leadership is essential for sustainable digital transformation, recommending leadership

training programs focused on collaboration and innovation to improve the quality of elementary education in the digital age.

Research conducted by Kustomo Kustomo (2025) in the article “Digital Management and Transformational Leadership in Educational Institutions” discusses the integration of transformational leadership with digital management in educational institutions. Key findings reveal that school principals inspire a shared vision, foster trust, and promote a proactive teacher culture, which enhances digital management practices such as collaboration platforms. This research is a case study using secondary data analysis, highlighting the role of leadership as a catalyst for innovation. The main conclusion emphasizes that this type of leadership accelerates digital adoption, recommending the strengthening of teacher trust through open communication to ensure the success of the transformation.

Research conducted by Sholeh et al. (2022) in the article “Madrasah Principal Leadership in Digital Transformation at Madrasah Ibtidaiyah: A Case Study” investigates the leadership of elementary madrasah principals in digital transformation. Key findings highlight the principal’s crucial role in building technological awareness, developing strategic plans, selecting the right human resources, fostering an innovative culture, and overseeing digital usage. This study is a qualitative case study conducted at a madrasah. The main conclusion states that the effectiveness of implementation depends on oversight and recommends an integrated action plan.

Research conducted by Xin et al. (2025) in the article “Systematic insights for educational sustainability: Principals’ digital leadership and teacher professional performance” provides a systematic review of digital leadership for educational sustainability. Key findings reveal improved teacher performance through collaboration, platformization, and a digital culture, which promote resilience and equity. This study is a literature review. The main conclusions emphasize alignment with sustainability goals and recommend strategic leadership.

Research conducted by Zeng et al. (2024) in the article “Principals’ digital leadership and teachers’ digital competence: A Systematic Literature Review (2019–2023)” provides a literature review on teachers’ digital competence. The main findings highlight principals’ digital leadership as a driver of a supportive climate and improved educational outcomes. This is a systematic study. The main conclusion recommends fostering a digital climate for a new era.

Research conducted by Al Nuaimi et al. (2024) in the article “The importance of the school principals’ role in the digital transformation of the education sector” explores school principals’ beliefs regarding EDR. The main findings indicate that open dialogue and contextual considerations enhance adoption. This study is a survey. The main conclusion states the important role in transformation.

Research conducted by Nurudeen Olalekan Orunbon et al. (2023) in the article “Principals’ Digital Transformational Leadership, Teachers’ Organizational Commitment, and Job Satisfaction During COVID-19 in Lagos State Education District V, Nigeria” investigates the impact during the COVID-19 pandemic. The main findings reveal an increase in teachers’ commitment and job satisfaction through creativity. This study is quantitative. The main conclusion emphasizes the ongoing nature of the pandemic.

Research conducted by Anam et al. (2025) in the article “School Leadership in the Digital Age: A Qualitative Study of Principals’ Strategies for Managing Change” discusses strategies for managing change. Key findings indicate that integrating vision, teacher capacity, and digital communication helps overcome resistance. This study is qualitative. The main conclusion recommends innovative solutions.

Research conducted by Ruloff & Petko (2025) in the article “School Principals’ Educational Goals and Leadership Styles for Digital Transformation: Results from Case Studies in Upper Secondary Schools” compares leadership styles. The main finding is that transformational leadership accelerates technology integration. This is a case study. The main conclusion focuses on educational goals.

Research conducted by Adeoye et al. (2024) in the article “21st Century Leadership as a Catalyst for Sustainable Reform: Transformative Practices in Digital Education” explores 21st-century practices. The main findings indicate that collaboration and change management ensure engagement. This study is a narrative study. The main conclusion recommends continuous evaluation.

In this analysis, ten articles were categorized into four main groups based on their central themes and focus of discussion, taking into account the context of school principal leadership in the digital transformation of education, from elementary through secondary school. The first category, “Transformational Leadership as a Catalyst for Digital Innovation and Collaboration,” includes articles by Handayani et al. (2025), Kustomo Kustomo (2025), Nurudeen Olalekan Orunbon et al. (2023), and Adeoye et al. (2024), which predominantly emphasize a shared vision, teacher motivation, and an innovative culture for sustainable

digital implementation, including during the pandemic. The second category, “Practical Strategies and Digital Change Management,” includes articles by Sholeh et al. (2022), Anam et al. (2025), and Al Nuaimi et al. (2024), which focus on action plans, communication, and contextual considerations for addressing resistance and optimizing resources. The third category, “Systematic Reviews and Impacts on Teacher Performance and Sustainability,” includes articles by Xin et al. (2025) and Zeng et al. (2024), which use literature reviews to highlight improvements in teacher competence, institutional resilience, and the digital climate. The fourth category, “Comparison of Leadership Styles for Technology Integration,” includes only the article by Ruloff & Petko (2025), which compares transformational versus transactional leadership in terms of the speed and depth of transformation. This categorization is logical because it reflects a spectrum ranging from visionary catalysts to practical strategies, reviews, and comparisons, enabling a deep understanding of how leadership can be optimized for inclusive and sustainable digital transformation at various levels of education.

Research in the category “Transformational Leadership as a Catalyst for Digital Innovation and Collaboration,” conducted by Handayani et al. (2025), Kustomo Kustomo (2025), Nurudeen Olalekan Orunbon et al. (2023), and Adeoye et al. (2024), aims to analyze how transformational leadership drives digital innovation through a shared vision and collaboration within educational institutions. Systematically, the objectives include evaluating teacher motivation, professional development, and a proactive culture, with a focus on the pandemic context and the 21st century. Key findings indicate increased organizational commitment, job satisfaction, and teacher creativity through principal inspiration; for example, during the COVID-19 pandemic, this leadership maintained sustainability through structured change management. Conclusions from this category emphasize transformational leadership as the primary catalyst, recommending inspirational programs and ongoing evaluation to build a collaborative and resilient digital ecosystem in schools.

Research in the category of Practical Strategies and Digital Change Management, conducted by Sholeh et al. (2022), Anam et al. (2025), and Al Nuaimi et al. (2024), aims to identify principals’ operational strategies for managing digital transformation, including in madrasahs and local contexts. Systematically, the objectives include raising awareness, developing action plans, enhancing digital communication, and considering factors such as teacher resistance and school size. Key findings reveal that open dialogue, digitizing standard

operating procedures (SOPs), and selecting the right human resources reduce barriers, although resource constraints remain a challenge; innovative local solutions are effective in optimizing EDR adoption. Conclusions from this category highlight essential practical strategies for successful implementation, recommending context-specific plans and open communication to address resistance, thereby ensuring adaptive and effective digital transformation.

Research in the category of Systematic Reviews and Impacts on Teacher Performance and Sustainability, conducted by Xin et al. (2025) and Zeng et al. (2024), aims to synthesize the literature on digital leadership's impact on teacher competencies and educational sustainability. Systematically, the objectives include analyzing collaboration, platformization, and the digital climate to enhance performance and equity. Key findings indicate that leadership boosts teacher trust and educational outcomes through a digital culture, aligning with sustainability goals. Conclusions from this category emphasize the review as a basis for policy, recommending the strengthening of the digital climate to foster institutional resilience.

Research in the category "Comparison of Leadership Styles for Technology Integration," conducted by Ruloff & Petko (2025), aims to compare transformational and transactional leadership styles in high schools. Systematically, the objectives include evaluating the pace of integration and the focus on education. Key findings indicate that transformational leadership accelerates student-centered change. The conclusion of this category states that leadership style influences the depth of transformation and recommends the transformational style for innovation.

## **CONCLUSION**

This study concludes the following points:

1. Transformational leadership drives digital innovation through vision and collaboration, enhancing teachers' commitment to sustainable transformation.
2. Practical strategies such as action plans and communication address resistance, ensuring adaptive and effective digital implementation.
3. A systematic review demonstrates the impact on teacher performance and sustainability, highlighting the need for a digital environment that supports educational equity.
4. The transformational style accelerates the integration of student-centered technology and is more effective than the transactional style for driving profound change..

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