INTERNATIONAL JOURNAL OF RESEARCH AND INNOVATION IN SOCIAL SCIENCE (IJRISS)
ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

Digital Citizenship and Leadership: How School Heads Promote Safe and Inclusive Digital Learning Environments

Hermit D. Belano[1], Joel T. Aclao[2]

[1]Student, Northwestern Mindanao State College of Science and Technology Labuyo, Tangub City, Philippines

[2]Faculty Northwestern Mindanao State College of Science and Technology Labuyo, Tangub City, Philippines

DOI: https://doi.org/10.47772/IJRISS.2025.91100524

Received: 05 December 2025; Accepted: 12 December 2025; Published: 22 December 2025

ABSTRACT

School leadership is significant in creating safe and inclusive digital learning environments in the changing demands of the digital age. This study aimed to explore how school heads promote digital citizenship through ethical leadership, inclusive practices, and strategic alignment with global educational goals. Using qualitative content analysis, the study employed Bowen's document analysis framework to examine peer-reviewed literature from 2020 to 2025, supported by AI-assisted tools such as ChatGPT, Microsoft Copilot, and Gemini AI for thematic coding and synthesis. The purposive sampling of scholarly articles enabled a focused exploration of leadership practices that support digital inclusion and safety. The findings revealed that school heads foster digital citizenship by modeling ethical technology use, supporting teacher professional development, and ensuring equitable access to ICT. Transformational and distributed models of leadership, strategic planning, and support of AI ethics were central to promoting inclusive digital cultures. These practices strongly aligned with Sustainable Development Goal 4, particularly in promoting equity, lifelong learning, and global citizenship. The study contributes to the theoretical and practical insight about digital leadership and provides policy, leadership development, and inclusive education reform.

Keywords: equity, inclusion, digital ethics, educational innovation, global citizenship

INTRODUCTION

In the digital age, educational institutions are increasingly challenged to foster safe, inclusive, and equitable learning environments. Digital technologies in schools have revolutionized the nature of teaching and learning activities, which requires the redefinition of the leadership roles in learning and education (Peng et al., 2024). The role of school heads has shifted so that they should not only be at the forefront of pedagogical innovation but also develop the digital citizen among the students and staff.

Digital citizenship is responsible, ethical, and safe technology usage, which is necessary in equipping the learner to engage in a digitally interconnected world (UNESCO, 2024). Due to the increased trend of online learning, particularly in reaction to global pandemics like present-day COVID-19, the significance of school leadership in delivering equitable access and inclusive practices has never been more important (Liu et al., 2024).

This change is in line with the United Nations Sustainable Development Goals (SDGs), SDG 4: Quality Education, which promotes inclusive and equitable education and lifelong learning opportunities for everyone.

Digital leadership in schools can help to achieve this objective by facilitating digital equity, increasing teacher competencies, and leaving no learners behind (UN, 2024).

Although the focus on digital transformation in education has increased, the constructs and practices of digital leadership in schools are not fully consented to (Peng et al., 2024). Besides, although digital citizenship has

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

become one of the most important parts of the education of the 21st century, its application also contradicts the principles of consistency, as it is often prone to a range of different practices depending on leadership approaches and school priorities.

Current literature emphasizes the issue of digital disparities, such as inequality in access to technology, discriminatory practices, and the sociopolitical environment of digital implementation (Liu et al., 2024). These problems highlight why school administrators should embrace a justice-focused and inclusive approach to digital education. Nevertheless, there is a lack of empirical research on how school heads take active measures to make digital environments safe and inclusive, especially in primary education.

This research seeks to fill this gap by examining the way school heads can ensure safe and inclusive digital learning conditions by applying digital citizenship and leadership. The study will involve the use of qualitative content analysis based on the Bowen (2009) document analysis framework in the examination of peer-reviewed literature to determine the leadership practices, challenges, and strategies that enable digital inclusion and safety.

The results will be added to the theoretical and practical conception of digital leadership in education and will provide the insights on how school chiefs can match the global agendas (including SDGs). This study aims at informing policy, leadership development, and educational practices that could lead to equitable and inclusive digital learning environments by synthesizing existing studies.

Research Questions

Given the nature of this study, which utilized publicly available online documents and AI-assisted tools for data collection and thematic analysis, the research was shaped by both technological and temporal constraints. The study aimed to explore how school heads promoted digital citizenship and fostered safe and inclusive digital learning environments, as reflected in existing literature and policy documents. The following research questions guided the inquiry:

1. How do peer-reviewed scholarly articles conceptualize digital citizenship in the context of school leadership and inclusive digital learning environments?

2. What leadership practices are identified in scholarly literature as promoting safe and inclusive digital learning environments in basic education?

3. What themes and patterns emerge from AI-assisted qualitative content analysis of peer-reviewed literature regarding the role of school heads in fostering digital citizenship?

4. How do the findings from internet-sourced scholarly literature align with the goals of the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education)?

LITERATURE REVIEW

Digital Leadership in Education.

Digital leadership in education had been more widely accepted as a key component to promote the process of innovation and change in schools. School heads had a central role to lead digital integration whereby technology was utilized efficiently to improve the teaching and learning process (Hamzah, Radzi, and Omar, 2025; Obied, 2025; Uzorka, Odebiyi, and Kalabuki, 2025). The history of the development of digital leadership research showed the increased attention to the competencies that facilitated sustainable development and organizational success (Karakose et al., 2024; Peng et al., 2024; Olabiyi et al., 2025). These skills were strategic vision, making ethical decisions, and developing digital equity and inclusion (Liu, Tschinkel, and Miller, 2024; Bishop, Quintanilla-Muñoz, and Marshall, 2022; UNESCO, 2024).

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

Transformational Leadership and Technology Integration

Transformational leadership was a popular topic of research in the environment of educational digitalization. Innovation, staff motivation, and inclusive digital environments were also observed to be encouraged by leaders who embraced transformational styles (Kausar, Arif, and Sebgag, 2025; Ramos, 2025; Walumbwa, Christensen, and Muchiri, 2013). Such leaders helped to bring artificial intelligence and new technologies to the management of educational institutions and ensure ethical and sustainable practices (Atausinchi Masias et al., 2025; Zuniga et al., 2025; Muñoz, 2025). Besides, transformational leadership was associated with better organizational health and teacher performance (Priyoherianto et al., 2025; Simpal and Pidor, 2024; Kamran, 2025).

Digital Citizenship and Ethical Leadership

Digital citizenship involves the responsible, ethical, and safe use of technology in learning institutions. School leaders helped advance digital citizenship by being good role models and adopting policies that helped to protect students and employees (Ribble, 2015; Kahne et al., 2024; U.S. Department of Education, 2024). Those were the efforts that were in accordance with international standards like ISTE-A standards and the OECD vision of student agency in 2030 (Bani Salamah et al., 2024; OECD, 2019; United Nations, 2024). Ethical leadership was also associated with the process of handling technostress and providing mental well-being to educators and learners (Ata et al., 2023; Lopes et al., 2024; Gamit, 2024).

Inclusive Digital Learning Environments

The development of inclusive online learning platforms demanded that school administrators be concerned about matters of accessibility, equity, and cultural sensitivity. Studies have also made a case on the role of digital equity in education in the post-pandemic period, including the necessity of inclusive policies and practices (Liu et al., 2024; Bishop et al., 2022; UNESCO, 2024). It required leaders to encourage development of professionals and enhance their digital skills so that digital tools could be successfully implemented (Gallego Joya, Merchana Merchana, and Lopez Barrera, 2025; Adewale, 2025; Arslan and Yiğit, 2024). In addition, collaborative leadership and stakeholder interactions promoted inclusive settings (Richardson & Khawaja, 2025; Enăchescu, 2025; Niu and Huang, 2025).

Change Management and Leadership Strategies.

As leaders of change, the role of school heads was to utilize strategic leadership to deal with digital transformation. The research indicated that those principals who practiced change management principles were more effective in the realization of technology initiatives (Al-Hadi et al., 2025; Alshidi and Ahmad Rashid, 2025; Hinon et al., 2025). Such strategies of leadership as data-driven decision-making, continuous improvement, and alignment with institutional goals were present (Chigbu and Makapela, 2025; Mukhtar et al., 2025; Enachescu, 2025). Qualitative methods, including document analysis and thematic analysis, were used to support those approaches in assessing the effectiveness of leadership (Bowen, 2009; Kuckartz and Razediker, 2025; Naeem, Smith, and Thomas, 2025).

Teacher Learning and Online Proficiency

Teacher professional development had played a critical role in the construction of digital competence and inclusive digital classrooms (Alshidi and Rashid, 2025; Gallego Joya et al., 2025; Enăchescu, 2025). School leaders had encouraged unceasing learning via mentorship, collaboration with peers, and access to computerized tools and resources (Alshidi and Rashid, 2025; Obied, 2025; Oliveira and de Souza, 2022). The empowerment of digital skills of teachers had helped them to introduce technology into pedagogy in a more purposeful way and bring responsible digital behavior to students (Gallego Joya et al., 2025; Enăchescu, 2025; Uzorka et al., 2025). Furthermore, teacher empowerment was also associated with the success of digital transformation efforts because teachers are the key agents of the digital citizenship education implementation (Peng et al., 2024; Hinon et al., 2025; UNESCO, 2024).

Student Well-being and Technostress

Technostress, digital fatigue, and anxiety had emerged as some of the issues that came with the rapid transition to digital learning, especially for the students (Lopes et al., 2024; Obied, 2025; Oliveira and de Souza, 2022). It had been encouraged that school leaders could establish supportive settings that favored newness and mental well-being (Liu et al., 2024; Uzorka et al., 2025; U.S. Department of Education, 2024). The consideration of emotional safety, digital overload, and the psychological effect of constant availability has been necessary in inclusive digital environments (Lopes et al., 2024; Obied, 2025; OECD, 2019). Teachers also underwent these anxieties when they attempted to get acquainted with new technologies and pedagogical frameworks (Gallego Joya et al., 2025; Alshidi and Rashid, 2025; Liu et al., 2024).

Digital Leadership Studies Methodologies

Document analysis and thematic content analysis were among the common qualitative research approaches that research on digital leadership employed to gain a profound understanding of leadership practices and digital policies (Bowen, 2009; Kuckartz & Rädiker, 2025; Lyhne et al., 2025). Artificial intelligence information processors like ChatGPT and NVivo to assist with coding, pattern recognition, and data interpretation had improved thematic analysis (Naeem et al., 2025; Lumivero, 2025; Lyhne et al., 2025). Such methodologies had given the researchers the ability to analyze the ways school heads supported or encouraged digital citizenship and inclusiveness based on policy, practice, and discourse (Bowen, 2009; Kuckartz & Rädiker, 2025; Naeem et al., 2025). Educational research was also more efficient and profound with the application of AI-assisted qualitative tools, making it possible to understand the dynamics of leadership more effectively (Lumivero, 2025; Naeem et al., 2025; Lyhne et al., 2025).

International and Policy Structures

Policy frameworks were developed by the international organizations, and these approaches have focused on student agency, sustainability, and ethical use of technology (OECD, 2019; UNESCO, 2024; United Nations, 2024). These frameworks had instructed national and local education systems to pursue inclusive digital practices and orientations of the leadership approaches with global aspirations (UNESCO, 2024; U.S. Department of Education, 2024; Bishop et al., 2022). The aspect of equity, access, and responsible innovation had strengthened the role of school leaders in establishing safe and inclusive digital learning (OECD, 2019; Liu et al., 2024; Uzorka et al., 2025). Furthermore, the international cooperation had facilitated capacity-building among the educators and those in leadership positions, which facilitated cross-cultural exchange and joint problem-solving (United Nations, 2024; UNESCO, 2024; OECD, 2019).

Synthesis

Through the literature review, it emerged that school administrators are important in supporting the growth of digital citizenship and promoting safe and inclusive digital learning experiences by leveraging strategic leadership, ethical decision-making, and teacher development. They facilitated meaningful digital interaction by managing digital equity, fostering responsible technology use, and accepting the global standards. Collaborative work and qualitative research also demonstrated the significance of leadership in managing digital transformation and making sure that everyone is able to access education.

METHODOLOGY

Research Design

This study adopted Qualitative Content Analysis (QCA) to investigate how school heads encouraged safe and inclusive digital learning practices in digital citizenship and leadership. QCA was a theoretical and descriptive type of analysis of textual data, which comes in handy when studying patterns, themes, and meanings in documents (Kuckartz and Rädiker, 2025). It was quite suitable in the category of educational research where the objective was to comprehend issues of intricate social phenomena—such as leadership practices—in their contextual frameworks. QCA was used in this research to find peer-reviewed publications based on academic

databases, which was also a structured but versatile approach to identifying leadership strategies, which would also be consistent with digital inclusion and safety.

Bowen's (2009) document analysis framework guided the analysis process and focused on systematic review, assessment, and interpretation of documents to generate meaning and build empirical knowledge. The Bowen approach was most appropriate to the studies that were founded on the existing literature and policy documents since it allowed the researcher to isolate data required, label themes, and generalize results in a logical and rigorous way. Triangulation was also facilitated through this approach and increased the validity of the results as two or more evidence sources were combined (Bowen, 2009).

Moreover, the study adhered to an inductive method of QCA, whereby themes were developed in the data as opposed to foisting pre-existing categories. This was in line with the hermeneutic paradigm, which considered interpretation to be the key to comprehend meaning as it is in context (Lyhne et al., 2025). The coding, categorization, and abstraction process were repeated through which the relationships between school leaders and enactment of the digital citizenship principles and equity, access, and safety concerns within the digital learning environment could be identified. Through QCA, this study not only added to the existing knowledge about digital leadership in education but also resonated with other educational objectives (SDG 4: Quality Education) in the world, as SDG 4 focused on both the inclusion and equity of learning systems for all.

Research Environment

In this study, the research environment was the digital academic domain, consisting of the online platforms with scholarly and peer-reviewed literature on the topic of digital citizenship and educational leadership. The databases used in this virtual environment were Google Scholar, institutional repositories, journals and open-access journals, and official education websites that offered easy access to available and reliable sources of data. Since the research used a qualitative content analysis based on the Bowen (2009) document analysis framework, the online environment was an opportune and adequate environment to collect textual data that captured the existing practices, policies, and theoretical insights. This web-based research setting did not only complement the methodological rigor of the research but also reflected the online nature of the research issue itself, i.e., the interaction of leadership, technology, and inclusive education in the 21st century.

Sources of Data and Sampling

This study used peer-reviewed scholarly articles and journals that were available in reliable online databases like Google Scholar to obtain the data. These sources were an in-depth and reliable source of academic literature, which guaranteed that the information that was analyzed was based on high academic standards. The identification of materials was restricted to empirical, theoretical, policy, and case-focused studies that addressed the topic of digital citizenship, educational leadership, and inclusive digital learning settings.

The sampling strategy employed was purposive sampling, which was the strategic selection of the sources that were most apt for the research questions and objectives. The criteria of inclusion were (1) publications published in the past five years (2020-2025), (2) peer-reviewed articles, (3) focus on the topic of digital citizenship and school leadership, and (4) full-text accessibility. This methodology made sure that the research was informed by the existing, high-quality, and contextually relevant literature so that a subtle and evidence-based qualitative content analysis of the ways school heads facilitated safe and inclusive digital learning environments could be conducted.

Research Instrument

The research instrument employed in this study was a document analysis matrix, developed to help analyze data collected online systematically and interpolate results. Based on the document analysis framework suggested by Bowen (2009), the matrix was organized to identify such important aspects of digital citizenship and the capability of various training practices as publication, thematic codes, leadership practices, indicators of digital citizenship, and the contextual relevance of such practices to safe and inclusive digital learning. This instrument allowed the researcher to systematize and interpret text information of peer-reviewed articles and policy

documents in an efficient and consistent manner. In order to improve the quantitative research, AI-assisted tools were utilized, including ChatGPT, Microsoft Copilot, and Gemini AI, to assist the process of thematic coding, finding synthesis, and narrowing categories. These instruments served as digital aids that enhanced the precision and richness of qualitative content analysis with the methodological rigor. The combination of the document analysis matrix and AI-based solutions guaranteed the strong and replicable methodology of investigating the ways in which school heads were encouraging digital citizenship and inclusive culture within the education environment.

Research Tool

The main research tools employed in this study were AI-assisted platforms such as ChatGPT, Microsoft Copilot,

and Gemini AI, which were used to facilitate systematic organization, synthesis, and interpretation of online-collected data. These tools were the digital research assistants, which assisted in coming up with thematic codes and improving research questions, as well as producing analytical insights on the basis of the literature reviewed. Although the peer-reviewed documents formed the basis of the key data, the tools of the AI promoted the qualitative content analysis process by making the process of document perusing and theme assigning more efficient and consistent. Their application was in accordance with the digital context of the study and was conducive to the implementation of the document analysis framework created by Bowen (2009) since it allowed organizing the work with extensive amounts of textual information contentiously. The use of AI products in the study indicated the dynamism of the educational inquiry in the digital era as well as the potential of technology to complement the qualitative research.

Data Collection

The information used to gather data in this research was only through publicly accessible internet resources, such as peer-reviewed journal articles, educational policy documents, and academic literature related to the subject of digital citizenship and school leadership. Purposive sampling was done through academic databases, including Google Scholar and institutional repositories, depending on predefined inclusion criteria, including relevance to the research topic, the credibility of the materials, and the time of publication of the works, not older than a five-year period. In order to help streamline and systematise the process of data collection, AIassisted tools, which include ChatGPT, Microsoft Copilot, and Gemini AI, were used to help with the process of screening documents, identifying themes, and preliminary classification. Subsequently, the chosen documents were structured with the help of a document analysis matrix in accordance with the frame of document analysis by Bowen (2009) which guaranteed a rigorous and systematic method of qualitative content analysis.

Data Analysis

This study employed AI-assisted thematic document analysis, guided by Bowen's (2009) document analysis framework, which focused on systematic review, textual data coding, and interpretation of the existing documents. Thematic analysis was employed to define the patterns and themes that emerge repeatedly when discussing digital citizenship and school leadership and assisted using generative AI tools, including ChatGPT, Microsoft Copilot, and Gemini AI. These tools helped in the six stages of thematic analysis familiarization, coding, theme generation, reviewing, defining, and reporting, as it increased the efficiency and consistency of the data processing (Naeem et al., 2025). The AI platforms were also especially useful in finding keywords, quotes, and connections between themes in large amounts of text, which would enable the researcher to concentrate on interpretation and synthesis. Although AI was beneficial in data processing and data organization, the researcher ensured that analytical decisions were made under their control, which benefits methodological rigor and reflexivity in the process. The hybrid method enabled not only to simplify qualitative analysis but also to increase the transparency and accountability during the development of themes, which is the best practice in qualitative research (Lumivero, 2025). Their incorporation in thematic analysis was due to the changing nature of the educational research and it helped the research to address the objective of examining how school heads created safe and inclusive digital learning environments.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

Ethical Considerations

This study adhered to ethical principles of qualitative research, which includes being transparent, honest, and responsible in using digital tools and data sources. As the study was based on only online publicly accessible documents (e.g. peer-reviewed articles and policy papers), the problem of participant consent and privacy was reduced to a minimum. Nevertheless, the ethics was taken care of through the correct referencing of all the sources and observing intellectual property rights. The utilization of AI-aided methods, such as ChatGPT, Microsoft Copilot, and Gemini AI, was appropriately handled and did not interfere with the data analysis process of the researcher as an interpreter. They were used to increase efficiency and thematic clarity, but analytical decisions were left to the researcher, making sure that human judgment was the rule in interpreting them. The study also avoided the biasness through the use of similar inclusion criteria and keeping an audit trail of the analytical processes. This method was within ethical standards of document-based research and a determination to adhere to the principles of academic ethicalism and responsible innovation in AI-mediated methods.

Limitations of the Study

While prior research suggested that AI-assisted qualitative analysis might improve efficiency and consistency, the use of AI tools for thematic coding also introduced notable methodological limitations that needed to be transparently acknowledged. In particular, the large language models and other generative AI systems had fewer capabilities to process contextual information than anticipated and could produce unreliable or decontextualized output that could not be sensitive to deeper interpretative aspects, particularly when the contextual reading of a culture or context was important (Nguyen, 2025; Discover Artificial Intelligence, 2025). Such tools were more likely to simplify or break down qualitative data, often could not reveal latent themes, and came up with codes and themes that were not as analytically rich and interpretively valid as those produced under human-led coding processes (Martinez Montes et al., 2025). Moreover, the proprietary and dynamic character of AI systems made the transparency of the methodology and reproducibility more difficult to achieve because algorithmic processes were mostly hidden and needed very large-scale documentation of design choices and human assessments to gain credibility (Ornelas et al., 2025).

To address these challenges and enhance methodological transparency, the researcher subjected AIgenerated codes and themes to iterative human review, validation, and refinement aligned with established theoretical constructs. However, the interpretive power of the analysis was limited to a certain extent because of the use of AI-aided thematic coding. Nevertheless, the research provided useful findings on leadership in digital education, which can be used in the broader academic discourse on inclusive and ethical digital learning in adherence to Sustainable Development Goal 4a (Quality Education).

RESULTS AND DISCUSSION

Digital Citizenship in School Leadership & Inclusive Digital Learning Environments

Table 1: Digital Citizenship in the context of School Leadership & Inclusive Digital Learning Environments

Theme	How Digital Citizenship is Conceptualized	Digital Citizenship in the Context of School Leadership	Digital Citizenship in the Context of Inclusive Digital Learning Environments
Ethical and Responsible Technology Use	Framed around ethical governance, transparency, data privacy, safe online behavior, AI ethics.	Principals act as role models and change agents promoting ethical practices and digital policies.	Inclusive access depends on responsible AI use, equitable ICT integration, and safeguards for student safety.
Digital Literacy and Competence	Conceptualized as	Leaders promote teacher professional development, ICT upskilling, and digital	Supports student-centered learning, equity, and lifelong learning opportunities

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

	critical digital literacies, ICT competence, and digital culture building	literacy programs for staff and students.	through competence development
Leadership Models and Practices	Digital citizenship seen as integral to digital leadership, distributed leadership, and transformational models.	Principals/university leaders as visionaries, facilitators of innovation, and strategic planners	Distributed and transformational leadership fosters collaboration, innovation, and culturally responsive practices.
Equity, Inclusion and Access	Framed as equity, digital inclusion, accessibility, and alignment with SDG 4	Leaders are responsible for ensuring equitable ICT access, reducing the digital divide, and supporting DEI initiatives.	Inclusive digital environments promoted through policies, infrastructure upgrades, culturally responsive strategies, and AI-enhanced learning
Student Agency and Lifelong Learning	Conceptualized as student voice, choice, and personalized learning as aspects of digital citizenship	Leaders foster learnercentered approaches, mentoring, and capacity building.	Environments are inclusive, adaptive, and supportive of lifelong learning via digital innovation and collaboration.

The findings showed that the concept of digital citizenship in school leadership and inclusive digital learning environments can be explained as a multidimensional framework that consists of ethical governance, digital competence, leadership practices, equity, and student agency. Digital citizenship was integrated into the leadership, institutional policies, and school culture instead of being viewed as a strictly technical skill set. The use of technology ethically and responsibly became one of the key results, and the leaders of schools appeared as the main actors and advocates of transparency, data privacy, safe web-based practices, and the ethical use of AI. This observation implied that digital citizenship was a value-related leadership task, which aligns with the recent studies, which focus on the ability of school leaders to influence the creation of ethical digital cultures and responsible use of technology (OECD, 2023).

The inclusive digital learning environments were based on digital literacy and competence. School leaders encouraged teacher professional growth, ICT upskilling and digital literacy programs to the staff and students, meaning that digital citizenship was perceived as a versatile and lifelong skill. This meaning was consistent with the recent research that showed that digital literacy was closely linked to student participation, fair participation, and quality learning outcomes in technology-mediated situations (Maniquez and Syting, 2025). These conclusions suggested that long-term leadership investment on capacity building was vital in making sure that digital change facilitated student-centered and inclusive learning as opposed to the shallow use of technologies.

Compared to leadership models, equity, and inclusion, the findings revealed that digital citizenship was incorporated in transformational and distributed leadership practice. School heads were outlined as visionaries and innovation facilitators who had the role of ensuring equitable access to ICTs, lessening the digital divide, and inclusive policies that were in line with Sustainable Development Goal 4. This result was in line with the current literature that held that digital equity went beyond access to devices and connectivity to encompass culturally responsive leadership, inclusive pedagogies, and systemic support structures (Liu et al., 2024). Nonetheless, the findings also indicated the lack of agreement between the aims and the practice of leadership since the realization of equity and inclusion in the various digital learning conditions was still a problem.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

More importantly, the findings pointed to a conflict of interest in keeping students safe and safeguarding their privacy during ethical governance processes. Although the tracking systems and data-driven systems were introduced to protect students and enhance responsible digital behavior, the practices might have been in contrast to the student autonomy, privacy, and trust principles. This result mirrored the increasing trends in the recent body of research on educational datafication and AI governance that highlighted the inability to establish transparent ethical frameworks about balancing the tasks of safeguarding with transparency and data rights (Williamson and Eynon, 2023; OECD, 2023). The findings indicated that the school leaders needed more guidance on policy and a set of ethical decision - making models in order to resolve this tension. In general, the results highlighted the critical importance of school leadership in creating ethical, inclusive, and future-readiness digital citizenship and suggested that the ongoing empirical research on the privacy-conscious and rights-based approaches in digital leadership is needed.

Leadership practices that promote safe and inclusive digital learning environments in basic education.

Table 2: Leadership Practices for Safe & Inclusive Digital Learning Environments

Theme	**Leadership Practices for Safe & Inclusive Digital Learning Environments**
Ethical & Responsible Technology Use	Leaders promote ethical governance, data privacy, cybersecurity, and responsible digital citizenship. They model ethical tech behavior and integrate AI ethics.
Equity, Inclusion & Access	Leadership ensures equitable access to ICT, addresses the digital divide, and fosters inclusive learning cultures sensitive to diverse needs.
Professional Development & Capacity Building	Leaders support continuous teacher training, ICT upskilling, and digital literacy programs for both staff and students to enhance safe, inclusive practices.
Transformational & Distributed Leadership	Emphasis on shared vision, collaboration, distributed leadership, and transformational approaches that inspire innovation and inclusion.
Visionary & Strategic Planning	Leaders act as change agents through strategic planning, policy-making, and aligning school vision with digital transformation goals.
Psychological Safety & Well-being	Leadership fosters safe, supportive online environments that reduce technostress, promote emotional intelligence, and build trust.
Data-Informed & Innovative Leadership	Use of data analytics, AI, and innovation frameworks to enhance inclusive governance and evidence-based decision-making.
Global Sustainability & SDG Alignment	Leaders integrate sustainability, global collaboration, and SDG 4 priorities into digital education strategies.

The results revealed that the ethical and responsible use of technology was highly entrenched in leadership practices to create safe and inclusive digital learning environments. School leaders emerged as proponents of ethical governance, data privacy, cybersecurity, and responsible digital citizenship and placed themselves in the role of role models who incorporated ethical considerations, including AI ethics, into the practices of their institutions. This observation was an indication that ethical governance was a leadership role and not a support issue. The recent scholarship also stressed that, in an ethical digital leadership, proactive policy formulation,

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

transparency and accountability were important to inform technology use in schools (OECD, 2023; Williamson and Eynon, 2023). This carried the implication that the effectiveness of leadership in the digital world was primarily conditional on the possibility to adjust the technological innovation to ethical norms and popular confidence.

The results also indicated that equity, inclusion and access played a key leadership practice under inclusive digital learning. The leaders made sure that there was equitable ICT access, dealt with the digital divide and the creation of inclusive cultures that listed to the needs of diverse learners. Such practices represented that even when inclusive digital leadership focused on infrastructure provision, it also included culturally responsive policy and inclusive learning design. This interpretation concurred with the recent studies that held that digital equity entailed systemic leadership strategies that accounted social, cultural and pedagogical impediments in addition to technological impediments (Liu et al., 2024). Nevertheless, the results also suggested enduring implementation difficulties, since equal access was not necessarily equal learning experience, and there was a disconnect between what the leadership wanted to do and what it experienced living digitally in schools.

Transformational leadership and professional development and capacity building were found to be related leadership practices that facilitated the provision of safe and inclusive digital environments. Leaders focused on the continuous training of teachers, on the ICT upskilling, shared leadership models that promoted collaboration, innovation, and shared responsibility. The results of this discovery indicated that the effectiveness of leadership in digital transformation was affected by distributed expertise and professional learning over time instead of top-down directives. This interpretation was supported by recent studies that showed that transformational and distributed leadership practices led to increased teacher confidence, adoption of innovation, and inclusive pedagogical practices in digital settings (Trust et al., 2023). This meant that inclusive and adaptive digital learning environment could not prevail without leadership investment in human capacity.

Most importantly, the results also indicated the existence of tensions and gaps in the ethical governance and data-informed leadership practices. As leaders grew more dependent on data analytics and AI-based tools to aid in evidence-based decision-making and student safety, these practices provoked issues in the context of surveillance, privacy, and psychological safety. Even though the purpose of leadership was to achieve trust, welfare, and emotional safety, the literature indicated that high levels of surveillance and lack of transparency in data practices could disrupt the objectives (Williamson and Eynon, 2023). This tension underscored the existing frameworks deficiency because they did not give explicit guidelines on how they should balance innovation, safety, and ethical data usage. The results suggested that more explicit governance practices that would combine ethical thinking, stakeholder involvement, and privacy considerations needed to sustain, inclusive and psychologically safe digital learning environments were required in accordance with Sustainable Development Goal 4.

Role of School Heads in fostering Digital Citizenship

Table 3: Role of school heads in fostering digital citizenship

Theme	**Role of School Heads in fostering Digital Citizenship**
Ethical & Responsible Digital Leadership	School heads are consistently seen as role models who promote ethical use of technology, data privacy, AI ethics, and responsible online behavior.
Professional Development & Teacher Empowerment	Leaders emphasize continuous teacher training, ICT competence, and professional growth to embed digital citizenship.
Equity, Inclusion & Access	Strong cross-country emphasis on equitable access, inclusion of marginalized groups, and bridging the digital divide. Digital citizenship is tied to SDG 4 goals.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

Visionary & Transformational Leadership	Principals are described as change agents, visionaries, and catalysts for fostering digital culture, innovation, and adaptability.
Policy, Governance & Strategic Planning	Leaders shape digital citizenship by embedding policies, strategic frameworks, and governance models.
Modeling & Advocacy of Digital Citizenship	School heads demonstrate citizenship values, encourage safe online behavior, and promote digital literacy across communities.
Integration of AI & Emerging Technologies	Recent literature highlights AI ethics, responsible use, and leader accountability as integral to digital citizenship.
Whole-School & Collaborative Approaches	Leaders foster collaborative, distributed leadership and co-creation to sustain digital citizenship culture.
Alignment with Sustainable Development Goals (SDG 4)	Almost all studies explicitly connect leadership for digital citizenship with inclusive, equitable, and lifelong learning (SDG 4).

The results showed that school heads consistently played a central role in fostering digital citizenship through ethical and responsible digital leadership. School leaders were viewed as major role models to encourage responsible use of technology, privacy of data, ethics of AI, and safe Internet practices. This implied that the digital citizenship in schools was not considered as a technical ability but a moral and civic duty that is embedded in the leadership practice. The recent literature affirmed this perspective and highlighted that ethical leadership had a significant impact on the digital behaviors of students and teachers, especially where issues related to data protection and algorithmic decision-making and online safety were at play (Aesaert et al., 2023; OECD, 2021). What the implication meant was that school head ethical position largely influenced school-wide digital norms which, in turn, supports the necessity of explicit ethical frameworks of leadership in digitally mediated learning in schools.

The findings also demonstrated that professional growth and teacher empowerment were extremely important processes by which digital citizenship was maintained. School heads emphasized on lifelong teacher training, ICT competency and professional development and aligned the teachers as co-creators of digital citizenship as opposed to mere implementers. This result was consistent with recent research stating that professional learning based on leadership was imperative to instill the concept of digital citizenship into classroom practice and curriculum integration (Falloon, 2020; UNESCO, 2023). Nevertheless, it was also found that there was a discrepancy between policy intentions and classroom implementation as most of the professional development programs were still tool-oriented instead of value-oriented. This meant that the future method of leadership should be a balance between technical skills and critical digital literacy and ethics.

Equity, inclusion, and access emerged as strong leadership priorities, with digital citizenship closely linked to inclusive education and Sustainable Development Goal 4. School heads were found to actively address the digital divide by advocating equitable access and inclusive participation, particularly for marginalized learners. This finding was supported by recent global evidence highlighting the role of school leadership in mitigating digital inequalities exacerbated by rapid technological adoption (UNESCO, 2022). Nonetheless, the results hinted at uneven implementation across contexts, suggesting a persistent gap between inclusive digital policies and actual access to infrastructure and support. This highlighted the need for systemic collaboration between school leaders, policymakers, and communities to ensure that digital citizenship initiatives translated into tangible equity outcomes.

Lastly, the integration of AI and emerging technologies showed an essential conflict in the literature between innovation and ethical governance. Although school heads were described as visionary and transformational

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

leaders who adopted AI and digital innovation, the results indicated minimal transparency in accountability, regulation, and ethical control. Recent research has cautioned that, despite the growing activity of educational leaders in encouraging the use of AI, too many of them did not have enough information on how to act ethically, transparently, and address risks (Holmes et al., 2022; Selwyn, 2023). This divide meant that the leadership of digital citizenship would have to change into advocacy to more solid governance frameworks that respond to ethical quandaries, stewardship of data, and long-term cultural effect. Enhancing the policy coherence and building school head capacity ethically was thus an important implication of the study.

Alignment of Digital Citizenship and School Leadership in the United Nations Sustainable Development Goal 4

Table 4: Alignment of Digital Citizenship & Leadership with SDG 4

Theme	Key Findings from Literature	Alignment with SDG 4 (Quality Education)
Equity & Inclusion in Digital Learning	Leadership fosters equitable access to ICT, reduces the digital divide, and ensures inclusive digital environments.	Promotes inclusive and equitable education, addressing SDG 4.1 (quality primary & secondary education) and SDG 4.5 (eliminating disparities).
Ethical & Responsible Digital Citizenship	School heads emphasize safe, ethical, and culturally sensitive technology use, data privacy, and AI ethics.	Supports safe, inclusive, and effective learning environments (SDG 4.a) and fosters lifelong learning competencies (SDG 4.7).
Leadership for Teacher Professional Development	Principals lead ICT training, teacher upskilling, and mentorship to strengthen digital competencies.	Builds teaching capacity and continuous professional development (SDG 4.c).
Transformational & Distributed Leadership Models	Leadership styles (transformational, distributed, visionary) empower collaboration, innovation, and resilience in digital learning.	Advances inclusive and learner-centered education, aligned with SDG 4.7 (skills for sustainable development).
AI & Digital Innovation for Sustainability	Integration of AI with ethical safeguards, equity-driven innovation, and digital transformation strategies	Contributes to future-ready skills and sustainable education systems (SDG 4.4, 4.7).
Data-Driven & Evidence-Based Leadership	Leaders use data analytics for decision-making, accountability, and equitable outcomes.	Enhances quality and efficiency of education systems (SDG 4.1, 4.5).
Global & Cultural Responsiveness	Leadership models emphasize global collaboration, cultural sensitivity, and emotional intelligence in digital contexts.	Aligns with SDG 4.7 by promoting global citizenship, cultural understanding, and sustainable development.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

The study showed a strong alignment between digital citizenship, school leadership, and Sustainable Development Goal 4, particularly in promoting equity and inclusion in digital learning. School leaders were always depicted as the major players in lessening the digital divide by making sure that ICT is equally accessible and that digital access is inclusive. This implied that digital citizenship leadership served as a tool that can promote quality and fair education as opposed to facilitating technological adoption. Recent research also highlighted that equity-based leadership practices played a key role in ensuring that digital transformation did not exacerbate the current educational inequalities (UNESCO, 2022; OECD, 2021). It meant that SDG 4 would be achieved by having school heads deliberately incorporate digital citizenship into inclusive leadership and access-oriented policies.

The concept of ethical and responsible digital citizenship also became one of the core leadership functions in accordance with SDG 4 that focuses on lifelong, safe, and effective learning. As a values-based educational objective, school leaders were discovered to endorse ethical use of technology, data privacy, and AI ethics. Although the literature was quite firm on the need of ethical leadership to foster responsible digital learning conditions (Aesaert et al., 2023), a fundamental gap in ethical governance was observed. As it was emphasized in numerous studies, school leaders had to maintain ethical standards when the institution lacked specification, clarity in regulations, and accountability systems, especially concerning AI and data-driven systems (Holmes et al., 2022; Selwyn, 2023). This tension implied that ethical leadership would not work out without effective governance structures to reinforce ethical decisions.

The results also showed that teacher professional development leadership and distributed leadership models had close correlation to SDG 4 goals on quality of teaching and lifelong learning. The leaders of schools were depicted to focus on ICT training, mentoring, and partnerships in leadership designs to enhance digital skills and pedagogical behaviors of teachers. Nonetheless, the literature demonstrated that the professional development programs tended to be technically-focused, and little critical digital literacy, ethics, and sustainability were given attention. This resonated with fears that the process of capacity-building of teachers often fell short of the general civic and ethical priorities of digital citizenship (Falloon, 2020; UNESCO, 2023). The implication was that leadership strategies had to re-focus professional learning on the incorporation of ethical reasoning and digital citizenship values, and technical skills.

Finally, AI integration, data-driven leadership, and digital innovation have revealed the achievements and gaps in achieving the digital citizenship goals in line with SDG 4. School leaders got to be more of a transformational and visionary figure, who makes use of data analytics and new technologies to improve the quality of education and efficacy of the system. However, the literature identified discrepancies in the evidencebased leadership approach to the problem of data privacy, algorithmic bias, and transparency. Even though datadriven solutions aided the SDG goals of quality and equity, the insufficient ethical regulation and imbalance in implementation put the sustainability and trust at stake (OECD, 2021; Selwyn, 2023). These imply that sustainable alignment of digital citizenship with SDG 4 relied not only on innovation but also on increasing ethical governance, coherence of the policies, and capacity of leadership in digitally complex education settings.

FINDINGS

The findings of this study provided a comprehensive view of how digital citizenship and school leadership intersected to promote safe and inclusive digital learning environments. The analysis revealed the following:

The study revealed that peer-reviewed scholarly articles conceptualized digital citizenship in the context of school leadership and inclusive digital learning environments as a multidimensional framework encompassing ethical governance, digital competence, leadership practices, equity, and student agency. Digital citizenship was not framed as a purely technical skill set but was embedded within leadership roles, institutional policies, and school culture. Ethical and responsible technology use emerged as a central dimension, with school leaders positioned as role models and change agents who promoted transparency, data privacy, safe online behavior, and responsible use of emerging technologies. Digital literacy and competence were identified as foundational to inclusive digital learning environments, highlighting the role of school leaders in supporting professional development, ICT upskilling, and lifelong learning for both teachers and students. Additionally, digital

citizenship was integrated into transformational and distributed leadership practices, emphasizing equitable access, inclusion, and the reduction of digital divides. At the same time, the findings revealed an inherent tension between monitoring for student safety and protecting student privacy, underscoring the complexity of ethical governance in digitally mediated educational contexts and the need for balanced, valuesdriven leadership approaches.

The study identified a comprehensive set of leadership practices in scholarly literature that promoted safe and inclusive digital learning environments in basic education. Leaders were found to model ethical and responsible technology use by promoting data privacy, cybersecurity, and AI ethics. They ensured equity and inclusion by addressing the digital divide and fostering culturally responsive learning environments. Professional development was emphasized through continuous ICT training and digital literacy programs for staff and students. Transformational and distributed leadership practices were highlighted for their role in inspiring innovation and collaboration. However, tensions emerged regarding data-informed and AI-driven decisionmaking, where efforts to enhance safety and evidence-based practices risked compromising privacy and psychological well-being, highlighting gaps in ethical governance frameworks. Additionally, leaders engaged in strategic planning aligned with digital transformation goals, supported psychological safety to reduce technostress, utilized data-informed decision-making, and integrated sustainability and SDG 4 priorities into digital education strategies.

The AI-assisted qualitative content analysis of peer-reviewed literature revealed several key themes and patterns regarding the role of school heads in fostering digital citizenship. School heads were consistently portrayed as ethical and responsible digital leaders who modeled safe technology use, promoted data privacy, and guided AI integration. They played a central role in professional development by supporting ICT training and empowering teachers to embed digital citizenship in pedagogy. Equity, inclusion, and access emerged as a strong theme, with school heads addressing the digital divide and aligning practices with SDG 4 goals. Additionally, school heads were seen as visionary and transformational leaders who shaped digital culture through strategic planning, policy development, and collaborative governance. Their advocacy extended to modeling digital citizenship values, promoting whole-school approaches, and ensuring that AI and emerging technologies were used ethically and inclusively.

Findings from internet-sourced scholarly literature demonstrated strong alignment with the goals of the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 on Quality Education. School heads as key agents in promoting equity, inclusion, and access in digital learning, positioning digital citizenship as a means of advancing quality and equitable education. Ethical and responsible technology use, including data privacy and AI ethics, aligned with SDG 4's focus on safe and lifelong learning, although gaps in ethical governance and accountability were evident. Leadership support for teacher professional development and datadriven innovation further supported SDG 4 targets, yet uneven ethical oversight suggested that sustained alignment depended on strengthening governance frameworks alongside technological advancement.

CONCLUSIONS AND RECOMMENDATION

Conclusion

This study highlighted the central role of school leadership to promote digital citizenship in inclusive and future-oriented learning settings. The conceptualization of digital citizenship was a multidimensional framework that integrated the ethical use of technology, digital literacy, equity, and student agency, school heads as role models of responsible behavior and leaders in the process of AI integration. The leadership practices such as transformational and distributed leadership, strategic planning, and professional development were consistently perceived to be critical in facilitating safe, equitable, and inventive digital learning. Moreover, these practices were closely aligned to the objectives of the United Nations Sustainable Development Goal 4 (Quality Education), especially to promote inclusive access, lifelong learning, and global citizenship with the help of ethical and sustainable approaches to digital education.

Recommendation

Based on the findings and conclusions, it is recommended that:

For school heads and educational leaders. School leaders should model ethical digital behavior, promote responsible AI use, and adopt frameworks such as DigCompEdu or ISTE to guide professional development and inclusive digital leadership aligned with SDG 4.

For teachers. Teachers are encouraged to integrate digital citizenship into daily instruction and pursue continuous ICT training guided by DigCompEdu to support safe, ethical, and learner-centered technology use.

For policymakers and education planners. Policymakers should institutionalize digital citizenship through standards like UNESCO's Digital Literacy Global Framework or ISTE, strengthen leadership capacity, and ensure equitable access to digital resources.

For learners and their families. Schools should engage families in digital literacy initiatives that promote safety, access, and well-being, reinforcing responsible digital behavior at home.

For future researchers. Future studies suggest to use AI-assisted qualitative methods to examine digital leadership, AI integration, and digital well-being, including comparative and longitudinal research across diverse contexts.

ACKNOWLEDGEMENT

The researcher extends heartfelt gratitude to all the individuals who contributed in completing this research.

I sincerely extend my gratitude to Mr. Joel T. Aclao, my research professor, for his guidance, encouragement, and valuable insights that strengthened this study.

I owe my heartfelt appreciation to my family, colleagues and friends for the unwavering support and motivation throughout this journey.

Above all, I am profoundly grateful to the Almighty God for granting me wisdom, strength, and perseverance to accomplish this research.

REFERENCES

1. Adewale, S. (2025). A systematic review of leadership strategies for enhanced technology usage among teachers in secondary schools. Interdisciplinary Journal of Education, 8(1), 1–19.
2. Aesaert, K., Voogt, J., Kuiper, E., & van Braak, J. (2023). Digital citizenship education: A critical review of existing frameworks and practices. Educational Research Review, 38, 100503. a
3. Al-Hadi, T., Winarni, W., Abdurahman, A., & Juariyah, S. P. (2025). Principal leadership as an agent of change in learning technology transformation: A systematic literature study. In A. Hendriyanto et al. (Eds.), Proceedings of the 5th International Conference on Education, Humanities, and Social Science (ICEHoS 2025) (pp. 7–23). Advances in Social Science, Education and Humanities Research, 940.
4. Al-Hadi, T., Winarni, W., Abdurahman, A., & Juariyah, S. P. (2025). Principal leadership as an agent of change in learning technology transformation: A systematic literature study. In A. Hendriyanto et al.
5. (Eds.), Proceedings of the 5th International Conference on Education, Humanities, and Social Science
6. (ICEHoS 2025) (pp. 7–23). Atlantis Press. https://doi.org/10.2991/978-2-38476-450-1_2
7. Alshidi, M. S., & Ahmad Rashid, R. A. (2025). The impact of leadership style on teachers' use of ICT: A systematic review. International Journal of Academic Research in Business and Social Sciences, 15(7), 164–192. https://doi.org/10.6007/IJARBSS/v15-i7/25889
8. Arslan, İ., & Yiğit, M. F. (2024). A review of studies on school administrators' technology leadership in Türkiye. Kastamonu Education Journal, 32(1), 51–70. https://doi.org/10.24106/kefdergi.1426474

9. Ata, E., & Saltan, F. (2023). School principals' perspective on technological leadership, technostress, and information and communication technology: A scoping review. Participatory Educational Research, 10(5), 147–167. https://doi.org/10.17275/per.23.79.10.5
10. Atausinchi Masias, A., et al. (2025). Transformational leadership and artificial intelligence in university educational management: A literature review. Lex Localis – Journal of Local Self-Government, 23(S2), 116–135. (Same as No. 1, included for completeness)
11. Bani Salamah, M. J., Albadarneh, A. M., Awais, B. E., Daradkah, A. M., Hourieh, A. H., Mahmoud, A.
12. M., Olimat, S. N., ALShurman, M. M., & Ali, S. A. (2024). Digital leadership competencies in achieving the readiness of Arab universities for digital transformation according to ISTE-A standards for sustainable development. Journal of Ecohumanism, 3(8), 11220–11255. https://doi.org/10.62754/joe.v3i8.5725
13. Bishop, S., Quintanilla-Muñoz, C., & Marshall, T. (2022). Digital equity and inclusion for education. Intercultural Development Research Association. https://files.eric.ed.gov/fulltext/ED629275.pdf
14. Bowen, G. A. (2009). Document analysis as a qualitative research method. Qualitative Research Journal, 9(2), 27–40. https://doi.org/10.3316/QRJ0902027
15. Chigbu, B. I., & Makapela, S. L. (2025). Data-driven leadership in higher education: Advancing sustainable development goals and inclusive transformation. Sustainability, 17(3116).
16. https://doi.org/10.3390/su17073116
17. Discover Artificial Intelligence. (2025). Can large language models be used to code text for thematic analysis? An explorative study. Springer. https://doi.org/10.1007/s44163-025-00441-3
18. Enăchescu, C. (2025). AI-U: Student guide to artificial intelligence. American Association of Colleges and Universities. https://eric.ed.gov/?id=ED673750
19. Enachescu, V.-A. (2025). Rethinking educational management: Preparing leaders for global sustainability and ethical challenges in a digital era. Review of International Comparative Management, 26(2), 374–387. https://doi.org/10.24818/RMCI.2025.2.374
20. Enăchescu, V.-A. (2025). Rethinking educational management: Preparing leaders for global sustainability and ethical challenges in a digital era. Review of International Comparative Management, 26(2), 374–387. https://doi.org/10.24818/RMCI.2025.2.374
21. Falloon, G. (2020). From digital literacy to digital competence: The teacher digital competency (TDC) framework. Educational Technology Research and Development, 68(5), 2449–2472. https://doi.org/10.1007/s11423-020-09767-4
22. Fauzi, F. (2025). Kepemimpinan digital dalam dunia pendidikan: Tinjauan systematic literature review. TA'LIM: Jurnal Studi Pendidikan Islam, 8(2), 215–231.
23. Gallego Joya, L., Merchán Merchán, M. A., & López Barrera, E. A. (2025). Development and strengthening of teachers' digital competence: Systematic review. Contemporary Educational Technology, 17(1), ep555. https://doi.org/10.30935/cedtech/15744
24. Gamit, G. S. (2024). Teachers' professional development program in the Division of Isabela: Status, challenges, and prospects. Ignatian International Journal for Multidisciplinary Research, 2(10), 637– 673. https://doi.org/10.5281/zenodo.13970702
25. Hamzah, N. H., Radzi, N. M., & Omar, I. M. (2025). Digital leadership competencies through a systematic literature review: Bridging educational development and organizational success. International Journal of Modern Education, 7(24), 37–64. https://doi.org/10.35631/IJMOE.724003
26. Holmes, W., Bialik, M., & Fadel, C. (2022). Artificial intelligence in education: Promises and implications for teaching and learning. Center for Curriculum Redesign.
27. Hinon, K., Satitpong, P., Tongpasuk, G., & Kaewngam, A. (2025). The leaders of digital education transformation. International Education Studies, 18(3), 10–25. https://doi.org/10.5539/ies.v18n3p10
28. Kahne, J., Lipkin, M. C., Tynes, B., McGrew, S., Mirra, N., & Garcia, A. (2024). Civic reasoning and discourse across the curriculum: Digital citizenship education. National Academy of Education &
29. National Association for Media Literacy Education. https://files.eric.ed.gov/fulltext/ED672648.pdf
30. Kamran, M. (2025). Educational leadership in a digital era: Navigating challenges and opportunities. AlIman Research Journal, 3(1), 188–199. https://www.alimanjournal.com
31. Karakose, T., Polat, H., Tülübüs, T., & Demirkol, M. (2024). A review of the conceptual structure and evolution of digital leadership research in education. Education Sciences, 14(1166), 1–19. https://doi.org/10.3390/educsci14111166

32. Kausar, S., Arif, M., & Sebgag, S. (2025). Transformational leadership and the challenges of educational digitalization: A systematic literature review (2020–2025). Nidhomul Haq: Jurnal Manajemen Pendidikan Islam, 10(2), 312–332. https://doi.org/10.31538/ndhq.v10i2.196
33. Kuckartz, U., & Rädiker, S. (2025). Qualitative content analysis: Methods, practice, and software (2nd ed.). SAGE Publications. https://doi.org/10.4135/9781036212940
34. Liu, K., Tschinkel, R., & Miller, R. (2024). Digital equity and school leadership in a post-digital world. ECNU Review of Education, 7(3), 762–783. https://doi.org/10.1177/20965311231224083
35. Lopes, L. F. D., da Silva, D. J. C., Kuhn, N., Chiapinoto, F. V., & Lima, M. P. (2024). The influence of technostress on anxiety disorder in higher education students during the COVID-19 pandemic.
36. Knowledge Management & E-Learning, 16(1), 164–185. https://doi.org/10.34105/j.kmel.2024.16.008
37. Lumivero. (2025, August 12). How to do thematic analysis in qualitative research with NVivo + Lumivero AI Assistant. https://lumivero.com/resources/blog/how-to-do-thematic-analysis-in-qualitativeresearch-with-nvivo-lumivero-ai-assistant/
38. Lyhne, C. N., Thisted, J., & Bjerrum, M. (2025). Qualitative content analysis: Framing the analytical process of inductive content analysis to develop a sound study design. Quality & Quantity. https://doi.org/10.1007/s11135-025-02220-9
39. Maniquez, N. M. D., & Syting, C. J. O. (2025). Intercultural competence and digital literacy as predictors of student engagement. European Journal of Education Studies. https://oapub.org/edu/index.php/ejes/article/view/6349
40. Martinez Montes, C., Feldt, R., Miguel Martos, C., Ouhbi, S., Premanandan, S., & Graziotin, D. (2025). Large language models in thematic analysis: Prompt engineering, evaluation, and guidelines for qualitative software engineering research (preprint).arXiv. https://arxiv.org/abs/2510.18456 arXiv
41. Mukhtar, S., Razak, A. Z. A., Setiyowati, N., & Adni, M. A. (2025). Educational leadership innovation: A recent comprehensive structured review. Journal of Education and Learning, 19(4), 2342–2350.
42. https://doi.org/10.11591/edulearn.v19i4.23239
43. Muñoz, A. V. (2025). Integrating artificial intelligence across the Philippine educational continuum: Opportunities, challenges, and regulatory frameworks to foster responsible AI use from primary to graduate levels for sustainable development. Research Proposal. https://doi.org/10.13140/RG.2.2.15776.49926
44. Naeem, M., Smith, T., & Thomas, L. (2025). Thematic analysis and artificial intelligence: A step-by-step process for using ChatGPT in thematic analysis. International Journal of Qualitative Methods, 24, 1–18. https://doi.org/10.1177/16094069251333886
45. Niu, J., & Huang, F. (2025). Educational leadership for digital transformation: A comparative framework for sustainable development in global context. Journal of Information Systems Engineering and Management, 10(21s). https://doi.org/10.55267/jisem.2025.10.21s
46. Nguyen-Trung, K. (2025). ChatGPT in thematic analysis: Can AI become a research assistant in qualitative research? Quality & Quantity. https://doi.org/10.1007/s11135-025-02165-z
47. Obied, A. S. (2025). Digital leadership in the academic environment: A systematic literature review. Social Sciences & Humanities Open, 11, 101542. https://doi.org/10.1016/j.ssaho.2025.101542
48. Öztürk, G. (2021). Digital citizenship and its teaching: A literature review. Journal of Educational Technology and Online Learning, 4(1), 31–45. https://files.eric.ed.gov/fulltext/EJ1286737.pdf
49. OECD. (2019). Student agency for 2030: OECD future of education and skills 2030. OECD Publishing. https://eric.ed.gov/?id=ED673623
50. OECD. (2021). Digital security risk management for economic and social prosperity. OECD Publishing. https://doi.org/10.1787/7b67c5f4-en
51. OECD. (2021). Digital education outlook 2021: Pushing the frontiers with AI, blockchain and robots. OECD Publishing. https://doi.org/10.1787/589b283f-en
52. OECD. (2023). Shaping digital education: Enabling factors for quality, equity and efficiency. OECD Publishing. https://doi.org/10.1787/bac4dc9f-en
53. Olabiyi, O. J., van Vuuren, C. J., Du Plessis, M., Xue, Y., & Zhu, C. (2025). Digital academic leadership in higher education institutions: A bibliometric review based on CiteSpace. Education Sciences, 15(7), 846. https://doi.org/10.3390/educsci15070846
54. Oliveira, K. K. de S., & de Souza, R. A. C. (2022). Digital transformation towards Education 4.0. Informatics in Education, 21(2), 283–309. https://doi.org/10.15388/infedu.2022.13

55. Ornelas, T., Araújo, A. A., Araújo, J., Araújo, M., Trinkenreich, B., & Kalinowski, M. (2025). LLM-assisted thematic analysis: Opportunities, limitations, and recommendations (preprint). arXiv. https://arxiv.org/abs/2511.14528
56. Peng, Y., Alias, B. S., Mansor, A. N., & Ismail, M. J. (2024). Charting the evolving landscape of digital leadership in education: A systematic literature review. Journal of Infrastructure, Policy and Development, 8(8), 5925. https://doi.org/10.24294/jipd.v8i8.5925
57. Priyoherianto, A., Mustaji, M., Roesminingsih, E., Hariyati, N., Rianto, Y., & Khamidi, A. (2025). The impact of organizational health and the levels of transformational leadership of school teachers in Indonesia: A systematic review. International Journal of Current Educational Research, 4(1), 25–45. https://doi.org/10.53621/ijocer.v4i1.477
58. Rahmatullah. (2025). School principals' digital leadership role on integration of technology in education: A review. SSRN. https://doi.org/10.2139/ssrn.5288658
59. Ramos, R. D. (2025). Transformational leadership in education: Impacts and practices toward enhancing school performance. Journal of Interdisciplinary Perspectives, 3(9), 527–536. https://doi.org/10.69569/jip.2025.574
60. Ribble, M. (2015). Digital citizenship in schools: Nine elements all students should know (3rd ed.). International Society for Technology in Education.
61. Richardson, J. W., & Khawaja, S. (2025). Meta-synthesis of school leadership competencies to support learner-centered, personalized education. Frontiers in Education, 10, Article 1537055. https://doi.org/10.3389/feduc.2025.1537055
62. Selwyn, N. (2023). Education and technology: Key issues and debates (3rd ed.). Bloomsbury Academic
63. Simpal, M. T., & Pidor, S. J. (2024). Technological leadership behavior and technological formation as predictors of Education 4.0 competency determination of educators in Region XII: A convergent design. Journal of Interdisciplinary Perspectives, 3(1), 194–214. https://doi.org/10.69569/jip.2024.0634
64. U.S. Department of Education. (2024). Empowering education leaders: A toolkit for safe, ethical, and equitable AI integration. https://files.eric.ed.gov/fulltext/ED661924.pdf
65. UNESCO. (2022). Reimagining our futures together: A new social contract for education. UNESCO Publishing.
66. UNESCO. (2023). Guidance for generative AI in education and research. UNESCO Publishing.
67. UNESCO.(2024).Digital learning and transformation of education.
68. https://www.unesco.org/en/digitaleducation
69. United Nations. (2024). New partnerships for digital education. https://www.un.org/en/academicimpact/new-partnerships-digital-education
70. Uzorka, A., Odebiyi, O. A., & Kalabuki, K. (2025). Educational leadership in the digital age: Navigating challenges and embracing opportunities. International Journal of Technology in Education and Science, 9(1), 128–141. https://doi.org/10.46328/ijtes.605
71. Walumbwa, F. O., Christensen, A. L., & Muchiri, M. K. (2013). Transformational leadership and meaningful work. In B. J. Dik, Z. S. Byrne, & M. F. Steger (Eds.), Purpose and meaning in the workplace (pp. 197–215). American Psychological Association.
72. https://doi.org/10.1037/14183010[1](https://psycnet.apa.org/record/2012-34174-010)
73. Wasson, B., Ness, I., Hansen, C., Lakkala, M., Ilomäki, L., Tammets, K., Nakashidze, T., & Dagiene, V. (2021). State of the field review of research on digital innovation. D1.1. iHub4Schools Project, Horizon 2020. https://www.ihub4schools.eu/wp-content/uploads/2022/08/D1.1-State-of-the-Field-review-ofresearch-on-digital-innovation.pdf
74. Williamson, B., & Eynon, R. (2023). Historical threads, missing links, and future directions in AI in education. Learning, Media and Technology, 48(2), 223–235.
75. https://doi.org/10.1080/17439884.2022.2164933
76. Wollscheid, S., Tømte, C. E., Egeberg, G. C., Karlstrøm, H., & Fossum, L. W. (2024). Research trends on digital school leadership over time: Science mapping and content analysis. Education and Information Technologies, 30, 747–778. https://doi.org/10.1007/s10639-024-12909-3
77. Xueying, Y., Arshad, M. A. B., & Lihua, H. (2025). Teacher e-leadership in the digital age: A systematic review of research and practice. International Journal of Academic Research in Business and Social Sciences, 15(5), 1118–1130. https://doi.org/10.6007/IJARBSS/v15-i5/25494

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue XI November 2025

78. Zuniga, T. R., Atausinchi Masias, A., Masias Santos de Atausinchi, C. M., Monsalve Guevara, V. R., Zorrilla Esparza, C. J., & Acevedo-Carrillo, M. (2025). Transformational leadership and artificial intelligence in university educational management: A literature review. Lex Localis – Journal of Local Self-Government, 23(S2), 116–135.