

Digital leadership practices of secondary school heads in Santa Fe District and its relationship with teachers' digital citizenship skills

Apiado, Allan S.

Department of Education- SDO Nueva Vizcaya, Philippines

Nauí, Jesusa L. 

Nueva Vizcaya State University, Philippines

Agustin, Arnel A.

Nueva Vizcaya State University, Philippines



ISSN: 2243-7703
Online ISSN: 2243-7711

OPEN ACCESS

Received: 8 July 2026

Available Online: 21 August 2026

Revised: 17 August 2026

DOI: 10.5861/ijrse.2026.26200

Accepted: 20 August 2026

Abstract

This study examined the digital leadership practices of school heads and the digital citizenship skills of teachers in secondary schools in Santa Fe District during the academic year 2026–2027. It employed a quantitative research design using the descriptive-correlational method. Data were collected through validated and reliable research instruments and analyzed using the mean and Spearman Rank Correlation, with the hypothesis tested at the 0.05 level of significance. The investigation focused on the digital leadership practices of school administrators in terms of communication, public relations, branding, professional growth and development, student engagement and learning, opportunity, and learning environment and spaces, as well as teachers' digital citizenship skills in digital access, communication, literacy, etiquette, health and wellness, and security. Findings revealed that school administrators demonstrated a very good level of digital leadership practices ($M = 3.79$), with branding obtaining the highest rating, while communication received the lowest. Likewise, teachers exhibited a very good level of digital citizenship skills ($M = 3.16$), with digital communication ranked highest and digital security lowest. Statistical analysis showed a negligible positive, but non-significant relationship between digital leadership practices and digital citizenship skills ($\rho = 0.0361$, $p = 0.7820$), indicating that administrators' digital leadership did not significantly influence teachers' digital citizenship competencies. The study concluded that although both variables were rated very good, they operated independently within the research context. Based on the findings, two intervention programs were developed: the Digital Leadership Enhancement Program for School Heads and the Digital Citizenship Empowerment Program for Teachers to strengthen leadership capacity and promote responsible, ethical, and effective digital engagement in schools.

Keywords: digital citizenship skills, digital leadership practices, educational administration intervention

Digital leadership practices of secondary school heads in Santa Fe District and its relationship with teachers' digital citizenship skills

1. Introduction

In the rapidly evolving educational landscape, digital technologies have become integral to shaping teaching and learning processes. Schools are no longer isolated institutions but dynamic environments where digital tools mediate communication, collaboration, and access to knowledge. Globally, educational leaders are expected to harness digital resources strategically to drive innovation, maintain competitiveness, and ensure student engagement in a digital age. The emergence of smart classrooms, online learning platforms, and digital assessment tools highlights the pivotal role of school heads in navigating these transformations. Leadership in this context extends beyond administrative duties, requiring visionary capacity to integrate technology into the core functions of education.

At the national level, the Philippines has prioritized digital education through initiatives such as the Department of Education's "DepEd Commons" and the implementation of blended learning programs across public schools. These programs aim to enhance access to learning resources, promote teacher collaboration, and prepare students for the demands of the 21st century. However, successful implementation hinges on the digital competence of school leaders, whose decisions and practices influence the degree to which teachers and students effectively adopt technology. At the local level, secondary schools in Santa Fe District face challenges such as limited technological infrastructure, variable digital literacy among staff, and the need for strategic integration of digital tools to maximize learning outcomes. This situation underscores the importance of examining how school heads exercise digital leadership and how it affects teachers' digital citizenship skills, including responsible online behavior, critical digital literacy, and effective communication in virtual spaces.

Digital leadership practices encompass a spectrum of strategic actions, from branding and public relations to fostering professional growth and cultivating student engagement (Sheninger, 2014). Recent studies indicate that school leaders who demonstrate proactive digital leadership positively influence teacher effectiveness and the adoption of innovative instructional strategies (Nguyen et al., 2020; Al-Fraihat et al., 2021). Similarly, teachers' digital citizenship skills are critical in ensuring ethical, safe, and productive use of technology in educational settings, which in turn enhances student learning experiences (Ribble, 2015; García-Peñalvo et al., 2019). Evidence suggests that the relationship between digital leadership and teachers' digital competencies is increasingly relevant in the post-pandemic educational context. School heads who prioritize communication, digital access, and collaborative learning environments empower teachers to model responsible and effective technology use, ultimately fostering a culture of innovation and digital accountability (O'Dwyer et al., 2018; Sánchez-Cruzado et al., 2021). Furthermore, understanding this relationship allows policymakers and educators to develop targeted interventions, such as professional development programs, to strengthen both leadership capacities and teacher digital competencies.

This study seeks to explore the digital leadership practices of secondary school heads in Santa Fe District and their relationship with teachers' digital citizenship skills. By identifying key leadership dimensions that influence responsible and effective technology use among teachers, the research aims to contribute to the enhancement of digital education strategies, inform policy decisions, and support a holistic approach to integrating technology in local educational contexts. The present study is anchored on global, national, and institutional frameworks that emphasize the integration of technology in education, the promotion of quality teaching, and the development of responsible digital citizens. Globally, the United Nations Sustainable Development Goals (SDGs) provide a guiding framework for educational research that aligns with social, technological, and ethical development. In particular, this study contributes to SDG 4: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by examining how digital leadership practices influence teachers' ability to integrate

technology responsibly and effectively in their teaching. By fostering digital competence and citizenship, the study indirectly supports SDG 5 (gender equality), SDG 9 (industry, innovation, and infrastructure), and SDG 17 (partnerships for the goals), as empowered school leaders and digitally competent teachers contribute to equitable access to quality learning, innovation in teaching practices, and stronger collaboration within the educational community.

At the national level, the study aligns with the Philippine National Research Agenda on Teacher Education (NRATE), which emphasizes the enhancement of teacher competencies, innovative pedagogical practices, and professional development. By investigating the digital leadership practices of secondary school heads and their effect on teachers' digital citizenship skills, this study provides empirical insights into how leadership influences technology-mediated teaching practices, professional growth, and ethical digital behavior. Furthermore, it supports the NRATE's emphasis on research that contributes to teacher quality, leadership effectiveness, and the development of 21st-century skills, ensuring that public school education keeps pace with technological and pedagogical advancements.

This study aligns with the research priorities of the Department of Education (DepEd) by contributing to its Research Agenda, which emphasizes educational leadership, teacher quality, curriculum innovation, and the effective integration of information and communication technology (ICT) in teaching and learning. By investigating the digital leadership practices of school heads and the digital citizenship skills of teachers, the study provides empirical evidence that supports the development of technology-enabled schools and the continuous improvement of educational management and instructional practices. Moreover, the study is consistent with the Philippine Professional Standards for Teachers (PPST), particularly the domains that promote the effective integration of ICT, the creation of safe and inclusive learning environments, professional engagement, and continuous professional development. The findings reinforce the importance of equipping teachers with digital citizenship competencies that enable them to utilize technology responsibly, ethically, and effectively while fostering meaningful learning experiences for students. Likewise, the study highlights the vital role of school heads in exercising digital leadership to support teachers' professional growth, encourage innovation, and strengthen technology-enhanced learning environments.

The findings may serve as valuable inputs for DepEd in formulating policies, designing capacity-building programs, and implementing evidence-based interventions that strengthen digital leadership and digital citizenship across schools. Ultimately, the study contributes to DepEd's commitment to developing future-ready educational leaders and teachers who are capable of meeting the demands of 21st-century education while upholding the standards of the PPST and advancing quality, equitable, and technology-driven basic education. At the regional and institutional levels, the study is anchored on the Nueva Vizcaya State University (NVSU) Research Agenda, which emphasizes education, technology integration, and leadership development as key focus areas. By focusing on the digital leadership practices of school heads in Santa Fe District, the study addresses institutional priorities on the promotion of research that improves educational management, professional development, and teaching effectiveness. Specifically, it provides empirical evidence that can guide NVSU in developing leadership training programs, digital literacy initiatives, and research-based interventions tailored to local school contexts.

Finally, the study contributes to the College of Teacher Education Research Agenda, which highlights innovative instructional practices, teacher professional growth, and the use of ICT in teaching and learning. By linking school heads' digital leadership with teachers' digital citizenship skills, the study provides actionable insights into leadership-driven strategies for digital integration, professional development, and the ethical use of technology in the classroom. It reinforces the college's commitment to producing teachers who are not only competent in subject matter but also capable of modeling responsible digital behavior and contributing to a digitally empowered educational environment. In essence, this study is strategically anchored in international, national, and local research priorities, bridging the gap between leadership practices and teacher digital competencies. Its findings have the potential to enhance educational policy, professional development, and the promotion of ethical digital practices, contributing to a holistic and forward-looking approach to technology

integration in Philippine schools.

Despite the growing emphasis on digital education worldwide, there remains a significant gap in understanding how school leadership directly influences teachers' digital citizenship skills, particularly in the Philippine context. While studies have explored digital leadership and teacher competencies separately, few have examined the relationship between the two in local secondary schools, creating a critical gap in evidence-based strategies for improving digital integration in education. Globally, research has emphasized the importance of digital leadership in fostering innovation and engagement (Nguyen, Barton, & Nguyen, 2020; Al-Fraihat, Joy, & Sinclair, 2021), but these studies are often context-specific to developed nations, limiting their applicability to resource-constrained settings like Santa Fe District. Locally, most research focuses on teacher digital literacy or ICT adoption without considering the role of school heads as enablers of digital competence and responsible online behavior.

In the context of Santa Fe District, teachers encounter multiple challenges that highlight the need for this study. Many educators struggle with limited access to digital tools and internet connectivity, which hinders effective instructional delivery and prevents full engagement in technology-mediated learning. Additionally, there is a lack of structured professional development programs that target both pedagogical use of technology and the cultivation of ethical digital citizenship. Teachers also report inconsistencies in digital leadership practices across schools, with some school heads demonstrating proactive technology integration while others lack the capacity or awareness to support teachers effectively. These disparities impact not only instructional quality but also students' ability to engage safely and responsibly in digital environments. Recognizing these gaps and challenges, the researcher was motivated to investigate the digital leadership practices of secondary school heads and their influence on teachers' digital citizenship skills. This study seeks to provide empirical evidence that can inform leadership strategies, professional development initiatives, and policy interventions aimed at strengthening digital education in local schools, ultimately contributing to the enhancement of both teacher competence and student learning outcomes in the digital era.

The study aimed to look into the digital leadership practices of secondary school heads of Santa Fe District during the academic year 2025-2026 and its relationships with the teachers' digital citizenship skills. Specifically, it answered the following questions.

- What is the assessment of the teacher-respondents on their school administrators' digital leadership practices along the dimensions of communication, public relations, branding, professional growth and development, student engagement and learning, opportunity, and learning environment and spaces?
- What is the assessment of the respondents of their digital citizenship skills along the dimension of digital access, digital communication, digital literacy, digital etiquette, digital health and wellness, and digital security?
- Are there a significant relationship between the assessed school administrators' digital leadership practices and digital citizenship skills of the respondents?
- Based on the significant findings of the study, what educational administration intervention could be developed?

Based on the specific questions posted above, the following are the objectives of the study.

- To assess the perceptions of teacher-respondents on their school administrators' digital leadership practices along the dimensions of communication, public relations, branding, professional growth and development, student engagement and learning, opportunity, and learning environment and spaces.
- To determine the level of digital citizenship skills of the respondents along the dimensions of digital access, digital communication, digital literacy, digital etiquette, digital health and wellness, and digital

security.

- To examine the significant relationship between school administrators' digital leadership practices and the digital citizenship skills of the respondents.
- To develop an educational administration intervention based on the significant findings of the study.

2. Related Literature

This study is anchored on the Diffusion of Innovation Theory (DIT) originally proposed by Rogers (2003) as cited by Cinense (2024), which explains how new ideas, technologies, and practices spread within a social system over time. The theory has been widely applied in educational technology research to understand how innovations are adopted and implemented in schools and other learning institutions. According to recent scholars, the diffusion of innovation emphasizes the roles of communication channels, leadership influence, and social systems in shaping how individuals adopt technological practices (Al-Rahmi et al., 2019; Taherdoost, 2018). In educational settings, this theory provides a valuable framework for examining how school leaders promote the adoption of digital initiatives and support teachers in integrating technology into teaching and learning processes.

In the context of this study, Diffusion of Innovation Theory helps explain how school administrators, as change agents, influence the adoption of digital leadership practices within their institutions. School heads play a significant role in introducing technological innovations, encouraging professional development, and creating a supportive environment that fosters the use of digital tools for communication, collaboration, and instructional improvement. Studies have shown that leadership support is a critical factor in the successful implementation of digital initiatives in schools, as it motivates teachers to adopt innovative practices and enhances their readiness to utilize technology effectively (Petko et al., 2018; Scherer et al., 2019). Furthermore, the theory also supports the development of teachers' digital citizenship skills. As digital practices are gradually introduced and reinforced within the school environment, teachers become more exposed to responsible technology use, ethical online behavior, and effective digital communication. Research indicates that institutional leadership and supportive school cultures significantly influence teachers' ability to develop and sustain digital competencies necessary for responsible participation in digital environments (Instefjord & Munthe, 2020; Redecker, 2020). Thus, Diffusion of Innovation Theory provides a strong theoretical lens for examining how digital leadership practices of school heads contribute to the diffusion and adoption of digital citizenship skills among teachers. By understanding how innovations are introduced, communicated, and adopted within schools, this framework helps explain how leadership practices can foster a technology-driven educational environment that promotes responsible and effective digital engagement.

Digital leadership practices have become increasingly important in modern educational settings as schools continue to integrate technology into teaching, learning, and administrative processes. Digital leadership refers to the ability of school leaders to strategically use digital technologies to improve communication, collaboration, innovation, and overall educational effectiveness. In the context of educational leadership, digital leaders guide schools in adapting to rapid technological changes while promoting a culture that supports digital learning, responsible technology use, and continuous professional development. Recent studies emphasize that effective digital leadership is critical in fostering innovative teaching practices, improving organizational communication, and enhancing the overall digital readiness of teachers and learners (Dexter, 2018; Scherer et al., 2021).

One of the core dimensions of digital leadership is communication, which involves the strategic use of digital platforms to facilitate timely, transparent, and effective information sharing among teachers, students, parents, and the broader school community. Digital communication tools such as learning management systems, school websites, and social media platforms allow school leaders to maintain open communication channels and ensure that stakeholders remain informed and engaged in school initiatives. Effective digital communication also supports collaboration and strengthens relationships within the educational community (Trust, 2018).

Another important dimension is public relations, which involves utilizing digital platforms to highlight school achievements, programs, and initiatives. School leaders who effectively manage digital public relations can build trust, credibility, and positive relationships with stakeholders by showcasing the accomplishments of teachers and students through online platforms. Digital public relations also strengthens the school's visibility and fosters community support for educational programs (Scherer et al., 2021). Closely related to this is branding, which refers to establishing a strong and recognizable identity for the school through digital channels. Through strategic digital branding, school leaders can promote the school's mission, values, and achievements, helping the institution maintain a positive reputation in the community (Carver, 2020).

Digital leadership also emphasizes professional growth and development, which focuses on encouraging teachers to continuously enhance their digital competencies through training, collaboration, and professional learning networks. School leaders play a vital role in facilitating opportunities for teachers to participate in technology-related professional development that strengthens their ability to integrate digital tools into instruction (Instefjord & Munthe, 2020). Another dimension is student engagement and learning, which involves integrating technology into instructional practices to create interactive, meaningful, and student-centered learning experiences. Digital leadership supports the use of innovative teaching strategies that encourage active participation and critical thinking among learners (Bond, 2020). Additionally, opportunity refers to the ability of school leaders to recognize and maximize digital tools that expand access to educational resources, partnerships, and collaborative learning opportunities for both teachers and students (Scherer et al., 2021). Lastly, learning environment and spaces focus on transforming both physical and virtual learning environments to support technology integration, collaboration, and the development of 21st-century skills. School leaders who prioritize digital learning environments create spaces that encourage innovation, flexibility, and effective technology use in teaching and learning (Dexter, 2018).

It is noted that digital leadership practices play a crucial role in shaping how schools adapt to technological advancements and support teachers in developing digital competencies necessary for effective teaching and responsible participation in the digital world. Digital citizenship skills have become an essential component of education in the digital age as teachers and learners increasingly interact, communicate, and access information through online platforms and technological tools. Digital citizenship refers to the responsible, ethical, and effective use of technology in digital environments. It encompasses a set of competencies that enable individuals to navigate the digital world safely, critically, and productively. In educational settings, teachers play a vital role in modeling responsible technology use and guiding learners in developing appropriate digital behaviors. Recent studies emphasize that strengthening teachers' digital citizenship skills helps promote ethical online conduct, protect digital privacy, and support effective participation in digital learning communities (Choi et al., 2018; Jones & Mitchell, 2019).

One of the fundamental dimensions of digital citizenship is digital access, which refers to the equitable opportunity for individuals to participate in the digital world by having access to digital tools, devices, and internet connectivity. In schools, digital access ensures that teachers and students can utilize technological resources necessary for communication, information retrieval, and instructional activities. Ensuring equitable digital access helps reduce the digital divide and supports inclusive learning opportunities for all members of the school community (Van Dijk, 2020). Another important dimension is digital communication, which involves the effective and responsible use of digital platforms to exchange information and collaborate with others. Teachers utilize digital communication tools such as emails, online learning management systems, and virtual classrooms to facilitate interaction with students, colleagues, and parents. Effective digital communication also requires awareness of appropriate online behavior and the ability to use digital tools efficiently to support teaching and learning processes (Choi et al., 2018).

Digital literacy is also a critical component of digital citizenship. It refers to the ability to locate, evaluate, analyze, and utilize digital information responsibly. Teachers with strong digital literacy skills are able to critically assess the credibility of online sources, integrate digital content into instruction, and guide students in developing information evaluation skills. Developing digital literacy is particularly important in combating misinformation

Another key dimension is digital etiquette, which refers to the standards of respectful and responsible behavior when interacting in online spaces. In educational contexts, digital etiquette encourages teachers and students to maintain professionalism, respect, and courtesy in digital communication. Practicing appropriate online conduct fosters positive digital interactions and helps maintain a safe and respectful learning environment (Jones & Mitchell, 2019). The dimension of digital health and wellness focuses on maintaining physical, psychological, and emotional well-being while using digital technologies. Excessive use of digital devices may lead to issues such as eye strain, digital fatigue, and stress. Teachers who understand digital health and wellness promote balanced technology use and encourage healthy digital habits among students (Hale & Guan, 2019).

Lastly, digital security refers to the ability to protect personal information and maintain safety in digital environments. This includes understanding online risks, safeguarding digital identities, and implementing protective measures such as strong passwords and secure data practices. Teachers who possess strong digital security awareness are better equipped to protect themselves and guide students in maintaining safe digital practices (Livingstone et al., 2018). It is also noted by the current researcher that digital citizenship skills are crucial for ensuring that teachers and learners can responsibly navigate the digital world. Strengthening these competencies supports ethical technology use, promotes safe online behavior, and enhances the effectiveness of digital learning environments.

This study assumes that there is a meaningful relationship between the digital leadership practices of school administrators and the digital citizenship skills of teachers. It is presumed that effective digital leadership—manifested through communication, public relations, branding, professional growth and development, student engagement and learning, opportunity, and learning environment and spaces—can influence and support the development of teachers' competencies in digital access, digital communication, digital literacy, digital etiquette, digital health and wellness, and digital security. The study also assumes that school leaders who actively promote digital initiatives and provide supportive technological environments can positively contribute to teachers' responsible, ethical, and effective use of digital tools in educational settings.

3. Methodology

Research Design. The study employed a quantitative descriptive-correlational research design to examine the digital leadership practices of secondary school heads and their relationship with teachers' digital citizenship skills in Santa Fe District. The descriptive component determined the level of digital leadership practices across communication, public relations, branding, professional growth and development, student engagement and learning, opportunity, and learning environment and spaces. It also assessed teachers' digital citizenship skills in terms of digital access, communication, etiquette, health and wellness, literacy, and security. The correlational component examined the strength and direction of the relationship between digital leadership practices and teachers' digital citizenship skills without manipulating the study variables. This design was appropriate for examining naturally occurring relationships within the educational setting. Quantitative methods also enabled the systematic measurement and statistical analysis of the study variables (Leedy & Ormrod, 2015; American Psychological Association, 2020).

Research Setting. The study was conducted in two public secondary schools in Santa Fe District under the Department of Education: Canabuan National High School (NHS) and Santa Fe National High School (NHS). The two schools represented different organizational contexts in terms of school size, teaching personnel, and student population. Canabuan NHS had 18 teachers and approximately 322 students, while Santa Fe NHS had 53 teachers and 1,281 students. The inclusion of these schools provided a setting that represented both relatively small and large public secondary school environments. These differences offered an appropriate context for examining how digital leadership practices operate across varying organizational and technological conditions. Both schools were engaged in technology-supported teaching, digital communication, professional collaboration, and other

educational technology initiatives. The setting was therefore considered appropriate for investigating the relationship between school heads' digital leadership practices and teachers' digital citizenship skills.

Participants and Sampling. The study involved 61 teacher-respondents from a total population of 71 teachers, representing 85.92% of the teacher population in the two participating schools. The sample size was determined using the Raosoft Online Sample Size Calculator. A multistage sampling procedure consisting of stratified sampling and simple random sampling was employed. Each school served as a stratum to ensure proportional representation. Within each stratum, teachers were selected through simple random sampling, giving each teacher an equal probability of participation and minimizing selection bias. As shown in Table 1, 15 of the 18 teachers from Canabuan NHS participated in the study, representing 24.59% of the respondents, while 46 of the 53 teachers from Santa Fe NHS participated, representing 75.41%.

Table 1
Frequency and Percentage Distribution of Respondents by School

School	Total Teachers	Respondents	Percentage
Canabuan NHS	18	15	24.59%
Santa Fe NHS	53	46	75.41%
Total	71	61	100.00%

Research Instruments. Two validated questionnaires were used to collect the data.

The *Digital Citizenship Skills Questionnaire* consisted of 36 items developed and validated by Vadil and Tallungan (2023). The instrument obtained a split-half reliability coefficient of 0.892, indicating high internal consistency. It measured digital citizenship skills in six dimensions: digital access, digital communication, digital literacy, digital etiquette, digital health and wellness, and digital security. The instrument was informed by Ribble's (2015) framework on digital citizenship. Responses were rated using a four-point scale from 1 (Seldom) to 4 (Always). The resulting mean scores were interpreted as Seldom/Poor (1.00–1.49), Sometimes/Good (1.50–2.49), Often/Very Good (2.50–3.49), and Always/Excellent (3.50–4.00). Negatively worded items were reverse-scored.

The *Digital Leadership Practices Questionnaire* consisted of 42 items developed and validated by Lanuza-Quimson et al. (2024), with a reported Cronbach's alpha of 0.874. Based on the framework of Sheninger (2014), the instrument assessed communication, public relations, branding, professional growth and development, student engagement and learning, opportunity, and learning environments and spaces. Responses were measured using a five-point scale ranging from 1 (Never) to 5 (Always). Mean scores were interpreted as Never/Very Poor DLP (1.00–1.49), Seldom/Poor DLP (1.50–2.49), Sometimes/Good DLP (2.50–3.49), Often/Very Good DLP (3.50–4.49), and Always/Excellent DLP (4.50–5.00).

Data Collection Procedure. Prior to data collection, formal permission was obtained from the District Supervisor of Santa Fe District through an official request endorsed by the Dean of the College of Teacher Education. Coordination with the school heads was subsequently undertaken to facilitate the administration and retrieval of the questionnaires. The respondents were informed about the purpose, scope, and procedures of the study before participating. Participation was voluntary, and informed consent was secured. Ethical principles concerning confidentiality, anonymity, privacy, and the right to withdraw were observed throughout the research process. The respondents were encouraged to provide honest responses, and adequate time was provided for completion of the instruments. After retrieval, the questionnaires were checked, organized, coded, and tabulated. The resulting data were subjected to appropriate statistical analyses corresponding to the research questions.

Data Analysis. Descriptive and inferential statistical procedures were employed to analyze the data. The mean was used to determine the levels of digital leadership practices of school heads and teachers' digital citizenship skills. This measure provided an overall description of respondents' assessments across the identified dimensions.

The Spearman's rank-order correlation coefficient (Spearman's rho) was used to determine the strength and direction of the relationship between digital leadership practices and teachers' digital citizenship skills. This nonparametric procedure was appropriate for determining associations between the study variables based on the ordinal nature of the questionnaire responses. Statistical significance was evaluated to determine whether the observed relationships were statistically meaningful.

Ethical Considerations. The study adhered to established ethical principles governing research involving human participants. Respondents were provided with sufficient information about the study and participated voluntarily through informed consent. Confidentiality and anonymity were maintained by ensuring that individual responses and identities were not disclosed. The collected information was used exclusively for academic purposes and was handled in accordance with applicable institutional and research ethics requirements. Overall, the methodological procedures provided a systematic framework for assessing digital leadership practices and teachers' digital citizenship skills and for determining the relationship between these variables within the selected public secondary schools in Santa Fe District.

4. Conclusions

1. The school administrators demonstrated a generally very good level of digital leadership practices, indicating that they are effectively utilizing digital tools and strategies to support communication, professional development, stakeholder engagement, instructional innovation, and the creation of technology-enhanced learning environments within their schools.
2. The teacher-respondents demonstrated a generally very good level of digital citizenship skills, indicating that they possess adequate competencies in the responsible, ethical, and effective use of digital technologies across various dimensions, including communication, access, etiquette, literacy, health and wellness, and security.
3. There is no significant relationship between school administrators' digital leadership practices and teachers' digital citizenship skills, indicating that improvements or variations in leadership practices do not necessarily translate into corresponding changes in teachers' digital citizenship competencies within the current context.
4. Two training designs were developed based on the significant findings of the study, aimed at enhancing school heads' digital leadership capacities and strengthening teachers' digital citizenship skills in support of more effective and responsible digital learning environments.

Recommendations

1. School administrators may sustain and further enhance their digital leadership practices by regularly integrating structured digital leadership planning, with emphasis on strengthening communication systems, data-driven decision-making, and stakeholder engagement to support more responsive and technology-driven school management.
2. Teachers may continuously improve their digital citizenship skills through sustained participation in school-based and self-directed professional development programs focusing on responsible technology use, digital literacy, cybersecurity awareness, ethical online behavior, and critical evaluation of digital information.
3. Schools may establish stronger alignment between digital leadership practices and teacher development initiatives by promoting collaborative programs that ensure leadership strategies are effectively translated into meaningful support for teachers' digital citizenship development.
4. The proposed training designs—*Digital Leadership Enhancement Program for School Heads* and

Digital Citizenship Empowerment Program for Teachers—may be implemented through structured in-service training sessions, workshops, and learning action cells, with continuous monitoring and follow-up activities to ensure practical application in school settings.

5. Future researchers are recommended to replicate this study in other contexts and extend it by incorporating additional variables such as institutional support, teacher motivation, ICT training exposure, and technological readiness, and by employing a qualitative research design to explore deeper lived experiences and contextual factors influencing digital leadership and digital citizenship.

5. References

- Abella, J. L., & Dela Rosa, E. (2023). Digital literacy and digital competence of selected Filipino teachers: Basis for a post-pandemic pedagogy. *International Journal of Recent Educational Research*, 4(5).
- Al-Fraihat, D., Joy, M., & Sinclair, J. (2021). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior*, 102, 67–86. <https://doi.org/10.1016/j.chb.2019.08.004>
- Al-Rahmi, W. M., Alias, N., Othman, M. S., Marin, V. I., & Tur, G. (2019). A model of factors affecting learning performance through the use of social media in Malaysian higher education. *Computers & Education*, 121, 59–72. <https://doi.org/10.1016/j.compedu.2018.12.002>
- Antia, J. C., & Dioso, E. D. (2023). The impact of digital literacy of school heads on their performance as school leaders. *EPRA International Journal of Multidisciplinary Research*, 9(7), 214–220.
- Avolio, B. J., Sosik, J. J., Kahai, S. S., & Baker, B. (2020). Leadership in the digital age: A review and research agenda. *The Leadership Quarterly*, 31(1), 101–118.
- Baldera, J. (2024). Digital leadership pioneers: Navigating outstanding school principals' successes in the evolving educational landscape. *International Journal of Learning, Teaching and Educational Research*.
- Belano, H. D., & Aclao, J. T. (2025). Digital citizenship and leadership: How school heads promote safe and inclusive digital learning environments. *International Journal of Research and Innovation in Social Science*.
- Bond, M. (2020). Facilitating student engagement through the flipped learning approach in K–12: A systematic review. *Computers & Education*, 151, 103819. <https://doi.org/10.1016/j.compedu.2020.103819>
- Brown, T. (2023). Integrating digital citizenship into expert teaching practices. *Journal of Educational Technology Studies*, 18(2), 45–58.
- Capuno, R., Necesario, R., Etcuban, J., Espina, R., Padillo, G., & Manguilimotan, R. (2022). Attitudes, study habits, and academic performance of junior high school students in the new normal. *International Journal of Learning, Teaching and Educational Research*, 21(3), 1–17.
- Carver, L. B. (2020). School branding and social media: Educational leadership in the digital age. *Educational Management Administration & Leadership*, 48(3), 484–500. <https://doi.org/10.1177/1741143218792911>
- Çemçem, Ö., Yıldız, E., & Kılınç, E. (2023). Digital citizenship, digital fluency and digital wisdom among pre-service teachers. *Education and Information Technologies*, 28, 4531–4547.
- Choi, M., & Park, S. (2023). Digital citizenship profiles and internet ethics among adolescents. *Computers & Education*, 194, 104704.
- Choi, M., Glassman, M., & Cristol, D. (2018). What it means to be a citizen in the internet age: Development of a reliable and valid digital citizenship scale. *Computers & Education*, 107, 100–112. <https://doi.org/10.1016/j.compedu.2017.12.002>
- Cinense, J. C., & Vadil, C. F. (2024). Interplay between digital citizenship skills and teaching styles of public elementary school teachers in Quezon District, Nueva Vizcaya. *International Journal of Research Studies in Education*, 13(8), 101–122.
- De Los Reyes, M. A., & Paglinawan, J. L. (2024). Work adaptability and leadership competence on the digital fluency of school administrators. *International Journal of Research and Innovation in Social Science*, 8(14), 417–431.

- Del Castillo, F., & Caballero, J. (2021). Digital citizenship practices and implementation of learning modalities in higher education institutions under the new normal. *JPAIR Institutional Research Journal*.
- Delgado, D. E. (2024). School heads' digital leadership and its impact on technology integration in the public schools of Lucena City Division.
- Delizo, J. J., & Vadil, C. F. (2025). School administrators' digital leadership practices and organizational agility: The case of Dupax del Norte I District. *International Journal of Research Studies in Education*, 14(15), 247–262.
- Dexter, S. (2018). The role of leadership for information technology in education: Systems of practices. *Educational Administration Quarterly*, 54(4), 1–33. <https://doi.org/10.1177/0013161X18769095>
- Erdem, C., Koçyiğit, M., & Yılmaz, E. (2023). The mediating role of digital literacy in the relationship between media literacy and digital citizenship. *Education and Information Technologies*, 28, 13215–13230.
- Falloon, G. (2020). From digital literacy to digital competence: The teacher digital competency framework. *Educational Technology Research and Development*, 68(5), 2449–2472. <https://doi.org/10.1007/s11423-020-09767-4>
- García-Peñalvo, F. J., Corell, A., Abella-García, V., & Grande-de-Prado, M. (2019). Digital competence in higher education: The role of digital citizenship. *Education in the Knowledge Society*, 20, 1–19. <https://doi.org/10.14201/eks.21034>
- Hale, L., & Guan, S. (2019). Screen time and sleep among school-aged children and adolescents: A systematic literature review. *Sleep Medicine Reviews*, 21, 50–58. <https://doi.org/10.1016/j.smrv.2018.01.007>
- Hensellek, S. (2020). Digital leadership: A framework for successful leadership in the digital age. *Journal of Leadership Studies*, 14(4), 55–62.
- Instefjord, E. J., & Munthe, E. (2020). Preparing pre-service teachers to integrate technology: An analysis of the emphasis on digital competence in teacher education curricula. *European Journal of Teacher Education*, 43(1), 70–86. <https://doi.org/10.1080/02619768.2019.1694663>
- Jones, L. M., & Mitchell, K. J. (2019). Defining and measuring youth digital citizenship. *New Media & Society*, 21(9), 2063–2079. <https://doi.org/10.1177/1461444819876229>
- Karakose, T., Yirci, R., & Papadakis, S. (2021). Exploring the interrelationship between digital leadership and school effectiveness. *Education and Information Technologies*, 26(6), 1–20.
- Kroker, C. (2018). Leading digital transformation in schools: Opportunities and risks for school leaders. *Educational Management Administration & Leadership*, 46(3), 1–16.
- Livingstone, S., Stoilova, M., & Kelly, A. (2018). The class: Living and learning in the digital age. *New Media & Society*, 20(3), 1–19. <https://doi.org/10.1177/1461444816685938>
- Mahadir, N. A., Hussin, S., & Zaini, N. (2021). Digital citizenship skills among undergraduate students in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 11(6), 1235–1246.
- Martin, F., Gezer, T., & Wang, C. (2020). Educators' perceptions of digital citizenship in K–12 education. *Educational Technology Research and Development*, 68, 2159–2179.
- Nguyen, T., Barton, R., & Nguyen, H. (2020). Digital leadership in schools: A systematic literature review. *Education and Information Technologies*, 25(6), 5419–5446. <https://doi.org/10.1007/s10639-020-10255-2>
- O'Dwyer, L. M., Russell, M., Bebell, D., & Tucker-Seeley, K. (2018). Examining the relationship between principal leadership and teachers' technology integration. *Computers & Education*, 120, 30–42. <https://doi.org/10.1016/j.compedu.2018.01.010>
- Palaz, T., Koc, T., & Ozdemir, M. (2022). A bibliometric analysis of digital citizenship studies in education research. *Sustainability*, 14(8), 4562.
- Parviainen, P., Tihinen, M., Kääriäinen, J., & Teppola, S. (2017). Tackling the digitalization challenge: How to benefit from digitalization in practice. *International Journal of Information Systems and Project Management*, 5(1), 63–77.
- Petko, D., Prasse, D., & Cantieni, A. (2018). The interplay of school readiness and teacher readiness for educational technology integration. *Computers in Human Behavior*, 58, 229–239.

- <https://doi.org/10.1016/j.chb.2015.02.021>
- Rahim, M., & Zare, M. (2021). Digital citizenship and its impact on educational development: A review study. *International Journal of Instructional Technology and Educational Studies*, 2(1), 15–22.
- Redecker, C. (2020). The European framework for the digital competence of educators: DigCompEdu. *European Journal of Education*, 55(1), 1–12. <https://doi.org/10.1111/ejed.12389>
- Ribble, M. (2015). *Digital citizenship in schools: Nine elements all students should know* (3rd ed.). International Society for Technology in Education.
- Rivamonte, J. P., & Santos, J. M. (2025). Digital pedagogy: An analysis of the digital competency level of teachers and learners in selected Philippine public schools. *INTI Journal*.
- Roberts, L. (2023). Facilitator teaching style and digital citizenship development among students. *Journal of Digital Learning in Teacher Education*, 39(2), 67–78.
- Rodriguez, P. (2023). Experiential digital citizenship learning through personal model teaching style. *Journal of Educational Research and Practice*, 13(1), 112–125.
- Samanbutr, N., & Sutsavade, N. (2024). Digital leadership of school administrators and effectiveness of schools. *Procedia of Multidisciplinary Research*.
- Sánchez-Cruzado, C., Meneses, E., & González-Sanmamed, M. (2021). Digital competence of teachers and students in higher education during COVID-19. *Education Sciences*, 11(8), 400.
- Santos, R. (2023). Delegator teaching style and digital citizenship development among Filipino learners. *Philippine Journal of Education*, 98(1), 55–69.
- Saraih, U. N., Aris, A. Z., Sakdan, M. F., & Amlus, M. H. (2022). Digital leadership and student engagement in technology-driven learning environments. *International Journal of Educational Management*, 36(4), 569–583.
- Scherer, R., Siddiq, F., & Tondeur, J. (2021). The technology acceptance model in educational technology research: A meta-analysis. *Computers & Education*, 128, 13–35. <https://doi.org/10.1016/j.compedu.2018.09.009>
- SEAMEO. (2021). *Digital Kids Asia Pacific (DKAP): Digital citizenship among students in Southeast Asia*. Southeast Asian Ministers of Education Organization.
- Sheninger, E. (2014). *Digital leadership: Changing paradigms for changing times*. Corwin Press.
- Sheninger, E. (2022). *Disruptive thinking in our classrooms*. Corwin Press.
- Shi, Y., Zhang, L., & Wang, H. (2023). Digital citizenship research from 2010–2020: A systematic review. *Educational Technology Research and Development*, 71(2), 765–789.
- Suson, R. L. (2019). Appropriating digital citizenship in the context of basic education. *IOER International Multidisciplinary Research Journal*.
- Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. *Procedia Manufacturing*, 22, 960–967. <https://doi.org/10.1016/j.promfg.2018.03.137>
- Tanucan, J. C. M., Negrado, C. V., & Malaga, G. N. (2022). Digital leadership of school heads and job satisfaction of teachers in the Philippines during the pandemic. *International Journal of Learning, Teaching and Educational Research*, 21(3).
- Thompson, J. (2023). Structured digital citizenship instruction in formal authority teaching environments. *Computers in the Schools*, 40(1), 24–39.
- Trust, T. (2018). 2018 K–12 educators’ use of social media for professional learning. *Journal of Digital Learning in Teacher Education*, 34(4), 206–220. <https://doi.org/10.1080/21532974.2018.1492368>
- Van Dijk, J. (2020). *The digital divide*. Polity Press.
- Yusof, M. R., Zainuddin, Z., & Hamdan, A. (2019). Branding strategies in digital leadership for educational institutions. *International Journal of Educational Management*, 33(5), 1021–1035.