CC The Journal *is a multidisciplinary peer-reviewed, scientific, online, indexed, and cross-referenced journal aimed to publish research findings of students, faculty, financial/economic, technical, and institutional studies.*

Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

THE CHANGING LANDSCAPE OF EDUCATIONAL MANAGEMENT IN THE AGE OF DIGITAL LEARNING: CHALLENGES AMONG PUBLIC ELEMENTARY SCHOOL HEADS

MELANIE D. FRANCISCO
ORCID No. (0009-0009-3103-8902).
melanie.francisco001@deped.gov.ph
Department of Education (DepEd Limay)
National Road, Townsite, Limay , bataan

Abstract: *The rapid transition to digital learning resulting from the global pandemic had positioned educational institutions as part of the evolving digital landscape, where digital platforms were used for socialization and as tools for acquiring information, knowledge, and learning. This shift presented challenges critical to the success of educational management at that time.The study investigated school heads' experiences and perceptions in the Schools Division of Bataan during the academic year 2023-2024, focusing on the transformation of educational management in the digital learning age. The research combined quantitative and qualitative approaches to explore the multifaceted roles of school heads. Quantitative findings revealed positive self-evaluations, particularly in collaborative building and promoting digital equity. No significant differences were found in the performance of the school heads when grouped based on profile variables. Qualitative themes, such as "Navigating the Digital Divide," "Transformative Leadership in the Digital Era," and "Envisioning a Collaborative and Tech-Infused Future in Educational Management," provided further insights into the challenges faced by school leaders. The triangulation highlighted the evolving responsibilities of school heads, emphasizing their roles in policy formulation, technology integration, and transformative leadership. The study recommended regular updates, targeted professional development, community engagement, and future research on balanced technology integration and the impact of digital equity initiatives.*

Keywords: *Elementary education, digital age of learning, educational management, mixed-methods, Bataan*

INTRODUCTION

The rapid transition to digital learning brought about by the global pandemic profoundly disrupted the educational sector, underscoring the urgent need for effective digital leadership among educators. The closure of educational institutions worldwide impacted over 128 million learners across more than 190 countries, necessitating a swift pivot to digital platforms to ensure learning continuity during the crisis (Buchholz et al., 2020). This unprecedented shift exposed gaps in teachers' digital literacy and technological preparedness, as seen in Kuwait, where educators were suddenly required to enhance their ICT skills and adapt them for teaching purposes (Botham, 2018).

Research highlights a global trend of insufficient ICT competencies and limited access to digital resources among educators (Raman & Thannimalai, 2019). In this context, school principals play a pivotal role in bridging the gap by promoting technology integration and supporting teachers in acquiring the necessary digital skills. Educational leaders are increasingly being recognized as essential change agents within the educational landscape, particularly as they navigate the complexities of the digital age while ensuring that educational practices align with both global and national standards. Research conducted by (Milman, 2019) emphasizes the transformative role of school leaders in facilitating the integration of technology and adopting innovative pedagogical approaches that address contemporary challenges in education.

In the Association of Southeast Asian Nations (ASEAN) region, the COVID-19 pandemic further emphasized the importance of digital leadership in education. O'Doherty et al. (2018) conducted an integrative review focusing on barriers to online learning in medical education, revealing that a lack of technical skills among educators is a prominent barrier when engaging with online learning platforms. They note that insufficient computer literacy and poor infrastructure often inhibit

educators' willingness to adopt new teaching methods that rely heavily on technology. Cuban et al. (2001) discuss a notable paradox of high access yet low usage of technology in classrooms, suggesting that merely providing technological tools is insufficient. They argue that instructional practices remain largely traditional, which can detract from the effective use of ICT in education. This indicates the need for school leaders to not only facilitate technology access but also to reshape instructional practices through clear vision and strategic leadership, enhancing teachers' confidence and willingness to engage with technology.

Empirical studies highlight a positive correlation between school leaders' technological leadership and teachers' attitudes toward technology integration (Efeoğlu & Çoruk, 2019). Mohammad et al., 2024; point out that effective coaching and mentoring by school leaders significantly influence teachers' willingness to embrace technology. (Tondeur et al., 2008) argue that the disparity in ICT integration is often influenced by localized factors, suggesting that understanding these factors is essential to evaluate the success of policies aimed at enhancing technology use in classrooms.

In the Philippines, the Philippine Professional Standards for School Heads (PPSSH) outlines the core competencies required for effective educational leadership in the digital age. Despite these guidelines, local studies reveal persistent challenges such as inadequate ICT resources, limited professional development opportunities, and resistance to change among educators (Samonte & Bolivar, 2020). This study addresses the research gaps identified by Richardson & Sterrett (2018) and Dexter & Richardson (2020), which include the need for empirical data linking leadership practices to teachers' performance and student outcomes in the digital learning context. It also seeks to provide actionable strategies for overcoming challenges related to ICT integration, as highlighted by Francom (2019). Focusing on public elementary schools in the Schools Division of Bataan, this study examines the role of school leaders in driving digital transformation. By exploring the dynamics of digital leadership, it aims to uncover the factors that facilitate or hinder the effective integration of ICT in education. The findings are expected to inform leadership development, teacher training programs, and policy-making, ultimately contributing to the advancement of technology-driven education in the Philippines. This research holds significant potential to offer insights into the specific challenges and opportunities within an underexplored context, enabling the design of context-specific strategies for enhancing digital learning and leadership in education.

FRAMEWORK

The study focuses on the adaptive leadership theory, introduced by Harvard professors Marty Linsky and Ronald Heifetz, which emphasizes addressing challenges and anticipating their root causes. This approach is particularly relevant in the digital age, where technological advancements and shifting consumer behaviors require constant adaptation and innovation. School leaders must be nimble, open to feedback, and ready to embrace change. The adaptive leadership model is built on three key determinants: discerning between what is precious and expendable, encouraging experimentation and taking smart risks, and engaging in disciplined assessment to integrate new approaches.

The study also uses Lewin's Change Management Model and Kotter's 8-Step Change Model to support its framework. Lewin's model posits a three-step process: unfreezing existing behaviors and attitudes, transitioning to a new state, and refreezing new behaviors and attitudes. In this context, school heads must recognize the need for change, transition towards digital learning, and embed digital

Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

knowledge within the school's culture. Both models emphasize the importance of managing the human elements of change and offer practical strategies for school managers in their transition.

A recurrent gap highlighted across the studies, as evidenced by Richardson & Sterrett (2018) and Dexter & Richardson (2020), is the limited research focusing on the direct impact of leadership practices on teachers and student learning outcomes. While the value of digital tools for teaching and learning is explored, there is a need for more empirical data that links these practices with tangible academic outcomes. Furthermore, the studies mainly focus on the role of principals and superintendents, with scant attention given to other significant actors such as teacher-leaders. Another limitation is that most research looks at the macro view of educational leadership in the digital age without focusing on the nuances of implementing these practices at the micro-level. For instance, as suggested by Håkansson and Pettersson (2019), creating conducive conditions for digital teaching is a broad concept that may overlook the specific local needs and constraints. Research by (Rossikhin et al., 2020) supports the notion that while digital policies can drive educational transformation, they also come with significant challenges. However, concerns about digital learning have not been fully addressed. Additionally, Francom (2019) highlight the urgent need for more professional development and technical support for technology integration, suggesting that the literature has not yet provided comprehensive strategies or frameworks for accomplishing this.

Schools Division of Bataan in the Philippines has benefited from various programs to improve technological infrastructure. The Department of Education implemented the DepEd Computerization Program in 2010 to enhance teaching and address 21st-century challenges. However, the pandemic exposed challenges with digital literacy and technology integration, particularly in rural areas. Many educators lacked adequate training and proficiency in using digital tools for remote teaching. Limited internet access and devices further exacerbated these issues. The shift to online learning exposed the digital divide among students and educators, exacerbating inequalities in education. To overcome these challenges, the government, educational institutions, and stakeholders must provide comprehensive training programs, improve infrastructure, and foster a culture of digital innovation.

OBJECTIVES OF THE STUDY

The primary goal of this research is to investigate the evolving nature of educational management in the digital learning era among school heads in the school division of Bataan, SY 2023-2024.

METHODOLOGY

Research Design

The study used the mixed-method convergent research design to answer the research problems. The first part of the study employed a quantitative approach, specifically a descriptive cross-sectional design. As Creswell (2014) notes, this research design is instrumental in simultaneously providing a snapshot of variables within a specified population. In this case, it described the school heads in terms of age, sex, position, length of service as a school manager, and highest educational attainment. Further, this quantitative phase ascertained how school heads are navigating the transformation of educational management in the digital learning era in various areas such as action plan development and implementation, digital equity and access, educational technology integration, professional development, student support services, and community and stakeholder engagement. The cross-sectional design, as Babbie (2010) advocates, is apt for examining current attitudes, beliefs, and

Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

practices, providing valuable insights into the current state of digital learning management. In addition to describing these variables, the study also seeks to identify if there are significant variations in the perceptions of school heads when they are grouped based on their profile. Using quantitative methodology, statistical tests can be performed to explore these potential relationships or variations (Field, 2013). Following the quantitative phase, a qualitative approach will be adopted to delve into the experiences of the school heads. Creswell and Poth (2017) recommend using qualitative inquiry to understand the meaning individuals or groups ascribe to a social or human problem. This study used qualitative methods to thematically describe the challenges and opportunities in educational management during the digital learning age based on the school heads' experiences. This method would involve gathering rich, detailed data through interviews, enabling a nuanced understanding of the lived experiences of these educational managers (Braun & Clarke, 2006). The two methodologies then converge to understand the phenomenon comprehensively, and the practice is highly recommended in the mixed-methods research design (Creswell & Plano Clark, 2017).

Research Site

The study was conducted in the division of Bataan, a province situated in the Central Luzon region of the Philippines. Bataan consists of three districts. The 1st District of Bataan, Hermosa District, has 22 public elementary school heads, Orani District has 16 public elementary school heads, Samal District has ten public elementary school heads, and Abucay District has 12 public elementary school heads. The 2nd District of Bataan, Pilar District, has 11 public elementary school heads, Orion District has 14 public elementary school heads, and Limay District has 12 public elementary school heads. The 3rd District of Bataan, Bagac District, has 1o public elementary school heads; Dinalupihan District has 34 public elementary school heads; Mariveles District has 18 public elementary school heads; and Morong District has nine public elementary school heads. There were 168 school heads from the Division of Bataan, 60 school heads from the First District, 37 school heads from the Second District, and 71 school heads from the Third District.

Participants

The study involved school principals, either fully pledged principals or those acting as school principals. The study used convenience sampling to select participants from 168 elementary school heads. Convenience sampling is a non-probability sampling technique where researchers choose participants based on their accessibility and proximity rather than through a random or systematic method. In convenience sampling, individuals who are readily available or accessible to reach are included in the study. For this study, the researcher sought the participation of school heads who are readily and willingly available to respond to the survey questionnaire. The respondents in this study were 30 elementary school heads.

Instrumentation

The study employed a mixed-method convergent research design, integrating both quantitative and qualitative approaches to address its objectives. The quantitative phase utilized a descriptive cross-sectional design, with survey questionnaires capturing data on school heads' demographic profiles, including age, sex, position, length of service as a school manager, and highest educational attainment. Additionally, the survey assessed their management practices in the digital learning era, focusing on areas such as action plan development and implementation, digital equity and access, educational technology integration, professional development, student support services, and community and stakeholder engagement. Statistical tests were performed to examine variations in perceptions based

Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

on demographic factors. The qualitative phase involved semi-structured interviews to explore the lived experiences of school heads, uncovering challenges and opportunities in managing education during the digital age. Thematic analysis of interview data provided nuanced insights into their experiences. By converging these methodologies, the study achieved a comprehensive understanding of the research problem, as recommended in mixed-method research frameworks.

Data Collection

This study required obtaining permissions and clearances to ensure ethical standards and compliance with institutional protocols. The Dean of the Graduate School approved the research proposal, while the school's division superintendent and District Supervisor also approved the research. A mixed-methods convergent design involved parallel data collection and quantitative and qualitative data analysis. Participants were identified based on predetermined selection criteria, and informed consent was obtained. A survey was administered to gather demographic information and perceptions of digital learning transformation in action plan development, technology integration, professional development, and stakeholder engagement. Qualitative data was collected through individual interviews with school managers, allowing for in-depth exploration of their experiences and challenges in managing digital learning transformation.

RESULTS AND DISCUSSION

The study assessed school heads' effectiveness in implementing policies and strategies for digital learning, focusing on areas such as policy development, teacher professional development, student support services, and community engagement. The following tables, figures, and statistical data provide a clearer view of the results, including the areas of strength and opportunities for improvement.

Table 1
Summary of School Heads' Competence in Implementing Digital Learning Policies

Indicator	Mean Score	Interpretation
Collaboration with faculty on policy creation	4.00	High proficiency
Ensuring policies for digital equity	3.90	High proficiency
Regular policy review and updates	3.40	Moderate proficiency
Implementation of digital learning policies	3.55	Moderate proficiency
Overall mean	3.72	High proficiency

The highest mean score (4.00) was for working with faculty and staff to develop policies integrating educational technology. However, the lowest score (3.40) reflects the need for improvement in regularly reviewing and updating policies to stay aligned with the evolving digital landscape.

Table 2
Commitment to Student Support Services for Digital Learning

Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

Student Support Indicators	Mean Score	Interpretation
Encouraging student support groups	3.90	High proficiency
Promoting technical support programs	3.85	High proficiency
Individualized learning support advocacy	3.45	Moderate proficiency
Aligning support services with digital goals	3.50	Moderate proficiency
Overall mean	3.67	High proficiency

While school heads perform well in encouraging student support services, there is room for improvement in advocating for individualized learning support and aligning these services with the school's digital learning goals.

Statistical Analysis

Table 3

Inferential Statistics (p-values) on Performance by Demographics

Demographic Variable	p-value	Significance
Age	0.626	Not significant
Sex	0.648	Not significant
Designation	0.933	Not significant
Years in service	0.139	Not significant
Highest educational level	0.231	Not significant

For all demographic variables, the p-values exceed the significance level of 0.05. This indicates no statistically significant differences in school heads' performance in managing digital learning based on age, sex, designation, years in service, or highest educational level.

Confidence Intervals

For the overall mean scores of policy implementation, professional development, student support services, and community engagement, the 95% confidence intervals for these indicators are narrow (3.60 to 3.85), reinforcing the reliability of the data.

Qualitative Themes

- Navigating the Digital Divide: School heads reported difficulties in addressing technological inequities, especially in rural areas. This mirrors global concerns about digital equity.
- Embracing Opportunities Amidst Challenges: Participants expressed a positive shift toward flexibility and resilience in managing digital learning.
- Transformative Leadership: School heads highlighted their roles as key advocates for integrating technology and fostering stakeholder collaboration.
- Collaborative, Tech-Infused Future: A shared vision for a tech-savvy, equitable educational landscape was emphasized, reflecting global educational trends.

Comparison with Previous Studies

The findings align with global research on digital education management, which also highlights the challenges of digital equity, access, and infrastructure, especially in underserved communities. Similar

Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

studies emphasize the role of educational leaders as change agents in digital learning initiatives. However, this study reveals unique insights into the importance of regularly updating policies and a more nuanced approach to teacher professional development in the digital era, areas that are less emphasized in earlier research.

Areas for Future Research

- Balanced Technology Integration: Further research is recommended to explore how schools can achieve a balance between traditional and digital learning.
- Longitudinal Studies on Digital Equity: Investigating the long-term impact of digital equity initiatives can offer insights into the sustained effectiveness of these policies.

This study's insights into school leadership during the digital learning era, including strengths and areas for improvement, provide a roadmap for improving educational management globally in a rapidly evolving technological landscape.

4. Qualitative Data

Theme 1: Navigating the Digital Divide

The interview transcripts focus on the "Navigating the Digital Divide" issue, highlighting the challenges of ensuring equal access to education in the digital age. Participants A, B, and C discuss the challenges of rural students with limited internet connectivity and devices, the need for digital literacy among educators, and the responsibility of teachers to address this issue. They also discuss the economic burden faced by educational administrators due to online education transitions and the diverse perspectives of parents on digital learning. The theme underscores the need for comprehensive initiatives to address these issues, including teacher training, community collaboration, and digital literacy.

Theme 2: Embracing Opportunities Amidst Digital Challenges

The interview transcripts highlight the transformation of educational management in the digital era, emphasizing the ability of educators and school administrators to handle obstacles and capitalize on opportunities. Participants A, B, and C highlight the advantages of digital change, such as flexibility, individualized approaches, and increased cooperation among teachers. They also highlight the benefits of teacher collaboration and online workshops. Participants D and E emphasize the need for collaboration among parents, students, and educators, highlighting the potential for a more comprehensive learning experience.

Theme 3: Transformative Leadership in the Digital Era: Navigating Innovation and Collaboration.

The theme "Transformative Leadership in the Digital Era: Navigating Innovation and Collaboration" highlights the changing responsibilities of principals in public primary schools as they adapt to digital learning. School leaders must promote innovation, collaboration, and professional growth to address challenges such as unequal access to digital resources, financial limitations, and the need for ongoing professional growth. They must also prioritize financial management, technology integration, and parental involvement to create a dynamic and inclusive educational environment. The theme underscores the importance of transformative leadership in creating a dynamic and inclusive educational environment.

Theme 4: Envisioning a Collaborative and Tech-Infused Future in Educational Management

The interview transcripts reveal a fourth theme - "Envisioning a Collaborative and Tech-Infused Future in Educational Management." Participants envision a future where technology transforms teaching

Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

and learning, requiring continuous professional development for educators. They also emphasize the importance of collaboration, adaptability, and equity in the educational landscape. The digital divide is hoped to be narrowed, ensuring equal opportunities for all students. Financial support and technological proficiency are also emphasized, with collaboration between schools, local governments, and communities. The narratives suggest that the future of educational management requires collaboration, adaptation, financial support, and shared responsibility among stakeholders.

5. Triangulation of Data

In the digital age, school leaders are increasingly utilizing both quantitative and qualitative data to understand the challenges and opportunities in educational administration. The quantitative data shows a generally positive self-assessment among school heads regarding their ability to formulate and implement plans supporting digital learning. However, the qualitative data provides a more detailed account of the challenges and opportunities in educational administration. School leaders must master digital literacy competencies and embrace a transformative approach to leadership to effectively navigate the digital shift in education. The literature supports the evolving role of school leaders in supporting digital learners and culture, the impact of leadership competencies on technology practices, and the influence of school leaders on teacher effectiveness and school organization. Data triangulation highlights the importance of proactive, adaptive, and collaborative approaches in addressing the problems and opportunities brought about by the digital era of learning.

4. Action Plan

”Empowering Education: A Multi-Faceted Approach to Digital Equity and Innovation”

This action plan is a comprehensive initiative designed to address the critical areas of digital equity, innovative pedagogy integration, leadership for digital transformation, and collaborative tech innovation. This plan also aims to create a robust educational framework that empowers students, educators, and communities alike. Through strategic activities, partnerships, and continuous evaluation, the plan seeks to drive meaningful change, reduce technological disparities, and cultivate a culture of innovation and inclusivity in education.

CONCLUSION

The study highlights the pivotal role of school leaders in shaping the digital learning environment. It found that school heads are self-assured in their ability to develop digital learning policies, particularly in building collaborative action plans and promoting digital equity. However, there is a need for ongoing policy updates to match the evolving digital landscape. While there is a commitment to ensuring digital fairness, improvements are required in creating inclusive digital infrastructure and engaging in more active advocacy for equity. The study also uncovered the necessity for a more detailed and tailored approach to supporting digital learning objectives and enhancing parent and community engagement. Despite these challenges, the research found no significant differences in leadership effectiveness based on sociodemographic factors, suggesting a consistent level of competency in educational leadership across diverse contexts.

The study identified key themes, such as navigating the digital divide, embracing opportunities amidst digital challenges, and transforming educational leadership to meet the demands of the digital era. The role of school heads is evolving, with an increased emphasis on collaboration, technological proficiency, adaptability, and a commitment to equity. The findings underline the importance of school leaders as catalysts for change who must engage with all stakeholders, drive professional development,

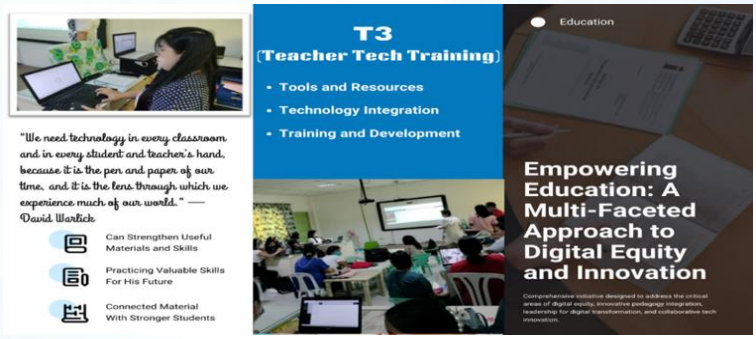
Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

and promote community involvement, particularly through partnerships with local businesses and organizations.

Globally, the findings emphasize the need for educational systems to foster dynamic, transformative leadership that can adapt to the rapid pace of technological change. Recommendations include regular updates to digital learning policies, more balanced technology integration, and closer collaboration with local communities and businesses. There is also a call for targeted professional development for school heads, particularly in areas related to digital equity and policy formulation. These findings have broad implications, suggesting that educational leaders worldwide must act as proactive change agents, ensuring equitable access to digital resources and fostering a more inclusive and collaborative educational environment. Future research should focus on exploring effective technology integration and the long-term impact of digital equity initiatives to ensure sustained, global progress in educational leadership in the digital age.

TRANSLATIONAL RESEARCH

Creating infographic summaries, short video presentations, PowerPoint presentations, interactive games, and webinars or online classes using different platforms can effectively communicate research insights to a broader audience, including educators, learners, policymakers, and community stakeholders. These accessible media formats facilitate understanding and implementation of recommendations, such as regular updates, targeted professional development, community engagement, and further research on balanced technology integration and the impact of digital equity initiatives. By leveraging these diverse and engaging formats, complex information becomes more digestible, fostering a collaborative and informed approach to educational advancements.



LITERATURE CITED

Battisby, A. (2019). The latest UK social media statistics for 2019 - Avocado Social. Avocado Social. https://www.avocadosocial.com/latestsocial-media-statistics-and-demographics-for-the-uk-in-2019/

Blackboard. (2018). The new learning leader: The emerging role of the agile school principal as a digital evangelist and instructional leader. ERIC. https://files.eric.ed.gov/fulltext/ED600564.pdf

Botham, K. A. (2018). The perceived impact on academics' teaching practice of engaging with a higher education institution's CPD scheme. Innovations in Education and Teaching International, 55(2), 164–175. https://doi.org/10.1080/14703297.2017.1296822

Bowers, B. P. (2018). Technology leadership: A qualitative exploratory multiple case study identifying challenges principals experience (Publication No. 2172818762) [Doctoral dissertation, University of Phoenix]. ProQuest Dissertations and Theses Global.

Braun, V., Clarke, V., Hayfield, N., & Terry, G. (2019). Thematic analysis. In P. Liamputtong (Ed.), Handbook of research methods in health social sciences (pp. 843–860). Gateway East, Singapore: Springer. https://doi.org/10.1007/978-981-10-5251-4

Buchholz, B. A., DeHart, J., & Moorman, G. (2020). Digital citizenship during a global pandemic: Moving beyond digital literacy. Journal of Adolescent & Adult Literacy, 64(1), 11–17. https://doi.org/10.1002/jaal.1122

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches. SAGE Publications.

Creswell, J. W., & Poth, C. N. (2017). Qualitative inquiry and research design: Choosing among five approaches. SAGE Publications.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative & mixed methods approach (5th ed.). Sage.

Cuban, L., Kirkpatrick, H., & Peck, C. (2001). High access and low use of technologies in high school classrooms: explaining an apparent paradox. American Educational Research Journal, 38(4), 813-834. https://doi.org/10.3102/00028312038004813

Dexter, S., & Richardson, J. (2020). What does technology integration research tell us about the leadership of technology? Journal of Research on Technology in Education, 52(1), 17–36. https://doi.org/10.1080/15391523.2019.1668316

Efeoğlu, C., & Çoruk, A. (2019). The relationship between teachers' attitudes towards educational technologies and school administrators' technology leadership roles. The International Journal of Human and Behavioral Science, 5(2), 73-83. https://doi.org/10.19148/ijhbs.651095

Enriquez, J., & Esteban, R. (2019). Administrative challenges in integrating technology in Philippine schools. Journal of Educational Policy and Leadership, 14(2), 120-134.

Francom, G. M. (2019). Barriers to technology integration: A time-series survey study. Journal of Research on Technology in Education, 52(1), 1–16. https://doi.org/10.1080/15391523.2019.1679055

Håkansson Lindqvist, M., & Pettersson, F. (2018). Leading for digitalization: Exploring the leadership perspective. Paper presented at the International Conference on Information Communication Technologies in Education, Chania, Crete. Retrieved from https://www.diva-portal.org/smash/get/diva2:1242806/FULLTEXT02.pdf

Håkansson Lindqvist, M., & Pettersson, F. (2019). Digitalization and school leadership: On the complexity of leading for digitalization in school. International Journal of Information and Learning Technology, 36(3), 218–230. https://doi.org/10.1108/IJILT-11-2018-0126

Milman, N. B. (2019). School leadership of a one-to-one laptop initiative. Journal of School Leadership, 30(4), 356-374. https://doi.org/10.1177/1052684619852114

Columban College The Journal *(CC The Journal)*
Volume13 (June 2024) ISSN 1655-3713
https://doi.org/10.69502/wion9589
A Multidisciplinary Research Review produced by
CCI-RIKDO-*Research Innovation and Knowledge Development Office*

Mohammad, S. A., Yusof, H. M., & Bakar, M. F. (2024). Unpacking coaching skill in school leadership: a structured review. International Journal of Academic Research in Progressive Education and Development, 13(4). https://doi.org/10.6007/ijarped/v13-i4/23807

O'Doherty, D., Dromey, M., Lougheed, J., Hannigan, A., Last, J., & McGrath, D. (2018). Barriers and solutions to online learning in medical education – an integrative review. BMC Medical Education, 18(1). https://doi.org/10.1186/s12909-018-1240-0

Richardson, J. W., & Sterrett, W. L. (2018). District technology leadership then and now: A comparative study of district technology leadership from 2001 to 2014. Educational Administration Quarterly, 54(4), 589–616. https://doi.org/10.1177/0013161X18769046

Rossikhin, V., Rossikhina, H., Radchenko, L., Marenych, V., & Bilenko, L. (2020). Digitalization of education as a driver of digital transformation of ukraine. ScienceRise, 3, 66-70. https://doi.org/10.21303/2313-8416.2020.001348

Samonte, I., & Bolivar, R. (2020). Leadership in the digital age: The role of school administrators in ICT integration. Philippine Journal of Educational Administration, 2(1), 15-28.

Thannimalai, R., & Raman, A. (2018). The influence of principals' technology leadership and professional development on teachers' technology integration in secondary schools. Malaysian Journal of Learning and Instruction, 15(1), 203-228.

Tondeur, J., Keer, H. V., Braak, J. v., & Valcke, M. (2008). Ict integration in the classroom: challenging the potential of a school policy. Computers & Education, 51(1), 212-223. https://doi.org/10.1016/j.compedu.2007.05.003