



Systematic Literature Review of Adaptive Leadership Practices in Technology Integration in Basic Education Schools

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ABSTRACT

The review aimed to explore how school administrators exhibit adaptive leadership in navigating challenges, promoting collaboration, and demonstrating resilience towards their respective institutions through the use of technology-driven and innovative approaches. Using the PRISMA framework, a comprehensive literature review systematically identified, evaluated, and synthesized studies on adaptive leadership in secondary education, highlighting the challenges, opportunities, and practical strategies for promoting innovation, continuity of learning, and long-term institutional sustainability. Trends that are increasingly volatile, unpredictable, complex, and ambiguous (VUCA) have dramatically influenced the basic education landscape, as school administrators navigate rapid technological changes, shifting regulations, and unexpected emergencies. The findings revealed that adaptive leadership played a crucial role in enabling school leaders to respond efficiently to uncertainties. School administrators who embraced flexibility, applied strategic foresight, and integrated technology positioned themselves to sustain quality education and resilient leadership. Furthermore, the review also emphasized the importance of cultivating a culture of collaboration and innovation to enhance institutional responsiveness and operations. Thus, the review demonstrated that adaptive leadership enabled schools to thrive in a VUCA world, highlighting the need for future studies to explore additional strategies that further strengthen innovation, resilience, and long-term success in technology-enabled educational contexts.

Keywords: technology integration, adaptive leadership, school administrators, basic education

Recommended Citation

Unay, G. M., & Bauyot, M. (2026). Systematic Literature Review of Adaptive Leadership Practices in Technology Integration in Basic Education Schools. *International Journal of Multidisciplinary Educational Research and Innovation*. 4(4), 460-476.



INTRODUCTION

In today's world, where volatility, uncertainty, complexity, and ambiguity continue to challenge school administrators in the basic education sector, they face ever-increasing unpredictable and rapidly changing societal trends. Technological innovations, changes in school policy, updates to teaching approaches, and unforeseen disasters, such as public health crises, continue to impact the educational sector. The ever-changing conditions force school administrators to go beyond their usual management routines and integrate adaptive leadership strategies, prioritizing technological integration, creativity, and responsiveness to current societal trends. According to Heifetz (2009), adaptable leaders conduct in-depth analyses, reframe complex situations, and mobilize collaborative efforts to address challenges effectively.

Adaptive leadership enables school administrators to tackle complex challenges by fostering innovation and the strategic use of technology in teaching, learning, and school operations. Gronn (2008) noted that adaptive leadership fosters organizational learning and creativity in the educational sector. School administrators promote an environment that supports ongoing development, experimentation, and responsiveness to the ever-changing needs of its stakeholders and the whole community. Moreover, adaptive administrators initiate collaboration among stakeholders to co-create solutions to address the problems. Thus, adaptive school administrators encourage communities to adopt digital technologies and innovative approaches that support current needs and future growth by practicing a culture of continuous learning and openness towards advancement.

As institutions adapt to change, school administrators must continue to become adaptable and responsive, continually learning new skills to keep pace with technological breakthroughs, such as online digital platforms, data analytics, and communication channels. Effective, technology-driven leadership necessitates staying current with evolving trends, adopting innovative methods, and allocating resources strategically to enhance the educational agenda. Chughtai (2023) stated that adaptive leadership demonstrates organizational resilience, enabling schools to navigate change and thrive in a highly uncertain society. Moreover, this approach allows school administrators to ensure continuity of learning amid disruptions while positioning their schools as forward-thinking and prepared for future demands.

Moreover, technology-driven adaptive leadership encourages an institution where innovation is collaborative in nature. It requires school administrators to equip teachers and other personnel with the skills to discover new instructional tools, participate in professional development, and generate creative ideas to enhance the teaching and learning experiences within the institution. As institutions face changing dynamics in demographics, technological innovations, and regulatory changes, adaptive leadership has become a necessity. This type of leadership approach enables schools to adapt to change quickly and remain resilient in an increasingly digital era, benefiting stakeholders such as students and the broader community.

Understanding how adaptive leadership affects technology adoption and responding to societal trends is critical for basic education administrators to stay current in today's digital age and complex educational system. This systematic review evaluates the existing studies on adaptive leadership practices, investigates the challenges faced by school administrators when integrating technology, and identifies ways to combine creativity and thrive towards success. By focusing on technology-driven adaptive leadership, schools can improve their mechanisms and preparations for a progressive future and adapt to societal change.



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Research Questions

This review specifically aims to provide information on the following:

1. Examine the various experiences of basic education schools in practicing adaptive leadership in technology integration;
2. Explore the challenges that have emerged for basic education schools in implementing adaptive leadership in technology integration;
3. Describe the opportunities that have arisen for basic education schools through the practice of adaptive leadership in technology integration; and
4. Highlight the mechanisms and strategies basic education schools employ in exercising adaptive leadership in technology integration.

METHODS

To ensure the reliability and credibility of the findings, the researcher adopted the PRISMA method in conducting the review. This approach provided a structured and transparent process for selecting and analyzing published articles and journals, specifically those examining how school administrators exhibit adaptive leadership through technology integration in their respective institutions. PRISMA provided a systematic approach to gathering and reviewing articles, making the process more reliable, transparent, and easy to follow. This method assisted the reviewers with collecting and evaluating articles while reading studies using different approaches.

To search for relevant articles, the reviewers used keywords such as “school administrators”, “technology integration”, “basic education”, and “adaptive leadership”. These helped the reviewers find studies that discussed how certain school administrators adapted technologies in their respective educational institutions. The reviewers excluded articles published more than five years before the study and those focusing on higher or primary education levels or crises unrelated to public health in education.

The PRISMA method provided a systematic approach in gathering the necessary and relevant articles for the said topic. In addition, it allowed the reviewers to filter the search engine needed for the chosen topic on adaptive leadership in relation to technology integration among schools experienced by school administrators.

Eligibility Criteria

The review focused on studies of Basic Education Units (Junior High School and Senior High School) in public and private institutions, specifically the adaptation of technological innovations. It examined themes such as technology-adept leadership, adaptive leadership, and innovation, with particular emphasis on the role of school leaders in shaping institutional responses and stakeholder technological readiness within their respective institutions. Eligible studies included empirical research, literature reviews, and case studies published in English within the last five years, specifically those published from January 2020 to August 2025. The reviewers excluded studies related to higher education, leadership models unrelated to technology-driven integration among school administrators, opinion pieces lacking empirical evidence, and non-English publications from the review.



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Information Sources and Search Strategy

This review conducted systematic searches across major databases, including Google, Google Scholar, and Google using keywords such as “adaptive leadership,” “basic education,” “secondary,” “response”, “school administrators”, and “technology-adept.”

Selection Process

The reviewers screened the articles by reading their titles and abstracts. Afterward, the reviewers conducted full-text reviews to determine which studies were eligible for the topic under review. Two reviewers independently assessed each study and resolved disagreements through consensus or, when necessary, third-party adjudication. Thus, the reviewers included only studies published within the last five years, from January 2020 to August 2025, to ensure the review reflected the most recent articles and research.

Data Collection and Extraction

In collecting the data, the reviewers used a structured extraction form to capture the content and ideas of each article and research, such as the author, year, and country, which included the methodologies, the participants, the discussion on technology integration among institutions in basic education, the outcomes of the adaptive leadership towards the situation, and the key findings. Thus, the reviewer manually sorted the downloaded articles and journals to organize the data.

Study Risk of Bias Assessment

Two independent reviewers conducted a thorough risk of bias assessment for each included study to ensure the method's quality and the process's credibility. The reviewers selected appraisal tools according to the study design, using the Critical Appraisal Skills Programme (CASP) checklist for qualitative studies—particularly those exploring school administrators' experiences and decision-making processes. Each study was across key domains such as participant selection, data collection methods, researcher influence, and outcome reporting. Reviewers independently rated each domain as “low,” “high,” or “unclear” risk of bias, providing explicit justifications for their judgments.

Furthermore, all discrepancies in the assessment that the reviewer had already resolved through discussion and consensus decision-making were maintained to maintain consistency. Studies identified as having a high risk of bias in several domains were not excluded but were interpreted with an extra cautious approach when synthesizing the findings. Moreover, the risk of bias assessments informed the weighting of evidence. It contributed to the overall interpretation of how school administrators adapt and integrate technologies, ensuring they align with societal trends in basic education.

Overall, the majority of included studies showed a low to moderate risk of bias, with common methodological weaknesses relating to researcher reflexivity and data analysis transparency. Only a few studies demonstrated a considerable risk of bias, owing to insufficient reporting of sampling procedures.

Reporting and Dissemination

The reviewer reported the results using a PRISMA flow diagram to illustrate the study selection process. A total of 17 articles were included in this systematic literature review. Key findings were presented in tables, thematic summaries, and a detailed discussion of policy, practice, and future research implications.



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Table 1. List of article/s from Google Scholar

Author/s	Article/Journal	Published Year	Publication
Busa, A.I., Ismaila, Y., & Hakeem, A.O.	Adaptive Leadership in Educational Settings: Complex Challenges and Uncertain Environments	2024	Fudma Journal of Research, Educational Psychology and Counselling
Narasimman, M.C.	Forced Opportunities for Adaptive Leadership in Schools Arising from the COVID-19 Pandemic: Implications for Sustainable Leadership	2022	UJC Content
Famero, A.	Emergence of an Adaptive Leadership Model from the Collective Practices of Public Secondary School Principals during COVID-19 Education Crisis	2024	Romblon State University Research Journal
Nietes, R.A., Paglinawan, J.L., & Orongan, R.C.	Organizational Culture, School-based Management Practices, and Administrative Techno-Stress on Leadership Competence of School Leaders	2025	International Journal of Innovative Science and Research Technology
Gontang, M.G.	Leadership Resiliency and Adaptability: Effect on Crisis Management in Multigrade Schools	2025	ETCOR
Begonia, J.V., Orongan, R.C., Caro, V.B., & Escarlos, G.	Digital Leadership, School Culture and Emotional Intelligence on Technological Capability of School Leaders	2025	IJARW
Paymalan, I.B. & Budias, M.S.B.	Leading from the Frontlines: School Principals' Perspectives on Crisis Management during the New Normal	2023	Journal of Educational, Health and Community Psychology
Luz, I.G.	School Heads' Level of Innovative Educational Management Practices, Challenges	2025	International Journal of Latest Research in Humanities and Social Science

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Ballares, M.G.D.	Encountered and Strategic Initiatives Adopted as Basis for Policy Recommendation	2025	Aloysian Interdisciplinary Journal
Brion, C.	Leadership Challenges and Strategies During the Post-Pandemic Leading Schools in the Midst of COVID-19: Experiences of Basic School Leaders of the Komenda Edina Eguafo Abrem District of the Central Region of Ghana	2024	Journal of African Policy Studies

Table 2. List of article/s from ResearchGate:

Author/s	Article/Journal	Published Year	Publication
De Los Reyes, M., Orongan, R.C., Caro, V.B., & Escarlos, G.	Decision-Making Practices, Work Adaptability, and Techno-Stress Resilience on the Fiscal Management Capability of School Administrators	2025	ResearchGate
Lanuza, E.P.	Cultivating Adaptive Leadership Amid Crises: Toward a School Preparedness Framework for Philippine Junior High Schools	2025	ResearchGate

Table 3. List of article/s from Freehand Searching:

Author/s	Article/Journal	Published Year	Publication
Apellido, L.A. & Ventura, C.V.M.	School Heads 21st Century Instructional Leadership and Teachers' Performance Management in Lambayong 3 District	2025	Psychology and Education: A Multidisciplinary Journal
Cahapay, M.B.	The Phenomenon of Leading without Guidebook: Educational Leadership Practices of Philippine School Principals in	2022	International Journal of Educational Leadership and Management



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Omran, M. & Abo-Thabet, W.	Virulent COVID-19 Times Adaptive Leadership Practices and their Relationship to the Performance of School Teachers in the West Bank - Palestine	2024	World Journal of Advanced Research and Reviews
Sahlin, S. & Sjostrand, M. & Lund, S.	Swedish Principals' Adaptive Leadership in Unprecedented Times: Learnings from the Pandemic Experiences	2025	Sage Journals
Frondozo, M.G.T. & Kim, V.F.	A Phenomenological Study on Public School Leadership in a Hybrid Workspace	2022	World Journal of Advanced Research and Reviews

Data Analysis

Reviewers organized the data systematically and analyzed it comprehensively to address the review's objective. This review emphasized the different experiences, challenges faced by basic education school administrators, the opportunities that arose in the process, the mechanisms and strategies employed to adapt to technological advancements, and even the programs and policies adapted to keep pace with the ever-changing trends in the educational arena. Moreover, this process aimed to understand how school administrators in the basic units adapted and contributed to the development of more adaptive, innovative, and evidence-based technology-driven frameworks in the education sector.

Table 4. Experiences of Basic Education School Administrators in Practicing Adaptive Leadership in Technology Integration

Author/s	Article/Journal	Categorization
Narasimman, M.C.	Forced Opportunities for Adaptive Leadership in Schools Arising from the COVID-19 Pandemic: Implications for Sustainable Leadership	Implementing digital technology in the institution despite major shifts; Greatly influenced by socio-economics realities
Famero, A.	Emergence of an Adaptive Leadership Model from the Collective Practices of Public Secondary School Principals during COVID-19 Education Crisis	Uses technology to support teaching-learning among personnel and other stakeholders
Nietes, R.A., Paglinawan, J.L., & Orongan, R.C.	Organizational Culture, School-based Management Practices, and Administrative Techno-Stress on Leadership Competence of School Leaders	Presence of techno-stress in integrating technology in the institution; Difficulty in adapting and implementing technology; Paved avenue for administrative growth and maturity
Gontang, M.G.	Leadership Resiliency and Adaptability: Effect on Crisis	Challenges school administrators due to scarcity



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	Management in Multigrade Schools	of resources; Aims to invest on technological advancement in their institutions; Slowly adapting technology for management and delivery of instruction;
Begonia, J.V., Orongan, R.C., Caro, V.B., & Escarlos, G.	Digital Leadership, School Culture and Emotional Intelligence on Technological Capability of School Leaders	Capable leaders in adapting and implementing technology; Uses technology as platform for communication among other stakeholders; Spearheads other stakeholders on the effective use of technology; Gives premium on digitalization
Paymalan, I.B. & Budias, M.S.B.	Leading from the Frontlines: School Principals' Perspectives on Crisis Management during the New Normal	Uses technology as means to provide continuity of instruction; Communicate through online platforms towards other stakeholders;
Luz, I.G.	School Heads' Level of Innovative Educational Management Practices, Challenges Encountered and Strategic Initiatives Adopted as Basis for Policy Recommendation	Lack of exposure to technology on day-to-day transactions; Insufficient access to technological resources; Lack of use of technology in achieving institutional objectives
Ballares, M.G.D.	Leadership Challenges and Strategies During the Post-Pandemic	Technological integration for institutional operations
Brion, C.	Leading Schools in the Midst of COVID-19: Experiences of Basic School Leaders of the Komenda Edina Eguafu Abrem District of the Central Region of Ghana	Utilizes technology for continuity of instruction among stakeholders
De Los Reyes, M., Orongan, R.C., Caro, V.B., & Escarlos, G.	Decision-Making Practices, Work Adaptability, and Techno-Stress Resilience on the Fiscal Management Capability of School Administrators	Manage complexities through the help of technology; Simplifies the used of technological advancement in the institution
Apellido, L.A. & Ventura, C.V.M.	School Heads 21st Century Instructional Leadership and Teachers' Performance Management in Lambayong 3 District	Recognizes the need of technology in today's trend; Integration of technology in everyday operation; Acknowledges the need of technology for instructional refinement in the institution; Continuous investment and training for technological adaptation
Cahapay, M.B.	The Phenomenon of Leading without Guidebook: Educational Leadership Practices of Philippine School Principals in Virulent COVID-19 Times	Improves leadership efficiency among school administrators during crises; Increases communication efficiency among other stakeholders; Acquisition of new skills and



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Omran, M. & Abo-Thabet, W.	Adaptive Leadership Practices and their Relationship to the Performance of School Teachers in the West Bank - Palestine	knowledge among school administrators; Capacitates school administrators in integrating innovation and technology in the institution
Sahlin, S. & Sjostrand, M. & Lund, S.	Swedish Principals' Adaptive Leadership in Unprecedented Times: Learnings from the Pandemic Experiences	Acknowledges the need of technology integration; Proficiency in technology adaptation; Improves management in the institution; Adaptive to trends in integrating technology
Fronozo, M.G.T. & Kim, V.F.	A Phenomenological Study on Public School Leadership in a Hybrid Workspace	Embraces technological advancement as part of the new trends in the society; Proficiency on the use of technology; Shift on communication channels

1.1 Experiences of Basic Education School Administrators in Practicing Adaptive Leadership in Technology Integration

With thorough analysis of the empirical data from the source articles/journals, several findings emerged to deepen the understanding of how basic education administrators experience the practice of adaptive leadership—especially in relation to integrating technology in educational institutions:

1.1.1 Technology Integration to Support Other Stakeholders

School administrators in basic education continually utilize advanced technology to enhance the learning experience and boost the morale of their stakeholders, including teachers, students, parents, and the broader external community. As Nietes et al. (2025) emphasized, stakeholder participation is crucial in Philippine schools, and inclusive methods have been shown to enhance school performance and teacher satisfaction. Based on studies, many school administrators utilize online portals, communication channels, and virtual learning platforms to improve learning outcomes and reduce administrative supervision and operational costs. These school administrators recognize that successful innovation requires meeting the distinct needs of all stakeholders in the community, resulting in a more inclusive and effective learning environment.

1.1.2 Readiness for Technology Adoption

Institutions' willingness to adapt and integrate innovation depends heavily on efficient school administrators who are accurately aware of these factors. They thoroughly study their school's current capacity, infrastructure, connectivity, and even the digital competence of its faculty. Bejona et al. (2025) emphasized that the integration of sustainable technology is most effective when technical resources are supported by strong leadership and institutional backing. Rather than forcing drastic changes, school administrators take a methodical and supportive approach, focusing on professional development, cultivating openness to innovation, and preparing the community for future changes. Moreover, according to research, school administrators who place a premium on collaboration, professional growth, and pilot testing programs are more likely to successfully and sustainably integrate technology.

1.1.3 Recognizes the Need for Technological Advancement

School administrators consistently emphasize the importance of staying current with the latest trends in educational technology. They acknowledge that incorporating innovations and systems is



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essential for providing stakeholders, especially the students, with relevant and high-quality teaching and learning experiences. In response, school administrators are eager to seek changes to their respective institutions' digital infrastructures and ways to improve their achievement of learning outcomes. Gontang (2025) emphasizes the growing need for schools to adapt and respond to changing conditions, which have increased in recent years. Despite challenges of insufficient funding and opposing mindsets towards change among other members, school administrators remain passionate and dedicated to future-proofing their institutions and meeting the dynamic demands of 21st-century education.

Table 5. Challenges Explored by Basic Education School Administrators in Practicing Adaptive Leadership in Technology Integration:

Author/s	Article/Journal	Categorization
Busa, A.I., Ismaila, Y., & Hakeem, A.O.	Adaptive Leadership in Educational Settings: Complex Challenges and Uncertain Environments	Resistance to technology adaptation; Lack of support and resources for the school administrators; Organizational structure in the institution
Nietes, R.A., Paglinawan, J.L., & Orongan, R.C.	Organizational Culture, School-based Management Practices, and Administrative Techno-Stress on Leadership Competence of School Leaders	Challenge's school administrators in incorporating technology in the institution and administrative management; Increase techno-stress in capacitating other stakeholders in the integration of technology in the system of the institution
Gontang, M.G.	Leadership Resiliency and Adaptability: Effect on Crisis Management in Multigrade Schools	Scarcity on technological infrastructure; Allocate more budget for technological advancement
De Los Reyes, M., Orongan, R.C., Caro, V.B., & Escarlos, G.	Decision-Making Practices, Work Adaptability, and Techno-Stress Resilience on the Fiscal Management Capability of School Administrators	Inefficient in managing stress brought by technology integration in the institution; Hinders creativity of school administrators during decision-making; Affects the satisfaction outcomes among school administrators; Difficulty in mastering new technologies and systems among school administrators
Lanuza, E.P.	Cultivating Adaptive Leadership Amid Crises: Toward a School Preparedness Framework for Philippine Junior High Schools	Debriefing process for school administrators for all the techno-stress on technology integration in the institution and in the system
Apellido, L.A. & Ventura, C.V.M.	School Heads 21st Century Instructional Leadership and Teachers' Performance Management in Lambayong 3 District	Understanding the critical roles of technology integration in the system as school administrators; Outsourcing more funds for technology advancement



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Fronozo, M.G.T. & Kim, V.F.	A Phenomenological Study on Public School Leadership in a Hybrid Workspace	Familiarizing the technology/tools; Ineffective in navigating technological tools; Insufficient skills in integrating the technology to the system of the school administrators and in the institution in general; Ineffective communication channels
Sahlin, S. & Sjostrand, M. & Lund, S.	Swedish Principals' Adaptive Leadership in Unprecedented Times: Learnings from the Pandemic Experiences	Decrease in social interaction amongst other school administrators; Fewer interaction and establishing camaraderie among other school leaders;

2.1 Challenges Explored by Basic Education School Administrators in Practicing Adaptive Leadership in Technology Integration

With thorough analysis of the empirical data from the source articles/journals, several findings emerged to deepen the understanding of the various challenges basic education administrators face in practicing adaptive leadership, particularly in integrating technology in educational institutions:

2.1.1 Rising Techno-Stress Among School Administrators

The increasing reliance on digital innovation among schools has drastically increased the stress on many school administrators, a phenomenon known as techno-stress. This stress originates from the constant requirement to keep pace with the evolving changes in technology advancement, continuous improvements in connectivity, and maintaining productivity rates among personnel despite limited time to adapt to the technology. According to Nietes et al.'s (2025) research, leaders facing process-related obstacles may struggle to effectively deploy technology, which can impact their leadership performance and the overall school atmosphere. This stress can affect the way school administrators think, make decisions, and support others during the change process. Using adaptive leadership as a reference, these challenges make it even more challenging for school administrators to remain adaptable and resilient towards technology-driven educational contexts.

2.1.2 Insufficient Support and Limited Resources

The lack of support and insufficient access to resources required for technology integration pose a significant problem for school administrators. School administrators face numerous challenges when managing digital initiatives without sufficient facilities, financial support, and technical expertise. Contributing variables such as insufficient professional development, limited resources, and educator resistance to change—all widely acknowledged hurdles in educational environments (Luz, 2025)—exacerbate these issues. The issue of inadequate support poses an additional challenge for school administrators, making it difficult for them to adapt to long-term reforms. As a result, adaptive leadership becomes even more challenging when school administrators foster innovation in the face of limited resources and institutional support.

2.1.3 Challenges in Gaining Technological Proficiency

Many school administrators struggle to gain digital competence in managing effective technology integration initiatives within their respective institutions. Those unfamiliar with digital technologies may struggle to understand, use, and demonstrate new systems. The lack of experience can lessen their confidence and limit their ability to guide teachers and other personnel towards technological advances. According to De Los Reyes et al. (2025), as technology becomes more sophisticated, administrators are often overwhelmed by the effort of learning new tools, which can result in stress and a lack of confidence in their abilities. Since adaptive leadership is based on



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continuous learning and adaptability, difficulties with technological mastery present substantial barriers to leading innovation with assurance and effectiveness.

Table 6. Opportunities Experienced by Basic Education School Administrators in Practicing Adaptive Leadership in Technology Integration:

Author/s	Article/Journal	Categorization
Gontang, M.G.	Leadership Resiliency and Adaptability: Effect on Crisis Management in Multigrade Schools	Determined the proficiency among school administrators on technology integration and usage
Begonia, J.V., Orongan, R.C., Caro, V.B., & Escarlos, G.	Digital Leadership, School Culture and Emotional Intelligence on Technological Capability of School Leaders	Developed proficiency of technological adaptation and integration among school administrators; Comprehensive understanding on digital leadership; Capable to capacitate institution on technology integration amongst stakeholders Fosters more efficient communication channels; Strategic approach on technological adaptation among institutions
Paymalan, I.B. & Budias, M.S.B.	Leading from the Frontlines: School Principals' Perspectives on Crisis Management during the New Normal	Provided effective communication channels among other stakeholders
De Los Reyes, M., Orongan, R.C., Caro, V.B., & Escarlos, G.	Decision-Making Practices, Work Adaptability, and Techno-Stress Resilience on the Fiscal Management Capability of School Administrators	Effective in thought and feeling regulation among school administrators while implementing and adapting with technology; Proficient enough to navigate different technological advancement; Innovative approach in implementing the curriculum for the stakeholders
Apellido, L.A. & Ventura, C.V.M.	School Heads 21st Century Instructional Leadership and Teachers' Performance Management in Lambayong 3 District	Fostered the collaboration and engagement of stakeholders; Maximizing technology as communication channels for other stakeholders;
Cahapay, M.B.	The Phenomenon of Leading without Guidebook: Educational Leadership Practices of Philippine School Principals in Virulent COVID-19 Times	Managing the institution with the help of technological advancement
Fronozo, M.G.T. & Kim, V.F.	A Phenomenological Study on Public School Leadership in a Hybrid Workspace	Utilizes technology for communication channels among other stakeholders



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3.1 Opportunities Experienced by Basic Education School Administrators in Practicing Adaptive Leadership in Technology Integration

With a thorough analysis of the empirical data from the source articles/journals, several findings emerged to deepen the understanding of the various opportunities experienced by basic education administrators in practicing adaptive leadership, particularly in integrating technology within educational institutions:

3.1.1 Assesses Technological Competence of School Administrators

Technological advancements have enabled school administrators to assess and enhance their digital skills. As school leaders interact with various digital platforms and innovations, they become more aware of their technological competence, enabling them to identify areas for growth and improvement, and seek more suitable development training. According to Nietes et al. (2025), transformational digital leadership fosters digital literacy and innovation by integrating technical expertise, emotional intelligence, and excellent communication abilities. Moreover, competence in digital technology enables school administrators to set a good example for their subordinates and provide ample assistance during the integration process. School administrators' personal abilities and skills, as well as their leadership in technology-driven contexts, improve as a result of this ongoing development.

3.1.2 Enhances Stakeholder Communication through Digital Tools

Innovation has significantly increased school administrators' ability to communicate with their stakeholders. Utilizing online platforms, including email, messaging apps, virtual meetings, and online portals, facilitates a faster and more reliable exchange of information. According to Apellido and Ventura (2025), school leaders are committed to improving teaching methods by implementing tactics that align with the organization's goals and regularly evaluating and providing feedback. Enhanced communication fosters stronger connections, promotes transparency, and facilitates faster resolution of school-related concerns. School administrators utilize these platforms to cultivate a collaborative community that supports adaptive leadership and fosters an inclusive and responsive school culture.

3.1.3 Enables Strategic Planning in Adopting Technology

Technology has enabled school administrators to adopt a more effective and evidence-based approach to innovation within their respective institutions. Rather than relying on impulsive decisions, school administrators can maximize data, feedback from stakeholders, and contextualized analysis to guide the timely implementation of innovations. In the 21st century, this deliberate process is essential, as instructional leaders are expected to make informed decisions, support ongoing teacher development, and harness technology to enhance student learning outcomes (Apellido & Ventura, 2022). Institutions can ensure meaningful and sustainable progress by aligning technological innovations with institutional goals and the needs of their stakeholders. Moreover, school administrators embody adaptive leadership by forecasting challenges, refining strategies as needed, and confidently leading their communities through ongoing digital transformation.

Table 7. Strategies and Mechanisms Implemented by Basic Education School Administrators in Practicing Adaptive Leadership in Technology Integration:

Author/s	Article/Journal	Categorization
De Los Reyes, M., Orongan, R.C., Caro, V.B., & Escarlos, G.	Decision-Making Practices, Work Adaptability, and Techno-Stress Resilience on the Fiscal Management Capability of School Administrators	Integration of techno-stress resilience character amongst school administrators; Enhance confidence level amongst school administrators; Embracing the need of



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Lanuza, E.P.	Cultivating Adaptive Leadership Amid Crises: Toward a School Preparedness Framework for Philippine Junior High Schools	integrating technology in the institution; Involvement of stakeholders in the adaptation and implementation of technological advancement in the institution; Foster the adaptive behavior and mindset among school administrators; Instill preparedness and openness on the adaptation of technological advancement
Omran, M. & Abo-Thabet, W.	Adaptive Leadership Practices and their Relationship to the Performance of School Teachers in the West Bank - Palestine	Encourages continuous professional and career learning among school administrators
Sahlin, S. & Sjostrand, M. & Lund, S.	Swedish Principals' Adaptive Leadership in Unprecedented Times: Learnings from the Pandemic Experiences	Foster forward mindset on the adaptation and integration of technology in managing the institution
Fronozo, M.G.T. & Kim, V.F.	A Phenomenological Study on Public School Leadership in a Hybrid Workspace	Adaptive mindset and behavior among school administrators to the current trend especially on the integration of technology; Enhance learning and familiarity with technology while effectively implementing advancements within the institution

4.1 Strategies and Mechanisms Implemented by Basic Education School Administrators in Practicing Adaptive Leadership in Technology Integration

With thorough analysis of the empirical data from the source articles/journals, several findings emerged to deepen the understanding of the strategies and mechanisms employed by basic education administrators in practicing adaptive leadership, particularly in the context of technology integration within educational institutions:

4.1.1 Leading Technological Advancement through Proactive Management

School administrators have adopted a proactive approach by integrating innovation into their leadership practices. Rather than merely responding to external changes, they decided on digital innovation through strategic planning, collaborative leadership, and a vision-alignment mechanism. As noted by Narasimman (2022), various studies have shown that school leaders across different regions and countries have employed diverse strategies, including the adoption of digital tools, to mitigate the impact of the COVID-19 pandemic. This fast-forward mindset shows their commitment to progressive improvement and sets a clear direction for the larger community. By championing the use of technologies and modeling adaptability, school administrators highlight the crucial role of leadership in guiding schools through ongoing technological transformation.

4.1.2 Building Confidence in Technological Leadership

The confidence of many school administrators in handling technology-driven programs has grown as they delve into the details and gain experience with digital innovations, leading to continuous career and professional growth. As their expertise on multiple digital platforms expands, so does their ability to make sound decisions, provide practical assistance to stakeholders, and confidently lead the



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implementation in the institution. Flemming and Millar (2019) emphasize the importance of acquiring new skills and utilizing resources to manage unfamiliar systems effectively. This rising confidence leads to more decisive and impactful leadership. This demonstrates how adaptive leadership develops through continual learning and firsthand experience, helping school administrators transition from timid adopters to confident navigators.

4.1.3 Developing Resilience against Tech-Related Stress

School administrators have implemented measures to enhance resilience and manage stress in response to the rapid advancements in technology. These ways include prioritizing their well-being, collaborating with other personnel, and creating a conducive work environment. With the increasing technological integration, adaptation and resistance to techno-stress have become critical skills for educational leaders (Hallo et al., 2020). Rather than being overwhelmed by technological trends, school administrators develop the ability to remain calm and focused, ensuring that stress does not interfere with their responsibilities towards the institution. This resilience is crucial for adaptive leadership, enabling school administrators to stay calm and remain productive even in the midst of a high-pressure, technology-driven society.

CONCLUSION

The series of changes and experiences among school administrators in basic education served as a steppingstone in navigating the challenges and difficulties brought about by the ever-changing demands of technology. The results highlighted how school administrators demonstrated a flexible and futuristic mindset, as well as openness to technological advancements in their respective institutions, enabling them to convert uncertainty into opportunities for institutional growth and development. Rather than viewing technological innovation as a threat and a problem, school administrators utilized it as an opportunity for institutional renewal. This helped school administrators recalibrate their technological advancements, manifested through their leadership in the institution, where they mobilized people, updated processes, and created more innovative resources to respond to a more complex and ever-demanding world. School administrators who instilled this mindset demonstrated not only managerial competence but also a deep moral commitment, ensuring that the institution could adapt to digital transformation in alignment with educational values, equity, and student learning outcomes.

One of the key insights that emerged from the review was that adaptive leadership was not a stagnant skill for school administrators, but a continuous professional learning process that one must undergo. School administrators acted as students in the process of experimentation, identifying and determining what technological advancement practices should be incorporated into the school's system. These findings highlight the shift from traditional hierarchical leadership to a more distributed model, where school administrators facilitate problem-solving while empowering and capacitating the stakeholders of the institution, including teachers, students, parents, and the broader community, towards advancement. Furthermore, the results emphasize that adaptive leadership thrives in a community that fosters psychological safety and collective inquiry—conditions that enable schools to adapt amid rapid technological and societal advancements.

However, the review's results also highlighted that integrating adaptive leadership with technology was challenging for some school administrators. School administrators faced numerous challenges, including techno-stress, inadequate financial support, and a lack of digital competence among stakeholders. These barriers illustrate how technological advancements can exacerbate inequalities in access, training, and institutional capacity. These findings deepen our understanding of adaptive leadership as a practice constrained by a particular system rather than a specific personality. This leads



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to the need for a multi-level support system within the institution, encompassing policy development, training programs, and additional digital infrastructure that will enable school administrators to exercise adaptive leadership effectively. Addressing the problem within the system is essential for pursuing innovation and advancement towards digital transformation, particularly in the absence of these disparities.

The study also revealed several discoveries, including the fact that technology integration mirrors the institution's readiness for advancement. Schools with evident collaboration among stakeholders, efficient communication channels, and clear shared visions were most likely to implement adaptive leadership strategies successfully. Additionally, institutions with intensive hierarchical and risk-averse cultures will encounter difficulty in adapting. This result revealed that adaptive leadership is effectively carried out when there is a strong organizational culture, underscoring the importance of cultivating an environment that values trust, experimentation, and reflective dialogue.

In conclusion, the results suggest that adaptive leadership in the digital era goes beyond the boundaries of technical management. It entails an ethical and relational dimension, where leaders must be efficient with advanced technologies while also demonstrating empathy, inclusivity, and human-centered decision-making. Moreover, the results also emphasized that adaptive leadership impacts both school administrators and other stakeholders, fostering emotional resilience, collective intelligence, and a forward-thinking mindset that empowers schools to thrive in uncertain times. Thus, this review suggests that future research explore how adaptive leadership strategies can be systematically developed and supported by agencies and other sectors across educational institutions to thrive and sustain innovation and equality in an ever-demanding and increasingly technologically advanced society.

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