Leadership in the Digital Age: Its Relationship on School Heads Influence on Classroom Technology Adoption

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DOI: https://doi.org/10.51244/IJRSI.2026.130200176

Received: 24 February 2026; Accepted: 02 March 2026; Published: 19 March 2026

ABSTRACT

This study aimed to determine how leadership in the digital age shapes school heads' influence on the use of technology in classrooms. The study employed quantitative method using descriptive-correlational research design with survey questionnaire as the primary data-gathering tool. This instrument was validated by five experts and subjected to pilot testing and Cronbach's alpha for its reliability. The study included eight school heads and 126 teachers N=134 from the San Vicente–San Lorenzo Ruiz District. Results were analyzed using weighted mean and Pearson Product-Moment Correlation Coefficient r. The findings revealed that school heads demonstrated a high level of digital-age leadership competence, particularly in promoting technology integration, encouraging digital innovation, and supporting teachers' adaptability to technology. Teachers consistently adopted technology in their classrooms, showing strongest competence in utilizing technology for instruction, although the use of specific digital tools was comparatively lower. A significant positive relationship was found between school heads' leadership practices and teachers' classroom-level technology adoption, indicating that effective leadership influences technology integration in teaching. Both teachers and school heads reported notable challenges. Teachers expressed the need for clearer directives, consistent expectations, increased training, and regular monitoring and support. Meanwhile, school heads identified budget limitations, gradual teacher adoption, rapid technological changes, and the need for additional technical training and policy support as key concerns. In response to these findings, Project **V**isionary **I**nstitutionalization for **S**ustainable **T**echnology **A**dvancement (V.I.S.T.A.) was developed to enhance digital-age leadership, strengthen teachers' ICT competencies, and promote collaborative and sustainable technology integration in schools.

Keywords: Leadership in digital age, classroom technology adoption, digital tools, technology integration

INTRODUCTION

In recent years, more countries have started focusing on creating and evaluating policies that shape school leadership roles. This shift highlights the growing recognition of the importance of school leaders in shaping student success and building a positive school environment (Berkovich and Bogler, 2020). Because of this, teachers today must be proficient in technology, using their knowledge and skills to meet modern educational demands and achieve better learning outcomes (Saad and Sankaran, 2020).

These days, school systems expect school heads to do more than just manage operations; they also need to be strong instructional leaders. This kind of leadership is crucial for shaping the learning process and ensuring that students develop the skills and knowledge they need to succeed in today's world and become productive members of society (Orhani et al., 2023). According to the Media Data Retrieval Education Network Insightreport (2021), 90% of school heads believe that technology is essential for improving student learning. Their main instructional priorities include Science, Technology, Engineering, and Math (S.T.E.M.), personalized learning, and project-based learning. However, they also face major challenges, such as boosting student outcomes, improving teaching strategies, and increasing parental involvement. While most school heads are confident in technology's ability to transform education, only 67% feel their school's tech infrastructure is strong, and just 45% believe teachers effectively use technology to engage students and enhance learning.

Schools integrate technology to boost efficiency and enhance student performance (Carstens et al., 2021). Just like with any major organizational change, the role of educational leaders is critical when implementing new technology in schools (Abedi and Ackah-Jnr, 2023; Geertshuis and Liu, 2022).

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

Meanwhile, the Department of Education's DepEd Order No. 24, s. 2020 mandates the nationwide adoption of the Philippine Professional Standards for School heads (PPSSH). These standards define the key competencies school leaders must demonstrate, including leading curriculum implementation and creating a positive learning environment. While not explicitly stated, the PPSSH also implies that school heads should be proficient in using technology to enhance teaching and learning.

In public schools within the San Vicente – San Lorenzo Ruiz District, the limited and inconsistent use of classroom technology underscores the growing need for strong, supportive leadership in the digital age. Without clear guidance from school heads , many digital tools remain underused, resulting in missed opportunities to boost student engagement and learning. Studies show that transformational leadership, where school leaders inspire, support, and guide teachers, plays a key role in helping educators confidently adopt and integrate technology into their teaching (Docdocil and Itaas, 2022; König et al., 2023).

Public secondary schools face real challenges: crowded classrooms, limited access to technology, and varying teacher skill levels. In these settings, strong leadership is essential to building a culture that supports innovation. Teachers are more open to using technology when they feel supported and guided. With the right encouragement, they grow more confident in trying new methods, leading to better classroom practices and engagement. This shows that when teachers find meaning in their work and see the value of technology, they're more likely to use it effectively (Pambudi et al., 2024).

This study primarily aims to determine the connection between digital-age leadership and the adoption of technology in the classroom. It focuses on how a school heads' leadership can influence teachers' willingness and ability to integrate technology into their teaching. The study also hopes to shed light on how effective digital leadership can foster a more innovative and adaptable learning environment that boosts both teaching effectiveness and student achievement. Additionally, it seeks to understand how different leadership skills and strategies affect teachers' confidence and their use of technology, ultimately contributing to better overall school performance.

Statement of the Problem

This study determined how leadership in the digital age shapes the way school heads influence the use of technology in classrooms. It seeks to better understand the connection between modern leadership approaches and how they encourage teachers to adopt digital tools in their teaching. Specifically, it answered the following questions:

What is the level of digital-age leadership skills demonstrated by school heads in terms of:

1. promoting technology integration;
2. encouraging digital innovation; and
3. supporting teacher adaptability to technology?

What is the level of teachers' technology adoption along:

1. utilization of technology in instruction;
2. technology integration; and use of digital tools?

Is there a significant relationship between school heads' leadership skills in the digital age and teachers' classroom level of technology adoption?

What challenges do teachers encounter in relation to the school heads' influence on classroom technology adoption?

What are the challenges encountered by the school heads as perceived by teachers in technology adoption?

What intervention may be proposed to enhance the school heads' leadership skills in the digital age and the teachers' technology adoption in the classroom?

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

THEORETICAL FRAMEWORK

This study is anchored in two key leadership theories that help explain how school heads can influence the use of technology in classrooms: Transformational Leadership Theory and Sheninger's Digital Leadership Framework. Transformational leadership, developed by Bass (1985), highlights how leaders inspire and motivate others by creating a shared vision, encouraging innovation, and building strong relationships. In schools, this means school heads who are not just managers but mentors and leaders, empowering teachers to try new approaches and grow professionally. When applied to educational technology, transformational leaders play a vital role in helping teachers feel genuinely confident and supported as they integrate digital tools into their daily classroom teaching practices.

Building on this, Sheninger (2019) Digital Leadership Framework brings a more current lens, emphasizing how school leaders can drive meaningful change in the digital age. His model outlines how vision, professional development, and a supportive culture can help schools effectively embrace technology.

Digital leaders are not just tech-savy they understand how to use digital tools to enhance teaching, learning, and communication that benefit students. Together, these theories provide a strong foundation for this study, which explores how school heads' traditional and digital leadership practices influence teachers' readiness and willingness to adopt classroom technology.

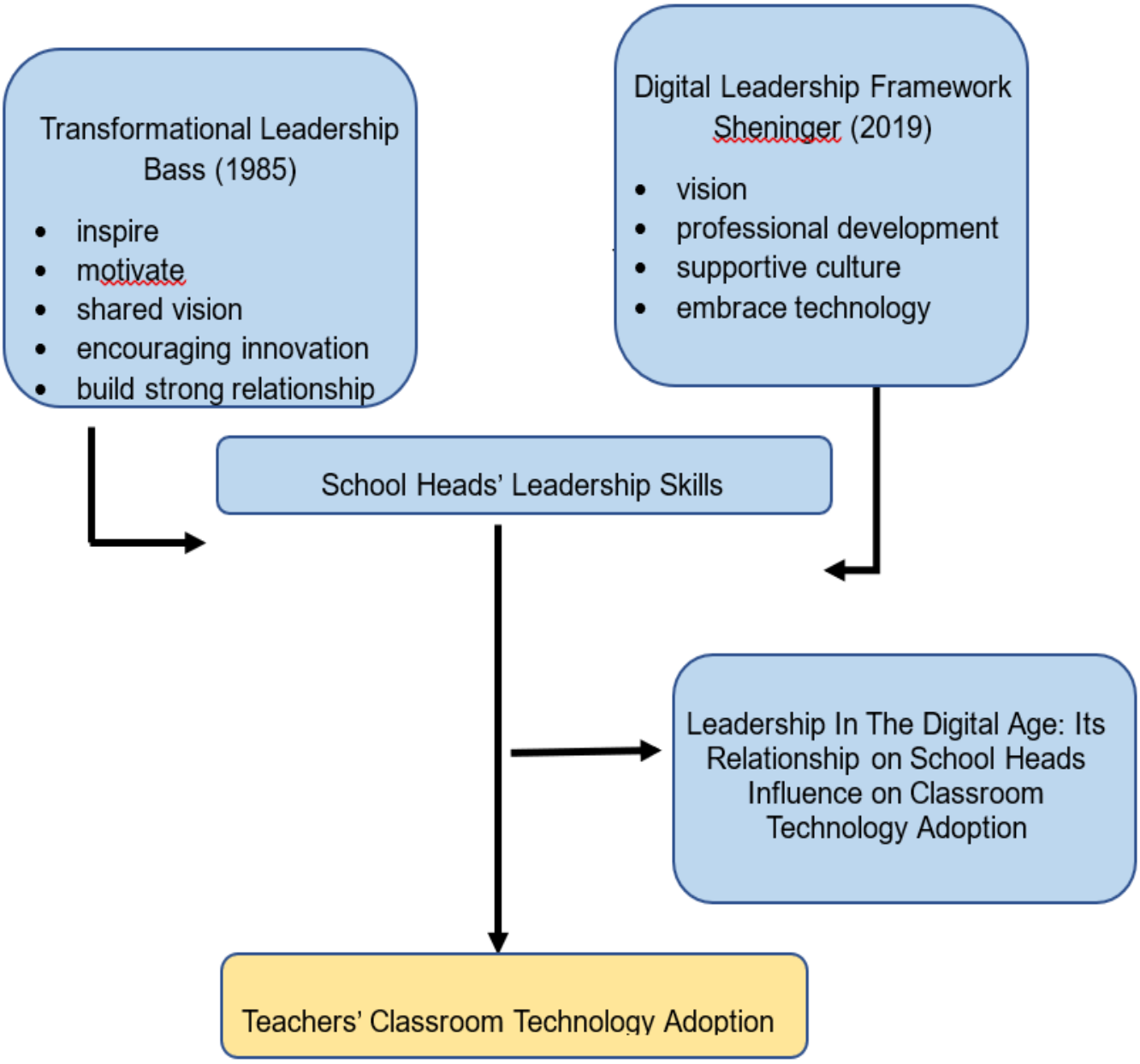

Figure 1 Theoretical Paradigm of the Study

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

Conceptual Framework

This study focused on understanding how school heads' leadership skills in the digital age shape teachers' adoption of technology in their classrooms.

Specifically, it determined how school leaders demonstrate digital-age leadership in promoting technology integration, encouraging digital innovation, and supporting teachers as they adapt to technological tools and platforms.

These leadership traits are considered the independent variables of the study. On the other hand, the study explored the extent to which teachers incorporate technology into their instruction, integrate digital tools into their teaching strategies, and use various tech resources, which constitute the dependent variables.

In addition to describing this relationship, the study also considered the challenges that teachers face, which may be linked to how school heads lead, as well as the difficulties that school heads themselves encounter from teachers' perspectives. By examining both school heads' and teachers' experiences, this study aims to identify key areas requiring support and development.

The end goal is to recommend practical interventions that can help school leaders grow in their digital leadership roles, while also empowering teachers to feel more capable and confident in using technology to improve student learning.

This study provides insights for school heads to support teachers in using technology. It aims to foster a school environment where both leaders and teachers are empowered to enhance student learning through digital tools. The findings also inform school policies to promote effective digital-age leadership.

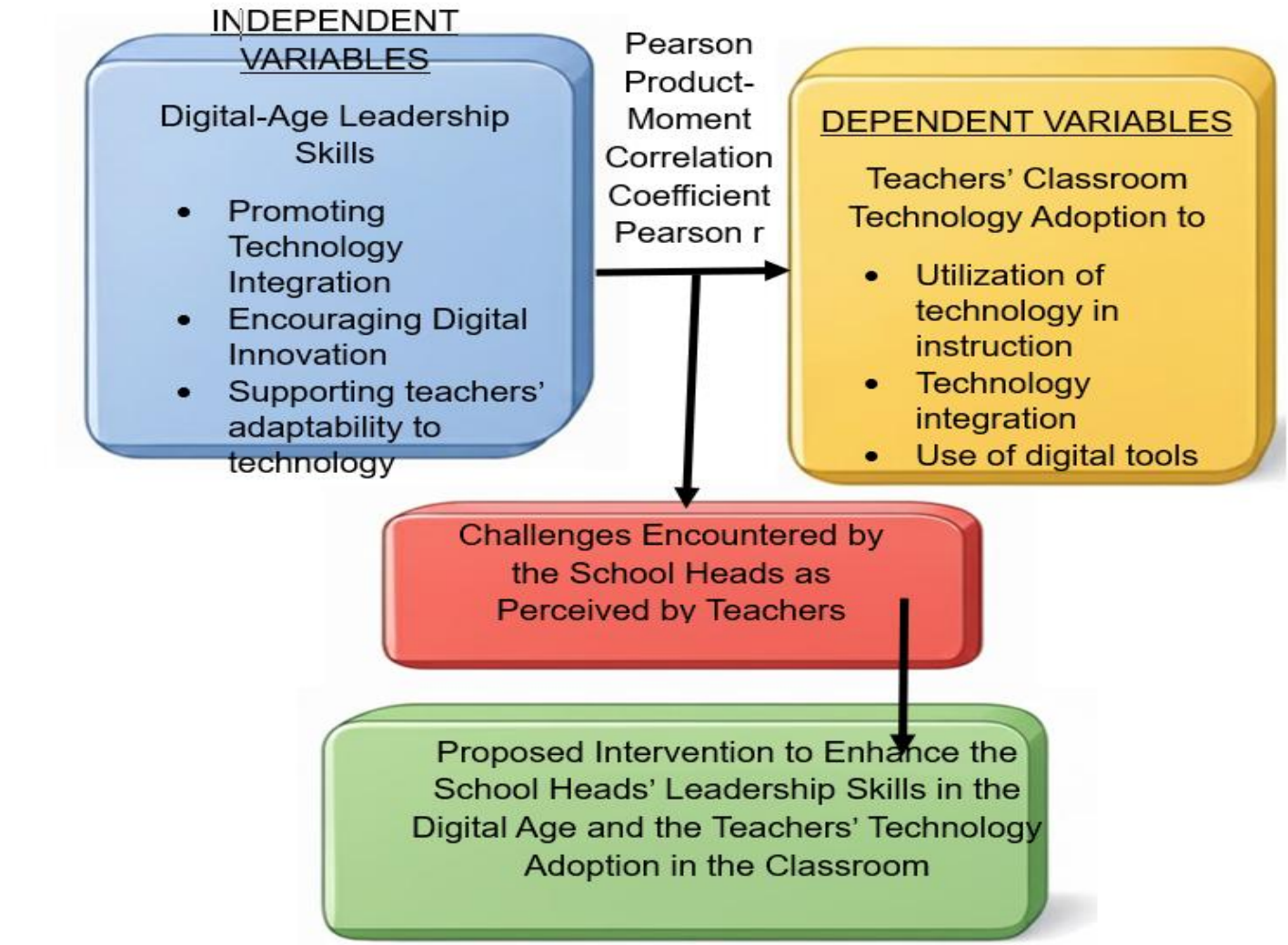

Figure 2 Conceptual Paradigm of the Study

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

METHODOLOGY

This study employed a quantitative method utilizing a descriptive-correlational research design to describe the relationship between school head leadership skills and the teacher's classroom technology adoption. To better understand the connections and relationships, the researcher gathered data through surveys and existing school records. This method is ideal for comparing eight (8) public schools in the San Vicente – San Lorenzo Ruiz District, especially regarding how their school heads' leadership skills influence technology use in teaching. There are 8 school heads and 126 teachers in public elementary and secondary schools in San Vicente, Camarines Norte. A total of 134, composed of school heads and teachers, were the respondents in this study using total enumeration.

The researcher obtained permission from the Schools Division Superintendent of Camarines Norte and the Public Schools District Supervisor of the San Vicente–San Lorenzo Ruiz District before conducting surveys among public secondary school teachers and students in San Vicente, Camarines Norte. Informed consent was secured, and strict confidentiality and anonymity were maintained by replacing respondents' names with identification codes and securely storing data through password protection and encryption. The research instrument was developed through clearly defined objectives, an extensive literature review, and the operationalization of variables into measurable indicators within a conceptual framework. Ethical standards were upheld throughout the process to protect respondents' rights, ensure data security, and foster trust, while the collected data were analyzed to determine the relationship between organizational leadership skills, digital-age communication skills, and student achievement.

The study utilized a researcher-made survey questionnaire consisting of 50 items on a 4-point Likert scale, designed based on relevant literature and previous studies on leadership and technology integration. The instrument was divided into two sections and four parts, administered separately to school heads and teachers to reflect their distinct roles. Parts I and II focused on school heads' digital-age leadership practices and perceived challenges, while Parts III and IV examined teachers' technology adoption and the challenges they experience related to leadership support. The questionnaire underwent content validation by five education experts to ensure clarity and alignment with the research objectives, followed by a dry run with 20 non-respondents to test reliability. Cronbach's Alpha results showed acceptable to excellent internal consistency across all parts ranging from 0.750 to 0.880, with an overall reliability coefficient of $\alpha = 0.820$, confirming that the instrument is reliable for measuring digital-age leadership and teachers' technology adoption in the San Vicente–San Lorenzo Ruiz District.

Ethical standards were strictly observed, including voluntary participation confidentiality and anonymity of respondents. The collected data were analyzed using SPSS Version 21 to generate descriptive statistics and determine the relationships between variables.

RESULTS AND DISCUSSION

Level of Digital Age Leadership Skills Demonstrated by School Heads. Digital leadership skills of the teachers and school heads of the respondents of Schools A to H. This includes three (3) tabular presentations on promoting technology integration, encouraging digital Innovation, and supporting teacher adaptability to technology.

Promoting Technology Integration. School heads in the San Vicente–San Lorenzo Ruiz (SV–SLR) District are strong advocates of digital learning, as reflected in the overall weighted mean of 3.93, "strongly agree." This indicates a solid leadership culture committed to sustaining and advancing technology integration in schools. The highest rating of 3.98, "strongly agree" for promoting teachers' integration of technology, demonstrates that school heads intentionally encourage the regular use of digital tools in classroom instruction. Meanwhile, the lowest rating of 3.86, "strongly agree," was recorded for providing adequate resources. This suggests that while leadership support remains very high, there are underlying logistical and funding constraints typical in public schools, reflecting systemic challenges rather than a lack of commitment from school heads.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

Table 1 Level of Digital-Age Leadership Skills Demonstrated by School Heads along with Promoting Technology Integration

Indicators	Weighted Mean	Interpretation
1. The school head promotes teachers to integrate technology into daily classroom instruction.	3.98	SA
2. The school head provides adequate resources to support technology integration in teaching and learning.	3.86	SA
3. The school head leads and promotes professional development programs focused on technology integration.	3.91	SA
4. The school head actively monitors and supports the use of technology in classrooms.	3.93	SA
5. The school head fosters a culture where technology is an integral part of teaching practices.	3.92	SA
Overall Weighted Mean	3.93	SA

Rating Scale:	Descriptive Interpretation
3.25 – 4.00	- Strongly Agree (SA)
2.50 – 3.24	- Agree (A)
1.75 -2.49	- Disagree (D)
1.00- 1.74	-Strongly Disagree (SD)

Encouraging Digital Innovation. Indicates that school heads strongly encourage digital innovation, as evidenced by an overall weighted mean of 3.92, "strongly agree." The highest rating of 3.95, "strongly agree," reflects their strong support for creative uses of technology in teaching. This leadership commitment is evident in initiatives such as Digital Storytelling Projects in Grade 7 English using multimedia and video editing tools, Online Science Simulation Labs in Grade 9 utilizing virtual lab platforms for inquiry-based learning, and Interactive Math Quiz Competitions for Grades 7–10 through digital quiz platforms. These efforts demonstrate how school heads, in collaboration with ICT coordinators, cultivate a school environment that promotes creativity, collaboration, and technology-driven learning experiences. Conversely, the lowest rating of 3.88, "strongly agree," pertains to creating opportunities for teachers to collaborate and share innovative digital tools. While still indicative of a very high level of support, it suggests an area where structured peer-to-peer sharing could be further strengthened.

Table 2 Level of Digital-Age Leadership Skills Demonstrated by School Heads along with Encouraging Digital Innovation

Indicators	Weighted Mean	Interpretation
1.The school head encourages teachers to explore innovative digital teaching methods.	3.94	SA
2.The school head creates opportunities for teachers to collaborate and share innovative digital tools and strategies.	3.88	SA
3.The school head promotes the use of emerging technologies in the classroom.	3.92	SA
4.The school head values and supports creative uses of technology to improve learning outcomes.	3.95	SA
5.The school head advocates for continuous improvement in digital practices and technologies.	3.91	SA
Overall Weighted Mean	3.92	SA

Rating Scale:	Descriptive Interpretation
3.25 – 4.00	- Strongly Agree (SA)
2.50 – 3.24	- Agree (A)
1.75 -2.49	- Disagree (D)
1.00- 1.74	- Strongly Disagree (SD)

Supporting Teacher Adaptability to Technology. School heads strongly support teacher adaptability to technology, as evidenced by an overall weighted mean of 3.88, "strongly agree." The highest-rated indicators of 3.90, both "strongly agree," highlight leaders' efforts to encourage teachers to experiment with new technologies and consistently communicate the importance of adapting to digital tools. This reflects transformational leadership that promotes continuous learning and flexibility, helping teachers remain relevant and responsive to digital-native learners. However, the lowest rating of 3.85, "strongly agree," was observed in indicators regarding assistance for teachers facing technological challenges and the capacity to adapt to changes. This suggests that

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

while still highly supported, follow-through assistance may vary due to differences in training opportunities and resource availability, reinforcing the idea that sustained, hands-on leadership support is crucial for successful technology adaptation.

Table 3 Level of Digital-Age Leadership Skills Demonstrated by School Heads along Supporting Teacher Adaptability to Technology

Indicators	Weighed Mean	Interpretation
1.The school head provides sufficient training opportunities for teachers to improve their technology skills.	3.89	SA
2.The school head offers support for teachers who face challenges in adopting technology in the classroom.	3.85	SA
3.The school head encourages teachers to experiment with new technologies and teaching tools.	3.90	SA
4.The school head capacitates teachers adapt to changes in educational technology.	3.85	SA
5.The school head communicates the importance of adapting to digital tools in education.	3.90	SA
Overall Weighted Mean	3.88	SA

Rating Scale:	Descriptive Interpretation
3.25 – 4.00	- Strongly Agree (SA)
2.50 – 3.24	- Agree (A)
1.75 -2.49	- Disagree (D)
1.00- 1.74	- Strongly Disagree (SD)

Level of Teachers' Technology Adoption. This section highlights how teachers in the San Vicente–San Lorenzo Ruiz (SV–SLR) District integrate and utilize digital tools in their instructional practices, reflecting the influence of their school heads' digital leadership. Data in Table 4 indicates that teachers consistently utilize digital tools, as shown by the overall weighted mean of 3.79,"always." The highest rating of 3.87,"always," shows that teachers consistently integrate digital resources into lesson planning and student activities, demonstrating effective technology adoption. Meanwhile, the lowest weighted mean of 3.65,"always," suggests that while teachers regularly use various applications and software, technology is primarily utilized for instructional delivery such as presenting lessons, displaying visual materials, and reinforcing explanations through slides and videos. This indicates that digital tools have become a routine but largely presentation-focused component of classroom instruction. These findings imply that while technology adoption is strongly evident, there is an opportunity to move beyond presentation-based use toward more transformative and student-centered applications. Enhancing innovative practices such as collaborative online projects, data-driven assessment tools, and interactive digital tasks may further maximize the impact of technology on student engagement and learning outcomes.

Table 4 Level of Teachers' Technology Adoption along Utilization of Technology in Instruction

Indicators	Weighted Mean	Interpretation
1. I regularly use digital tools to facilitate classroom instruction.	3.76	A
2. I integrate technology into lesson planning and student activities.	3.87	A
3. I use technology to enhance student engagement and participation in lessons.	3.86	A
4. I use on digital platforms for presenting course materials and lectures.	3.82	A
5. I use educational apps and software regularly to support teaching and learning.	3.65	A
Overall Weighted Mean	3.79	A

Rating Scale:	Descriptive Interpretation
3.25 – 4.00	- Always (A)
2.50 – 3.24	- Often (O)
1.75 -2.49	- Sometimes (S)
1.00- 1.74	- Never (N)

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

Technology Integration. Teachers consistently integrate technology across instructional areas, as reflected by an overall weighted mean of 3.65,"always." This high level of engagement demonstrates their adaptability to evolving educational standards and innovations. The highest-rated indicator of 3.69,"always," illustrates that teachers actively create interactive learning experiences using digital platforms. This success is supported by ICT equipment distributed through DCP batches and laptops under Bayanihan Fund II, which improved access to essential tools in the SV–SLR district. Teachers also strengthen their skills through ICTfocused professional development on platforms such as Google Workspace, DepEd Learning Management System, Canva for Education, Kahoot!, and Quizizz. Meanwhile, the lowest-rated indicator of 3.59,"always," suggests that there is an opportunity to further expand the variety of applications or devices used when addressing diverse learning needs. These findings indicate that while technology integration is already embedded in instructional practice, continuous support and innovation remain essential to sustain its effectiveness. Furthermore, strengthening collaborative sharing of best practices among teachers may further enhance the quality and inclusivity of technology-enhanced learning experiences.

Table 5 Level of Teachers' Technology Adoption along Technology Integration

Indicators	Weighted Mean	Interpretation
1. I integrate technology in all areas of my teaching (e.g., assessment, content delivery, student collaboration).	3.61	A
2. I combine a variety of technological tools to accommodate diverse student learning needs.	3.59	A
3. I collaborate with colleagues to share ideas on how to integrate technology effectively in the classroom.	3.66	A
4. I incorporate digital tools to create interactive learning experiences for students.	3.69	A
5. I align my use of technology with curriculum objectives and teaching strategies.	3.68	A
Overall Weighted Mean	3.65	A

Rating Scale:	Descriptive Interpretation
3.25 – 4.00	- Always (A)
2.50 – 3.24	- Often (O)
1.75 -2.49	- Sometimes (S)
1.00- 1.74	- Never (N)

Use of Digital Tools. Teachers consistently utilize various digital resources, as shown by the overall weighted mean of 3.39,"always." While this represents the most emerging area among the technology adoption dimensions, it still reflects a solid foundation of digital practice across the district. The highest-rated indicator of 3.59,"always," shows that teachers are confident in using digital tools to facilitate teaching and improve student outcomes, commonly utilizing platforms such as Google Workspace, Canva for Education, and the DepEd Learning Management System. Meanwhile, the lowest-rated indicator of 3.27,"always," pertains to the frequent use of learning management systems (LMS) for assignments and grading. This suggests that factors such as time management, large class sizes, and administrative workloads provide opportunities to further streamline the use of digital platforms for assessment and communication tasks. These findings highlight that while teachers have a growing comfort with digital tools, there remains room to optimize their integration for administrative and assessment purposes. Strengthening targeted professional development and peer mentoring could help teachers leverage LMS and other digital platforms more efficiently, enhancing both instructional delivery and student engagement.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

Table 6 Level of Teachers' Technology Adoption along Use of Digital Tools

Indicators	Weighted Mean	Interpretation
1. I frequently use learning management systems (LMS) for assignments, communication, and grading.	3.27	A
2. I use digital tools to assess student learning and provide feedback.	3.36	A
3. I use educational technology to support student collaboration and group work.	3.47	A
4. I actively use interactive whiteboards and other classroom technologies to engage students.	3.28	A
5. I am confident in using digital tools to facilitate my teaching and improve student outcomes.	3.59	A
Overall Weighted Mean	3.39	A

Rating Scale: Descriptive Interpretation
3.25 – 4.00 - Always (A)
2.50 – 3.24 - Often (O)
1.75 -2.49 - Sometimes (S)
1.00- 1.74 - Never (N)

Relationship between School Heads' Leadership Skills and Teachers' Technology Adoption. Positive and statistically significant correlations between leadership dimensions promoting technology integration, encouraging digital innovation, and supporting teacher adaptability and teachers' use of technology in instruction, integration, and digital tools. Specifically, technology utilization in instruction was positively correlated with promoting technology integration ($r = .252$, $p = .006$), encouraging digital innovation ($r = .226$, $p = .015$), and supporting teacher adaptability ($r = .205$, $p = .028$), indicating that effective leadership in the digital age enhances teachers' willingness and ability to adopt technology in their classrooms. These results suggest that school heads who actively foster a culture of innovation and provide support for digital skill development can significantly influence teachers' technology adoption. Consequently, strengthening leadership capacity in digital-age practices may serve as a key strategy for promoting sustainable and effective integration of technology in classroom instruction. Moreover, the presence of significant relationships across all leadership dimensions underscores the critical role of school heads as catalysts of digital transformation within their schools. This further implies that investing in continuous leadership development programs focused on digital competence and strategic innovation may yield long-term improvements in teachers' instructional practices and student learning outcomes.

Table 7 Test for Significant Relationship between School Heads' Leadership Skills in the Digital Age and Teachers' Classroom Level of Technology Adoption

Teachers' Classroom Level of Technology Adoption	School Heads' Leadership Skills					
	Promoting Technology Integration		Encouraging Digital Innovation		Supporting Teacher Adaptability Classroom Technology	
	r	*p- values*	*r*	*p-values*	r	*p-values*
Utilization of Technology in Instruction	.252**	.006	.226*	.015	.205*	.028
Technology Integration	.301**	.001	.304**	.001	.241**	.009
Use of Digital Tools	.282**	.002	.254**	.006	.239**	.010

*Correlation is significant @ 0.05 level

**Correlation is significant @ 0.01 level

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

Challenges Encountered by Teachers in Relation to School Heads' Influence on Technology Adoption. This section highlights the difficulties teachers face in integrating technology into instruction, particularly in relation to school leadership support. Table 8 shows that teachers find technology use *very challenging*, with an overall weighted mean of 3.69. The highest-rated indicator WM = 3.74 "I need clearer directives from school leadership" reveals a communication gap, where teachers feel uncertain about expectations despite school heads' strong promotion of technology (Table 2). Other indicators WM = 3.69 highlight the need for ongoing instructional guidance, timely technical assistance, and consistent expectations. Teachers reported that without model lesson plans, coaching, or structured training, and with occasional technical failures, integrating technology becomes difficult, disrupts lesson flow, and may discourage continued use. These findings suggest that while school heads provide encouragement for technology adoption, gaps in communication, support, and practical resources hinder teachers' full utilization of digital tools. Addressing these challenges through structured mentoring, clear guidelines, and reliable technical infrastructure can enhance teachers' confidence and consistency in integrating technology into their classrooms.

Table 8 Challenges Encountered by Teachers in Utilization of Technology in Instruction

Indicators	Weighted Mean	Interpretation
I would benefit from more instructional support from my school head when using technology during lessons.	3.69	VC
Clearer directives from school leadership would help me better integrate technology into classroom activities.	3.74	VC
Receiving more recognition or encouragement from my school head would further motivate me to use technology in instruction.	3.64	VC
Consistent expectations from school leadership would help clarify how technology should be used during instruction.	3.69	VC
Having timely access to technical support or troubleshooting assistance would enhance my ability to use technology effectively in class.	3.69	VC
Overall Weighted Mean	3.69	VC

Rating Scale: Descriptive Interpretation

3.25 – 4.00 - Very Challenging (VC)
2.50 – 3.24 - Moderately Challenging (MC)
1.75 -2.49 - Slightly Challenging (SC)
1.00- 1.74 - Not Challenging (NC)

Technology Integration Challenges. Data in Table 9 shows that teachers find technology integration very challenging, as evidenced by an overall weighted mean of 3.70,"very challenging." The highest-rated indicator of 3.75,"very challenging," highlights the urgent need for a clear policy or framework from leadership. This suggests that teachers are looking for technology goals to be formally embedded in the School Improvement Plan (SIP) and funded through the Annual Implementation Plan (AIP), effectively moving technology from an encouraged practice to an institutional requirement.Additionally, indicators regarding the need for more guidance, training, and professional development both received a weighted mean of 3.72, "very challenging." These findings underscore a significant demand for targeted support focused on the pedagogical aspects of planning and executing tech-integrated lessons rather than just basic tool orientation. Consequently, school heads, in collaboration with the Schools Division Office, have a vital opportunity to establish formal policies, specialized training programs, and mentorship structures. By institutionalizing these support systems, leadership can ensure that digital innovation becomes an enduring and seamless part of the district's teaching culture.

Table 9 Challenges Encountered by Teachers along Technology Integration

Indicators	Weighted Mean	Interpretation
1. A clear policy or framework from school leadership would enhance effective integration of technology into teaching.	3. 75	VC
2. More guidance or training from school leadership would help me better plan tech-integrated lessons.	3. 72	VC

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

3. Regular monitoring and support from school leadership would strengthen the integration of technology in classroom practice.	3. 67	VC
4. Greater involvement of the school head in tech-related initiatives would help prioritize technology integration.	3. 66	VC
5. Increased professional development opportunities from the school administration would support my efforts in integrating technology	3. 72	VC
Overall Weighted Mean	3. 70	VC

Rating Scale: Descriptive Interpretation
3.25 – 4.00 - Very Challenging (VC)
2.50 – 3.24 - Moderately Challenging (MC)
1.75 -2.49 - Slightly Challenging (SC)
1.00- 1.74 - Not Challenging (NC)

Use of Digital Tools Challenges. Teachers find the use of digital tools very challenging, as evidenced by an overall weighted mean of 3.77, "very challenging." The highest-rated indicators of 3.84, both "very challenging," highlight the urgent need for clear leadership policies and regular monitoring. These scores emphasize that consistent feedback and accountability systems are essential to encourage responsible and effective technology use across the district. Another key indicator with a weighted mean of 3.78, "very challenging," reflects teachers' strong desire for targeted training to improve technology-integrated lesson design. Meanwhile, professional development opportunities and visible leadership involvement each receiving a weighted mean of 3.69, "very challenging" remain ongoing areas for growth. These findings suggest that although teachers are proactive in using digital tools, sustained support through supervision, feedback, and professional development is vital. This align with the pedagogical need for instructional supervision to ensure that technology adoption moves from simple use to true classroom innovation.

Table 10 Challenges Encountered by Teachers along the Use of Digital Tools

Indicators	Weighted Mean	Interpretation
1. A clear policy or framework from school leadership would enhance effective integration of technology into teaching.	3.84	VC
2. More guidance or training from school leadership would help me better plan tech-integrated lessons.	3.78	VC
3. Regular monitoring and support from school leadership would strengthen the integration of technology in classroom practice.	3.84	VC
4. Greater involvement of the school head in tech-related initiatives would help prioritize technology integration.	3.69	VC
5. Increased professional development opportunities from the school administration would support my efforts in integrating technology	3.69	VC
Overall Weighted Mean	3.77	VC

Rating Scale: Descriptive Interpretation
3.25 – 4.00 - Very Challenging (VC)
2.50 – 3.24 - Moderately Challenging (MC)
1.75 -2.49 - Slightly Challenging (SC)
1.00- 1.74 - Not Challenging (NC)

Challenges Encountered by School Heads in Technology Adoption. School heads face significant hurdles in their digital leadership roles, as evidenced by an overall weighted mean of 3.85, "highly challenging." The highest-rated indicator of 3.87, "highly challenging," highlights how budget limitations make it difficult to provide all necessary digital tools and resources for classroom use. Additionally, keeping pace with emerging

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue II February 2026

educational technologies was recorded with a weighted mean of 3.86, "highly challenging," reflecting an urgent need for continual upskilling among leaders. Another significant difficulty, with a weighted mean of 3.85, "highly challenging," is encouraging consistent technology use among all teachers, which underscores the complexity of ensuring uniform adoption across a diverse staff. These pressures are further compounded by competing administrative responsibilities and the need for more professional development opportunities, both receiving a weighted mean of 3.83, "highly challenging." Collectively, these findings emphasize that effective digital leadership requires balancing resource management with the evolving technical demands of a modern educational environment.

Table 11 Challenges Encountered by School Heads in Technology Adoption

Indicators	Weighted Mean	Interpretation
1. Our school head may benefit from more opportunities for professional development focused on digital leadership.	3.83	HC
2.Budget limitations can make it challenging to provide all the necessary digital tools and resources for classroom use.	3.87	HC
3.Keeping pace with emerging educational technologies can be demanding, even for school leaders.	3.86	HC
4.Competing responsibilities may affect the time available for supporting teachers' technology use.	3.83	HC
5.Encouraging consistent technology use among all teachers can be a gradual and ongoing process for our school head.	3.85	HC
Overall Weighted Mean	3.85	HC

Rating Scale: Descriptive Interpretation
3.25 – 4.00 - Highly Challenging (HC)
2.50 – 3.24 - Challenging (C)
1.75 -2.49- Less Challenging (LC)
1.00- 1.74- Not Challenging (NC)

CONCLUSION AND RECOMMENDATIONS

The study revealed that school heads in the SV–SLR District exhibit strong digital-age leadership, characterized by promoting technology, fostering innovation, and supporting teachers' adaptability, while teachers demonstrate high technology adoption but still need ongoing training to master emerging digital tools. Effective leadership positively influences teachers' confidence and classroom technology use, though challenges such as unclear directives, budget constraints, and keeping pace with new technologies remain. To address these issues, school heads are encouraged to embed clear ICT policies and roadmaps into the SIP and APP, shift INSET and LAC sessions toward specialized digital pedagogy, and pursue professional development in strategic digital leadership. Teachers can form self-directed learning communities to refine their use of technology, while the Division Office may ensure equitable funding and internet access across schools. Implementing Project V.I.S.T.A. can further strengthen leadership, accountability, and teacher growth. Future research could explore leadership and technology integration more deeply, expand to other districts, and examine the long-term impact of ICT training on teaching and student outcomes.

ACKNOWLEDGMENT

First and foremost, profound gratitude is extended to Almighty God for His guidance, strength, and blessings, which made the completion of this thesis possible. The researcher sincerely acknowledges the expert guidance, patience, and insightful feedback of the research adviser, Sonia S. Carbonell, PhD, which were invaluable throughout the study. Appreciation is also extended to the thesis committee members, Anicia S. Madarang, EdD, Jennifer S. Rubio, PhD, and Nomelita S. Lo, EdD, for their constructive suggestions and encouragement, as well as to Ms. Faina Rose Casimiro for her support as panel secretary. Special thanks are given to the participating

school heads and teachers for their cooperation and valuable insights, which were essential for data collection. The researcher also acknowledges the unwavering love and support of family and the encouragement and camaraderie of colleagues, all of which contributed significantly to the successful completion of this study.

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