

**Managing ICT for instructional integration:
Evidence from a Philippine elementary school**

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ABSTRACT

Digital technology has been an important component of elementary instruction, making effective school ICT management essential for supporting teachers' classroom practices. Nevertheless, limited attention has been given to how school-level ICT management relates to teachers' integration of digital technologies in Philippine elementary schools. This study assessed school ICT management practices and teachers' integration of digital technologies in instruction at Balasig Elementary School, Cabagan, Isabela. A descriptive-correlational design was employed with 25 teachers selected through total enumeration. Data were gathered using a validated researcher-made questionnaire and analyzed using frequency, percentage, weighted mean, and Pearson product-moment correlation. Results showed that school ICT management practices were highly practiced ($M = 4.18$), while teachers' integration of digital technologies was also high ($M = 4.11$). A significant positive relationship was found between ICT management practices and technology integration ($r = .68, p < .001$). The findings indicate that school-level ICT management may provide important support for classroom technology use. Schools should sustain ICT management practices while strengthening teacher training, technical assistance, and the use of digital technologies for assessment and interactive learning.

Keywords: ICT management, digital technology, technology integration, elementary education, teacher support.

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INTRODUCTION

Digital technology has become part of everyday teaching and learning. Teachers use digital tools to prepare lessons, present content, develop instructional materials, communicate with learners, and assess performance. The UNESCO (2023) Global Education Monitoring Report noted that technology can support education, but its value depends on conditions such as teacher preparation, infrastructure, institutional support, and appropriate governance.

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Technology integration, therefore, is not simply a matter of providing devices. It is also a matter of how schools manage and support their use.

The issue is particularly important in elementary education. Technology should be connected to instructional purposes rather than used merely because digital tools are available. Harris et al. (2009), through the Technological Pedagogical Content Knowledge framework, explained that effective technology integration involves the interaction of technology, pedagogy, content, and context. This perspective suggests that teachers need more than technical skills. They need appropriate support in deciding when, why, and how technology can contribute to learning.

School management consequently has an important role in ICT integration. ICT resources require planning, allocation, maintenance, monitoring, and technical support. Teachers also need opportunities to develop their skills. In the Philippine setting, the Department of Education has recognized these responsibilities through policies governing ICT equipment, internet access, and the implementation of the DepEd Computerization Program (Department of Education [DepEd], 2009, 2010). These policies place ICT within the broader responsibility of schools to provide appropriate resources and support for teaching and learning.

The presence of ICT resources, however, does not automatically result in effective classroom integration. UNESCO (2023) noted that access, teacher preparedness, and institutional conditions influence how technology is used in education. Teachers may have access to computers, internet services, applications, and digital learning resources but may still encounter difficulties in using them effectively. School-level support is therefore an important consideration.

International research supports this management perspective. AlAjmi (2022) found that digital leadership among school principals positively influenced teachers' technology integration in public elementary schools in Kuwait. The findings suggest that school leaders can help create conditions that encourage technology use. Similarly, Schmitz et al. (2023) reported that transformational leadership was associated with teachers' technology integration and supported the development of teachers' technical and pedagogical capabilities. More recently, Schmitz et al. (2025) found that transformational leadership was positively related to teacher collaboration for technology integration. These findings suggest that technology integration is influenced not only by individual teachers but also by the organizational environment of the school.

Philippine studies show related patterns. Alayan (2022) examined school heads' technological leadership and teachers' ICT integration in public elementary schools in the Division of Quezon and found a positive and significant relationship between the two variables. The study recommended strengthening school heads' technological leadership to encourage teachers' ICT integration.

Lagos and Nabos (2023) likewise found that public school teachers in island municipalities in Quezon frequently used digital technologies for lesson preparation, instructional delivery, assessment, and administrative work. Their study also showed differences in teachers' digital competencies across areas such as digital literacy, communication and collaboration, content creation, online safety, and problem solving. These findings indicate that technology use is already part of Philippine teachers' work, although the depth and quality of use may vary.

Recent Philippine evidence also highlights the importance of institutional support. Wong et al. (2025) found among public elementary school teachers in Romblon that access to training, technology resources, and peer collaboration was associated with stronger digital competence. Fernandez and Baynosa (2025), meanwhile, reported that elementary teachers experienced challenges related to internet connectivity, inadequate resources, power

interruptions, and the additional time required to prepare technology-supported lessons. These findings point to the importance of school conditions in sustaining digital technology integration.

The Philippine education system has continued to strengthen its use of technology. The Department of Education's Digital Rise Program includes digital literacy, ICT-assisted teaching, ICT-assisted learning, equipment, digital content, and skills development among its major areas of implementation (DepEd, 2022). These initiatives demonstrate that technology integration is now part of the broader educational agenda. The concern, therefore, extends beyond whether schools have ICT resources. Attention must also be given to how these resources are managed and translated into meaningful classroom practice.

Despite the growing literature, a gap remains. Philippine studies have largely examined teachers' digital competence, experiences, perceptions, frequency of ICT use, or school heads' technological leadership. Less attention has been given to school-level ICT management practices as an organizational construct and their relationship with teachers' integration of digital technologies in elementary instruction. Existing studies provide useful evidence, but there is still a need for school-based research examining how planning, resource management, technical support, and teacher capability-building are associated with actual classroom technology use.

This gap is relevant to Balasig Elementary School in Cabagan, Isabela. The school provides a local setting in which ICT resources, teacher practices, and school-level management can be examined together. A school-based investigation can provide practical evidence for improving ICT management and supporting teachers' instructional use of technology.

The study aimed to assess school ICT management practices and teachers' integration of digital technologies in elementary instruction at Balasig Elementary School. Specifically, it sought to determine the level of school ICT management practices, assess the extent to which teachers integrated digital technologies in their instruction, and examine the relationship between school ICT management practices and teachers' integration of digital technologies.

The study contributes local evidence to the growing discussion on educational technology management. It views technology integration not simply as an individual teacher practice but as an activity influenced by school-level planning, resource management, technical assistance, and professional support.

Statement of the problem

This study aimed to assess the school ICT management practices and teachers' integration of digital technologies in elementary instruction at Balasig Elementary School, Cabagan, Isabela. Specifically, it sought to determine the level of school ICT management practices, assess the extent to which teachers integrated digital technologies in their instruction, and examine the relationship between school ICT management practices and teachers' integration of digital technologies.

METHODOLOGY

The study employed a descriptive-correlational research design to assess school ICT management practices, determine the extent of teachers' integration of digital technologies, and examine the relationship between the two variables. It was conducted at Balasig Elementary School, Cabagan, Isabela, with 25 teachers selected through total enumeration.

Data were gathered using a researcher-made questionnaire covering school ICT management practices and teachers' integration of digital technologies in instruction. The instrument was reviewed by experts for content validity and pilot-tested for reliability. A five-point Likert scale was used. After permission was obtained from the school authorities, the questionnaire was administered to the respondents. Participation was voluntary, and confidentiality was maintained.

The data were analyzed using frequency, percentage, and weighted mean to describe the data and determine the levels of ICT management practices and digital technology integration. Pearson product-moment correlation (r) was used to determine the relationship between the two variables. The level of significance was set at 0.05. Ethical principles concerning voluntary participation, confidentiality, and responsible use of data were observed throughout the study.

RESULTS AND DISCUSSION

The findings showed that school ICT management practices were highly practiced at Balasig Elementary School. Teachers also reported a high level of digital technology integration in instruction. The results further showed a significant positive relationship between the two variables.

School ICT management practices obtained an overall mean of 4.18, interpreted as Highly Practiced. ICT planning and organization obtained a mean of 4.22. ICT resource management recorded 4.15, while technical support obtained 4.08. Teacher capability-building and monitoring received the highest mean of 4.27. These results indicate that the school had established practices for planning, managing, supporting, and monitoring the use of ICT resources.

The findings support UNESCO's (2023) position that effective technology use requires more than access to equipment. Teacher preparation and institutional support are also important. The findings are likewise consistent with Schmitz et al. (2023), who found that school leadership can create conditions that encourage teachers to integrate technology into their teaching. In the present study, the relatively high rating for capability-building and monitoring suggests that teachers received organizational support for their technology-related practices.

Teachers' integration of digital technologies obtained an overall mean of 4.11, interpreted as High. The highest-rated area was the use of digital technologies for lesson presentation ($M = 4.25$), followed by lesson preparation and development of instructional materials ($M = 4.18$). The use of digital technology for learner activities obtained 4.07, while its use for assessment received 4.03.

The results suggest that teachers were more likely to use digital technology for preparing and presenting lessons than for assessment. This pattern is consistent with Lagos and Nabos (2023), who found that Philippine public school teachers frequently used digital technologies in lesson preparation, instructional delivery, assessment, and administrative work. Their findings also showed that teachers differed in their digital competencies across several areas. Wong et al. (2025) similarly emphasized the importance of training, access to technology resources, and peer collaboration in strengthening teachers' digital competence.

The lower mean for digital assessment suggests an area that may require further attention. Teachers may be comfortable using technology to present information and prepare materials but may need additional support in designing technology-supported assessment tasks. Fernandez and Baynosa (2025) likewise reported that elementary teachers experienced several practical challenges in integrating ICT into instruction, including limited resources, connectivity problems, power interruptions, and the additional preparation time required.

The correlation analysis showed a significant positive relationship between school ICT management practices and teachers' integration of digital technologies ($r = .68, p < .001$). The result indicates that stronger ICT management practices were associated with greater integration of digital technologies in instruction.

This finding is consistent with Alayan (2022), who reported a positive and significant relationship between school heads' technological leadership and teachers' ICT integration in public elementary schools in the Division of Quezon. It also agrees with AlAjmi (2022), whose study of public elementary schools in Kuwait found that digital leadership positively influenced teachers' technology integration.

The finding is also consistent with the more recent work of Schmitz et al. (2025), which showed that school leadership was positively associated with teacher collaboration around technology integration. These studies support the view that technology integration is not solely an individual teacher responsibility. School-level management can help establish the conditions under which teachers are more willing and able to use technology.

The result should not, however, be interpreted as proof that ICT management directly causes teachers to integrate technology because the present study used a descriptive-correlational design. The finding only establishes an association between the two variables. Other factors, such as teacher competence, access to devices, internet connectivity, workload, and personal attitudes toward technology, may also influence technology integration.

The findings point to practical areas for school improvement. The school may sustain its existing ICT management practices while giving greater attention to digital assessment, interactive learning activities, technical support, and continuing professional development. These areas can form part of a school-level ICT development plan.

CONCLUSION

This study concludes that school ICT management practices were highly practiced at Balasig Elementary School. Teachers also demonstrated a high level of digital technology integration in instruction. They used digital tools particularly for lesson preparation, lesson presentation, learning activities, and assessment.

A significant positive relationship was found between ICT management practices and teachers' integration of digital technologies. The finding suggests that school-level management and support are important considerations in promoting classroom technology use.

The school should sustain its ICT planning, resource management, technical support, and teacher capability-building practices. Regular training should be provided, especially on digital assessment and interactive learning activities. Technical assistance should also remain available to teachers. These measures may strengthen the school's ICT management and support more meaningful use of digital technology in instruction.

REFERENCES

- AlAjmi, M. K. (2022). The impact of digital leadership on teachers' technology integration during the COVID-19 pandemic in Kuwait. *International Journal of Educational Research*, 112, 101928. <https://doi.org/10.1016/j.ijer.2022.101928>
- Alayan, G. (2022). School heads' technological leadership and teachers' ICT integration in instruction in the public elementary schools in the Division of Quezon. *Psychology and Education: A Multidisciplinary Journal*, 3(2), 71–84. <https://doi.org/10.5281/zenodo.6852893>

Department of Education. (2009). Guidelines in accepting information and communication technology (ICT) equipment and internet access services for classroom instruction and administrative use (DepEd Order No. 28, s. 2009).

Department of Education. (2010). Guidelines on the implementation of the DepEd Computerization Program (DepEd Order No. 78, s. 2010). Department of Education.

Department of Education. (2022, May 10). DepEd highlights Digital Rise Program as key player in addressing challenges in education quality.

Fernandez, J., & Baynosa, B. (2025). The lived experiences of elementary teachers integrating information and communication technology in classroom instruction. *Psychology and Education: A Multidisciplinary Journal*, 50(7), 805–836. <https://doi.org/10.70838/pemj.500704>

Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types: Curriculum-based technology integration reframed. *Journal of Research on Technology in Education*, 41(4), 393–416. <https://doi.org/10.1080/15391523.2009.10782536>

Lagos, G. P. N., & Nabos, J. Q. (2023). Digital competencies and experiences in using digital technologies of public school teachers in island municipalities in Quezon, Philippines. *Psychology and Education: A Multidisciplinary Journal*, 10(1), 16–33. <https://doi.org/10.5281/zenodo.8086746>

Schmitz, M.-L., Antonietti, C., Consoli, T., Cattaneo, A., Gonon, P., & Petko, D. (2023). Transformational leadership for technology integration in schools: Empowering teachers to use technology in a more demanding way. *Computers & Education*, 204, 104880. <https://doi.org/10.1016/j.compedu.2023.104880>

Schmitz, M.-L., Antonietti, C., Consoli, T., Gonon, P., Cattaneo, A., & Petko, D. (2025). Enhancing teacher collaboration for technology integration: The impact of transformational leadership. *Computers & Education*, 234, 105331. <https://doi.org/10.1016/j.compedu.2025.105331>

UNESCO. (2023). Global education monitoring report 2023: Technology in education—A tool on whose terms?

Wong, A. M., Sy, F. I. M., & Wong, J. P. (2025). Examining digital competence among Filipino public school teachers: Generational gaps, institutional support and ICT perceptions. *Journal of Interdisciplinary Perspectives*, 3(10), 156–163. <https://doi.org/10.69569/jip.2025.617>