IJGGSD
ISSN: 3155-7716
International Journal of Global Goals and Sustainable Development
RESEARCH | INNOVATION | INCLUSION | SUSTAINABLE FUTURES
DOI: https://doi.org/10.65339/ijggsd.V1.I1.116

# Instructional Leadership Practices and Teachers' Digital Literacy Integration in Selected Private Secondary Schools in Masbate Province

**Herbert E. Lupango**
Togoron Elementary School, Department of Education, Schools Division of Masbate, Monreal, Masbate, Philippines

Email: herbertlupango2@gmail.com

**ABSTRACT**

This study examined the relationship between school administrators' instructional leadership practices and teachers' digital literacy integration in selected private secondary schools in Masbate Province, Philippines, as a basis for proposing a Digital Literacy Enhancement Program. A quantitative descriptive-correlational design was employed, involving 39 Junior High School and Senior High School teachers from two private secondary schools selected through total enumeration. Data were gathered using a researcher-made questionnaire and analyzed through descriptive statistics and Pearson product-moment correlation at the 0.05 significance level. Findings revealed that administrators consistently practiced instructional leadership, particularly in defining and communicating school goals (mean = 3.83), while fostering a supportive learning environment received the lowest rating (mean = 3.58). Teachers demonstrated strong digital information and data literacy (mean = 3.83) and responsible technology use (mean = 3.70), whereas digital content creation was the least practiced competency (mean = 3.25), particularly digital assessment development (mean = 3.03). A statistically significant moderate positive relationship was established between instructional leadership and digital literacy integration ($r = 0.49$, $p < .05$). The findings indicate that stronger perceived instructional leadership is associated with greater digital literacy integration. Implementing a targeted enhancement program emphasizing digital content creation, assessment tools, professional development, and institutional support is recommended. Although limited to self-reported data from 39 teachers in two schools, the study provides evidence to guide school-based professional development and strengthen technology-supported secondary education.

**Keywords:** *Digital Assessment, Digital Literacy, Instructional Leadership, Private Secondary Schools, Professional Development, Technology Integration*

## 1. INTRODUCTION

Digital transformation requires teachers to develop competencies in information management, communication, content creation, and technology-supported instruction. Effective integration depends on both teachers' digital competence and institutional leadership (UNESCO, 2023; Wohlfart & Wagner, 2023). Domínguez-González et al. (2025), through a systematic review of teacher digital competence, further highlighted the importance of developing teachers' digital competencies to respond to evolving educational demands. Digital competence varies with personal characteristics, professional experience, and technological resources (Suzer & Koc, 2024), with digital assessment remaining an area for improvement (Pham et al., 2024). Instructional leadership supports teachers' professional development, instructional practices, and technology integration (Schmitz et al., 2023; Dorukbaşi & Cansoy, 2024; Huang et al., 2023). In the Philippines, educational policies promote instructional quality, professional standards, learning continuity, and responsible technology use (Department of Education, 2017, 2020a, 2020b, 2020c; Republic Act No. 10173, 2012; Republic Act No. 10533, 2013; Republic Act No. 9155, 2001). Philippine research likewise emphasizes teachers' digital readiness and professional responsibilities (Abella & Dela Rosa, 2023; Pizarro et al., 2024). Accordingly, this study examines the relationship between school administrators' instructional leadership practices and teachers' digital literacy integration in selected private secondary schools in Masbate Province, providing a basis for a proposed Digital Literacy Enhancement Program.

### Research Problem

Despite increasing educational technology use, differences persist in teachers' digital competencies, technological resources, and institutional support. Digital competence encompasses information literacy, communication, content creation, safety, and pedagogical application (Smestad et al., 2023; Tzafilkou et al., 2023). Research identifies disparities in digital readiness and emphasizes comprehensive competency assessment and professional development (Althubyani, 2024; Claro et al., 2024; Nguyen & Habók, 2024; Tzafilkou et al., 2023; Zhao, 2024). Similarly, Yang et al. (2023), through a systematic literature review of teachers' digital competence in China, identified teacher training, supportive school environments, and appropriate pedagogical strategies as important considerations for strengthening teachers' digital competencies. Institutional support, leadership, and technological resources also influence teachers' digital practices (Chiu et al., 2024; Msafiri et al., 2023). Philippine studies identify professional development needs, ICT adoption challenges, and varying relationships between school leadership and technology integration (Geresola & Lausa, 2024; Pacon & Espiritu, 2024; Pasi et al., 2024). Other studies emphasize teachers' ICT competencies, instructional readiness, and digital literacy development (Abella & Dela Rosa, 2023; Lagos & Nabos, 2023; Lapesigue, 2024; Orivida & Nabos, 2024). However, limited attention has been given to the relationship between administrators' broader instructional leadership practices and teachers' multidimensional digital literacy integration in private secondary schools in Masbate Province. This study addresses that gap and examines how the findings may inform a Digital Literacy Enhancement Program.

### Assumptions of the Study

The study assumes that respondents accurately report their demographic characteristics, perceptions of administrators' instructional leadership, and digital literacy practices. It further assumes that instructional leadership can be assessed through goal-setting, supervision, curriculum monitoring, professional development, and supportive learning environments, while digital literacy integration can be evaluated through information management, communication,

content creation, ethical technology use, and classroom application. The relationship between these variables is examined statistically without assuming causation.

**Objectives of the Study**

This study aims to determine the relationship between school administrators' instructional leadership practices and teachers' digital literacy integration in selected private secondary schools in Masbate Province. Specifically, it seeks to describe respondents' demographic and professional profiles; assess administrators' instructional leadership across five dimensions; evaluate teachers' digital literacy integration across five competency areas; determine the significance of the relationship between these variables; and propose a Digital Literacy Enhancement Program based on the findings. The investigation involves 39 Junior High School and Senior High School teachers and uses descriptive and correlational analyses of self-reported data. Findings are limited to the participating schools and do not establish causation.

**Conceptual and Theoretical Framework**

The study is grounded in Hallinger and Murphy's (1985) Instructional Leadership Model, Bandura's (1986) Social Cognitive Theory, and Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) framework. These perspectives explain how instructional guidance, individual competencies, environmental conditions, and technological-pedagogical knowledge relate to teachers' digital practices. Heine et al. (2023), in their systematic review, examined the varying definitions of digital resources as an aspect of teachers' professional digital competence, emphasizing the importance of clearly understanding the knowledge and skills involved in using digital resources for educational purposes. Supporting research highlights the importance of instructional leadership, professional learning, and institutional support in technology integration (Huang et al., 2023; Kaya-Kasikci et al., 2023; Lohr et al., 2024; Schmitz et al., 2023). Studies also emphasize digital competency assessment and continuing professional development (Althubyani, 2024; Amilusholihah et al., 2024; Arstorp, 2024; Aydin et al., 2024; Gutiérrez-Castillo et al., 2023; Pedersen et al., 2024; Smestad et al., 2023). Philippine research further supports the relevance of school leadership, instructional supervision, technological readiness, and teachers' digital competencies (Besa & Limpot, 2023; Cabunoc & Ubayubay, 2024; Etorne, 2023; Geresola & Lausa, 2024; Guamos & Leodegario, 2023; Lagos & Nabos, 2023; Pizarro et al., 2024; Schmitz et al., 2023). Conceptually, the study follows the Input-Process-Output (IPO) Model. Inputs include respondents' profiles, instructional leadership practices, and digital literacy integration. The process involves questionnaire administration and statistical analysis using descriptive measures and Pearson correlation. The intended output is a proposed Digital Literacy Enhancement Program to strengthen teachers' digital competencies and instructional leadership.

**Sustainable Development Goal and Multidisciplinary Sustainability Relevance**

The study supports Sustainable Development Goal 4 (SDG 4), which promotes inclusive, equitable, and quality education and lifelong learning (United Nations, n.d.). By examining instructional leadership and teachers' digital literacy integration, it addresses professional development, instructional improvement, and technology-supported education. Its educational and technological sustainability relevance lies in strengthening digital competencies, responsible technology use, instructional innovation, and institutional support. The findings may guide school administrators in planning professional development, improving supervision, and allocating technological resources. The proposed Digital Literacy Enhancement Program provides a practical basis for strengthening teachers' digital capabilities and promoting sustainable instructional improvement in participating secondary schools.

## 2. METHODOLOGY

### Research Design

The study utilized a quantitative descriptive-correlational research design to determine the relationship between instructional leadership practices and teachers' digital literacy integration without manipulating the variables. According to Creswell and Creswell (2023), correlational research measures the degree of association between variables, while Miksza and Shaw (2023) explained that descriptive research identifies existing characteristics and conditions. The descriptive component examined respondents' demographic profiles and assessed the levels of instructional leadership practices and digital literacy integration, while the correlational component determined the strength, direction, and significance of their relationship. Data were analyzed using frequency, percentage, weighted mean, composite mean, and Pearson product-moment correlation coefficient at the 0.05 level of significance. The design examined associations without establishing causal relationships.

### Research Locale or Study Setting

The study was conducted in two private secondary schools in Masbate Province, Philippines: Liceo de San Francisco Mission School, Inc., located in Barangay MacArthur, Monreal, Masbate, and Liceo de San Jose, Inc., located along Fontilar Street, Poblacion East, Milagros, Masbate. Both institutions provide secondary education and emphasize quality instruction, professional development, and supportive learning environments. These schools served as the research settings for examining administrators' instructional leadership practices and teachers' digital literacy integration across Junior High School and Senior High School levels.

### Participants or Data Sources

The respondents consisted of 39 teachers from the Junior High School and Senior High School departments of the two participating private secondary schools, comprising 25 Junior High School teachers and 14 Senior High School teachers. The study employed total enumeration, which involves including every eligible member of the defined population (Australian Bureau of Statistics, 2023). Respondents represented different subject specializations, including Mathematics, English, Technology and Livelihood Education, Science, Social Studies, Filipino, and Physical Education. Their demographic and professional characteristics included age, sex, highest educational attainment, teaching position, years in teaching, grade level taught, and subject specialization. All eligible teachers from the participating schools were included to obtain their perceptions of instructional leadership practices and their self-reported digital literacy integration.

### Research Instruments or Materials

The study utilized a researcher-made questionnaire consisting of three parts. The first gathered respondents' demographic and professional information, while the second assessed instructional leadership practices across five dimensions: defining and communicating school vision and goals, supervising and evaluating instruction, monitoring curriculum implementation, promoting teachers' professional development, and fostering a supportive learning environment. The third assessed teachers' digital literacy integration in digital information and data literacy, communication and collaboration, digital content creation, responsible and ethical technology use, and integration of digital technologies in teaching and learning. Each dimension contained five indicators. Responses were measured using a four-point Likert scale, with numerical ratings interpreted as Always Practiced/Always (3.26–4.00), Often Practiced/Often (2.51–3.25), Sometimes Practiced/Sometimes (1.76–2.50), and Never Practiced/Never (1.00–1.75). Higher scores indicated greater levels of instructional leadership practices or digital literacy integration.

**Data Gathering Procedure**

Data collection followed a systematic procedure beginning with the preparation of the research questionnaire based on the study's objectives and variables. Permission was secured from the appropriate authorities of the two participating schools, followed by coordination with school administrators regarding questionnaire distribution. The instruments were administered to the 39 teacher-respondents, who were informed of the study's purpose and given sufficient time to answer honestly and independently. After retrieval, the questionnaires were checked for completeness, organized, tabulated, and encoded for statistical analysis. The collected data were subsequently analyzed and interpreted according to the research questions, providing the basis for conclusions, recommendations, and the proposed Digital Literacy Enhancement Program.

**Data Analysis**

The collected data were analyzed using descriptive and inferential statistical techniques. Frequency counts and percentages described respondents' demographic and professional profiles, while weighted means assessed individual indicators of instructional leadership practices and teachers' digital literacy integration. Composite means determined the overall levels of the respective dimensions and variables. Pearson product-moment correlation coefficient (Pearson's r) was employed to determine the strength, direction, and statistical significance of the relationship between instructional leadership practices and teachers' digital literacy integration at the 0.05 level of significance. Correlation coefficients were interpreted according to their magnitude and direction, ranging from very weak to very strong positive or negative relationships. The statistical findings were used to address the research objectives and support the formulation of recommendations.

**Ethical Considerations**

The study observed ethical considerations in conducting research involving teacher-respondents. Before data collection, permission was obtained from the appropriate school authorities, and respondents were informed about the purpose of the research and the confidentiality of their responses. Participants were given sufficient time to complete the questionnaire honestly and independently. The information gathered was treated confidentially and used for the study's analysis and interpretation. These procedures supported the responsible handling of respondents' information throughout the research process.

## 3. RESULTS AND DISCUSSION

### 3.1 Demographic and Professional Profiles of Respondents

#### 3.1.1 Age and Sex

Of the 39 respondents, 21 (53.85%) were 25 years old and below, 11 (28.21%) were aged 26–30, five (12.82%) were aged 31–35, and one (2.56%) each belonged to the 36–40 and 41-and-above age groups. In terms of sex, 23 (58.97%) were female and 16 (41.03%) were male, indicating that most respondents were young female teachers. These findings highlight the importance of demographic characteristics when examining teachers' technological competencies. Suzer and Koc (2024) identified age and gender as factors associated with differences in teachers' digital competence, providing context for describing the respondents' characteristics without establishing that such differences occurred in the present sample.

#### 3.1.2 Educational Attainment

Most respondents were college graduates, comprising 35 teachers (89.74%), while four (10.26%) had earned master's degree units. None had completed a master's degree, earned doctoral units, or obtained a doctoral degree. The findings indicate limited postgraduate educational attainment among respondents. Suzer and Koc (2024) found that teachers with postgraduate qualifications demonstrated higher digital competence, emphasizing the potential importance of advanced education and continuing professional development in strengthening teachers' competencies.

#### 3.1.3 Teaching Position, Experience, and Grade Level

Among the respondents, 25 (64.10%) were Junior High School teachers and 14 (35.90%) were Senior High School teachers. Regarding teaching experience, 35 (89.74%) had taught for five years or less, three (7.69%) had six to ten years of experience, and one (2.56%) had 11–15 years. No respondent had taught for 16 years or more. These findings indicate that the respondents were predominantly early-career Junior High School teachers. Pham et al. (2024) emphasized the importance of assessing teachers' digital competence within secondary education contexts, considering their educational settings and instructional responsibilities, while Suzer and Koc (2024) highlighted the relevance of personal and professional characteristics in understanding variations in digital competence.

#### 3.1.4 Subject Specialization

English represented the largest specialization, with 12 respondents (30.77%), followed by Mathematics with nine (23.08%), Science with eight (20.51%), Filipino with four (10.26%), Technology and Livelihood Education with three (7.69%), Social Studies with two (5.13%), and Physical Education with one (2.56%). The distribution reflects representation across different teaching disciplines. Suzer and Koc (2024) identified subject specialization as a factor associated with teachers' digital competence, particularly noting higher competency levels among Mathematics and Science teachers in their sample. This supports considering subject specialization when examining digital literacy integration.

### 3.2 Instructional Leadership Practices of School Administrators

#### 3.2.1 Defining and Communicating School Vision and Goals

School administrators obtained a composite mean of 3.83, interpreted as Always Practiced. Encouraging teachers to align classroom activities with school goals received the highest mean of 3.95, while inspiring teachers to achieve the school vision received the lowest mean of 3.69. Both indicators remained within the Always Practiced category. The findings indicate consistent communication of institutional priorities and instructional goals. Huang et al. (2023) emphasized that instructional leadership, supportive school culture, and teacher collaboration contribute to teacher self-efficacy and professional outcomes. Clear school goals may therefore strengthen shared instructional direction and teacher participation.

#### 3.2.2 Supervision and Evaluation of Instruction

Instructional supervision and evaluation obtained a composite mean of 3.68, interpreted as Always Practiced. Encouraging teachers to reflect on classroom performance received the highest mean of 3.85, while conducting regular classroom observations obtained the lowest mean of 3.49. These results indicate that administrators consistently encourage reflective teaching, provide feedback, and support instructional improvement, although classroom

observations received comparatively lower ratings. Dorukbaşi and Cansoy (2024) emphasized the importance of classroom observation, evaluation feedback, and professional learning activities in strengthening teachers' instructional practices.

#### 3.2.3 Monitoring Curriculum Implementation

Monitoring curriculum implementation obtained a composite mean of 3.74, interpreted as Always Practiced. Encouraging teachers to improve lesson delivery according to curriculum standards received the highest mean of 3.90, while promptly addressing curriculum implementation challenges received the lowest mean of 3.62. The findings suggest consistent curriculum supervision and instructional guidance, with comparatively greater attention needed to addressing implementation difficulties promptly. Dorukbaşi and Cansoy (2024) established that instructional leadership significantly predicted teachers' instructional practices and professional learning, supporting the importance of administrative guidance in curriculum implementation.

#### 3.2.4 Promoting Teachers' Professional Development

Professional development practices obtained a composite mean of 3.63, interpreted as Always Practiced. Providing opportunities to improve professional skills received the highest mean of 3.74, while supporting teachers pursuing graduate studies obtained the lowest mean of 3.46. The results indicate that administrators consistently support professional learning, although assistance for graduate education was comparatively less emphasized. He et al. (2024) identified a significant relationship between principals' instructional leadership and teachers' professional development, highlighting the importance of institutional support, training, and continuing education.

#### 3.2.5 Fostering a Supportive Learning Environment

Fostering a supportive learning environment obtained a composite mean of 3.58, interpreted as Always Practiced. Encouraging respect and professionalism received the highest mean of 3.69, while teachers' comfort in sharing concerns with administrators received the lowest mean of 3.49. These findings indicate a generally positive professional environment, although open communication between teachers and administrators may be strengthened. Huang et al. (2023) emphasized the importance of supportive school culture and teacher collaboration in linking instructional leadership with teacher self-efficacy and job satisfaction.

### 3.3 Teachers' Digital Literacy Integration

#### 3.3.1 Digital Information and Data Literacy

Teachers' digital information and data literacy obtained a composite mean of 3.83, interpreted as Always. Verifying the accuracy of information before classroom use received the highest mean of 3.92, while using online educational resources to improve lesson quality obtained the lowest mean of 3.69. The findings indicate that teachers consistently evaluate, organize, and use digital information for instructional purposes. Fernández-Otoya et al. (2024) emphasized the importance of digital and information literacy in accessing, evaluating, and utilizing reliable educational resources, supporting the respondents' consistent practice of verifying information before incorporating it into instruction.

#### 3.3.2 Digital Communication and Collaboration

Digital communication and collaboration obtained a composite mean of 3.42, interpreted as Always. Using digital communication tools to coordinate with parents received the highest mean of 3.64, while collaborating with fellow teachers through online communication tools obtained the lowest mean of 3.31. These findings indicate consistent use of digital platforms for educational communication, particularly parent coordination, while online collaboration among teachers was comparatively less frequent. Tzafilkou et al. (2023) emphasized communication, collaboration, and practical technology-related activities as essential components of teachers' digital competence, highlighting the importance of strengthening professional collaboration through digital platforms.

#### 3.3.3 Digital Content Creation

Digital content creation obtained a composite mean of 3.25, interpreted as Often, representing the lowest-rated dimension of teachers' digital literacy integration. Modifying existing digital resources to meet students' learning needs received the highest mean of 3.38, while developing digital assessment tools, including online quizzes and interactive activities, obtained the lowest mean of 3.03. The findings indicate that teachers more frequently adapt existing digital resources than develop digital assessment materials. Nguyen and Habók (2024) emphasized digital content creation and technology-supported assessment as important dimensions of teachers' digital competence. This supports the need to strengthen teachers' skills in developing interactive instructional materials and digital assessment tools.

#### 3.3.4 Responsible and Ethical Use of Digital Technologies

Responsible and ethical technology use obtained a composite mean of 3.70, interpreted as Always. Protecting students' personal information and following school policies on responsible technology use received the highest means of 3.82, while observing copyright rules obtained the lowest mean of 3.49. These results indicate consistent attention to digital privacy, institutional policies, and ethical technology practices, although copyright compliance received a comparatively lower rating. Tzafilkou et al. (2023) emphasized the importance of ethical awareness in teachers' digital competence, particularly regarding responsible technology use, intellectual property, and protection of personal information.

#### 3.3.5 Integration of Digital Technologies in Teaching and Learning

The integration of digital technologies in teaching and learning obtained a composite mean of 3.56, interpreted as Always. Continuously exploring new digital tools to improve teaching received the highest mean of 3.85, while regularly using digital technologies during classroom instruction obtained the lowest mean of 3.26, interpreted as Often. The findings suggest that teachers consistently explore technological innovations and select appropriate digital resources, although their regular classroom application received a comparatively lower rating. Schmitz et al. (2023) established that principals' digital leadership positively influenced teachers' technology integration, emphasizing the relevance of institutional support and leadership practices in strengthening technology-supported instruction.

### 3.4 Relationship Between Instructional Leadership Practices and Teachers' Digital Literacy Integration

Pearson product-moment correlation analysis revealed a computed r-value of 0.49, indicating a moderate positive linear relationship between instructional leadership practices and teachers'

digital literacy integration. With 37 degrees of freedom, the computed correlation exceeded the critical r-value of ±0.3160 at the 0.05 level of significance. Consequently, the null hypothesis was rejected, establishing a statistically significant relationship between the two variables. The findings indicate that higher perceived levels of instructional leadership practices were associated with higher levels of teachers' digital literacy integration. This is supported by Schmitz et al. (2023), who identified the positive influence of school leaders' digital leadership on teachers' technology integration. Similarly, Dorukbaşi and Cansoy (2024) established that instructional leadership significantly predicted teachers' instructional practices and professional learning. These findings reinforce the importance of instructional guidance, professional development, and supportive school environments in strengthening teachers' technological competencies. However, the observed relationship does not establish causation.

### 3.5 Implications for the Proposed Digital Literacy Enhancement Program

The findings identified digital content creation as the least frequently practiced dimension of teachers' digital literacy integration, with a composite mean of 3.25. Developing digital assessment tools received the lowest indicator mean of 3.03. Within instructional leadership, fostering a supportive learning environment obtained the lowest composite mean of 3.58, followed by promoting teachers' professional development at 3.63. The significant moderate positive relationship between instructional leadership and digital literacy integration ($r = 0.49$) provides additional evidence relevant to the proposed Digital Literacy Enhancement Program. These findings provide a basis for prioritizing professional learning opportunities in digital content creation, online assessment development, instructional technology integration, and collaborative teaching practices. The proposed program may also emphasize instructional supervision, institutional support, and continuing professional development. These priorities are consistent with the identified areas requiring improvement and the study's objective of strengthening teachers' digital literacy integration through effective instructional leadership.

## 4. CONCLUSIONS AND RECOMMENDATIONS

The study established a statistically significant, moderate positive relationship between instructional leadership practices and teachers' digital literacy integration among 39 teachers in selected private secondary schools in Masbate Province ($r = 0.49$, $p < .05$). Respondents were predominantly young, early-career Junior High School teachers, most of whom were college graduates. School administrators consistently demonstrated instructional leadership across all assessed dimensions, particularly in defining and communicating school goals, while fostering a supportive learning environment received the lowest rating. Teachers generally demonstrated strong digital literacy integration, especially in information and data literacy and responsible technology use. However, digital content creation, particularly developing digital assessment tools, and regular classroom technology integration required further improvement. Collectively, the findings indicate that stronger perceived instructional leadership is associated with higher digital literacy integration. The study provides a contextual basis for developing a Digital Literacy Enhancement Program responsive to teachers' identified professional and technological needs.

School administrators should prioritize implementing the proposed Digital Literacy Enhancement Program, focusing on digital content creation, interactive instructional materials, online assessments, and consistent classroom technology integration. Practical workshops, mentoring, and collaborative learning activities should be organized to strengthen teachers' technological and pedagogical competencies. Administrators should sustain effective instructional leadership practices while improving supportive learning environments through

regular consultations, constructive feedback, and opportunities for teachers to communicate professional concerns. Greater encouragement and available assistance for graduate studies and continuing professional development should also be provided, particularly for early-career teachers. Academic coordinators should strengthen instructional supervision and curriculum monitoring while facilitating access to appropriate digital resources. Teachers should continue practicing responsible technology use, including copyright awareness and student data protection, while sharing effective digital teaching strategies. Future researchers may examine similar relationships across additional schools and larger respondent groups to provide broader evidence concerning instructional leadership and digital literacy integration.

The study was limited to 39 Junior High School and Senior High School teachers from two selected private secondary schools in Masbate Province. Its findings were based on respondents' perceptions and self-reported practices collected through a structured questionnaire. The descriptive-correlational design established the strength and significance of the relationship between instructional leadership and digital literacy integration but could not determine causation. The investigation covered only five specified dimensions of each major variable and excluded other school settings and leadership or digital competency dimensions. Consequently, the findings may not represent teachers in other institutions. Future studies may involve larger samples, additional schools, and broader variables.

## 5. REFERENCES

Abella, J. L., & Dela Rosa, E. (2023). Digital literacy and digital competence of selected Filipino teachers: Basis for a post-pandemic pedagogy. *International Journal of Recent Educational Research, 4*(5), 548–569.

Althubyani, A. R. (2024). Digital competence of teachers and the factors affecting their competence level: A nationwide mixed-methods study. *Sustainability, 16*(7), Article 2796.

Amilusholihah, A., Ahman, E., Kurniawati, S., Sutarni, N., & Sari, R. (2024). Exploring teachers' digital competencies in secondary schools: A systematic literature review. *Electronic Journal of Education, Social Economics and Technology, 5*(2).

Arstorp, A.-T. (2024). Tensions between the political, institutional, and project levels when developing professional digital competence in teacher education: A cultural historical activity theory analysis of inhibiting and facilitating factors. *Teachers and Teaching, 30*(4), 545–562.

Aydin, M. K., Yildirim, T., & Kus, M. (2024). Teachers' digital competences: A scale construction and validation study. *Frontiers in Psychology, 15*, Article 1356573.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.

Besa, D. P., & Limpot, M. Y. (2023). TPACK, instructional competence, and teachers' attitude toward internet use: A structural equation model in readiness to teach online in Filipino. *Asian Journal of Education and Social Studies, 46*(2), 40–53.

Cabunoc, C. F. L., & Ubayubay, R. M. (2024). Competency and barriers in using ICT among public school teachers in Tagoloan District. *International Journal of Multidisciplinary Research and Analysis, 7*(8).

Chiu, T. K. F., Falloon, G., Song, Y., Wong, V. W. L., Zhao, L., & Ismailov, M. (2024). A self-determination theory approach to teacher digital competence development. *Computers & Education, 214*, Article 105017.

Claro, M., Castro-Grau, C., Ochoa, J. M., Hinostroza, J. E., & Cabello, P. (2024). Systematic review of quantitative research on digital competences of in-service school teachers. *Computers & Education, 215*, Article 105030.

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.

Department of Education. (2017). *DepEd Order No. 42, s. 2017: National adoption and implementation of the Philippine Professional Standards for Teachers*.

Department of Education. (2020a). *DepEd Order No. 012, s. 2020: Adoption of the Basic Education Learning Continuity Plan for School Year 2020–2021 in light of the COVID-19 public health emergency*.

Department of Education. (2020b). *DepEd Order No. 018, s. 2020: Policy guidelines for the provision of learning resources in the implementation of the Basic Education Learning Continuity Plan*.

Department of Education. (2020c). *DepEd Order No. 024, s. 2020: National adoption and implementation of the Philippine Professional Standards for School Heads*.

Domínguez-González, M. Á., Luque de la Rosa, A., Hervás-Gómez, C., & Román-Graván, P. (2025). Teacher digital competence: Keys for an educational future through a systematic review. *Contemporary Educational Technology, 17*(2), Article ep577. https://doi.org/10.30935/cedtech/16168

Dorukbaşi, E., & Cansoy, R. (2024). Examining the mediating role of teacher professional learning between perceived instructional leadership and teacher instructional practices. *European Journal of Education, 59*(3), Article e12672.

Etorne, L. (2023). Instructional supervision of select school heads in the School Division of Quezon Province: Basis for policy recommendations. *Psychology and Education: A Multidisciplinary Journal, 13*(6).

Fernández-Otoya, F., Cabero-Almenara, J., Pérez-Postigo, G., Bravo, J., Alcázar-Holguin, M. A., & Vilca-Rodríguez, M. (2024). Digital and information literacy in basic-education teachers: A systematic literature review. *Education Sciences, 14*(2), Article 127.

Geresola, M. A., & Lausa, S. M. (2024). Technology leadership and its integration to classroom instruction. *International Research Journal of Science, Technology, Education, and Management, 4*(2).

Guamos, A., & Leodegario, J., Jr. (2023). Instructional supervisory practices of school heads during the new normal at Buenavista Districts I and II, Division of Quezon. *Psychology and Education: A Multidisciplinary Journal, 15*(7).

Gutiérrez-Castillo, J. J., Palacios-Rodríguez, A., Martín-Párraga, L., & Serrano-Hidalgo, M. (2023). Development of digital teaching competence: Pilot experience and validation through expert judgment. *Education Sciences, 13*(1), Article 52.

Hallinger, P., & Murphy, J. (1985). Assessing the instructional management behavior of principals. *The Elementary School Journal, 86*(2), 217–247.

He, P., Guo, F., & Abazie, G. A. (2024). School principals' instructional leadership as a predictor of teacher's professional development. *Asian-Pacific Journal of Second and Foreign Language Education, 9*, Article 63.

Heine, S., Krepf, M., & König, J. (2023). Digital resources as an aspect of teacher professional digital competence: One term, different definitions—A systematic review. *Education and Information Technologies, 28*(4), 3711–3738.

Huang, L., Huang, Y., & Zhou, S. (2023). Examining principal leadership effects on teacher professional learning in China: A multilevel analysis. *Educational Management Administration & Leadership, 51*(6), 1278–1300.

Kaya-Kasikci, S., Zayim-Kurtay, M., & Kondakci, Y. (2023). The role of leadership in developing a climate of technology integration in public schools. *Teaching and Teacher Education, 132*, Article 104234.

Lagos, G. P., & Nabos, J. (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).

Lapesigue, J. (2024). Digital literacy and technical competence: Assessing the competence and performance of senior high school physical education teachers in online distance learning. *International Journal on Open and Distance E-Learning, 10*(1).

Lohr, A., Sailer, M., Stadler, M., & Fischer, F. (2024). Digital learning in schools: Which skills do teachers need, and who should bring their own devices? *Teaching and Teacher Education, 152*, Article 104788.

Miksza, P., & Shaw, J. T. (2023). Quantitative descriptive and correlational research. In *Qualitative and quantitative research in music education* (pp. 241–262). Oxford University Press.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054.

Msafiri, M. M., Kangwa, D., & Cai, L. (2023). A systematic literature review of ICT integration in secondary education: What works, what does not, and what next? *Discover Education, 2*, Article 44.

Nguyen, L. A. T., & Habók, A. (2024). Tools for assessing teacher digital literacy: A review. *Journal of Computers in Education, 11*, 305–346. https://doi.org/10.1007/s40692-022-00257-5

Orivida, A. M., & Nabos, J. Q. (2024). Teachers' digital literacy and pedagogical integration of information and communication technology in teaching: Basis for a training program. *Ignatian International Journal for Multidisciplinary Research*.

Pacon, P., & Espiritu, M. (2024). Principals' leadership on technology integration and its effect to school performance: Basis for training development program. *Psychology and Education: A Multidisciplinary Journal, 27*(7).

Pasi, R. T., Gabutan, J. B., Jr., & Potane, J. D. (2024). Management support and acceptance of the implementation of classroom technology integration among private school teachers. *Journal of Interdisciplinary Perspectives, 2*(7).

Pedersen, C., Aagaard, T., Daus, S., Nagel, I., Amdam, S. H., Vika, K. S., Røkenes, F. M., & Andreasen, J. K. (2024). Profiling teacher educators' strategies for professional digital competence development. *Teachers and Teaching, 30*(4), 417–436.

Pham, N. S., Nguyen Thi, H. Y., & Vu, T. Q. (2024). Digital competence of secondary school teachers in Hanoi, Vietnam: A study based on the DigCompEdu model. *International Journal of Emerging Technologies in Learning, 19*(5), 20–34.

Pizarro, M. D., Caballes, D. G., & Vianzon, J. R. (2024). Digital literacy of elementary teachers and its relation to performing their various school roles amidst COVID-19 pandemic. *Journal of Interdisciplinary Perspectives*.

Republic Act No. 10173. (2012). *Data Privacy Act of 2012*.

Republic Act No. 10533. (2013). *Enhanced Basic Education Act of 2013*.

Republic Act No. 9155. (2001). *Governance of Basic Education Act of 2001*.

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*, Article 104880.

Smestad, B., Hatlevik, O. E., Johannesen, M., & Øgrim, L. (2023). Examining dimensions of teachers' digital competence: A systematic review pre- and during COVID-19. *Heliyon, 9*(6), Article e16677.

Suzer, E., & Koc, M. (2024). Teachers' digital competency level according to various variables: A study based on the European DigCompEdu framework in a large Turkish city. *Education and Information Technologies, 29*, 22057–22083.

Tzafilkou, K., Perifanou, M., & Economides, A. A. (2023). Assessing teachers' digital competence in primary and secondary education: Applying a new instrument to integrate pedagogical

and professional elements for digital education. *Education and Information Technologies, 28*, 16017–16040.

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

United Nations. (n.d.). *Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*.

Wohlfart, O., & Wagner, I. (2023). Teachers' role in digitalizing education: An umbrella review. *Educational Technology Research and Development, 71*, 339–365.

Yang, L., García-Holgado, A., & Martínez-Abad, F. (2023). Digital competence of K-12 pre-service and in-service teachers in China: A systematic literature review. *Asia Pacific Education Review, 24*, 679–693. https://doi.org/10.1007/s12564-023-09888-4

Zhao, W. (2024). A study of the impact of the new digital divide on the ICT competences of rural and urban secondary school teachers in China. *Heliyon, 10*(7), Article e29186.