

ICT Integration in Teaching Edukasyong Pantahanan at Pangkabuhayan (EPP): Status, Challenges, and Proposed Measures in Cataingan West District

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Abstract

This study determined the ICT Integration in Teaching Edukasyong Pantahanan at Pangkabuhayan (EPP): Status, Challenges, and Proposed Measures in Cataingan West District. It examined the profile of the 30 teacher-respondents in terms of age, highest educational attainment, related trainings attended, and number of years in service; the available support services and ICT instructional materials in the schools; the problems encountered in the utilization of ICT as a supplemental tool; the measures proposed by the respondents to address the problems; and whether significant differences existed in teachers' utilization of ICT when grouped according to their profile. The study employed a descriptive-survey research design. Data were gathered through a structured questionnaire and analyzed using frequency, percentage, weighted mean, ranking, One-Way Analysis of Variance (ANOVA), and Independent Samples t-test. Findings showed that the largest proportion of respondents were 51–60 years old (30 percent) and held Master's Degree (CAR) status (56.67 percent), yet 93.33 percent had not attended any specialized ICT-related training, while the largest group had 6–10 years of teaching experience. Schools possessed several basic support services and ICT instructional materials such as computer laboratories, projectors, speakers, printers, and instructional modules, but lacked school libraries, guidance offices, DVD players, and TV monitors. The problems encountered obtained an overall weighted mean of 3.21, interpreted as Serious, with the lack of computer-related training among teachers emerging as the most serious problem. The suggested measures obtained an overall weighted mean of 3.77, interpreted as Highly Recommended, with frequent ICT-related training ranked highest. A significant difference in teachers' utilization of ICT was found only when grouped according to related trainings attended. The study aligns with SDG 4 (Quality Education) by addressing teachers' digital competencies and the delivery of practical instruction in EPP. It contributes to educational and technological sustainability by identifying resource and training gaps and recommending capacity-building and institutional support measures that can strengthen technology-supported teaching in resource-constrained school settings.

Keywords: Cataingan West District; Edukasyong Pantahanan at Pangkabuhayan; ICT Integration; ICT Instructional Materials; Professional Development; Support Services; Teacher Profile; Teaching Challenges

1. Introduction

Information and Communication Technology (ICT) has become an important component of contemporary education, providing teachers with additional resources for presenting information, creating instructional materials, facilitating interaction, and supporting learners' engagement. The integration of digital technologies can broaden access to educational resources and provide teachers with alternative ways of delivering lessons.

However, technology is most effective when it is appropriately integrated into teaching practices and used to complement, rather than replace, the role of teachers (UNESCO, 2023).

Promoting quality teaching and learning remains an important concern among educators and other stakeholders in the education sector. Challenges such as inadequate instructional facilities and resources, together with concerns about the quality of learning outcomes among secondary school graduates, can affect the effectiveness of the educational process (Ekoro et al., 2023). In addressing these concerns, teachers have an important responsibility to encourage learners to develop positive attitudes and appropriate practices in using Information and Communication Technology (ICT). Providing learners with opportunities to engage in practical and meaningful ICT-related activities can help strengthen their skills and confidence in using technology for learning. At the same time, learners are expected to actively participate in a school environment that promotes collaboration, innovation, and the purposeful use of ICT in support of their learning (Msambwa et al., 2024).

Teachers' competence in ICT involves more than simply knowing how to operate digital tools. It includes the ability to manage and organize information effectively, design activities that encourage learners to address problems, and select appropriate digital applications that support specific subject areas. These competencies enable teachers to implement learner-centered strategies and collaborative activities that promote active participation and meaningful learning experiences (Faremi et al., 2025). In addition, Information and Communication Technology (ICT) can provide teachers and learners with additional ways to access information, communicate, collaborate, and support the teaching and learning process.

In the Philippine education system, the use of ICT has increasingly been supported through initiatives aimed at improving teachers' digital competencies and access to technology-based learning resources. The Department of Education (DepEd) has implemented professional development activities and technology-related programs to help teachers develop the skills needed to incorporate digital tools into instruction. These efforts reflect the continuing need for teachers to adapt their instructional practices to the changing educational environment and to use technology in ways that support curriculum delivery (Department of Education, 2021).

ICT is particularly relevant in teaching practical and skills-oriented subjects such as *Edukasyong Pantahanan at Pangkabuhayan* (EPP). EPP provides learners with knowledge and skills in areas such as home economics, agriculture, industrial arts, and information and communication technology. Because several EPP competencies require demonstrations, step-by-step procedures, illustrations, and practical applications, ICT can serve as a supplemental instructional tool. Teachers may use presentations, instructional videos, digital images, educational applications, and other multimedia resources to clarify concepts and demonstrate procedures that may be difficult to present through traditional methods alone.

The importance of teachers' ICT competence in EPP instruction has been highlighted by recent Philippine research. Ayuson (2022) examined the ICT proficiency and competencies of elementary EPP teachers and emphasized the relevance of teachers' knowledge, skills, attitudes, and utilization of technology in the delivery of instruction. More recently, Dosaban and Beltran-Salipong (2025) investigated teachers' computer literacy and learners' performance in EPP-ICT and proposed an action plan based on the findings. These studies indicate that teachers' technological competencies and their classroom utilization of ICT remain relevant areas of concern in EPP education.

The integration of digital technology into classroom instruction can contribute to greater learner engagement and interest by providing interactive and accessible ways of acquiring knowledge. For learners who are accustomed to technology, digital learning can extend educational opportunities beyond conventional classroom instruction by allowing them to access information and learning materials through various digital platforms (Yanes, 2022). However, the availability and accessibility of ICT resources among students remain significant concerns. Limited access to digital devices, reliable internet connectivity, and other technological resources may restrict learners' opportunities to benefit from technology-supported instruction. Thus, examining how ICT is utilized within actual classroom settings is important in understanding whether available technologies are being effectively used to support teaching and learning (Pal-ing et al., 2025).

In the context of Cataingan West District, the utilization of ICT in teaching EPP deserves particular attention because EPP involves competencies that may benefit from visual, interactive, and technology-supported instructional approaches. Teachers may have access to different ICT resources, but the mere availability of technology does not necessarily ensure its effective classroom utilization. Differences in teachers' skills, access to equipment, availability of internet connectivity, preparation time, technical support, and familiarity with digital resources may influence how ICT is incorporated into EPP instruction.

Despite the growing recognition of ICT as a valuable educational resource, there remains a need to examine how teachers utilize ICT as a supplemental tool in teaching EPP at the district level. Existing studies have addressed ICT proficiency, computer literacy, and technology integration; however, limited attention has been given to the specific utilization of ICT for EPP instruction in the local context of Cataingan West District. This gap provides a basis for examining the current practices of teachers and the extent to which ICT is being utilized to supplement EPP instruction.

Determining how teachers utilize Information and Communication Technology (ICT) as a supplemental tool in teaching *Edukasyong Pantahanan at Pangkabuhayan* (EPP) is essential. Understanding the extent and manner of ICT utilization may provide relevant information regarding current instructional practices, the use of digital resources, and areas where teachers may need additional professional development and institutional support.

Hence, this study seeks to determine the ICT Integration in Teaching Edukasyong Pantahanan at Pangkabuhayan (EPP): Status, Challenges, and Proposed Measures in Cataingan West District. The findings may serve as a basis for developing appropriate measures to strengthen ICT-supported EPP instruction and enhance the delivery of meaningful, practical, and technology-supported learning experiences among elementary learners.

Foreign literature establishes that effective ICT integration depends on teachers' attitudes, knowledge, skills, and ability to use technology meaningfully, not merely on resource availability. Technology-supported strategies increase learner engagement and motivation (Xu et al., 2021) and support cognitive understanding and improved outcomes (Liu et al., 2022). ICT enables diverse instructional materials that accommodate varied learning needs (Abkarin, 2021) and requires continuous strengthening of teachers' knowledge, skills, and attitudes (Ajani, 2024; Shoraevna et al., 2021). When used appropriately, ICT functions as a learning tool for accessing information, active participation, and knowledge construction (Ibrahim et al., 2022; Kakar & Manjula, 2022; Ayuba et al., 2025). Educational transformation further requires examination of practices, stakeholder perspectives, continuous assessment of investments, and school leadership (Dirckinck-Holmfeld et al., 2023; Cabrera & Castillo, 2026). Multimedia resources allow teachers to shift toward facilitation of learner-centered instruction (Misan-Ruppee et al., 2024), yet barriers such as inadequate infrastructure, limited resources, and insufficient technical support necessitate collaborative efforts (Bariu, 2020). Teachers' digital competence, confidence, and positive perceptions are essential (Agyei et al., 2022; Sayaf et al., 2021).

Local literature on EPP and Technology and Livelihood Education (TLE) underscores the need to address diverse learner needs and links teachers' professional profiles (age, experience, professional development) to readiness for innovative approaches (Varga et al., 2025; Mahawan & De Guzman, 2025). Younger teachers tend to be more receptive to new technologies (Sanchez et al., 2022), yet sustained professional development remains necessary (Garrido, 2024). ICT-related training varies, highlighting the need for broader capacity-building (Gumban et al., 2024; Mijares, 2022; Napalit et al., 2021). Adequate facilities, connectivity, and resources are essential, alongside personnel readiness (Illescas & Perez, 2022; Oro, 2025). Available technological facilities expand instructional flexibility (Calamanan & Vargas, 2021; Agonas et al., 2024), while digital resources function effectively as supplements rather than primary sources (Dayson & Benavides, 2023; Arciosa, 2022). Limitations in maintenance, updates, connectivity, and equitable access persist despite teacher willingness (Espinosa et al., 2025; Brasileño & Bidad, 2021). Institutional challenges include limited equipment, unreliable connectivity, inadequate leadership and administrative support, weak planning, and insufficient training (Cortez, 2025; Avila et al., 2021). Computer literacy must be paired with pedagogical approaches, professional development, and quality resources (Mula & Bucar, 2023; Dosaban & Beltran-Salipong, 2025).

Foreign studies identify persistent barriers including lack of time, training, technical support, teacher beliefs, and administrative assistance (Francom, 2020); variations in willingness, skills, and tools by context (Schmitz et al., 2022); confidence, preparation, content knowledge, curriculum clarity, and collaboration needs (Pappa et al., 2024); motivation, colleague support, curriculum guidelines, resources, and leadership (Stupurienė et al., 2024); inadequate resources, unreliable technology, insufficient training, limited planning time, technical support, curriculum misalignment, and traditional practices (Msafiri et al., 2023); policy–practice tensions (Abedi, 2024); and infrastructure, electricity, connectivity, expertise, time, and device ratios (Nettey et al., 2024).

Local studies on TLE/EPP confirm challenges in equipment, resources, external collaboration (Orioste & Garcia, 2022); teaching tasks, infrastructure management, assessment, and monitoring (Jaurigue-Sublay, 2023); proficiency differences across specializations requiring differentiated development (Conda & Benavides, 2024); the need for pedagogical competency beyond operational knowledge (Gumban et al., 2024); the value of technological pedagogical content knowledge (Dela Cruz, 2024); relationships among ICT use, attitudes, and competency (Ongayo & Quilestino, 2024); positive effects of structured multimedia and e-learning when paired with instructional design and home support (Basibasi & Dagondon, 2025); and the importance of stakeholder partnerships, reliable connectivity, and equipment upgrades (Lupina, 2021). Collectively, these sources show that ICT serves as a valuable supplemental tool when supported by teacher competence, pedagogy, resources, and institutional conditions.

Globally, ICT integration is recognized as essential for contemporary education, with effectiveness depending on appropriate pedagogical use rather than mere provision of tools (UNESCO, 2023). International studies across the United States, Europe, and developing contexts consistently identify interconnected barriers involving time, training, infrastructure, teacher beliefs, and leadership (Francom, 2020; Schmitz et al., 2022; Msafiri et al., 2023; Nettey et al., 2024). Nationally, the Philippine Department of Education has advanced professional development and technology programs to strengthen teachers' digital competencies and curriculum delivery (Department of Education, 2021). Local research on EPP and TLE confirms the relevance of ICT proficiency, computer literacy, and integration challenges in Philippine elementary and secondary settings (Ayuson, 2022; Dosaban & Beltran-Salipong, 2025; Orioste & Garcia, 2022; Conda & Benavides, 2024; Basibasi & Dagondon, 2025). Locally, the study is situated in Cataingan West District, Municipality of Cataingan, Province of Masbate, an island province in Region V (Bicol Region) characterized by geographically dispersed communities. Cataingan comprises 36 barangays and is served by two public school districts. The island setting influences access to services, including education and technology infrastructure, making context-specific examination of ICT utilization in EPP particularly pertinent.

This study is anchored on three main theories that provide a theoretical basis for understanding teachers' utilization of Information and Communication Technology (ICT) as a supplemental tool in teaching Edukasyong Pantahanan at Pangkabuhayan (EPP). These theories explain the factors that influence teachers' acceptance and use of technology, their ability to adapt to technological changes, and the role of technology in supporting meaningful teaching and learning experiences. Specifically, the study draws from the Technology Acceptance Model (TAM) by Davis (1989), Resilience Theory by Masten (2021), and Sociocultural Theory by Vygotsky (1978). Together, these theories provide complementary perspectives for understanding how teachers accept, adapt to, and utilize ICT in supporting the teaching and learning of EPP.

Technology Acceptance Model (TAM). This theory was developed by Davis (1989) to explain how individuals come to accept and use technology. The model emphasizes two primary factors that influence technology acceptance: perceived usefulness and perceived ease of use. Perceived usefulness refers to the extent to which an individual believes that using a particular technology will enhance job performance, while perceived ease of use refers to the extent to which an individual believes that using the technology will require minimal effort. According to Davis (1989), these perceptions influence an individual's attitude toward technology, behavioral intention to use it, and ultimately, actual technology use. In relation to the present study, TAM provides a basis for understanding how teachers' perceptions of the usefulness and ease of using ICT may influence their utilization of technology as a supplemental tool in teaching EPP.

Resilience Theory. Associated with the work of Masten (2021), explains how individuals develop the capacity to adapt positively and maintain effective functioning when confronted with challenges, changes, or adverse conditions. Masten (2021) described resilience as a dynamic process that enables individuals to overcome difficulties through the interaction of personal strengths and supportive environmental factors. The theory emphasizes that resilience is not simply an inherent personal trait but a capacity that can be strengthened through experience, available resources, social support, and appropriate opportunities for adaptation. The relevance of Resilience Theory to this study lies in its explanation of how teachers adapt to challenges associated with the use of ICT in EPP instruction.

Sociocultural Theory. This was developed by Vygotsky (1978), explains that learning and development are strongly influenced by social interaction, cultural context, and the use of tools and resources within the learning environment. Vygotsky (1978) emphasized that individuals develop knowledge and skills through interaction with others and through culturally mediated tools. In the context of the present study, Sociocultural Theory provides a foundation for understanding ICT as a mediating tool that can support interaction, communication, collaboration, and knowledge construction in EPP instruction. The researcher theorizes that teachers' utilization of ICT as a supplemental tool in teaching EPP is influenced by their perceptions of its usefulness and ease of use, their ability to adapt to technological challenges, and the social and instructional context in which ICT is employed.

Conceptually, the study adopts the Input–Process–Output (IPO) Model. The input consists of the respondents' profile in terms of age, highest educational attainment, related trainings attended, and number of years in service, available support services, available ICT instructional materials, problems encountered, measures proposed, and significant difference in utilization when grouped according to profile. The process involves preparation and administration of the research instrument, data gathering, organization, presentation, statistical analysis, and interpretation. The output consists of identified measures and indicators that may serve as a basis for improving teachers' utilization of ICT as a supplemental tool in teaching EPP in Cataingan West District, providing direction for recommendations or an enhancement program.

Although Information and Communication Technology (ICT) has gained increasing recognition as an important support in improving teaching and learning, there remains a need to examine how teachers utilize ICT as a supplemental tool in teaching Edukasyong Pantahanan at Pangkabuhayan (EPP). Existing studies have generally focused on ICT integration in education, teachers' digital competencies, computer literacy, and the use of technology in various learning areas; however, limited attention has been given to its utilization specifically in EPP, a subject that requires practical, skills-based, and contextualized learning experiences. Moreover, there is limited localized evidence on how EPP teachers use ICT to supplement instruction in terms of lesson preparation and presentation, demonstration of practical skills, access to instructional resources, learner engagement, and assessment. This gap is particularly significant in Cataingan West District, where the availability of ICT resources, teachers' competencies, and instructional practices may influence the extent to which technology is utilized in EPP teaching. Hence, the present study seeks to address this gap by examining teachers' utilization of ICT as a supplemental instructional tool in EPP and identifying the challenges they encounter in its use. The findings may provide an empirical basis for developing appropriate interventions and strengthening ICT-supported instructional practices in EPP.

Taken together, the literature and studies reveal a research gap concerning the actual utilization of ICT and the specific challenges experienced by EPP/TLE teachers in particular local school contexts. While previous research has examined teacher competence, ICT resources, instructional practices, and implementation barriers in various settings, there remains a need for context-specific evidence that examines how teachers actually utilize ICT in the teaching-learning process and what factors hinder or support its effective use. Thus, the present study is warranted to provide localized evidence that can serve as a basis for appropriate interventions, professional development, and strategies for strengthening ICT integration in EPP/TLE instruction.

The study aligns primarily with SDG 4 – Quality Education, by examining and seeking to strengthen the effective integration of ICT as a supplemental tool in EPP instruction, thereby supporting inclusive, equitable, and quality education and promoting lifelong learning opportunities through technology-enhanced practical skills development. It also relates to SDG 9 – Industry, Innovation and Infrastructure, through its focus on technological infrastructure, digital resources, and innovation in instructional practices within the educational system. Additionally, it connects to SDG 8 – Decent Work and Economic Growth, given EPP’s emphasis on livelihood skills, home economics, agriculture, and industrial arts that prepare learners for productive economic participation. SDG 17 – Partnerships for the Goals is relevant through the recognition of stakeholder collaboration, institutional support, and professional development partnerships needed to sustain ICT integration.

The study contributes to educational sustainability by generating localized evidence on ICT utilization, challenges, and measures that can inform continuous improvement of teaching practices, professional development, and resource allocation in EPP instruction, thereby supporting long-term quality and relevance of basic education. It advances technological and digital sustainability by highlighting the conditions necessary for purposeful, equitable, and maintained use of ICT tools rather than one-time provision of equipment. Socio-economic sustainability is addressed through EPP’s focus on practical competencies linked to livelihood, home management, and community productivity, which ICT can enhance when effectively integrated. Institutional and policy sustainability are supported by findings that can guide school administrations, district offices, and the Department of Education in planning capacity-building, technical support, and infrastructure initiatives aligned with teachers’ actual classroom realities. Collectively, these contributions promote resilient, adaptive, and context-responsive educational systems capable of sustaining technology-supported learning in geographically dispersed and resource-variable settings.

2. Material and methods

2.1 Research Design

The study employed a descriptive-survey research design. This design was appropriate because the study sought to describe the existing condition of ICT utilization among teachers and determine the available school support services, ICT instructional materials, problems encountered, and measures that could be offered to address the identified problems. The descriptive-survey approach enabled the researcher to gather quantitative information directly from the teacher-respondents through a structured questionnaire. The data were used to describe the respondents’ profile and their utilization of ICT as a supplemental tool in teaching EPP. It also provided information regarding the availability of ICT-related support services and instructional materials and the problems encountered by teachers in using ICT in their teaching practices. Furthermore, the study employed an inferential component to determine whether there was a significant difference in teachers’ utilization of ICT when they were grouped according to their profile variables. The inferential analysis provided a basis for determining whether differences in ICT utilization existed across the identified respondent groups.

2.2 Locale of the Study

The study was conducted in Cataingan West District within the Municipality of Cataingan, Province of Masbate, an island province in Region V (Bicol Region). Masbate consists of three major islands and is geographically situated between Luzon and Visayas. Cataingan is located approximately 76 kilometers southeast of Masbate City, has a predominantly rural setting, and comprises 36 barangays. The municipality is served by two public school districts under the Schools Division of Masbate Province, namely Cataingan East District and Cataingan West District. These districts oversee the implementation and administration of basic education programs and the operation of public elementary and secondary schools within their respective areas of jurisdiction. The island setting and geographic distribution of barangays influence access to services, including education and technology infrastructure, providing the local context for examining ICT utilization in EPP instruction.

2.3 Respondents of the Study

The respondents of the study consisted of thirty (30) public elementary school teachers handling Edukasyong Pantahanan at Pangkabuhatan (EPP) in Cataingan West District during the school year covered by the study. Their responses served as the primary source of data regarding ICT utilization, available support services, available ICT instructional materials, problems encountered, and proposed measures. Participation was voluntary, and the information provided by the respondents was treated with confidentiality. The identities of the respondents were not disclosed in the presentation and interpretation of the results.

2.4 Sample and Sampling Procedure

The researcher used purposive sampling in selecting the respondents. This sampling technique was appropriate because the study specifically required teachers who were directly involved in teaching EPP and had experience or opportunities in utilizing ICT as a supplemental instructional tool. A total of 30 qualified teachers were included in the study. The respondents were selected based on their direct involvement in EPP instruction and their willingness to participate in the study.

2.5 Research Instrument

The primary instrument used in gathering data was a researcher-made questionnaire. The questionnaire was developed based on the objectives of the study, the Statement of the Problem, related literature, and relevant considerations concerning ICT utilization in teaching EPP. The questionnaire consisted of several parts. Part I determined the profile of the respondents in terms of age, highest educational attainment, related trainings attended, and number of years in service. Part II determined the extent of teachers' utilization of ICT as a supplemental tool in teaching EPP. The items focused on the different ways teachers used ICT to support lesson preparation, presentation of learning content, demonstration of procedures, provision of learning resources, learner activities, assessment, and other instructional activities related to EPP. Part III identified the available support services in the school that facilitated teachers' ICT utilization. These included technical assistance, ICT-related training, administrative support, internet connectivity, equipment maintenance, and other forms of school-based assistance. Part IV determined the available ICT instructional materials that could be used in teaching EPP. These included computers, laptops, projectors, televisions, internet-based resources, educational videos, digital presentations, digital learning materials, and other technology-supported resources. Part V determined the problems encountered by teachers in ICT utilization. The items covered possible concerns related to the availability and condition of ICT equipment, internet connectivity, technical assistance, teachers' ICT skills, time constraints, availability of digital resources, and other relevant challenges. Part VI gathered the measures offered by the respondents to address the identified problems and improve the utilization of ICT as a supplemental tool in teaching EPP. The questionnaire was submitted to qualified validators for content validation. Their comments and recommendations were considered in revising the instrument before its administration to the respondents. The revised questionnaire was then prepared for final administration.

2.6 Data Gathering Procedure

The major variables of the study included the teachers' profile, ICT utilization, available school support services, available ICT instructional materials, problems encountered, and proposed measures. The profile variables included age, highest educational attainment, related trainings attended, and number of years in service. The main variable of the study was the teachers' utilization of ICT as a supplemental tool in teaching EPP. The study also considered the available support services and ICT instructional materials as contextual variables that supported teachers' use of technology.

The data-gathering procedure began with the preparation and validation of the researcher-made questionnaire. After the instrument had been reviewed and revised, the researcher secured permission from the appropriate authorities to conduct the study in the identified schools of Cataingan West District. Upon approval, the researcher coordinated with the concerned school heads and teacher-respondents regarding the administration of the questionnaire. The purpose of the study was explained to the respondents, and appropriate instructions were provided to ensure that the questionnaire was answered accurately. The questionnaires were then distributed to the 30 teacher-respondents. The respondents were given adequate time to complete the instrument. After retrieval, the questionnaires were checked for completeness and consistency. The accomplished questionnaires were organized, coded, tabulated, and prepared for statistical analysis. The collected data were then analyzed and interpreted according to the research questions. The results were used to determine the teachers' utilization of ICT as a supplemental tool in teaching EPP, identify available school support services and ICT instructional materials, determine the problems encountered, and identify measures that could help address these problems. Throughout the conduct of the study, the researcher observed appropriate ethical considerations. Participation was voluntary, and the confidentiality of the respondents' information was maintained. The data gathered were used solely for the purposes of the research.

2.7 Data Analysis Techniques

The data gathered from the respondents were subjected to appropriate statistical measures based on the specific objectives of the study. Frequency was used to determine the number of respondents belonging to each category of the profile variables and other categorical responses. Percentage was used to describe the distribution of the 30 respondents according to their profile in terms of age, highest educational attainment, related trainings attended, and number of years in service. It was also used to summarize categorical data on available support services and ICT instructional materials. Weighted mean was used to determine the extent of teachers' utilization of ICT as a supplemental tool in teaching EPP, the extent of problems encountered in ICT utilization, and suggested measures. Ranking was used to determine the order of priority of the available ICT instructional materials, problems encountered, and measures proposed by the respondents. The item with the highest frequency or highest weighted mean was assigned the highest priority. Independent-samples t-test was used to determine whether there was a significant difference in teachers' utilization of ICT when grouped according to profile variables having two categories. One-way analysis of variance (ANOVA) was used to determine whether there was a significant difference in teachers' utilization of ICT when grouped according to profile variables having three or more categories. The study used a 0.05 level of significance in testing the null hypothesis. If the p-value was less than 0.05, the null hypothesis was rejected; if the p-value was greater than or equal to 0.05, the null hypothesis was not rejected. This statistical treatment provided a quantitative basis for describing the respondents' profile, assessing

ICT utilization, identifying available support services and instructional materials, determining problems encountered, and testing whether teachers' utilization of ICT significantly differed according to their profile.

3. Results and Discussion

3.1 Demographic Profile of the Respondents

3.1.1 Age

Out of the 30 respondents, 9 or 30 percent were aged 51–60 years old, 7 or 23.33 percent were aged 41–50 years old, 5 or 16.67 percent were aged 25–30 years old, 5 or 16.67 percent were aged 36–40 years old, and 4 or 13.33 percent were aged 31–35 years old. The largest proportion therefore belonged to the 51–60 years old age bracket. The findings indicate that many of the respondents were relatively experienced teachers who may have accumulated substantial teaching experience and exposure to various instructional practices. The presence of respondents from the younger age groups indicates a combination of relatively new and experienced teachers, providing diverse perspectives and experiences in the utilization of ICT as a supplemental tool in teaching EPP. Age may be associated with differences in teaching experience, exposure to technological innovations, and familiarity with ICT-based instructional practices, which may influence how teachers integrate technology into their classroom instruction. Sanchez et al. (2022) indicated that younger teachers tend to be more receptive to learning new teaching approaches and are generally more familiar with computers and digital technologies. Although a portion of the teaching workforce is approaching retirement, younger educators continue to constitute a substantial segment of the teaching profession, contributing to the continuing adoption and adaptation of technology-supported instructional practices.

3.1.2 Highest Educational Attainment

Out of the 30 respondents, 17 or 56.67 percent were Master's Degree (CAR), 9 or 30 percent were Bachelor's Degree holders, and 4 or 13.33 percent were Master's Degree holders. The largest proportion therefore belonged to the Master's Degree (CAR) category.

The findings reveal that more than half of the respondents had pursued graduate-level education, suggesting that the teachers had demonstrated efforts toward professional growth and continuing education. The presence of teachers with varying levels of educational attainment indicates differences in academic preparation and professional development, which may contribute to variations in teachers' knowledge, skills, and approaches to the utilization of ICT as a supplemental tool in teaching EPP. In support of this, Mahawan and De Guzman (2025) emphasized that teachers' professional preparation and development may influence their readiness to adopt appropriate and innovative instructional approaches.

3.1.3 Related Trainings Attended

Out of the 30 respondents, 28 or 93.33 percent had no specialized training, 1 or 3.33 percent had attended PC Operators training, and 1 or 3.33 percent had attended Computer Hardware Repair training. The largest proportion therefore had not attended any specialized ICT-related training.

The findings indicate a potential gap in the respondents' formal preparation for the technical use of ICT. Only a small proportion had received training in PC operation and computer hardware repair. This suggests that opportunities for specialized ICT training may need to be strengthened to enhance teachers' technical knowledge and confidence in using technology as a supplemental tool in teaching EPP. Adequate training may also help teachers maximize available ICT resources and address common technical difficulties encountered during instructional activities. In support of this, Garrido (2024) emphasized the importance of sustained professional development programs that address teachers' changing instructional and technological needs and help them remain effective in a continuously evolving educational environment.

3.1.4 Number of Years in Service

Out of the 30 respondents, 9 or 30 percent had 6–10 years in service, 7 or 23.33 percent had 11–15 years in service, 7 or 23.33 percent had 21–25 years in service, 5 or 16.67 percent had 1–5 years in service, and 2 or 6.67 percent had 16–20 years in service. The largest proportion therefore had 6–10 years of service.

The findings suggest that many of the respondents had already gained considerable teaching experience while remaining actively engaged in developing their instructional practices. The presence of respondents with 21–25 years of service indicates that a substantial number of teachers had extensive professional experience, while those with shorter years of service contributed perspectives from teachers who were relatively newer to the profession. This combination of varying lengths of service provided a range of experiences that may influence teachers' exposure to, familiarity with, and utilization of ICT as a supplemental tool in teaching EPP. This finding is supported by Illescas and Perez (2022), who emphasized the importance of strengthening technological literacy and developing greater awareness of how technology can be utilized as an instructional tool and integrated into the teaching and learning environment.

3.2 Available Support Services in the School

All 30 respondents, or 100 percent, reported the availability of the Computer Laboratory, Open Stage, School Canteen, Comfort Room, School Clinic, Science Laboratory, and Kiosk Learning Area. None of the respondents reported the availability of a School Library or Guidance Office.

Most of the identified support services were available in the schools, particularly those related to physical facilities and instructional support. However, the absence of a School Library and Guidance Office was notable. These two support services are important components of a supportive school environment because a library provides learners and teachers with access to books, reference materials, and supplementary learning resources, while a guidance office provides services that support learners' personal, social, and educational needs. Their absence may limit the range of support available to both teachers and learners. Thus, the provision of these facilities may be considered to strengthen the overall support system of the schools and contribute to a more conducive teaching and learning environment. In this regard, Bariu (2020) emphasized that adequate resources and sustained institutional support are necessary to enable schools to adopt and maintain technology-supported teaching and learning practices effectively.

3.3 Available ICT Instructional Materials in the School

All 30 respondents, or 100 percent, reported the availability of microphones, amplifiers, projectors, speakers, printers, instructional modules, and power supplies. None of the respondents reported the availability of a DVD player or TV monitor.

The schools had most of the identified ICT instructional materials needed to support teaching and learning activities. The availability of projectors, speakers, microphones, printers, and other instructional resources provides teachers with opportunities to incorporate technology into their EPP lessons and supplement conventional teaching strategies. However, the absence of DVD players and TV monitors indicates gaps in the availability of audiovisual instructional equipment. These materials can support the presentation of demonstrations, educational videos, and other multimedia learning resources that may enhance learners' understanding of practical EPP concepts. Therefore, providing additional audiovisual ICT instructional materials may further strengthen teachers' capacity to utilize ICT effectively as a supplemental tool in teaching EPP. In a related study, Arciosa (2022) found that ICT-based instructional materials were positively assessed in terms of their content, technical characteristics, and instructional usefulness, highlighting their potential to enhance the delivery of instruction when appropriately selected and utilized.

3.4 Problems Encountered in ICT Utilization

Lack of computer-related training among teachers obtained the highest weighted mean of 3.43, interpreted as Very Serious, and ranked first. This was followed by the absence of a guidance office with a weighted mean of 3.27, also interpreted as Very Serious. The absence of a school library obtained a weighted mean of 3.23, interpreted as Serious. The unavailability of a DVD player obtained a weighted mean of 3.17, the unavailability of a TV monitor obtained 3.13, and difficulty in operating ICT instructional equipment obtained 3.03, all interpreted as Serious. The overall weighted mean of 3.21 indicated that the problems encountered by the respondents were generally Serious.

The lack of computer-related training was the most serious problem encountered by the respondents. This suggests that teachers need greater opportunities to develop their technical knowledge and skills in operating ICT equipment and utilizing technology effectively for instructional purposes. The absence of a guidance office and school library also emerged as significant concerns, indicating gaps in the provision of essential school support services. Likewise, the unavailability of DVD players and TV monitors limited teachers' access to additional audiovisual resources that could supplement EPP instruction through demonstrations, educational videos, and other multimedia materials. These findings emphasize the need for appropriate and sustained training, adequate school support services, and sufficient ICT instructional materials to strengthen teachers' utilization of ICT in teaching EPP. This finding is consistent with Nettey et al. (2024), who examined the challenges faced by basic-school teachers in integrating ICT into teaching and learning activities in a developing-country context. Their findings revealed challenges related to limited ICT tools, inadequate classroom infrastructure, insufficient electrical outlets, poor internet connectivity, electricity fluctuations, inadequate teacher ICT expertise, and an unfavorable teacher-to-device ratio. The insufficiency of technological resources in relation to the number of teachers and learners may compel teachers to rely on smartphones or revert to traditional teaching approaches. These findings underscore the importance of providing adequate ICT resources, improving school infrastructure, and strengthening teachers' ICT competencies to support the effective and sustained integration of technology in instruction.

3.5 Suggested Measures Offered by the Respondents

Frequent ICT-related training for teachers obtained the highest weighted mean of 3.90 and ranked first. Provision of a Guidance Office and School Library obtained a weighted mean of 3.77 and ranked second. Purchase of sufficient DVD players and TV monitors for teachers' use in the implementation of the program obtained a weighted mean of 3.63 and ranked third. The overall weighted mean of 3.77 indicated that the suggested measures were highly recommended.

Frequent ICT-related training was the most highly recommended measure, indicating the respondents' recognition of the importance of continuously developing their ICT knowledge and skills. This suggests that regular and sustained training could enhance teachers' competence, confidence, and readiness to integrate ICT into EPP instruction. Meanwhile, the provision of a Guidance Office and School Library emphasized the need for adequate school support services and accessible learning resources that can address the academic, personal, and instructional needs of teachers and learners. The purchase of sufficient DVD players and TV monitors likewise highlighted the importance of providing appropriate audiovisual materials to support technology-assisted instruction. Overall, the findings suggest that strengthening teacher training, school support services, and ICT instructional resources could contribute to the more effective utilization of ICT as a supplemental tool in teaching EPP. Agonas et al. (2024) emphasized that accessible technological resources can support teachers in enriching instructional delivery and providing learners with more engaging and varied learning experiences. Consistent with this finding, the availability of adequate ICT facilities and resources provides an important foundation for integrating technology into classroom instruction and enhancing the teaching-learning process.

3.6 Significant Difference in Teachers' Utilization of ICT When Grouped According to Profile

Age obtained a computed value of 1.284 with a p-value of 0.294. Highest educational attainment obtained a computed value of 0.867 with a p-value of 0.431. Number of years in service obtained a computed value of 1.156 with a p-value of 0.340. All of these p-values were greater than the 0.05 level of significance, indicating that the differences were not statistically significant. Related trainings attended obtained a computed value of 2.176 with a p-value of 0.038, which is less than the 0.05 level of significance, indicating a statistically significant difference. Teachers' utilization of ICT as a supplemental tool in teaching EPP significantly differed when grouped according to related trainings attended, while no significant differences were found when grouped according to age, highest educational attainment, and number of years in service. This suggests that teachers who had different levels of exposure to related ICT training may differ in their utilization of technology in EPP instruction. The significant result for related trainings attended highlights the possible contribution of professional development opportunities to teachers' knowledge, skills, confidence, and ability to use ICT in instructional activities. Meanwhile, the non-significant results for age, educational attainment, and years in service suggest that these profile characteristics did not substantially influence teachers' utilization of ICT in the context of the study. The findings further emphasize the importance of providing teachers with relevant and continuous ICT-related training to strengthen their competence, confidence, and readiness to integrate technology into EPP instruction. This finding is particularly noteworthy in relation to the problems identified, where the lack of computer-related training among teachers was identified as the most serious problem encountered, with a weighted mean of 3.43. It is likewise consistent with the findings on suggested measures, where frequent ICT-related training for teachers obtained the highest weighted mean of 3.90 and was ranked first. The significant difference in teachers' ICT utilization when grouped according to related trainings attended further reinforces the importance of sustained professional development and capacity-building activities. Such initiatives can help teachers acquire the necessary technical skills and instructional strategies to utilize ICT more effectively as a supplemental tool in teaching EPP. This finding is supported by Oro (2025), who pointed out that inadequate learning resources and insufficient structural support remain significant barriers to the implementation of educational reforms. Teachers require not only appropriate instructional materials, such as guides and modules, but also reliable access to technology and adequate institutional support to implement innovative approaches effectively. Therefore, continuous ICT training, together with sufficient resources and institutional support, is essential in strengthening teachers' capacity to integrate technology effectively into the teaching and learning process.

4. Conclusion & Recommendations

The study found that the largest proportion of the 30 teacher-respondents were 51–60 years old and held Master's Degree (CAR) status, yet a substantial majority had no specialized ICT-related training, while the largest group had 6–10 years of teaching experience. Schools possessed several basic support services and ICT instructional materials such as computer laboratories, projectors, speakers, and printers, but lacked school libraries, guidance offices, DVD players, and TV monitors. Problems encountered in ICT utilization were generally Serious, with an overall weighted mean of 3.21; the most serious was the lack of computer-related training among teachers. Suggested measures were Highly Recommended, with an overall weighted mean of 3.77, led by frequent ICT-related training. Teachers' utilization of ICT differed significantly only when grouped according to related trainings attended, while no significant differences were found according to age, highest educational attainment, or number of years in service.

Based on the findings and conclusions, the Schools Division Office may strengthen the provision of ICT-related professional development programs for EPP teachers; school heads may provide continuous technical and instructional support; teachers may actively participate in ICT-related training, seminars, workshops, and Learning Action Cell sessions; school administration may prioritize the acquisition of additional ICT instructional materials, particularly DVD players and TV monitors; school administrators and education authorities may consider establishing or providing access to a school library and guidance office; schools may strengthen

partnerships with parents, local government units, private organizations, and other stakeholders to obtain additional resources and training opportunities; ICT coordinators or designated personnel may provide technical assistance and peer mentoring; and future researchers may conduct similar studies involving a larger number of respondents and other school districts.

5. Compliance with ethical standards

The authors affirm that no conflicts of interest exist in relation to this study. The research was conducted in accordance with accepted ethical principles for human-participant research, including obtaining informed consent, ensuring voluntary participation, allowing participants to withdraw at any stage without consequence, and protecting participant confidentiality through anonymous, secure, and aggregated data management. Because the study examined psychological well-being, all research procedures were non-invasive and implemented with appropriate measures to reduce the risk of discomfort. Participants were informed of available support services should the need arise. Furthermore, the necessary institutional approvals were obtained for the administration of the research instruments and access to relevant academic records.

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