

**From traditional to digital: ICT competencies, challenges,
and teaching performance of Generation X TLE/TVL teachers**

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ABSTRACT

In the context of rapid technological advancement in education, the transition from traditional to digital teaching has become a significant concern among Generation X teachers in Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) programs. This study aimed to determine the ICT competencies, challenges encountered, and teaching performance of Generation X TLE/TVL teachers in the First District of Capiz. Specifically, it focused on ICT competencies in terms of basic computer operations, productivity tools, internet and communication tools, and ICT integration; teaching performance in terms of lesson planning and preparation, classroom management, instructional delivery, and assessment; and the challenges encountered in transitioning to digital teaching. This study employed the descriptive–correlational research design and utilized a researcher-developed questionnaire validated and tested for reliability using Cronbach’s Alpha, yielding results interpreted as good to excellent internal consistency. The weighted mean was used to determine the levels of ICT competencies, teaching performance, and challenges encountered, while Pearson r was used to test the relationships among variables. Results revealed that Generation X TLE/TVL teachers demonstrated high ICT competencies and teaching performance, while also experiencing high levels of challenges. ICT competencies showed a significant relationship with teaching performance, while challenges encountered showed no significant relationship. These findings indicated that ICT competencies played a vital role in enhancing teaching performance despite existing challenges.

Keywords: ICT competencies, teaching performance, challenges, Generation X teachers, TLE/TVL, digital teaching.

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INTRODUCTION

In today's dynamic educational landscape, the integration of Information and Communication Technology (ICT) has become a defining feature of effective teaching and learning. Across the world, rapid technological advancement and increasing digitalization have reshaped how instruction is delivered, assessed, and experienced inside and beyond the classroom. Learning environments are no longer limited to physical spaces; instead, they now extend to digital platforms that allow greater access to information, interactive engagement, and flexible learning opportunities. This transformation is particularly significant in Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) programs, where practical skills, industry relevance, and real-world application are central to student success. As classrooms transition from traditional chalkboard-based instruction to technology-enhanced environments, educators are increasingly expected to adopt pedagogical approaches that emphasize digital fluency, technological competence, and instructional innovation.

Within this evolving educational context, teachers play a critical role in determining how ICT is meaningfully integrated into instruction. Among them, Generation X educators—those born between 1965 and 1980—occupy a unique position in the digital transformation of education. Many of these teachers began their professional careers in predominantly analog learning environments, relying on conventional teaching tools and face-to-face instructional methods. Over time, they have witnessed—and been required to adapt to—the rapid evolution of educational technologies. While Generation X teachers bring extensive classroom experience, subject mastery, and strong pedagogical foundations, the growing reliance on digital platforms presents both challenges and opportunities. For TLE and TVL teachers, whose instruction is often hands-on and skill-based, integrating ICT involves more than simply using digital tools; it requires a rethinking of instructional design, assessment practices, and learning delivery to ensure that technology enhances, rather than replaces, practical learning experiences.

In the Philippine setting, the importance of ICT integration has been strongly emphasized through national education reforms, particularly within the K–12 curriculum implemented by the Department of Education (DepEd). ICT integration is viewed not merely as an instructional enhancement but as a core component of teaching performance and educational quality. This is especially evident in TLE and TVL subjects, which aim to prepare learners for employment, entrepreneurship, and lifelong learning. Teachers who are able to effectively utilize digital tools are better positioned to deliver relevant and engaging content, facilitate interactive learning experiences, and equip students with competencies aligned with the demands of a technology-driven workforce. As such, ICT competencies have become closely linked to instructional effectiveness and professional performance among teachers.

Recent studies highlight both the potential and the challenges associated with ICT integration among TLE educators. Gumban et al. (2024) emphasize that outcomes-based education in the Philippines requires teachers who are technically proficient and capable of leveraging digital tools to meet curriculum goals and performance standards. However, access to ICT training and infrastructure remains uneven across schools, particularly in rural and underserved areas. These limitations restrict teachers' opportunities to fully integrate technology into instruction. This digital divide has been shown to disproportionately affect Generation X teachers, many of whom had limited exposure to educational technologies during their initial teacher preparation and early years of professional practice.

Similarly, Conda and Benavides (2023) report that while most TLE teachers possess foundational ICT skills, their ability to integrate technology effectively into instruction varies significantly. Factors such as age, length of teaching experience, availability of digital

resources, and access to continuous professional development influence teachers' levels of digital engagement. Their study further notes that Generation X educators often rely on traditional teaching methods due to familiarity and confidence, even as they acknowledge the instructional benefits of digital tools. This tension between established pedagogical practices and emerging technologies highlights the need for targeted upskilling initiatives and sustained institutional support tailored to mid-career educators.

Umiten (2025) further argues that ICT integration is no longer optional but essential for preparing learners for a digitally driven future. Teachers are expected to move beyond basic access to technology and develop strategic ICT competencies that enhance learning outcomes and instructional efficiency. For Generation X TLE and TVL teachers, this shift entails embracing continuous professional growth, building digital confidence, and redesigning instruction to align with contemporary educational expectations. Supporting these teachers in adapting to technological change is crucial for ensuring that vocational education remains relevant and responsive to industry needs.

Despite the growing emphasis on ICT integration in education, a clear research gap remains in understanding how Generation X teachers in Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) programs navigate the ongoing digital transition and how their ICT competencies are associated with teaching performance. While existing studies often focus on student outcomes or general teacher readiness, limited attention has been given to the experiences of mid-career educators who are adapting to rapid technological change later in their professional lives. Questions persist regarding their level of digital readiness, their capacity to adapt to emerging technologies, the adequacy of institutional support systems, and the relevance of available professional development programs to their specific needs. The generational context further complicates this issue, as Generation X teachers may demonstrate distinct attitudes toward technology adoption, learning preferences, and instructional change when compared to younger cohorts who have had greater exposure to digital tools throughout their education and training. Examining these interrelated factors is essential for designing responsive interventions that not only enhance instructional effectiveness but also promote teacher well-being, professional confidence, and sustained engagement in technology-mediated teaching environments.

This study is anchored in the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education), which advocates inclusive, equitable, and relevant learning opportunities through pedagogical innovation and the development of digital competencies among educators. By focusing on ICT integration and teaching performance, the study contributes to improving the quality of instruction delivered to learners in technical and vocational programs. The research also supports SDG 9 (Industry, Innovation, and Infrastructure) by advancing innovative teaching practices and strengthening the alignment between education and a digitally enabled workforce, particularly within skill-based and industry-oriented fields such as TLE and TVL. Furthermore, the study aligns with SDG 17 (Partnerships for the Goals) by underscoring the importance of collaboration among educational institutions, government agencies, and industry partners in providing teacher training, technological resources, and policy support. Through these alignments, the study situates its inquiry within both national development priorities and global efforts to build inclusive, resilient, and future-ready education systems.

This research examines the relationship between ICT competencies and teaching performance among Generation X teachers in Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) programs. By closely examining their experiences, challenges, and instructional strategies, the study seeks to provide a clearer

understanding of how mid-career educators integrate digital technologies into their teaching and how these competencies influence classroom effectiveness. Recognizing that Generation X teachers bring valuable professional experience and established pedagogical practices, the study considers how these strengths interact with the demands of technology-enhanced instruction.

The findings of this research are intended to inform the design and implementation of targeted professional development initiatives that are responsive to the specific needs of Generation X educators. Rather than adopting a one-size-fits-all approach to teacher training, the study highlights the importance of differentiated capacity-building programs that support continuous learning, strengthen digital confidence, and encourage meaningful technology integration. In addition, the results may serve as a basis for evidence-informed policy interventions and institutional support mechanisms that address challenges related to access, training, and instructional resources.

By contributing insights into the ICT competencies and teaching performance of Generation X TLE and TVL teachers, the study underscores the essential role of mid-career educators in the delivery of quality technical-vocational education. Empowering these teachers through appropriate support systems and policy-driven initiatives is vital in ensuring effective, inclusive, and technology-integrated instruction. In this way, the research supports the development of resilient and future-ready learning environments that respond to evolving educational demands while remaining aligned with national education priorities and global development goals.

Statement of the problem

This study aimed to determine the ICT competencies of Generation X teachers in Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) programs, the level of challenges they encounter in transitioning from traditional to digital teaching methods, and their teaching performance. It also aims to examine whether significant relationships exist among ICT competencies, challenges, and teaching performance. Specifically, the study seeks to answer the following questions:

1. What is the level of ICT competencies of Generation X TLE/TVL teachers in general and in terms of basic computer operations, use of productivity tools, internet and communication tools, and the integration of ICT in teaching and learning?
2. What is the level of teaching performance of Generation X TLE/TVL teachers based on lesson planning and preparation, classroom management, instructional delivery, and assessment and evaluation?
3. What is the level of challenges encountered by the Generation X TLE/TVL teachers in transitioning from traditional to digital teaching methods?
4. Are there significant relationships among the ICT competencies, challenges, and teaching performance of Generation X TLE/TVL teachers?

METHODOLOGY

This chapter presents the research design, locale of the study, sample size, sampling technique, respondents of the study, research instrument, data gathering procedure, and data analysis procedure used in the study. It describes the procedures undertaken to determine the levels of ICT competencies, teaching performance, and challenges encountered by Generation X TLE/TVL teachers. It also explains the methods used to determine whether significant relationships exist among these variables.

This study employed a descriptive-correlational research design, a non-experimental research approach used to describe existing conditions and determine the relationships among variables without manipulating them (Creswell & Creswell, 2018; Fraenkel, Wallen, & Hyun, 2019). The descriptive component was used to determine the level of ICT competencies of Generation X TLE/TVL teachers, their teaching performance, and the challenges they encountered in transitioning from traditional to digital teaching methods. Through descriptive analysis, the study was able to present the current status and extent of these variables among the respondents. The correlational component, on the other hand, was used to determine whether significant relationships exist among ICT competencies, challenges, and teaching performance, as stated in the research problems of the study.

This research design was considered appropriate because it allowed the researcher to systematically collect quantitative data through a structured survey questionnaire administered to the respondents. Descriptive statistics helped determine the levels and patterns of the variables being investigated, while correlational analysis provided a statistical basis for examining the relationships among ICT competencies, challenges, and teaching performance. By combining descriptive and correlational methods, the study was able to provide a clearer understanding of how teachers' technological competencies and the challenges they experience may be associated with their instructional practices.

The use of this design also allowed the researcher to examine the situation of the teachers within their actual teaching environment without altering existing conditions. In this way, the study reflects the real experiences of Generation X teachers as they adapt to the increasing integration of digital technologies in education. The findings of the study may serve as useful inputs for school administrators and educational institutions in designing professional development programs that strengthen ICT competencies and support teachers in improving their instructional performance in Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) programs.

This study was conducted in selected public secondary schools offering Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) programs in the First District of the Province of Capiz during the School Year 2025-2026. The participating schools were located in the municipalities of President Roxas, Pontevedra, Panay, Maayon, Panit-an, Pilar, and Roxas City, which represent the major localities within the First District where public secondary schools implement TLE and TVL programs. The selected schools were chosen because they have teachers handling TLE and TVL subjects who belong to Generation X and are actively involved in the integration of Information and Communication Technology (ICT) in teaching and learning. These schools provided an appropriate setting for examining the ICT competencies, teaching performance, and challenges experienced by Generation X teachers as they adapt to the increasing use of digital technologies in classroom instruction. Conducting the study within these schools allowed the researcher to gather relevant information from teachers who are directly engaged in technical-vocational education and who have experienced the transition from traditional teaching approaches to digitally supported instructional practices.

The respondents of the study were selected using purposive sampling, a non-probability sampling technique in which participants are deliberately chosen based on specific characteristics relevant to the objectives of the research (Etikan, Musa, & Alkassim, 2016). This method enables the researcher to focus on individuals who possess the knowledge, experience, and characteristics necessary to provide meaningful information related to the research problem. According to Creswell and Creswell (2018), purposive sampling allows researchers to intentionally select participants who can best contribute relevant data to the

study. This sampling technique was considered appropriate for the present research because it specifically targeted Generation X teachers handling Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) subjects, who possess the necessary teaching experience and exposure to ICT integration in instruction.

The respondents consisted of Generation X teachers handling Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) subjects in public secondary schools within the First District of Capiz during the School Year 2025-2026. The participants were intentionally selected because they met the established criteria of belonging to Generation X, generally defined as individuals born between 1965 and 1980, and were actively teaching TLE or TVL subjects at the time of the study. These teachers were considered appropriate respondents because they have relevant teaching experience and have witnessed the gradual transition from traditional instructional practices to the increasing integration of digital technologies in teaching. As mid-career educators, they represent a group of teachers who have experienced the transition from traditional teaching approaches to the increasing use of digital technologies in education, and whose professional experiences and exposure to ICT provide valuable insights into how teachers adapt to technological developments in teaching and learning.

A total of 120 teachers participated in the study. The respondents were identified through coordination with school administrators to ensure that they satisfied the specified criteria of the research. The participants were drawn from public secondary schools located in the municipalities of President Roxas, Pontevedra, Panay, Maayon, Panit-an, Pilar, and Roxas City within the First District of Capiz. Specifically, 10 teachers (8.33%) came from Feliciano Yusay Consing National High School in President Roxas; 20 teachers (16.67%) came from Jose Diva Avelino Jr. National High School and Pontevedra National High School in Pontevedra; 10 teachers (8.33%) came from Commissioner Luiz R. Asis National High School in Panay; 30 teachers (25.00%) came from Maayon National High School, Tuburan National High School, and Florentina B. Degala National High School in Maayon; 10 teachers (8.33%) came from Panit-an National High School in Panit-an; 20 teachers (16.67%) came from Dulangan National High School and Marciano M. Patricio National High School in Pilar; and 20 teachers (16.67%) came from Capiz National High School in Roxas City. The total distribution of respondents across all municipalities and schools accounted for 100% of the study sample.

Through coordination with school administrators, qualified teachers who met the established criteria were identified and invited to participate in the study. Participation in the research was voluntary, and the respondents were informed of the purpose and objectives of the study. They were also assured that the information they provided would be treated with strict confidentiality and would be used solely for academic purposes. The responses gathered from the participants served as the primary source of data in determining the level of ICT competencies, teaching performance, and the challenges encountered by Generation X TLE/TVL teachers in adapting to digital teaching practices.

A researcher-made questionnaire was utilized as the primary research instrument to gather the quantitative data required for this study. The instrument was designed to determine the ICT competencies, teaching performance, and challenges encountered by Generation X teachers handling Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) subjects in selected public secondary schools in the First District of Capiz. The questionnaire was carefully developed in accordance with the objectives of the study and structured to obtain the necessary information needed to address the research questions.

In developing the instrument, the researcher considered the increasing expectations for teachers to integrate Information and Communication Technology (ICT) into classroom instruction. The items included in the questionnaire were formulated to reflect the essential

competencies and instructional practices required in technology-supported learning environments. The statements were also designed to determine the challenges experienced by Generation X teachers as they transition from traditional teaching approaches to more digitally supported instructional methods. The development of the questionnaire ensured that each item corresponded with the variables identified in the study and aligned with the objectives of the research.

The questionnaire consisted of four parts. The first part presented the socio-demographic characteristics of the respondents, gathering information regarding gender, age, highest educational attainment, length of service, marital status, position, specialization, municipality assignment, participation in ICT-related training, and mode of teaching used. The second part measured the ICT competencies of the respondents through statements organized to determine their level of competency in several areas of ICT use, including basic computer operations, use of productivity applications, internet and communication tools, and ICT integration in teaching and learning, which represent the essential digital competencies expected of teachers in modern educational environments. The third part determined the teaching performance of the respondents by assessing key aspects of instructional practice such as lesson planning and preparation, classroom management, instructional delivery, and assessment and evaluation, all of which represent important dimensions of effective teaching that contribute to successful learning outcomes in both traditional and technology-supported classrooms. The fourth part identified the challenges encountered by the respondents in transitioning from traditional to digital teaching methods, with statements focused on the difficulties experienced when integrating ICT into instructional practices, including access to ICT resources, ICT training, institutional support, and attitudes toward technology use in education.

All items in the second, third, and fourth parts of the questionnaire were measured using a five-point Likert scale, wherein each response option corresponded to a numerical value ranging from 1 to 5, with higher values indicating a greater degree of response to the given statements. This scale was used to quantify the responses and compute the mean scores for statistical analysis. Different verbal interpretations were used in each part of the questionnaire to reflect the nature of the variables being measured, such as competency, teaching performance, and challenges encountered. Despite these differences, the responses were quantified using a common numerical scale, which allowed the computation of mean scores for statistical analysis.

For the ICT competencies scale, a mean score ranging from 4.21 to 5.00 was interpreted as Highly Competent, meaning the skill is demonstrated with outstanding quality and consistency. A score ranging from 3.41 to 4.20 was interpreted as Competent, meaning the skill is consistently demonstrated with satisfactory quality. A score ranging from 2.61 to 3.40 was interpreted as Moderately Competent, meaning the skill is shown at an average level. A score ranging from 1.81 to 2.60 was interpreted as Slightly Competent, meaning the skill is demonstrated below average. A score ranging from 1.00 to 1.80 was interpreted as Not Competent, meaning the skill is not demonstrated.

For the teaching performance scale, a mean score ranging from 4.21 to 5.00 was interpreted as Strongly Agree or Excellent, meaning the statement is demonstrated or experienced to a very great extent and supported by strong evidence. A score ranging from 3.41 to 4.20 was interpreted as Agree or Very Good, meaning the statement is consistently demonstrated or experienced to a great extent. A score ranging from 2.61 to 3.40 was interpreted as Neutral or Good, meaning the statement is moderately demonstrated or experienced. A score ranging from 1.81 to 2.60 was interpreted as Disagree or Fair, meaning

the statement is slightly demonstrated or experienced. A score ranging from 1.00 to 1.80 was interpreted as Strongly Disagree or Poor, meaning the statement is not demonstrated or minimally experienced.

For the challenges scale, a mean score ranging from 4.21 to 5.00 was interpreted as Strongly Agree or Excellent, meaning the challenge is experienced to a very great extent. A score ranging from 3.41 to 4.20 was interpreted as Agree or Very Good, meaning the challenge is experienced to a great extent. A score ranging from 2.61 to 3.40 was interpreted as Neutral or Good, meaning the challenge is moderately experienced. A score ranging from 1.81 to 2.60 was interpreted as Disagree or Fair, meaning the challenge is slightly experienced. A score ranging from 1.00 to 1.80 was interpreted as Strongly Disagree or Poor, meaning the challenge is not experienced. The computed mean scores were interpreted using the corresponding scale intervals to determine the level of ICT competencies, teaching performance, and challenges encountered by the respondents, thereby providing a systematic basis for evaluating the extent to which the respondents demonstrated the competencies, instructional performance, and challenges described in the questionnaire.

Prior to the administration of the questionnaire, the research instrument was submitted to experts in the field of education and research to ensure the clarity, relevance, and appropriateness of the items in relation to the objectives of the study. Their comments and suggestions were carefully reviewed and incorporated in revising the questionnaire. A pilot test was subsequently conducted among selected teachers who possessed characteristics similar to the actual respondents but were not included in the final sample of the study. The reliability of the instrument was determined using Cronbach's Alpha, which measured the internal consistency of the questionnaire items. The results of the reliability test revealed that the instrument demonstrated high internal consistency. Specifically, the scale for ICT competencies obtained a Cronbach's Alpha of 0.89, teaching performance obtained 0.87, and challenges encountered obtained 0.91, all of which fall within the range interpreted as good to excellent reliability. According to George and Mallery (2016), a Cronbach's Alpha value of 0.80 and above indicates good reliability, while values above 0.90 indicate excellent internal consistency. These results indicated that the questionnaire items were consistent and reliable in measuring the intended variables, and therefore the instrument was considered appropriate and valid for use in the actual data gathering of the study.

Since the study employed a quantitative method of research, the following procedures were undertaken in gathering the necessary data. Prior to the conduct of the survey, the researcher sought permission from the Schools Division Office of the Department of Education and the principals of the selected public secondary schools in the First District of Capiz to administer the research instrument to the identified respondents. Upon approval, the researcher coordinated with the school heads to identify the qualified respondents of the study. Using a purposive sampling technique, Generation X teachers born between 1965 and 1980 who were actively teaching Technology and Livelihood Education (TLE) or Technical-Vocational-Livelihood (TVL) subjects during the academic year 2025-2026 were selected. A list of qualified respondents was prepared in coordination with the school administrators to ensure that all participants met the established criteria of the study.

The researcher then distributed the questionnaires to the identified respondents. The instrument was designed to gather data on ICT competencies, teaching performance, and challenges encountered by Generation X TLE/TVL teachers. Depending on the respondents' preference and accessibility, the questionnaire was administered either in printed form or through an online survey platform. Prior to answering the questionnaire, the respondents were informed of the purpose and objectives of the study. They were assured that their responses would be treated with strict confidentiality and would be used solely for academic purposes. The respondents were given sufficient time to complete the questionnaire. After retrieval, the

accomplished questionnaires were reviewed to ensure completeness and consistency of responses, after which the data were organized, tabulated, and encoded for statistical analysis.

Throughout the data gathering process, strict confidentiality of the respondents' information was maintained in accordance with the provisions of Republic Act No. 10173, also known as the Data Privacy Act of 2012. The identities of the respondents were kept anonymous, and all collected data were used solely for research purposes.

The data gathered from the respondents were organized, tabulated, and analyzed using statistical software, specifically the IBM Statistical Package for the Social Sciences (IBM SPSS) Version 27. The responses obtained from the accomplished questionnaires were encoded and arranged in tabular form to facilitate accurate interpretation and analysis of the data. Frequency and percentage were used to describe the socio-demographic profile of the respondents in terms of selected characteristics relevant to the study, thereby determining the distribution of respondents according to their background information. The mean (average) was used to determine the level of ICT competencies, teaching performance, and challenges encountered by Generation X TLE/TVL teachers. This statistical measure was applied to compute the average responses for each indicator in the questionnaire, and the computed mean scores served as the basis for identifying the overall level of the variables under study. The results were interpreted using the scale and verbal interpretation presented in this chapter to ensure consistency in data analysis.

Furthermore, the Pearson Product-Moment Correlation Coefficient (Pearson r) was used to determine the significant relationship among ICT competencies, teaching performance, and challenges encountered by Generation X TLE/TVL teachers. This statistical tool measured the strength and direction of the relationship between the variables. The correlation coefficient (r) ranges from -1 to +1, where values closer to ± 1 indicate stronger relationships, while values closer to 0 indicate weak or no relationship. The level of significance was set at 0.05, which served as the basis for determining whether the relationships among the variables were statistically significant. If the computed p -value was less than 0.05, the relationship was considered significant; otherwise, it was interpreted as not significant.

RESULTS AND DISCUSSION

This chapter presents the results and discussion of the data gathered from the respondents regarding the ICT competencies of Generation X teachers handling Technology and Livelihood Education (TLE) and Technical-Vocational-Livelihood (TVL) subjects. The findings were analyzed and interpreted based on the objectives of the study using the corresponding statistical tools and descriptive measures. The discussion focused on the respondents' level of ICT competencies in terms of basic computer operations, use of productivity applications, internet and communication tools, and ICT integration in teaching and learning. The interpretation of the findings was grounded on the computed mean scores and corresponding verbal interpretations, allowing a comprehensive understanding of the teachers' digital competencies within contemporary instructional environments. The discussion further contextualized the results using relevant scholarly literature and existing studies related to ICT competence and technology integration in education.

The findings revealed that the overall level of ICT competencies of Generation X TLE/TVL teachers obtained a grand mean of 4.17, verbally interpreted as Competent. This indicated that the respondents demonstrated a satisfactory level of proficiency in utilizing information and communication technology in their instructional practices. The result showed that the teachers possessed the necessary ICT skills required to perform essential technology-

related tasks that supported lesson preparation, classroom management, communication, and instructional delivery. The findings reflected the increasing adaptation of Generation X teachers to technology-supported educational environments despite belonging to a generation that did not initially grow within highly digitized learning systems. The result further implied that the respondents were capable of responding to the technological demands of modern teaching and learning processes. ICT competence has been identified as an important dimension of teachers' professional capability, particularly as digital technologies continue to shape instructional delivery and learning environments. Tondeur et al. (2017) and Voogt et al. (2018) emphasized that teachers' ICT competencies significantly influence the successful implementation of technology-integrated instruction and the overall effectiveness of digital learning environments.

Among the identified ICT competency domains, basic computer operations obtained the highest mean score of 4.36, verbally interpreted as Highly Competent. This finding indicated that the respondents possessed strong foundational skills in operating computer systems, managing files, and performing essential computer-related functions required in their professional responsibilities. The result suggested that the teachers were highly capable of utilizing computers for routine instructional and administrative tasks. Foundational digital competencies such as operating computer hardware, troubleshooting basic technical issues, and managing system functions are necessary prerequisites for effective ICT integration in teaching. Teachers who possess strong basic computer skills are more likely to utilize advanced technological tools with confidence and efficiency. Batan et al. (2022) explained that teachers who demonstrate competence in basic computer operations are better equipped to manage technological resources necessary for instructional activities and classroom management.

The domain internet and communication tools obtained a mean score of 4.20, verbally interpreted as Competent. This indicated that the respondents were capable of utilizing online platforms and digital communication tools to support instructional activities and professional interaction. The findings showed that the teachers were able to access online resources, communicate with students and colleagues, and facilitate learning activities using internet-based technologies. In contemporary educational settings, internet and communication tools have become integral in supporting instructional continuity, collaboration, and access to information. The result implied that Generation X teachers have adapted to digital communication practices necessary in modern educational systems. Wong, Sy, and Wong (2025) emphasized that internet-based communication tools are essential in educational environments where teaching, learning, and professional collaboration increasingly rely on digital technologies.

Similarly, ICT integration in teaching and learning obtained a mean score of 4.16, verbally interpreted as Competent. This finding indicated that the respondents were able to incorporate digital technologies into their instructional practices, particularly in lesson preparation, instructional presentation, and classroom activities. The result reflected that teachers were capable of integrating technology into learning experiences to support instructional delivery and student participation. However, the findings also suggested that ICT integration may still be developing, particularly in maximizing the full instructional potential of digital technologies to enhance student engagement and learning outcomes. Effective ICT integration requires not only technical competence but also pedagogical understanding of how digital tools can improve instructional strategies and learning experiences. Tondeur et al. (2017) emphasized that teachers' digital competence significantly affects their capacity to integrate ICT effectively into classroom instruction and learning facilitation.

The domain use of productivity applications recorded the lowest mean score of 3.94, although it remained verbally interpreted as Competent. This indicated that the respondents possessed satisfactory skills in utilizing productivity applications such as word processing

software, spreadsheets, and presentation tools. The result suggested that while the teachers were generally capable of using productivity applications for instructional preparation and classroom management, there remained opportunities to further strengthen their competence in maximizing these tools for more effective instructional organization and delivery. The relatively lower rating in this domain implied that teachers may still require additional exposure and training in the advanced use of productivity software to improve efficiency in instructional tasks. This finding aligned with studies conducted in the Philippine educational context, which reported that teachers generally demonstrate adequate basic ICT competence but continue to require professional development in more advanced and applied digital skills. Waclin (2023) emphasized that continuous ICT training remains necessary to strengthen teachers' digital competence and improve the effective utilization of technological tools in instructional practice.

The variation across the ICT competency domains indicated that foundational ICT skills among Generation X TLE/TVL teachers were well established, while more applied instructional uses of technology, particularly productivity applications and ICT integration practices, still required further enhancement. The findings suggested that teachers were more confident in performing basic technological operations than in utilizing technology for more complex instructional and organizational purposes. This pattern reflected the continuing need for professional development programs that focus not only on technical digital skills but also on pedagogical ICT integration strategies. Overall, the results demonstrated that Generation X TLE/TVL teachers possessed a competent level of ICT proficiency that supported their instructional responsibilities. Their ability to operate computer systems, utilize communication technologies, and integrate ICT into teaching reflected adaptability to increasingly technology-driven educational environments. However, the findings also highlighted the importance of continuous training and institutional support to further strengthen teachers' capacity to maximize ICT utilization in instructional practices.

In terms of basic computer operations, the findings revealed that the respondents demonstrated a grand mean of 4.36, verbally interpreted as Highly Competent. Basic computer operations referred to the fundamental digital skills necessary for utilizing computer technologies effectively in instructional and professional tasks. These competencies included operating computer hardware, managing files and folders, troubleshooting technical issues, and adjusting system settings needed for classroom instruction and educational management. The findings indicated that Generation X TLE/TVL teachers possessed strong foundational ICT skills that served as a basis for more advanced technology integration practices. Tondeur et al. (2017) emphasized that teachers' ability to perform basic computer operations plays a critical role in supporting the effective implementation of digital technologies within educational settings.

Among the indicators under basic computer operations, the statement "I can adjust system settings (e.g., display, sound, language preferences)" obtained the highest mean score of 4.54, verbally interpreted as Highly Competent. This indicated that the respondents were highly capable of modifying computer configurations according to their instructional and professional requirements. Adjusting system settings allows teachers to personalize their devices and ensure the proper functioning of computer systems during lesson preparation and classroom activities. The high level of competence in this indicator suggested that the respondents were familiar with computer system functions and confident in handling essential technological operations. Lucas et al. (2021) explained that teachers with strong digital competence are more capable of utilizing technological resources effectively within instructional settings.

The indicator “I can manage files and folders (save, rename, delete)” obtained a mean score of 4.53, verbally interpreted as Highly Competent, indicating that the respondents possessed strong organizational skills in handling digital files and instructional resources. The ability to manage digital files efficiently is essential in maintaining organized instructional materials and supporting effective classroom preparation. Likewise, the indicator “I can use keyboard shortcuts to improve efficiency” obtained a mean score of 4.43, interpreted as Highly Competent, indicating that the respondents demonstrated efficiency in navigating computer systems and performing digital tasks. The statement “I am familiar with different operating systems (e.g., Windows, macOS)” recorded a mean score of 4.41, verbally interpreted as Highly Competent, suggesting that the respondents possessed familiarity with various computer platforms commonly used in educational environments.

Similarly, the indicators “I can troubleshoot basic computer issues (e.g., connectivity, software errors)” and “I can operate a desktop or laptop computer” obtained mean scores of 4.38 and 4.34, respectively, both verbally interpreted as Highly Competent. These findings reflected the respondents’ capability to independently address simple technical concerns and utilize computer hardware effectively during instructional activities. The indicators “I can install and uninstall basic software applications” and “I can connect peripheral devices (e.g., printer, projector, external drive)” recorded mean scores of 4.32 and 4.27, respectively, both interpreted as Highly Competent, indicating that the respondents demonstrated competence in handling software installation and external technological devices necessary in classroom instruction.

The indicators “I can perform basic system maintenance (e.g., disk cleanup, updates)” and “I can ensure the security of my computer by using passwords and antivirus software” obtained mean scores of 4.23 and 4.18, respectively. The former was verbally interpreted as Highly Competent, while the latter was interpreted as Competent. Although both indicators reflected acceptable levels of competence, the comparatively lower rating in computer security suggested that some respondents may have had limited exposure to cybersecurity practices and system protection procedures. This may be attributed to reliance on technical personnel when dealing with software protection and system maintenance. Instefjord and Munthe (2017) noted that teachers’ competence in utilizing digital technologies is significantly influenced by the level of ICT training and institutional support they receive.

Overall, the findings demonstrated that Generation X TLE/TVL teachers possessed a strong level of competence in performing basic computer operations. Their competence in operating computer systems, troubleshooting technical issues, and managing digital resources suggested that they possessed the foundational ICT skills necessary to support technology-integrated instructional practices. Strong foundational digital competence enabled teachers to utilize technological tools effectively in lesson preparation, instructional delivery, and classroom management. Caberos and Dioso (2025) emphasized that teachers in Philippine public schools who possess strong foundational ICT skills are better able to integrate digital technologies effectively within instructional environments.

In terms of the use of productivity applications, the findings revealed a grand mean of 3.94, verbally interpreted as Competent. This indicated that the respondents generally possessed adequate knowledge and skills in utilizing productivity software to support instructional preparation and classroom-related tasks. The findings suggested that the teachers were capable of performing common digital activities necessary in modern educational settings, particularly in creating instructional materials, organizing classroom information, and presenting lesson content through digital tools. Teachers’ competence in productivity applications is considered essential in supporting effective ICT integration and enhancing instructional efficiency in technology-supported learning environments. Tondeur et al. (2017)

and Voogt et al. (2018) emphasized that teachers' competence in digital productivity tools significantly contributes to effective instructional delivery and classroom management.

Among the indicators, the statement "I can create and format documents using Microsoft Word or Google Docs" obtained the highest mean score of 4.25, verbally interpreted as Highly Competent. This indicated that the respondents demonstrated strong proficiency in utilizing word processing applications commonly used in educational settings. Word processing software is widely utilized by teachers in preparing lesson plans, instructional materials, worksheets, examinations, and other classroom documents. The result suggested that the respondents were highly familiar with essential productivity tools required for instructional preparation and documentation. Tondeur et al. (2017) explained that competence in productivity applications forms a fundamental component of effective ICT integration in teaching and learning processes.

The statement "I can use spreadsheets for data entry and analysis (e.g., Microsoft Excel, Google Sheets)" obtained a mean score of 4.12, verbally interpreted as Competent, indicating that the respondents were capable of utilizing spreadsheet applications for organizing and analyzing classroom-related information. Likewise, the indicator "I can design presentations using PowerPoint or Google Slides" obtained a mean score of 4.05, verbally interpreted as Competent, suggesting that the respondents were able to utilize presentation software for lesson delivery and instructional presentations. The indicators "I can create and edit tables, charts, and graphs using productivity software" and "I can collaborate with others using shared documents and real-time editing tools" recorded mean scores of 3.99 and 3.95, respectively, both verbally interpreted as Competent, indicating satisfactory capability in using collaborative and data presentation features of productivity applications.

Similarly, the indicators "I can use templates and formatting tools to enhance the visual appeal of documents and presentations," "I can convert files into different formats (e.g., PDF, DOCX, PPTX)," "I can integrate multimedia elements (e.g., images, audio, video) into documents and presentations," and "I can use productivity tools to create instructional materials and learning resources" obtained mean scores of 3.94, 3.83, 3.77, and 3.77, respectively, all verbally interpreted as Competent. These findings indicated that the respondents possessed adequate competence in utilizing various features of productivity software to support instructional tasks and enhance lesson preparation.

The lowest-rated indicator was "I can manage and organize digital content using productivity software for classroom use," which obtained a mean score of 3.71, verbally interpreted as Competent. Although the result still reflected an acceptable level of competence, it suggested that some respondents may still be developing their ability to systematically organize digital instructional resources and maintain efficient digital storage systems. Effective digital content management requires familiarity with file organization systems, digital storage practices, and instructional resource management strategies. Cabero-Almenara, Romero-Tena, and Palacios-Rodríguez (2020) and Waclin (2023) noted that while teachers generally demonstrate competence in using digital tools, aspects related to digital organization and management of instructional resources continue to require further professional development and training.

Overall, the findings indicated that Generation X TLE/TVL teachers demonstrated a competent level of proficiency in utilizing productivity applications for instructional preparation and classroom-related activities. Their competence in word processing, presentation development, and collaborative digital tools reflected adaptability to technology-supported instructional environments. However, the relatively lower competence in organizing digital instructional content highlighted an area that may still benefit from continuous

professional development programs aimed at strengthening digital resource management and improving the effective utilization of productivity software in educational settings.

In terms of ICT integration in teaching, the findings revealed that the respondents demonstrated a grand mean of 4.14, verbally interpreted as Competent. This indicated that Generation X TLE/TVL teachers generally possessed satisfactory capability in incorporating digital technologies into instructional planning, classroom delivery, assessment practices, and learning facilitation. ICT integration in teaching refers to the purposeful utilization of digital tools and online resources to support instructional strategies, improve lesson delivery, and facilitate meaningful learning experiences among students. The findings suggested that the respondents were capable of utilizing technology-supported instructional approaches within contemporary educational environments.

Among the indicators, the statement “I encourage students to use technology for research and collaboration” obtained the highest mean score of 4.33, verbally interpreted as Highly Competent. This finding suggested that the respondents actively promoted the use of digital technologies as part of students’ learning activities. Encouraging students to utilize technology for research enables learners to access diverse information sources and develop digital literacy competencies essential in contemporary educational and workplace settings. Similarly, collaborative digital tools provide opportunities for learners to exchange ideas, participate in group activities, and engage in interactive learning experiences. Ayunar et al. (2024) emphasized that teachers’ ICT competence significantly contributes to the development of technology-supported learning environments that promote student collaboration, research engagement, and active participation. In technical-vocational education, Galit et al. (2025) further explained that the integration of digital technologies supports the development of skills relevant to modern industries and workplaces.

The statement “I apply ICT in student assessment and feedback” obtained the lowest mean score of 4.11, verbally interpreted as Competent. Although still within an acceptable level, the result suggested that some teachers may still be strengthening their ability to utilize digital technologies in assessment and feedback practices. ICT-based assessment includes the use of online quizzes, electronic submissions, digital feedback systems, and other technology-supported evaluation tools that assist teachers in monitoring student performance and providing timely responses. The use of digital assessment tools improves efficiency, supports continuous assessment practices, and enhances monitoring of learning outcomes. However, effective implementation of digital assessment strategies often requires sufficient training, familiarity with digital platforms, and confidence in utilizing technology-supported evaluation systems.

The relatively lower rating in ICT-based assessment practices may indicate variations in teachers’ exposure to digital assessment tools and professional development opportunities related to technology-supported evaluation methods. Ayunar et al. (2024) emphasized that differences in training and digital competence significantly affect the extent to which teachers effectively integrate ICT into assessment and feedback processes. The finding highlighted the importance of continuous capacity-building programs focused on strengthening teachers’ competence in utilizing digital assessment tools and technology-supported feedback mechanisms.

Overall, the findings demonstrated that Generation X TLE/TVL teachers possessed a satisfactory level of ICT integration competence in instructional practices. Their ability to incorporate digital technologies into lesson preparation, classroom instruction, and learning facilitation reflected adaptability to technology-supported educational environments. Effective ICT integration supports improved instructional delivery, enhances student engagement, and contributes to the development of dynamic learning environments. Baytar et al. (2023) emphasized that effective ICT integration strengthens instructional effectiveness and supports the establishment of technology-enhanced learning systems. The findings suggested that while

Generation X TLE/TVL teachers have adapted to increasing technological demands within education, further enhancement in specific areas such as digital assessment practices may further strengthen their overall ICT integration competence and improve the quality of technology-supported instruction. The findings on ICT integration in teaching further showed that Generation X TLE/TVL teachers obtained a grand mean of 4.14, verbally interpreted as Competent. This indicated that the respondents generally demonstrated satisfactory competence in using ICT to support instructional planning, lesson delivery, student engagement, assessment, and learning management. Among the indicators, the statement “I encourage students to use technology for research and collaboration” obtained the highest mean score of 4.33, verbally interpreted as Highly Competent. This result suggested that the respondents actively promoted the use of technology as a learning tool, particularly in helping students access information, engage in collaborative tasks, and develop digital literacy skills. The remaining indicators were all verbally interpreted as Competent, including “I integrate digital tools in lesson planning,” with a mean of 4.19; “I incorporate multimedia content to make lessons more engaging,” with a mean of 4.18; “I use ICT to enhance instructional delivery,” with a mean of 4.16; “I promote responsible and ethical use of ICT among students,” with a mean of 4.15; and “I apply skills gained from ICT-related professional development activities in my teaching,” also with a mean of 4.15. These results indicated that the respondents were able to apply digital tools in various aspects of instruction, although the mean scores also suggested that further development may still be needed to reach a consistently highly competent level across all ICT integration practices.

The same pattern was observed in the indicators “I adapt my teaching strategies to include emerging technologies” and “I evaluate the effectiveness of ICT tools in improving learning outcomes,” both of which obtained a mean of 4.13 and were verbally interpreted as Competent. These findings suggested that the respondents were capable of adjusting their teaching practices to accommodate new technologies and were able to reflect on the usefulness of ICT tools in supporting learning outcomes. However, the results also implied that these areas may still be strengthened through sustained professional development, especially as emerging technologies continue to reshape classroom instruction. The indicators “I utilize educational platforms to manage class activities and resources” and “I apply ICT in student assessment and feedback” obtained mean scores of 4.12 and 4.11, respectively, both verbally interpreted as Competent. The lowest mean score of 4.11 for ICT application in student assessment and feedback indicated that while the respondents were able to use digital tools for evaluation purposes, assessment remained an area that required further enhancement. This suggests the need for continued capacity-building in the use of online quizzes, electronic submissions, digital rubrics, and feedback platforms to make assessment practices more efficient, timely, and responsive to learners’ needs.

In terms of internet and communication tools, Generation X TLE/TVL teachers obtained a grand mean of 4.20, verbally interpreted as Competent. This indicated that the respondents demonstrated a satisfactory level of competence in using internet-based technologies for instructional and professional purposes. The highest-rated indicator was “Use online platforms (e.g., Google Classroom, Zoom) for instructional communication,” which obtained a mean score of 4.27 and was verbally interpreted as Highly Competent. This finding showed that the respondents were highly capable of using online platforms to facilitate instructional communication, distribute learning materials, organize class activities, provide announcements, and conduct virtual interactions with students. The indicators “Search and retrieve teaching resources using internet search engines,” “Integrate online videos and digital tutorials into classroom instruction,” “Manage basic internet or platform-related issues during

online teaching sessions,” and “Use email effectively for professional communication” obtained mean scores of 4.26, 4.23, 4.22, and 4.21, respectively, all verbally interpreted as Highly Competent. These findings indicated that the respondents were highly proficient in accessing digital resources, incorporating online materials into instruction, managing basic technical issues, and using email for professional communication.

The remaining indicators under internet and communication tools were verbally interpreted as Competent. The statement “Use messaging applications (e.g., Messenger, Viber, WhatsApp) for academic communication with students or parents” obtained a mean of 4.2, while “Participate in online professional groups or forums for teaching support” obtained a mean of 4.19. The statements “Share teaching-related content responsibly through online platforms” and “Use internet-based tools to support student learning activities” both obtained a mean of 4.13, while “Use cloud storage (e.g., Google Drive, OneDrive) to store and share teaching materials” obtained the lowest mean of 4.12. Although these results remained within the Competent level, the comparatively lower score for cloud storage use suggested that some teachers may still be strengthening their ability to organize, store, retrieve, and share instructional materials using cloud-based platforms. This finding emphasized the importance of further training in digital file management and online resource organization, particularly because cloud technologies support flexible access to teaching materials and improve efficiency in instructional preparation.

The findings on teaching performance showed that Generation X TLE/TVL teachers obtained an overall grand mean of 4.77, verbally interpreted as Strongly Agree. This indicated that the respondents demonstrated an excellent level of teaching performance across the key domains of lesson planning and preparation, classroom management, instructional delivery, and assessment and evaluation. Among the domains, assessment and evaluation obtained the highest mean of 4.79, followed by lesson planning and preparation with a mean of 4.78, classroom management with a mean of 4.76, and instructional delivery with a mean of 4.75, all verbally interpreted as Strongly Agree. These results showed that the respondents consistently carried out their instructional responsibilities with a high degree of effectiveness. The findings further suggested that even with the increasing demands of technology-supported instruction, the teachers were able to sustain strong pedagogical practices grounded in planning, classroom organization, instructional competence, and evaluation of student learning.

In terms of lesson planning and preparation, Generation X TLE/TVL teachers obtained a grand mean of 4.78, verbally interpreted as Strongly Agree. This indicated that the respondents demonstrated a very high level of teaching performance in preparing and organizing their lessons. The highest-rated indicator was “I plan for both formative and summative assessments to evaluate student learning,” which obtained a mean score of 4.83 and was verbally interpreted as Strongly Agree. This showed that the respondents consistently incorporated assessment strategies into lesson preparation to monitor students’ progress and evaluate the attainment of learning objectives. The indicators “I incorporate varied teaching strategies in my plans,” “I prepare well-structured lesson plans aligned with curriculum standards,” “I set clear and measurable learning objectives for each lesson,” “I align my lesson plans with the school calendar and pacing guide,” and “I consider students’ diverse learning needs and styles when planning lessons” obtained mean scores of 4.79, 4.78, 4.78, 4.78, and 4.78, respectively, all verbally interpreted as Strongly Agree. These results reflected the respondents’ consistent effort to align instructional planning with curriculum requirements, learner needs, and appropriate teaching strategies.

The indicators “I allocate sufficient time for each part of the lesson to ensure smooth flow,” “I include opportunities for student engagement and participation in my plans,” and “I regularly reflect on and revise my lesson plans to improve teaching effectiveness” each

obtained a mean score of 4.77, while “I integrate appropriate instructional materials and resources into my lesson plans” obtained the lowest mean score of 4.76. All were verbally interpreted as Strongly Agree. Although the lowest-rated indicator remained at a very high level, the result suggested that the integration of instructional materials and resources may still be further enriched, especially in technology-supported TLE/TVL instruction where appropriate resources are essential for practical, skill-based, and activity-centered learning. Overall, the findings indicated that the respondents planned their lessons systematically by establishing clear objectives, selecting varied teaching strategies, preparing assessments, considering learners’ needs, and organizing instructional activities that supported effective classroom implementation.

In terms of classroom management, Generation X TLE/TVL teachers obtained a grand mean of 4.76, verbally interpreted as Strongly Agree. This indicated that the respondents demonstrated a very high level of teaching performance in maintaining order, guiding student behavior, and creating a classroom environment conducive to learning. The highest-rated indicator was “I handle conflicts calmly and constructively,” which obtained a mean score of 4.79 and was verbally interpreted as Strongly Agree. This reflected the respondents’ strong ability to address classroom concerns with composure and fairness, contributing to a positive and respectful learning environment. The statements “I establish clear rules and expectations for student behavior” and “I create a classroom atmosphere that promotes respect and inclusivity” both obtained a mean of 4.73 and were verbally interpreted as Strongly Agree. Although these were the lowest-rated indicators, the results still indicated a very high level of performance and suggested that the respondents consistently promoted structure, respect, and inclusiveness in the classroom. Overall, the findings showed that Generation X TLE/TVL teachers were able to sustain organized, respectful, and supportive classroom environments that promoted student engagement, discipline, cooperation, and effective instructional delivery.

In terms of classroom management, the findings showed that Generation X TLE/TVL teachers obtained a grand mean of 4.76, verbally interpreted as Strongly Agree. This indicated that the respondents demonstrated a very high level of teaching performance in maintaining discipline, guiding student behavior, organizing classroom routines, and establishing a learning environment conducive to effective instruction. Among the indicators, the statement “I handle conflicts calmly and constructively” obtained the highest mean score of 4.79, verbally interpreted as Strongly Agree. This reflected the respondents’ strong ability to address classroom concerns with composure, fairness, and professionalism, which contributed to the maintenance of a positive and orderly classroom climate. The indicators “I respond to misbehavior consistently and fairly,” “I use proactive strategies to prevent disruptions,” and “I encourage student responsibility and self-management” each obtained a mean score of 4.78, all verbally interpreted as Strongly Agree. These results indicated that the respondents consistently applied preventive and corrective classroom management strategies that promoted discipline, accountability, and learner independence.

The indicators “I maintain discipline and foster a positive learning environment” and “I manage classroom routines and transitions effectively” both obtained a mean score of 4.77, verbally interpreted as Strongly Agree, while “I monitor student engagement and adjust activities to focus” obtained a mean score of 4.76, also verbally interpreted as Strongly Agree. These findings showed that the respondents were able to sustain classroom order, manage instructional flow, and adjust learning activities based on students’ engagement levels. The statement “I organize the physical layout of the classroom to support learning” obtained a mean score of 4.75, verbally interpreted as Strongly Agree, indicating that the respondents also considered the physical learning environment as part of effective classroom management. The

lowest-rated indicators were “I establish clear rules and expectations for student behavior” and “I create a classroom atmosphere that promotes respect and inclusivity,” both of which obtained a mean score of 4.73 and were verbally interpreted as Strongly Agree. Although these were the lowest within the domain, the results remained at a very high level, suggesting that the teachers consistently promoted behavioral expectations, respect, and inclusiveness while still leaving room for further strengthening of classroom norms and inclusive practices. Overall, the findings indicated that Generation X TLE/TVL teachers maintained organized, respectful, and supportive learning environments that promoted student engagement, discipline, cooperation, and effective instructional delivery.

In terms of instructional delivery, Generation X TLE/TVL teachers obtained a grand mean of 4.75, verbally interpreted as Strongly Agree. This indicated that the respondents demonstrated a very high level of teaching performance in communicating lesson content, facilitating learning activities, guiding students during instruction, and supporting the attainment of learning objectives. The highest-rated indicator was “Check student understanding during instruction,” which obtained a mean score of 4.78 and was verbally interpreted as Strongly Agree. This finding showed that the respondents regularly monitored learners’ comprehension during lesson delivery, allowing them to identify difficulties, provide clarification, and adjust instruction when necessary. This practice strengthened the connection between instructional objectives and student learning outcomes, as it ensured that learners remained engaged and able to follow the progression of the lesson.

The indicators “Deliver lessons in a clear and engaging manner,” “Present lesson content in ways that meet student learning needs,” “Provide constructive feedback during classroom instruction,” and “Use visual aids and digital tools to support lesson delivery” each obtained a mean score of 4.77, all verbally interpreted as Strongly Agree. These results indicated that the respondents consistently communicated lesson content clearly, addressed students’ learning needs, provided feedback during instruction, and used instructional aids and digital tools to enhance lesson delivery. The indicator “Relate lesson content to real-life situations” obtained a mean score of 4.76, verbally interpreted as Strongly Agree, suggesting that the respondents connected classroom instruction with practical and meaningful contexts. The indicators “Maintain an appropriate pace throughout lesson delivery,” “Encourage student participation during lesson activities,” and “Use questioning techniques that promote student thinking” obtained mean scores of 4.74, 4.73, and 4.72, respectively, all verbally interpreted as Strongly Agree. These findings showed that the teachers sustained instructional pacing, promoted learner participation, and used questioning techniques that encouraged student thinking.

The lowest-rated indicator in instructional delivery was “Apply varied instructional strategies during lesson delivery,” which obtained a mean score of 4.69 and was verbally interpreted as Strongly Agree. Although this remained at a very high level, it suggested that the use of diverse instructional strategies could still be further expanded to enhance student engagement and deepen understanding of lesson content. Varied instructional strategies are particularly important in TLE/TVL subjects because these areas often require practical demonstrations, hands-on activities, differentiated instruction, and skill-based learning experiences. Overall, the results demonstrated that Generation X TLE/TVL teachers were able to deliver lessons effectively, monitor student understanding, provide meaningful feedback, and guide learners through structured instructional activities. These findings also challenged the assumption that Generation X teachers may have difficulty adapting to evolving instructional demands, as the results reflected strong instructional delivery practices supported by professional experience, adaptability, and responsiveness to learners’ needs.

In terms of assessment and evaluation, the findings showed that Generation X TLE/TVL teachers obtained a grand mean of 4.79, verbally interpreted as Strongly Agree. This

indicated that the respondents demonstrated a very high level of teaching performance in designing assessments, communicating criteria, monitoring student progress, providing feedback, and using assessment results to guide instructional decisions. The highest-rated indicator was “I maintain accurate and up-to-date records of student performance,” which obtained a mean score of 4.84 and was verbally interpreted as Strongly Agree. This finding indicated that the respondents consistently ensured proper documentation of students’ academic performance. Accurate and updated records allowed teachers to monitor learner progress, support fair evaluation, provide feedback based on evidence, and make informed instructional decisions.

The indicator “I design assessments that align with learning objectives” obtained a mean score of 4.80, verbally interpreted as Strongly Agree, showing that the respondents consistently prepared assessment tasks that matched the intended learning outcomes. The statement “I communicate assessment criteria clearly to students” obtained a mean score of 4.79, also verbally interpreted as Strongly Agree, indicating that the respondents promoted transparency and clarity in assessment expectations. The indicators “I use appropriate tools to assess student learning,” “I provide timely and constructive feedback to students,” “I use both formative and summative assessments to monitor progress,” “I analyze assessment results to inform instructional decisions,” “I accommodate diverse learners in my assessment practices,” and “I encourage self-assessment and peer evaluation among students” each obtained a mean score of 4.78, all verbally interpreted as Strongly Agree. These results showed that the respondents consistently applied varied assessment practices, used assessment evidence to improve instruction, responded to learner diversity, and encouraged students to participate in reflective evaluation processes.

The lowest-rated indicator was “I reflect on the effectiveness of my assessment strategies and make improvements when needed,” which obtained a mean score of 4.77 and was verbally interpreted as Strongly Agree. Although this remained at a very high level, it suggested that reflective assessment practices could still be further strengthened to ensure that evaluation methods remain aligned with learning objectives and responsive to students’ needs. Overall, the findings indicated that assessment and evaluation among Generation X TLE/TVL teachers were systematic, evidence-based, and closely connected to instructional improvement. Their ability to document student performance accurately, apply appropriate assessment methods, provide feedback, and use evaluation results to guide teaching contributed to improved instructional effectiveness and meaningful learning experiences.

The findings on the challenges encountered by Generation X TLE/TVL teachers in transitioning from traditional to digital teaching methods revealed an overall grand mean of 4.45, verbally interpreted as Strongly Agree. This indicated that the respondents experienced challenges to a very great extent across the domains of access to ICT resources, ICT training, institutional support, and attitudes toward technology. Among these domains, institutional support obtained the highest mean score of 4.48, followed by ICT training with a mean score of 4.47, access to ICT resources with a mean score of 4.44, and attitudes toward technology with a mean score of 4.39, all verbally interpreted as Strongly Agree. These findings indicated that the transition to digital teaching posed significant demands on teachers, involving both external conditions such as resource availability, training opportunities, and institutional support, as well as internal factors such as confidence, readiness, and personal attitudes toward technology.

The results suggested that although the respondents demonstrated high levels of ICT competence and excellent teaching performance, they still encountered substantial barriers in fully adapting to digital teaching methods. The high mean scores across all challenge domains

showed that digital transition was not merely a matter of teacher willingness or competence, but also depended on the availability of infrastructure, sustained professional development, administrative support, and personal readiness. The findings were consistent with the view that effective technology integration requires a supportive ecosystem where teachers are provided with adequate resources, training, and institutional mechanisms to sustain digital instruction. In this regard, the challenges experienced by the respondents were multidimensional and required comprehensive interventions that addressed both structural and personal aspects of technology adoption.

In terms of access to ICT resources, the respondents obtained a grand mean of 4.44, verbally interpreted as Strongly Agree. This indicated that limitations in ICT resource availability were experienced to a very great extent and significantly affected the respondents' transition from traditional to digital teaching. The highest-rated indicator was "I have limited access to projectors, speakers, or other ICT devices needed for lesson delivery," which obtained a mean score of 4.55 and was verbally interpreted as Strongly Agree. This finding showed that insufficient access to multimedia instructional tools was the most prominent challenge in this domain. The lack of projectors, speakers, and other ICT devices may limit teachers' ability to deliver interactive, engaging, and technology-supported lessons, particularly in TLE/TVL subjects where demonstrations, visual presentations, and practical instruction are often necessary.

The indicators "I have limited access to functional computers or laptops for instructional use" and "Limited access to reliable internet data or load affects online teaching tasks and communication" both obtained a mean score of 4.51, verbally interpreted as Strongly Agree. These findings indicated that the respondents experienced significant limitations in access to essential devices and reliable internet resources needed for digital instruction. The indicators "Limited availability of ICT equipment affects my ability to use technology consistently during class activities" and "Limited access to updated software or applications affects my preparation of instructional materials" both obtained a mean score of 4.48, also verbally interpreted as Strongly Agree. These results showed that equipment availability and software access influenced teachers' ability to use technology consistently and prepare digital instructional materials effectively.

The statement "Limited access to printers or scanners affects my preparation of learning materials" obtained a mean score of 4.44, verbally interpreted as Strongly Agree, while "Limited classroom ICT setup (e.g., lack of screen or adequate projection space) affects lesson delivery" obtained a mean score of 4.43, also verbally interpreted as Strongly Agree. The indicator "I experience difficulty accessing reliable internet connectivity needed for teaching" obtained a mean score of 4.41, verbally interpreted as Strongly Agree. These results indicated that physical ICT facilities, classroom setup, and internet connectivity continued to affect the implementation of digital instruction. The indicators "Power interruptions affect my ability to conduct ICT-supported lessons" and "Technical issues (e.g., slow devices, malfunctioning equipment) disrupt ICT-assisted teaching" obtained mean scores of 4.29 and 4.28, respectively, both verbally interpreted as Strongly Agree. Although these were the lowest-rated indicators, they remained within a very high level, indicating that power interruptions and technical disruptions were still substantial challenges. Overall, the findings showed that access to ICT resources remained a critical condition for effective digital teaching, as limitations in devices, connectivity, software, classroom setup, and technical reliability constrained teachers' ability to integrate technology consistently and meaningfully into instruction.

In terms of ICT training, the findings showed that Generation X TLE/TVL teachers obtained a grand mean of 4.47, verbally interpreted as Strongly Agree. This indicated that challenges related to ICT training were experienced to a very great extent and remained a significant concern in the transition from traditional to digital teaching. The highest-rated

indicator was “I find it challenging to learn new digital tools without guided training or coaching,” which obtained a mean score of 4.63 and was verbally interpreted as Strongly Agree. This finding emphasized the importance of structured training, mentoring, and coaching in helping teachers adapt to new digital platforms and instructional technologies. It further suggested that independent exploration of digital tools may not be sufficient for teachers to fully maximize ICT in instruction, especially when digital platforms require technical, pedagogical, and practical application skills.

The lowest-rated indicator in this domain was “I need more training on integrating ICT in lesson planning and preparation,” which obtained a mean score of 4.32 and was verbally interpreted as Strongly Agree. Although this was the lowest among the indicators, it still reflected a very high level of challenge, indicating that teachers continued to recognize the need for training in embedding ICT into instructional planning. The result also implied that while teachers may already have basic awareness of ICT integration, they required more practical, guided, and application-focused training to effectively use technology in lesson preparation, instructional material development, classroom delivery, and assessment. Overall, the findings confirmed that ICT training remained a significant challenge for Generation X TLE/TVL teachers. The results emphasized that access to technology alone does not ensure effective digital teaching, as teachers must also be provided with sustained professional development, targeted training, and mentoring support to enhance their digital competence and instructional confidence in technology-supported learning environments. In terms of ICT training, the findings showed that Generation X TLE/TVL teachers obtained a grand mean of 4.47, verbally interpreted as Strongly Agree. This indicated that challenges related to ICT training were experienced to a very great extent and remained a significant concern in the transition from traditional to digital teaching. The highest-rated indicator was “I find it challenging to learn new digital tools without guided training or coaching,” which obtained a mean score of 4.63 and was verbally interpreted as Strongly Agree. This finding emphasized the importance of guided training, coaching, and mentoring in helping teachers adapt to new digital tools and instructional technologies. The statement “I need more training on developing digital instructional materials suited for TLE/TVL tasks” obtained a mean score of 4.57, verbally interpreted as Strongly Agree, while “I need more training to confidently integrate ICT in teaching and learning” obtained a mean score of 4.53, also verbally interpreted as Strongly Agree. These findings showed that the respondents needed more practical and subject-specific training to improve their ability to prepare digital instructional materials and integrate ICT confidently into teaching and learning.

The indicators “I need more training on using ICT tools to support instructional delivery,” “ICT-related training sessions are not sufficient for the demands of digital teaching,” and “I need more training on using ICT tools for assessment and evaluation” obtained mean scores of 4.49, 4.48, and 4.48, respectively, all verbally interpreted as Strongly Agree. These results indicated that teachers perceived existing ICT training opportunities as insufficient in addressing the actual demands of digital teaching, particularly in instructional delivery and assessment practices. The statement “I need more training on troubleshooting common ICT problems during instruction” obtained a mean score of 4.46, while “I have limited opportunities to attend ICT-related trainings or seminars” obtained a mean score of 4.41, both verbally interpreted as Strongly Agree. These findings suggested that the respondents experienced both skill-related and opportunity-related barriers in strengthening their ICT competence. The indicators “I find it difficult to apply ICT training content in actual classroom situations” and “I need more training on integrating ICT in lesson planning and preparation” obtained mean scores of 4.35 and 4.32, respectively, both verbally interpreted as Strongly Agree. Although

these were the lowest-rated indicators, they still reflected a very high level of challenge, confirming that teachers required sustained, applied, and classroom-based ICT training. Overall, the findings indicated that the presence of technology alone was not sufficient to ensure effective digital teaching because teachers also needed continuous professional development, guided support, and practical training aligned with the instructional requirements of TLE/TVL.

In terms of institutional support, the findings revealed that Generation X TLE/TVL teachers obtained a grand mean of 4.48, verbally interpreted as Strongly Agree. This indicated that institutional support was experienced as a major challenge in the transition from traditional to digital teaching. The highest-rated indicator was “School resources are not sufficient to sustain consistent ICT integration in instruction,” which obtained a mean score of 4.66 and was verbally interpreted as Strongly Agree. This finding showed that inadequate school resources were the most prominent institutional barrier affecting the respondents’ ability to sustain ICT-integrated instruction. The indicators “ICT support personnel are not always available when needed during teaching” and “I have limited opportunities for peer mentoring or coaching on ICT integration” both obtained a mean score of 4.55, verbally interpreted as Strongly Agree. These results indicated that teachers needed stronger technical assistance and peer support mechanisms to help them address ICT-related concerns during instruction.

The statement “Workload and time constraints limit my preparation of ICT-integrated lessons” obtained a mean score of 4.52, verbally interpreted as Strongly Agree, indicating that teachers’ instructional and administrative responsibilities affected their capacity to prepare technology-supported lessons. The indicators “Limited school-provided software/accounts affects my use of ICT for instruction,” “I receive limited technical support when ICT tools or platforms encounter problems,” and “Administrative support for ICT integration (e.g., scheduling, access, resources) is limited” obtained mean scores of 4.49, 4.47, and 4.46, respectively, all verbally interpreted as Strongly Agree. These findings showed that software access, technical support, and administrative assistance were important institutional conditions that influenced effective ICT integration. The statements “Repair and maintenance of ICT equipment are not done promptly,” “I receive limited guidance on ICT integration expectations in TLE/TVL teaching,” and “Limited access to school-provided internet affects my digital teaching tasks” obtained mean scores of 4.42, 4.34, and 4.30, respectively, all verbally interpreted as Strongly Agree. Although these were comparatively lower, they remained at a very high level, indicating that institutional limitations continued to affect teachers’ digital teaching practices. Overall, the findings emphasized that institutional readiness, adequate resources, timely technical assistance, mentoring, and administrative support were necessary to sustain effective ICT integration in education.

In terms of attitudes toward technology, the respondents obtained a grand mean of 4.39, verbally interpreted as Strongly Agree. This indicated that attitudes toward technology contributed to the challenges experienced by Generation X TLE/TVL teachers in transitioning from traditional to digital teaching. The highest-rated indicator was “I feel stressed when lessons depend heavily on technology,” which obtained a mean score of 4.48 and was verbally interpreted as Strongly Agree. This finding suggested that technology-dependent instruction created pressure among the respondents, particularly when lessons required the simultaneous use of digital platforms, presentations, online tools, and classroom technologies. The indicator “I prefer traditional methods when ICT issues are likely to interrupt the lesson” obtained a mean score of 4.45, while “I feel overwhelmed by rapid changes in educational technology” obtained a mean score of 4.44, both verbally interpreted as Strongly Agree. These results showed that uncertainty regarding technical interruptions and rapid technological changes influenced teachers’ preference for familiar instructional methods.

The indicators “I feel anxious when students are more familiar with digital tools than I am,” “I worry about making mistakes when using ICT tools during instruction,” and “I feel discouraged when ICT problems occur repeatedly during teaching” obtained mean scores of 4.43, 4.40, and 4.40, respectively, all verbally interpreted as Strongly Agree. These findings indicated that anxiety, fear of errors, and repeated ICT problems affected teachers’ confidence in using technology during instruction. The statement “I feel that using technology requires extra effort beyond regular lesson preparation” obtained a mean score of 4.39, while “I feel less confident using digital tools compared to traditional teaching materials” obtained a mean score of 4.34, both verbally interpreted as Strongly Agree. The indicators “I hesitate to use unfamiliar digital tools even when they may enhance learning” and “I find it challenging to stay motivated in learning new ICT tools regularly” obtained mean scores of 4.28 and 4.27, respectively, both verbally interpreted as Strongly Agree. Although these were the lowest-rated indicators, they still reflected a very high level of challenge. Overall, the findings showed that emotional and motivational factors, including stress, hesitation, anxiety, and confidence, shaped the teachers’ willingness and readiness to adopt digital tools. This indicated that successful ICT integration required not only access to technology and training but also sustained support that strengthened teachers’ confidence and positive attitudes toward digital instruction.

The analysis of the relationships among ICT competencies, challenges encountered, and teaching performance of Generation X TLE/TVL teachers revealed varying statistical results. Using Pearson r correlation at the 0.05 level of significance, the relationship between competence and performance obtained an r -value of -0.002 and a p -value of 0.980, which was greater than 0.05. This result was interpreted as Not Significant, indicating that there was no statistically significant relationship between ICT competencies and teaching performance. Therefore, the null hypothesis was not rejected. This finding suggested that although teachers demonstrated ICT competence, such competence did not independently determine their teaching performance. Teaching effectiveness may have been influenced by broader pedagogical factors, including instructional planning, classroom management, assessment practices, professional experience, and adaptability to different teaching contexts.

The relationship between competence and challenges obtained an r -value of 0.092 and a p -value of 0.318, which was also greater than the 0.05 level of significance. This result was interpreted as Not Significant, indicating that there was no statistically significant relationship between ICT competencies and the challenges encountered by the respondents. Thus, the null hypothesis was not rejected. This implied that teachers’ level of ICT competence did not significantly reduce or increase the extent of challenges they experienced in transitioning to digital teaching. Even teachers with adequate ICT skills may still face challenges related to limited resources, insufficient training, lack of institutional support, and technological disruptions. This finding emphasized that many barriers to digital teaching were external and structural in nature and could persist regardless of individual competence.

In contrast, the relationship between performance and challenges obtained an r -value of 0.260** and a p -value of 0.004, which was lower than the 0.05 level of significance. This result was interpreted as Significant, indicating that there was a statistically significant relationship between teaching performance and challenges encountered. Therefore, the null hypothesis was rejected. The positive r -value of 0.260** suggested that teaching performance and challenges were associated, although the relationship was weak. This implied that the challenges encountered by teachers were related to their teaching performance, particularly in the context of digital transition. Challenges such as limited access to ICT resources, inadequate training, insufficient institutional support, and attitudes toward technology may affect how

teachers plan lessons, deliver instruction, manage classrooms, and assess student learning. The finding highlighted the importance of addressing contextual and institutional barriers because these challenges were more closely related to teaching performance than ICT competence alone.

Taken together, the findings indicated that Generation X TLE/TVL teachers demonstrated competent ICT skills and excellent teaching performance, yet they continued to experience substantial challenges in transitioning from traditional to digital teaching. The non-significant relationships between competence and performance, with an r -value of -0.002 and a p -value of 0.980 , and between competence and challenges, with an r -value of 0.092 and a p -value of 0.318 , showed that ICT competence alone did not determine teaching effectiveness or eliminate digital teaching barriers. However, the significant relationship between performance and challenges, with an r -value of 0.260^{**} and a p -value of 0.004 , emphasized that the conditions surrounding digital teaching were meaningfully associated with instructional performance. These results reinforced the need to strengthen ICT infrastructure, expand access to relevant and continuous training, improve institutional support systems, and build teachers' confidence in using technology. Addressing these areas may reduce the challenges experienced by teachers and promote more effective, sustainable, and context-responsive ICT integration in TLE/TVL instruction.

CONCLUSION

The study determined the relationships among ICT competencies, challenges encountered, and teaching performance of Generation X TLE/TVL teachers in the First District of Capiz. Using a descriptive correlational research design, the study described the existing levels of ICT competencies, teaching performance, and challenges encountered by the respondents, and examined the relationships among these variables through the mean and Pearson product moment correlation coefficient. Data were gathered from Generation X TLE/TVL teachers in selected public secondary schools through a researcher made questionnaire using a five-point Likert scale. The findings provided a comprehensive basis for understanding how teachers' technological competence, instructional performance, and digital transition challenges interacted within the context of TLE/TVL instruction.

The findings revealed that the ICT competencies of Generation X TLE/TVL teachers were at a competent level, indicating that the respondents possessed adequate knowledge and skills in using information and communication technology to support their instructional responsibilities. Their competence reflected their ability to perform essential digital tasks, including lesson preparation, communication, and basic ICT integration in teaching and learning. Among the ICT domains, basic computer operations emerged as the strongest area, showing that the teachers had well developed foundational skills in handling computer systems and performing routine technological functions. However, the use of productivity tools was identified as the least emphasized domain, suggesting that while teachers were capable of using such applications, further enhancement was necessary to maximize these tools for more efficient instructional preparation, organization of materials, assessment, and classroom related tasks. These findings indicate that the respondents' ICT competence was sufficient for operational and supportive functions, but it remained less developed in terms of deeper instructional integration and transformative technology use.

The teaching performance of Generation X TLE/TVL teachers was found to be at an excellent level, showing that the respondents consistently demonstrated effective teaching practices across lesson planning and preparation, classroom management, instructional delivery, and assessment and evaluation. This high level of performance reflected their strong pedagogical competence, professional experience, content mastery, and ability to sustain

effective instruction despite the growing demands of digital teaching. Assessment and evaluation obtained the highest level among the teaching performance domains, indicating that the teachers were highly proficient in monitoring student progress, documenting performance, and using assessment results to guide instructional improvement. Instructional delivery, although identified as the lowest among the domains, remained at a highly satisfactory level, suggesting that teachers were still able to communicate lesson content effectively, guide learners, and support learning outcomes, while also presenting opportunities for further improvement in the use of varied instructional strategies and approaches that enhance student engagement.

The study further revealed that the challenges encountered by Generation X TLE/TVL teachers in transitioning from traditional to digital teaching methods were experienced to a very great extent. This finding indicates that the shift toward technology integrated instruction placed considerable demands on teachers, particularly in terms of access to resources, ICT training, institutional support, and attitudes toward technology. Institutional support was identified as the most significant challenge, showing that limitations in school resources, technical assistance, administrative support, and system level readiness strongly affected teachers' ability to sustain digital instruction. Attitudes toward technology posed the least difficulty, indicating that the teachers generally maintained a positive disposition toward ICT despite experiencing stress, hesitation, and uncertainty in using technology. These findings suggest that the difficulties encountered in digital teaching were not merely personal or skill based, but were largely shaped by institutional, structural, and environmental conditions.

The test of relationships showed that ICT competencies had no significant relationship with teaching performance, indicating that higher ICT competence did not necessarily result in improved instructional effectiveness among the respondents. This finding suggests that teaching performance was shaped by a broader combination of factors, particularly pedagogical knowledge, classroom experience, content mastery, lesson planning, classroom management, assessment practices, and the ability to adapt instructional strategies to learners' needs. Similarly, ICT competencies had no significant relationship with the challenges encountered by teachers, indicating that possessing higher ICT skills did not necessarily reduce the difficulties experienced in digital teaching. Many of the challenges were external and systemic in nature, including limited infrastructure, insufficient institutional support, lack of adequate training opportunities, and resource constraints, which persisted regardless of individual ICT capability.

In contrast, a significant relationship was established between teaching performance and challenges encountered, indicating that the difficulties teachers experienced in integrating ICT had a measurable influence on their teaching performance. This finding underscores the importance of addressing the conditions that affect teachers' ability to sustain high quality instruction. As challenges related to resources, support, training, and digital readiness increase, teachers' instructional effectiveness may also be affected. Thus, while Generation X TLE/TVL teachers maintained excellent teaching performance and competent ICT skills, the quality and sustainability of technology integrated instruction depended strongly on the support systems available within the educational environment.

Based on these findings, it can be concluded that Generation X TLE/TVL teachers in the First District of Capiz were able to sustain a high level of teaching performance despite experiencing substantial challenges in transitioning from traditional to digital teaching. Their ICT competence enabled them to perform essential digital tasks, yet this competence was more operational than integrative, as ICT was commonly used as a supporting tool rather than as a central means of transforming instructional practice. The results further indicate that

technological proficiency alone did not determine teaching effectiveness, nor did it eliminate the challenges associated with digital teaching. Instead, institutional support, access to ICT resources, relevant training, and opportunities for professional development emerged as critical factors in shaping effective technology utilization in instruction.

In light of these conclusions, Generation X TLE/TVL teachers may be encouraged to strengthen their competence in integrating ICT into actual classroom instruction beyond basic and routine tasks. Greater emphasis may be placed on designing technology enhanced lessons, using interactive platforms, applying productivity tools for planning and assessment, and exploring practical applications such as Google Workspace, learning management systems, and interactive assessment tools to improve student engagement and instructional effectiveness. Peer demonstration sessions may also be useful, as they allow teachers to share actual classroom practices and make ICT learning more practical, relevant, and applicable.

School administrators and educational institutions may also prioritize the strengthening of institutional support systems by ensuring that ICT resources are functional, accessible, and available during actual teaching hours. Reliable internet access, maintained ICT equipment, dedicated technical support personnel, and fair scheduling of ICT facilities may help reduce interruptions and improve the consistency of digital instruction. Continuous and needs based professional development programs may likewise be implemented, focusing on the creation of digital instructional materials, management of blended learning environments, use of assessment technologies, and classroom-based ICT application. Since workload and time constraints often limit teachers' participation in training, flexible modalities such as modular, school based, or short-term sessions may be adopted, with incentives or recognition provided to encourage sustained professional growth.

Educational leaders and policymakers may further develop structured and sustainable support mechanisms that address both the technical and instructional dimensions of ICT integration. These may include allocating budgets for ICT improvement, regularly upgrading digital tools, establishing school-based ICT support teams, and creating collaborative spaces where teachers can share experiences, challenges, and effective strategies. Since the findings showed that challenges significantly influenced teaching performance, schools may conduct regular assessments of ICT related needs to ensure that interventions remain responsive and relevant. Addressing limitations in materials, training, technical support, and institutional assistance may help teachers sustain excellent instructional performance while adapting more effectively to digital teaching environments. Future researchers may also conduct similar studies involving other teacher groups or educational levels and may include additional variables such as access to resources, training effectiveness, and institutional policies to provide a broader understanding of the factors influencing ICT integration in education.

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