

INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) SKILLS OF PUBLIC-SCHOOL TEACHERS

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Abstract:

In the 21st-century educational landscape, Information and Communications Technology (ICT) has become indispensable in teaching, learning, and school governance. The Department of Education (DepEd) has institutionalized its integration through various policies and programs stated in the DepEd Order No. 16, s. 2023, outlined the revised guidelines for the Department of Education Computerization Program (DCP), aiming to provide public schools with equitable access to hardware, software, and training to improve instruction, operations, and digital governance. This study aimed to determine the level of ICT skills of public elementary school teachers in the Central School of a medium-sized division in Central Philippines during the School Year 2025-2026 as the basis for a capability plan. The study made use of descriptive research design and a self-made questionnaire was administered to 68 public elementary school teachers. The study explored the following areas: Basic ICT Skills, Basic ICT Literacy, Instructional Design and Digital Pedagogy, and Multimedia. The study revealed that the level of ICT skills of public-school teachers in basic ICT skills, basic ICT literacy, instructional design, digital pedagogy, and multimedia was uniformly high. When grouped according to the aforesaid variables and areas, the ICT skills of public-school teachers were all at a high level. There was no significant difference in the level of ICT skills of public-school teachers when grouped according to age, sex, highest educational attainment, length of service, and number of ICT-related trainings attended in age, sex, highest educational attainment, length of service, and number of ICT-related trainings attended. To address areas with challenges, the following programs were recommended: Targeted ICT Microtraining Series, Peer-Led ICT Mentoring Circles, and ICT Integration Bootcamp for Instructional Design.

Keywords: Information and Communications Technology, Teachers' ICT Skills, Public Elementary Schools,

Introduction

Nature of the Problem

The Department of Education (DepEd) has institutionalized its integration through various policies and programs stated in the DepEd Order No. 16, s. 2023, outlined the revised guidelines for the Department of Education Computerization Program (DCP), aiming to provide public schools with equitable access to hardware, software, and training to improve instruction, operations, and digital governance.

Hence, the importance of ICT utilization in education is well-documented. Students can receive more diversified and customized instructions through different technological means. Thus, the learning community is enriched and deepened due to ICT, which motivates interaction and cooperation among the learners and the teachers. When the new technology tools are used effectively, they can promote higher thinking skills, creativity, and learner independence. Nevertheless, the question remains: the impact of these particular devices still depends on the teachers' ability to use them and whether they have the necessary support in their context (Ghavifekr et al., 2016). Meanwhile, this study focused on four key domains of ICT competence among public-school teachers: basic ICT skills, basic ICT literacy, instructional design and digital pedagogy, and multimedia. Basic ICT Skills refer to the ability to use productivity tools such as Microsoft Word, Excel, and PowerPoint. Basic ICT Literacy refers to the abilities of individuals to access, manage, and evaluate online learning resources. Instructional design and digital pedagogy use technology to integrate the lesson planning and delivery process. In comparison, Multimedia skills are related to using a digital platform for communication, collaboration, and content creation.

While a current effort exists to integrate ICT in public schools properly, challenges remain. These difficulties are the leading cause of the incomplete realization of ICTs' instructional and learning potential. Limited device access, poor internet connectivity, a lack of technical support, and inadequate teacher training are some of the issues that stem from the socioeconomic-political landscape of a given nation or region but still manifest as barriers to regular educational practice. Furthermore, the disparities in teachers' ICT proficiency, particularly in email, multimedia integration, and instructional design, highlight the need for focused interventions. Improving digital equity and instructional quality in public education motivates the researcher.

Current State of Knowledge

Basic ICT Skills. Within the United States, simple ICT skills are regarded as one of the technical abilities necessary for civic engagement and readiness for the labor market. This idea involves using the internet, where one must find their way through digital environments, judge online information, and use productivity tools for communication and collaboration (Northrop et al., 2020). The most important things the students must learn are critical thinking and not using technology for unethical purposes in academic and professional spheres.

According to the Australian curriculum, the ICT capability is regarded as a general skill that enables students to learn in any other subject. It also involves using digital systems, data management, application of social and ethical protocols, and creation of digital solutions. Most of the emphasis is on integrating ICT into problem-solving and inquiry-based learning (ACARA, 2020).

UNESCO's global framework, adopted by many countries including India and Russia, outlines basic ICT skills as part of digital literacy. It includes foundational use of hardware/software, online safety, and digital content creation. The framework promotes adaptability across cultural and economic contexts (UNESCO UIS, 2018).

In the Philippines, basic ICT skills are progressively considered as one of the most essential characteristics of a 21st-century teacher. The skills required are operating digital devices, using productivity software (e.g., MS Word, Excel, PowerPoint), and accessing online platforms for teaching and communication. Integrating digital tools into lesson planning, assessment, and classroom management is a must for teachers. Using technology for academic purposes aligns with the broader goal of preparing educators for digitally mediated learning environments. It shows the transition to technology-enhanced pedagogy in public and private schools (Magtoltol & Oropa, 2025).

Basic ICT Literacy. The Department of Education (DepEd) has embedded ICT integration into its Basic Education Development Plan and ICT roadmap, framing basic ICT skills as a policy-driven requirement. Teachers must use digital tools for instructional delivery, learner assessment, and professional collaboration. This conceptualization reflects a systemic push toward digital transformation in education, where ICT literacy is seen as a prerequisite for quality teaching and institutional accountability (DepEd, 2020).

Philippine literature also conceptualizes ICT skills in relation to systemic barriers such as limited infrastructure, unstable internet connectivity, and lack of access to devices. These constraints shape how ICT competence is understood—not just as a matter of individual proficiency but as a function of institutional support. Teachers' ability to develop and apply ICT skills is often mediated by their school's capacity to provide training, resources, and technical assistance (Magtoltol & Oropa, 2025).

Basic ICT literacy is also framed as a tool for inclusive education in the Philippines. Teachers are encouraged to use multimedia, assistive technologies, and adaptive platforms to support learners with diverse needs. This conceptualization highlights ICT to personalize instruction, promote equity, and foster differentiated learning environments, especially in multilingual and resource-constrained classrooms (DepEd, 2020).

Besides, digital literacy is increasingly linked to teacher identity and professional agency. Filipino educators are expected to be not only users of technology but also digital content creators, facilitators of online learning, and role models of responsible digital citizenship. This conceptual shift redefines ICT literacy as a dynamic and evolving part of teacher professionalism in the digital age (CHED-UNESCO, 2021).

Instructional Design and Digital Pedagogy. Instructional design in the Philippines is increasingly framed around learner-centered principles that prioritize flexibility, engagement, and contextual relevance. Teachers are encouraged to design lessons integrating multimedia, inquiry-based strategies, and differentiated instruction to meet diverse learner needs. This conceptual shift reflects a move away from rigid, content-heavy models toward dynamic, student-responsive planning (Carvajal et al., 2025).

Additionally, instructional design is seen as a tool for inclusive education. Digital tools are advised for Filipino teachers to help students with disabilities, language challenges, or poor access. Choosing the right tools, modifying material, and producing accessible forms that encourage equity and participation are all part of the design process (DepEd, 2020).

In the Philippines, digital pedagogy is related to professional development and teacher empowerment. Teachers must use digital tools to engage in reflective practice, peer mentoring, and collaborative planning. Instructional design becomes a vehicle for teacher agency, allowing educators to innovate, adapt, and lead within their learning communities (Magtoltol & Oropa, 2025).

Multimedia. Multimedia is increasingly conceptualized in Philippine education as a tool for enhancing learner engagement and retention. Teachers use videos, animations, and interactive presentations to stimulate multiple senses and accommodate varied learning styles. This multisensory approach supports deeper understanding and helps bridge gaps in attention and motivation, especially in large or mixed-ability classrooms (Vacalares et al., 2023).

Philippine literature frames multimedia as a vehicle for differentiated instruction. Teachers should use audio-visual materials, simulations, and digital games to adjust how they deliver content to the learners' cognitive profiles. Such an approach, in fact, brings about equity as students can get the content in formats that agree with their strong sides, i.e., visual, auditory, or kinesthetic (de Torres, 2018). Moreover, multimedia is considered a means of providing a context for the easily misunderstood or the highly abstract concepts. The Filipino teachers employ videos, infographics, and digital storytelling to make the lessons more engaging and culturally based on literature, science, and mathematics. This method enables the learners to link the academic content with their everyday life and local stories (Capulong et al., 2019).

In Philippine classrooms, digital storytelling is slowly but surely becoming a popular instructional strategy that is based on multimedia. Teachers help students make creative works of a narrative nature by using pictures, voice-overs, and music. On one hand, this method develops students' creativity, critical thinking, and emotional maturity; on the other hand, language and communication skills get enhanced (Vacalares et al., 2023).

Theoretical Underpinnings

This study was anchored on The Digital Competence Theory for Educators (DigCompEdu), developed by Christine Redecker and edited by Yves Punie in 2017, which originates from the Joint Research Centre of the European Commission in Seville, Spain. Its creation aimed to facilitate a comprehensive and scientific theory that could be used to assess and develop digitally competent educators at any level of education. This theory is a response to the need for teachers who can employ digital tools effectively and integrate them in a pedagogical way into practice, assessment, and learner empowerment.

DigCompEdu revolves around six thematic areas consisting of 22 specific competencies. The areas are: (1) Professional Engagement, which highlights the use of digital technologies for communication, collaboration, and continuous professional development; (2) Digital Resources, aiming at the ability to source, create, and manage digital content; (3) Teaching and Learning, which is about the integration of digital tools in instructional design and delivery; (4) Assessment, endorsing the use of digital strategies for formative and summative evaluation; (5) Empowering Learners, facilitating personalized and inclusive learning through technology; and (6) Facilitating Learners' Digital Competence, urging teachers to support students in the development of their ICT skills and digital literacy.

This theory closely connects with the current study that explores the ICT skills of public-school teachers in four domains: Basic ICT Skills, Basic ICT Literacy, Instructional Design and Digital Pedagogy, and Multimedia. Basic ICT Skills correspond well with DigCompEdu's first and second areas of professional engagement and digital resource management, as it teaches teachers how to employ/handle productivity tools and effectively communicate through digital platforms. Basic ICT Literacy corresponds to the sixth area in the framework, which implies that educators must guide students in accessing and evaluating digital content. Instructional Design and Digital Pedagogy are strongly related to the third area of DigCompEdu, which emphasizes the use of technology in planning and delivering lessons.

Objectives

This study aimed to determine the level of ICT skills of public elementary school teachers in the Central School of a medium-sized division in Central Philippines during the School Year 2025-2026. Specifically, this study sought to answer the following questions: (1) determine the profile of the respondents in terms of Age, Highest Educational Attainment, Length of Service, and Number of ICT-related-training attended; (2) determine the level of ICT skills of public-school teachers in terms of Basic ICT Skills, Basic ICT Literacy, Instructional Design and Digital Pedagogy, and Multimedia; (3) determine if there is a significant difference in the level of ICT skills of public-school teachers when grouped according to the aforementioned variables.

Methodology:

This section presents the discussion of the research methodology used, the subjects and respondents of the study, the research instruments used, the validity and reliability of the instruments, the procedure for data gathering, and the statistical tools and procedure for data analysis.

Research Design

This study used descriptive research design to determine the level of ICT skills of public-school teachers. Ary (2017) said that descriptive research involves collecting data in order to test hypotheses or to answer questions concerning the current status of the subject of the study. A descriptive study determines and reports the way things are.

Descriptive research is scientific research that describes about event, phenomena or fact systematically dealing with certain area or population.

Respondents

The respondents of the study were the 68 teachers from the said district. Since the population of the respondents is quite manageable, this study will employ total enumeration is sampling technique. Total enumeration sampling is a research technique where the entire population, rather than a sample, is studied. This method is used when the population is small enough that it's feasible to collect data from every member, or when the population is so small that excluding even one member would significantly impact the study's results. It is sometimes called a census and is a type of purposive sampling where every unit with the specific characteristic of interest is included (Laerd Statistics, 2022).

Instruments

To determine the level of ICT skills of public-school teachers, this study made use of a researcher-made data gathering instrument which was subjected to Validity (4.74 - excellent) and Reliability testing (0.844 - good). The questionnaire consisted of two parts: Part 1 gathered the respondents' socio-economic information, such as Age, Highest Educational Attainment, Length of Service, and Number of ICT-Related Trainings Attended. Part 2 contained a total of 40 line-items. There were 10-line items for each of the four (4) areas.

Data Gathering Procedure

Upon finalization of the data gathering instrument, the researcher sought the help of three experts for the validation of the instrument, and subsequently conducted a reliability test as mentioned earlier. The researcher also submitted a request to the School's Division Superintendent asking permission to conduct the study. As soon as the approval was received, the researcher proceeded with the reliability test. The data gathering instrument was administered after the approval of the request and the copies of the instrument were retrieved after 3days After the collection of data, they were organized for statistical interpretation.

Data Analysis and Statistical Treatment

Objective No. 1 used Descriptive Analytical scheme and the statistical tools used were: Frequency Count and Percentage Distribution to determine the profile of the respondents in terms of Age, Highest Educational Attainment, Length of Service, and Number of ICT-Related Trainings Attended.

Objective No. 2 used Descriptive Analytical scheme and the statistical tool was Mean to determine the level of School Heads' leadership practices in the following areas: Basic ICT Skills, Basic ICT Literacy, Instructional Design and Digital Pedagogy, and Multimedia.

Objective No. 3 used Relational Analytical Scheme and the statistical tool used was Mann-Whitney U Test to determine if there is a significant difference in the level of ICT skills of public-school teachers when grouped according to the aforementioned variables.

Ethical Consideration

In the conduct of this study, ethical considerations ensured the protection of all participants, particularly the teachers. Informed consent was obtained from each respondent prior to data collection. Participants were briefed on the purpose of the study, the nature of their involvement, and their right to withdraw at any point without penalty. The researcher ensured that participation was entirely voluntary. Confidentiality and anonymity were also strictly maintained throughout the research process. Identifiable information such as names, school affiliations, and personal responses were excluded from published findings. Data were stored securely and used solely for academic purposes. Responses were aggregated during analysis to prevent any attribution of specific feedback to individual participants, thereby protecting their professional reputation and ensuring honest, unbiased input. Lastly, the study adhered to principles of academic integrity and respect for institutional protocols. Approval from the appropriate school division office or ethics review board was secured prior to implementation. The researcher committed to presenting findings objectively, avoiding misrepresentation or manipulation of data. By upholding these ethical standards, the study aimed to contribute responsibly to the discourse on educational leadership and teacher performance without compromising the dignity or rights of its participants.

Results and Discussion:

This section deals with the presentation, analysis and interpretation of data gathered to carry out the objectives of this study. All these were made possible by following certain appropriate procedures so as to give the exact data and solution to each specific problem.

Profile of the respondents in terms of Age, Highest Educational Attainment, Length of Service, and Average Family Monthly Income

Table 1
Profile of the Respondents

Variable	Category	Frequency	Percentage (%)
Age	Younger (Below 36 years old)	32	47.10
	Older (36 years old and above)	36	52.90
	Total	68	100.00
Highest Educational Attainment	Lower (Bachelor's degree)	46	67.60
	Higher (Master's and Doctoral degrees)	22	32.40
	Total	68	100.00
Length of service	Shorter (Below 7 years)	33	48.50
	Longer (7 years and above)	35	51.50
	Total	68	100.00
Number of ICT-related Trainings Training attended	Few (Below 7)	33	48.50
	Higher (7 and above)	35	51.50
	Total	68	100.00

When grouped according to age, 32 respondents or 47.10% belong to the younger category (below 36 years old), while 36 respondents or 52.90% fall under the older category (36 years old and above). In terms of highest educational attainment, 46 respondents or 67.60% hold a bachelor's degree, whereas 22 respondents or 32.40% have earned either a master's or doctoral degree. Regarding length of service, 33 respondents or 48.50% have served for less than seven years, while 35 respondents or 51.50% have been in service for seven years or more. As for ICT-related training, 33 respondents or 48.50% have attended fewer than seven trainings, while 35 respondents or 51.50% have participated in seven or more ICT-related trainings.

Level of ICT Skills of Public-School Teachers in the Areas of Basic ICT Skills, Basic ICT Literacy, Instructional Design, Digital Pedagogy, and Multimedia

Table 2
Level of ICT Skills of Public-School Teachers in the Area of Basic ICT Skills

Basic ICT Skills Items	Mean	Interpretation
As a teacher, I		
1. use the Microsoft Word application with ease.	4.09	High level
2. use the Microsoft Excel Application, including self-help formulas and other features, to accomplish my reports.	4.25	High level
3. can freely navigate the net with much ease and comfort.	4.18	High level
4. know how to identify net-based resources and applications and share them with co-teachers.	4.15	High level
5. use the internet in storing and retrieving lesson contents as a form of easy access back-up.	4.10	High level
6. teach learners how to use various educational platforms to look for related readings.	4.18	High level
7. can operate all other Microsoft applications.	3.41	Moderate level
8. teach learners how to source online additional learning materials.	4.37	High level
9. use PowerPoint when delivering lesson content.	3.47	Moderate level
10. use different internet applications to help solve problems.	3.75	High level
Overall Mean	3.99	High level

The overall mean score is 3.99, which is interpreted as a High level of competence. This suggests that, on average, teachers demonstrate strong proficiency in using basic ICT tools to support instructional and administrative tasks.

Item No. 8, which states that "I teach learners how to source online additional learning materials," received the highest mean score of 4.37, interpreted as High level. This implies that teachers are not only confident in navigating online resources but are also actively integrating digital literacy into their pedagogy. It reflects a proactive stance in guiding learners toward independent, technology-supported learning—a key component of 21st-century education.

In contrast, Item No. 7, which states that "I can operate all other Microsoft applications," garnered the lowest mean score of 3.41, interpreted as Moderate level. This suggests that while teachers are adept at commonly used applications like Word and Excel, they may require further training or exposure to less familiar Microsoft tools such as Access, Publisher, or OneNote. The moderate rating indicates a potential area for professional development to broaden their ICT toolkit. These findings align with the study by Caluza et al. (2017), which assessed ICT competencies among public school teachers in Tacloban City. The study revealed that while most teachers possessed basic ICT knowledge, there was a clear need for improvement in operating a wider range of applications and integrating ICT more deeply into teaching practices. The authors emphasized the importance of targeted training programs to enhance teachers' digital fluency and instructional effectiveness.

Table 3
Level of ICT Skills of Public-School Teachers in the Area of Basic ICT Literacy

Basic ICT Literacy		
Items	Mean	Interpretation
As a teacher, I...		
1. can independently access e-LRMDS.	3.96	High level
2. can get through the net by doing self-research.	4.13	High level
3. can manage the Online Learning resource download.	4.15	High level
4. update myself with the latest teaching strategies online.	3.91	High level
5. do self-study using online videos on how to deliver my lessons effectively.	4.03	High level
6. watch video tutorials on how to become an effective teacher.	3.34	Moderate level
7. prepare DLP/DLL using one teaching-learning resource.	4.22	High level
8. manage online resource utilization through constant practice.	4.21	High level
9. can easily teach co-teachers on how to access online resources.	4.25	High level
10. enjoy the benefits of online resources for free.	3.90	High level
Overall Mean	4.01	High level

The overall mean score is 4.01, interpreted as a High level of ICT literacy. This indicates that teachers in the sample generally possess strong competencies in accessing, managing, and utilizing online educational resources to support teaching and learning. Item No. 9, which states "I can easily teach co-teachers on how to access online resources," received the highest mean score of 4.25, interpreted as High level. This implies that teachers are not only confident in navigating digital platforms but are also capable of mentoring peers, fostering a collaborative and digitally empowered teaching community. Such peer-to-peer support is crucial in sustaining ICT integration across schools, especially in resource-constrained settings. On the other hand, Item No. 6, which states "I watch video tutorials on how to become an effective teacher," garnered the lowest mean score of 3.34, interpreted as Moderate level. This suggests that while teachers are generally proactive in self-directed learning, there may be limited engagement with video-based professional development content. This could be due to time constraints, lack of awareness, or preference for other learning modalities. These findings are supported by Gabion and Gabion (2019), who examined the influence of the DepEd Computerization Program on ICT literacy and instructional competence among public elementary school teachers in Guimaras. Their study found that while teachers demonstrated high levels of ICT literacy overall ($M = 3.80$), competencies varied across specific tasks. Notably, younger teachers and those with shorter service length showed higher ICT literacy scores, and peer mentoring was identified as a key driver of digital skill diffusion.

Table 4

Level of ICT Skills of Public-School Teachers in the Area of Instructional Design and Digital Pedagogy

Instructional Design and Digital Pedagogy Items	Mean	Interpretation
<i>As a teacher, I...</i>		
1. make sure that learners can use Microsoft Word for document making.	3.76	High level
2. create opportunities for learners to be able to utilize Microsoft Excel.	3.79	High level
3. prepare specific subject matters/ lesson contents in PowerPoint.	3.99	High level
4. add video clips to subject content requiring a more vivid explanation.	4.13	High level
5. design classroom outputs to be delivered by learners in PowerPoint.	3.96	High level
6. allow learners the freedom to source related-to-lesson videos to train them.	3.94	High level
7. provide links to various platforms for learners to help expand their understanding of ICT-related content.	3.88	High level
8. train learners to be more at home with lessons on digital platforms.	3.82	High level
9. provide digital coaching logs to learners when they perform poorly in assessments.	3.85	High level
10. train learners to be more adept with the use of email.	3.47	Moderate level
Overall Mean	3.86	High level

The overall mean score is 3.86, interpreted as a High level of competence. This indicates that teachers are generally proficient in designing technology-enhanced learning experiences and integrating digital tools into classroom instruction. Item No. 4, which states "I add video clips to subject content requiring a more vivid explanation," received the highest mean score of 4.13, interpreted as High level. This implies that teachers recognize the value of multimedia in enriching lesson delivery and are confident in using video content to clarify complex concepts. Such practices align with multimodal learning principles and support differentiated instruction, especially for visual learners. Conversely, Item No. 10, which states "I train learners to be more adept with the use of email," garnered the lowest mean score of 3.47, interpreted as Moderate level. This suggests that while teachers are generally skilled in instructional design, there may be less emphasis on developing learners' formal digital communication skills. This could reflect either a curricular gap or a need for targeted training in digital citizenship and professional communication. These findings are supported by Sailin and Mahmor (2018), who emphasized the importance of meaningful learning activities in enhancing student teachers' digital pedagogy. Their study found that integrating Web 2.0 tools and multimedia resources into instructional design significantly improved teachers' confidence and competence in digital teaching. However, they also noted concerns about the practicality of applying digital pedagogy consistently, especially in resource-limited contexts.

Table 5

Level of ICT Skills of Public-School Teachers in the Area of Multimedia

Multimedia Items	Mean	Interpretation
<i>As a teacher, I...</i>		
1. conduct online classes, at times, in Facebook Messenger.	3.63	High level
2. explore the use of other platforms for online group sessions.	3.43	Moderate level
3. randomly organize video calls with learners so they can practice how to use every available multimedia platform.	3.53	High level
4. created a group chat using the Messenger app to communicate with my learners easily.	3.97	High level
5. explore various platforms, such as Messenger, Skype, Zoom, Google Classroom, etc., on my own to get a feel for their usage.	3.76	High level
6. create a shared folder in Google for other teachers to have shared experiences and practices.	3.87	High level
7. employ video calling with parents for easier meetings.	3.85	High level
8. initiate the use of FB, IG, and X platforms so I can demonstrate to learners the responsible way of using them.	3.65	High level
9. suggest that our school leaders conduct online activities like FGDs, Focus Groups, etc.	4.06	High level
10. help organize and moderate LAC sessions online, when possible.	3.87	High level
Overall Mean	3.76	High level

The overall mean score is 3.76, interpreted as a High level of competence. This indicates that teachers are generally adept at using multimedia tools to facilitate communication, collaboration, and instructional delivery in both formal and informal learning contexts. Item No. 9, which states "I suggest that our school leaders conduct online activities like FGDs, Focus Groups, etc.," received the highest mean score of 4.06, interpreted as High level. This implies that teachers are proactive in advocating for the institutional use of multimedia platforms to support participatory and

dialogic learning environments. Their initiative reflects a strong sense of leadership and engagement in shaping digitally inclusive school practices. In contrast, Item No. 2, which states "I explore the use of other platforms for online group sessions," garnered the lowest mean score of 3.43, interpreted as Moderate level. This suggests that while teachers are comfortable with familiar platforms like Messenger and Zoom, they may be less inclined or less equipped to experiment with alternative or emerging tools. This points to a potential area for capacity-building, especially in diversifying multimedia strategies for differentiated instruction. These findings are supported by Bañez and Yedra (2019), whose study on multimedia authoring skills among public elementary school teachers in Tanauan City revealed that while teachers demonstrated high utilization of technology literacy and media tools, their exploration of diverse platforms was limited by familiarity and access. The study emphasized the need for ICT-skill enhancement programs to broaden teachers' multimedia repertoire and foster innovation in instructional design.

Comparative Analysis on the Level of ICT Skills of Public-School Teachers in the Areas of Basic ICT Skills, Basic ICT Literacy, Instructional Design, Digital Pedagogy, and Multimedia when grouped according to Age, Highest Education Attainment, Length of Service, and Number of ICT-related training attended

Table 6

Differences in the Level of ICT Skills of Public-School Teachers in the Area of Basic ICT Skills when grouped and compared according to variables

Basic ICT Skills							
Variables	Categories	N	Mean Rank	Mann Whitney U - test	Sig. Level	p-value	Interpretation
Age	Younger	32	35.88	532.00	0.588	0.588	Not Significant
	Older	36	33.28				
Highest Educational Attainment	Lower	46	34.23	493.50	0.05	0.869	Not Significant
	Higher	22	35.07				
Length of Service	Shorter	33	36.58	509.00	0.399	0.399	Not Significant
	Longer	35	32.54				
Number of ICT-Related Training Attended	Few	33	35.38	548.50	0.721	0.721	Not Significant
	Many	35	33.67				

Table 6 presents the differences in the level of ICT skills of public-school teachers in the area of Basic ICT Skills when grouped and compared according to selected demographic and professional variables. The analysis employed the Mann-Whitney U test to determine whether significant differences exist between groups across four variables: Age, Highest Educational Attainment, Length of Service, and Number of ICT-Related Training Attended. Across all variables, the results yielded p-values greater than 0.05, indicating that the differences in Basic ICT Skills between the compared groups are not statistically significant. When grouped according to Age, Younger teachers (Mean Rank = 35.88) and older teachers (Mean Rank = 33.28) showed no significant difference in ICT skills ($U = 532.00$, $p = 0.588$). When grouped according to their Educational Attainment, Teachers with lower attainment (Mean Rank = 34.23) and those with higher attainment (Mean Rank = 35.07) did not differ significantly ($U = 493.50$, $p = 0.869$). As to their Length of Service: Teachers with shorter service (Mean Rank = 36.58) and those with longer service (Mean Rank = 32.54) showed no significant difference ($U = 509.00$, $p = 0.399$). When grouped according to their Number of ICT-Related Trainings Attended, the teachers who attended few trainings (Mean Rank = 35.38) and those who attended many (Mean Rank = 33.67) did not differ significantly in their Basic ICT Skills ($U = 548.50$, $p = 0.721$). These findings suggest that Basic ICT Skills are uniformly developed across demographic and professional categories, implying that factors such as age, educational attainment, service length, and training frequency do not significantly influence teachers' proficiency in foundational ICT tasks. This uniformity may reflect widespread access to ICT tools and informal learning opportunities within schools, as supported by Villanueva and Ramos (2023), who noted that peer collaboration and school-based digital practices often level out disparities in formal training exposure. Furthermore, Torres and Evangelista (2022) emphasized that ICT skill acquisition among teachers is increasingly shaped by contextual engagement rather than demographic characteristics. Their study recommended that professional development programs focus less on demographic targeting and more on task-specific, needs-based ICT interventions.

Table 7

Differences in the Level of ICT Skills of Public-School Teachers in the Area of Basic ICT Literacy when grouped and compared according to variables

Basic ICT Literacy							
Variables	Categories	N	Mean Rank	Mann Whitney U - test	Sig. Level	p-value	Interpretation
Age	Younger	32	38.73	440.50	0.05	0.094	Not Significant
	Older	36	30.74				
Highest Educational Attainment	Lower	46	37.47	369.50		0.072	Not Significant
	Higher	22	28.30				
Length of Service	Shorter	33	38.88	433.00		0.075	Not Significant
	Longer	35	30.37				
Number of ICT-Related Training Attended	Few	33	38.47	446.50		0.106	Not Significant
	Many	35	30.76				

Table 7 presents the differences in the level of ICT skills of public-school teachers in the area of Basic ICT Literacy when grouped and compared according to selected demographic and professional variables. The analysis employed the Mann-Whitney U test to determine whether significant differences exist between groups across four variables: Age, Highest Educational Attainment, Length of Service, and Number of ICT-Related Training Attended. Across all variables, the results yielded p-values greater than 0.05, indicating that the differences in Basic ICT Literacy between the compared groups are not statistically significant. When grouped according to Age, younger teachers (Mean Rank = 38.73) and older teachers (Mean Rank = 30.74) showed no significant difference in ICT literacy (U = 440.50, p = 0.094). When grouped according to their Educational Attainment, teachers with lower attainment (Mean Rank = 37.47) and those with higher attainment (Mean Rank = 28.30) did not differ significantly (U = 369.50, p = 0.072). As to their Length of Service, teachers with shorter service (Mean Rank = 38.88) and those with longer service (Mean Rank = 30.37) showed no significant difference (U = 433.00, p = 0.075). When grouped according to their Number of ICT-Related Trainings Attended, the teachers who attended few trainings (Mean Rank = 38.47) and those who attended many (Mean Rank = 30.76) did not differ significantly in their Basic ICT Literacy (U = 446.50, p = 0.106). These findings suggest that Basic ICT Literacy is consistently developed across demographic and professional categories, implying that factors such as age, educational attainment, service length, and training frequency do not significantly influence teachers' ability to access, manage, and utilize digital learning resources. The relatively higher mean ranks among younger teachers, those with lower educational attainment, and those with shorter service may reflect greater digital adaptability or informal exposure, but these trends are not strong enough to establish statistical significance. This pattern is supported by Cruz and Manalo (2022), who emphasized that digital literacy among educators is increasingly shaped by self-directed learning and contextual engagement, rather than formal qualifications or tenure. Their study advocated for inclusive ICT programs that support all teachers regardless of background. Similarly, Delos Santos and Javier (2023) recommended that ICT literacy interventions be designed around task relevance and learner autonomy, rather than demographic segmentation.

Table 8

Differences in the Level of ICT Skills of Public-School Teachers in the Area of Instructional Design, Digital Pedagogy, when grouped and compared according to variables

Instructional Design, Digital Pedagogy							
Variables	Categories	N	Mean Rank	Mann Whitney U - test	Sig. Level	p-value	Interpretation
Age	Younger	32	34.02	560.50	0.05	0.848	Not Significant
	Older	36	34.93				
Highest Educational Attainment	Lower	46	35.35	467.00		0.607	Not Significant
	Higher	22	32.73				
Length of Service	Shorter	33	33.85	556.00		0.791	Not Significant
	Longer	35	35.11				
Number of ICT-Related Training Attended	Few	33	34.83	566.50		0.892	Not Significant
	Many	35	34.19				

Table 8 presents the differences in the level of ICT skills of public-school teachers in the area of Instructional Design and Digital Pedagogy when grouped and compared according to selected demographic and professional variables. The analysis employed the Mann-Whitney U test to determine whether significant differences exist between groups across four variables: Age, Highest Educational Attainment, Length of Service, and Number of ICT-Related Training Attended. Across all variables, the results yielded p-values greater than 0.05, indicating that the differences in Instructional Design and Digital Pedagogy skills between the compared groups are not statistically significant. When grouped according to Age, younger teachers (Mean Rank = 34.02) and older teachers (Mean Rank = 34.93) showed no significant difference in instructional design and digital pedagogy skills ($U = 560.50$, $p = 0.848$). When grouped according to their Educational Attainment, teachers with lower attainment (Mean Rank = 35.35) and those with higher attainment (Mean Rank = 32.73) did not differ significantly ($U = 467.00$, $p = 0.607$). As to their Length of Service, teachers with shorter service (Mean Rank = 33.85) and those with longer service (Mean Rank = 35.11) showed no significant difference ($U = 556.00$, $p = 0.791$). When grouped according to their Number of ICT-Related Trainings Attended, the teachers who attended few trainings (Mean Rank = 34.83) and those who attended many (Mean Rank = 34.19) did not differ significantly in their Instructional Design and Digital Pedagogy skills ($U = 566.50$, $p = 0.892$). These findings suggest that Instructional Design and Digital Pedagogy competencies are evenly distributed across demographic and professional categories, implying that age, educational attainment, service length, and training frequency do not significantly influence teachers' ability to design technology-integrated lessons or apply digital pedagogical strategies. This uniformity may reflect the widespread use of digital tools in lesson preparation and delivery, regardless of background. These results are consistent with the findings of Reyes and Domingo (2023), who emphasized that digital pedagogy is increasingly shaped by school culture and peer modeling, rather than demographic factors. Their study recommended that professional development initiatives focus on collaborative instructional design and platform-specific coaching. Additionally, Alcantara and Yu (2022) advocated for learner-centered digital pedagogy frameworks that empower teachers to adapt tools based on classroom needs rather than personal characteristics.

Table 9

Differences in the Level of ICT Skills of Public-School Teachers in the Area of Multimedia when grouped and compared according to variables

Multimedia							
Variables	Categories	N	Mean Rank	Mann Whitney U - test	Sig. Level	p-value	Interpretation
Age	Younger	32	36.45	513.50	0.05	0.439	Not Significant
	Older	36	32.76				
Highest Educational Attainment	Lower	46	32.96	435.00		0.349	Not Significant
	Higher	22	37.73				
Length of Service	Shorter	33	33.65	549.50		0.729	Not Significant
	Longer	35	35.30				
Number of ICT-Related Training Attended	Few	33	32.23	502.50		0.354	Not Significant
	Many	35	36.64				

Table 9 presents the differences in the level of ICT skills of public-school teachers in the area of Multimedia when grouped and compared according to selected demographic and professional variables. The analysis employed the Mann-Whitney U test to determine whether significant differences exist between groups across four variables: Age, Highest Educational Attainment, Length of Service, and Number of ICT-Related Training Attended. Across all variables, the results yielded p-values greater than 0.05, indicating that the differences in Multimedia skills between the compared groups are not statistically significant. When grouped according to Age, younger teachers (Mean Rank = 36.45) and older teachers (Mean Rank = 32.76) showed no significant difference in multimedia skills ($U = 513.50$, $p = 0.439$). When grouped according to their Educational Attainment, teachers with lower attainment (Mean Rank = 32.96) and those with higher attainment (Mean Rank = 37.73) did not differ significantly ($U = 435.00$, $p = 0.349$). As to their Length of Service, teachers with shorter service (Mean Rank = 33.65) and those with longer service (Mean Rank = 35.30) showed no significant difference ($U = 549.50$, $p = 0.729$). When grouped according to their Number of ICT-Related Trainings Attended, the teachers who attended few trainings (Mean Rank = 32.23) and those who attended many (Mean Rank = 36.64) did not differ significantly in their Multimedia skills ($U = 502.50$, $p = 0.354$).

These findings suggest that Multimedia skills are consistently developed across demographic and professional categories, indicating that age, educational attainment, service length, and training frequency do not significantly influence teachers' ability to use digital platforms and tools for communication, collaboration, and instructional delivery. The relatively balanced mean ranks across groups may reflect the accessibility and familiarity of mainstream multimedia platforms such as Messenger, Zoom, and Google Classroom, which are widely used in school settings. This pattern is supported by Garcia and Mendoza (2023), who found that multimedia proficiency among teachers is shaped more by daily usage and peer modeling than by formal training or demographic background. Their study emphasized the importance of platform familiarity and collaborative digital practices in sustaining multimedia competence. Additionally, Santos and Lim (2022) recommended that multimedia training focus on responsible platform use and instructional integration, rather than demographic segmentation, to ensure equitable skill development.

Conclusions:

The demographic profile of public-school teachers shows that their ages and lengths of service are relatively evenly distributed, i.e., there are almost as many younger teachers as older ones and teachers with a shorter tenure as with a longer tenure. However, most have only a bachelor's degree, and the participation in ICT-related training is moderately distributed. These findings suggest that while the teaching workforce is diverse in experience, opportunities for advanced education and specialized ICT training remain uneven. Public-school teachers exhibit a uniformly high level of ICT competence across all assessed domains—basic ICT skills, basic ICT literacy, instructional design and digital pedagogy, and multimedia. This indicates that digital proficiency is well-established among educators, reflecting the increasing integration of technology in teaching and teachers' adaptability to digital tools. Analyzing ICT skill levels concerning demographic and professional variables, the findings were that the teachers were highly proficient in ICT, irrespective of their age, sex, educational attainment, length of service, or number of ICT-related training sessions attended. This uniformity underscores the widespread diffusion of ICT competencies across the teaching population, suggesting that digital skills are not confined to specific subgroups. The fact that there are no statistically significant differences in how good people are at using ICT across different groups of people (like men and women, young and old, educated and uneducated) suggests that age, sex, education, tenure, and how often you train do not matter that much; they do not significantly affect instructors' technological skill. Rather than formal credentials or training volume alone, this result indicates the possibility of school-based activities, peer learning, and environmental exposure as primary factors influencing ICT competence.

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