

Competence, Utilization and Difficulties of Public Elementary School Teachers in ICT-Based Instruction

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Abstract:

ICT in education is seen as a means of increasing access to education especially to the rural population and making teaching and learning enjoyable. The study of Murithi (2021) supported the use of ICT in education as an enabler in the process of teaching and learning by assisting the learners to grasp concepts that would otherwise have remained abstract. This study sought to establish the level of teachers' competence, utilization and difficulties they encountered in ICT based instructions. There were 246 respondents from a medium sized division who answered the fully validated, self-made survey questionnaire. The study used descriptive-quantitative research design and used Percentage Count, Frequency Distribution, Mean, Mann-Whitney U Test, and Spearman rho as statistical tools. The results of the study showed that teachers' competence and utilization were on high level while the difficulties were at low level. The comparative analysis established the significant difference in the level of teachers' competence, level of teachers' utilization, and the level of difficulties encountered by teachers. The study recommended Teachers' Training and Digital Literacy, Annual Calibration of teachers' skills and the setting of ICT-related Policy Support.

Keywords: Competence, difficulties, ICT-based instruction, public elementary school teachers, utilization

Introduction:

Nature of the Problem

Schiller (2019) states that computers and other information and communications technology (ICT) have altered how educators teach and students learn. ICT in education is viewed as a way to improve teaching and learning, especially for the rural populace, and to increase access to education. The Murithi (2021) study provided evidence in favor of ICT use in education as a tool that facilitates teaching and learning by helping students understand ideas that would have remained abstract otherwise.

In May 2022, the Department of Education (DepEd) reintroduced the *Digital Rise Program*, an ICT framework for public schools aligned with the Philippine Development Plan (2017–2022). Recognizing the urgent need to accelerate ICT adoption, this initiative also supports the *Sulong Edukalidad Plan* (DepEd, 2020), which aims to address the nation's rapidly evolving academic landscape. Teachers report minimal challenges in online teaching, while vocational learners experience a similarly low level of difficulty in learning assessments (Yu et al., 2024). However, the extent of ICT integration in schools and the challenges faced by teachers often depend on their competency levels. The *Digital Rise Program*, implemented through DepEd's Information and Communications Technology Service (ICTS), highlights the government's partial focus on proactive ICT-based education as part of modernization efforts. Former DepEd Secretary Briones emphasized that readiness, adaptability, and the willingness to embrace technology remain crucial lessons from the experiences of the "new normal" (DepEd, 2022).

There were issues faced throughout the execution of DepEd's ICT Digital Rise Program, which is not as flawless as any other program. At present, it becomes troublesome for some teachers to incorporate the materials into their lessons. Several challenges highlighted by experts range from a need for more resources and the requirement that the software be conveniently navigable and allow changes based on each student's learning requirements. Some educators complain further that they are disappointed by the minimal ICT provided to them. Furthermore, the instructors' skill level affects how they use ICT-based training. It has also been found that some older educators need help to stay current with technology developments. The experience of a researcher in supervising the use of ICT in her school was considered motivating for conducting such a study. It is important to gauge the level of teachers' competence and utilization of ICT-based instruction to be able to map-out clearly the direction where this program is aimed to be at.

Current State of Knowledge

The partnership of Basic Skills (2020) confirmed that teaching applications dramatically changed the environment over the last two years. In addition to realizing the advantages of these helpful resources, parents and educators have been pushing for more use of educational technology and online learning materials. Integrating technology into

the classroom is one of the best ways to support student learning. Online platforms have proven effective and useful irrespective of social and environmental conditions. According to McKinley (2022), one of the greatest advantages of utilizing online platform is centered on learners' flexibility and self-paced learning. With the availability of online platforms, courses can be self-paced, and lessons can be accessed repetitively through a Learning Management System (LMS). This implies that discussion boards, email, and messaging apps can be used by both students and teachers to communicate.

Online learning flexibilities, accessibility, and a wide range of access to most programs empower students. Also, personalized learning is always available. With the use of these platforms, any learner may work from any location in the world and teach. This eliminates the need for a set timetable or for commuting from one location to another. Not only does it save time, but it also saves money, which can be used for other important things. Additionally, the virtual classroom is accessible from anywhere with an internet connection, so traveling is a great way to make the most of it. Online education is an excellent option, for instance, if you want to get a career and are studying overseas. While traveling to new and exotic locations, there's no reason to stop working or learning (Josep, 2022).

Applications on computers that are primarily used for technology-enhanced instruction in the classroom or self-directed content study are known as educational software. Microsoft Encarta and PhET Interactive Simulation are two instances. Science web-based resources are computer programs that let instructors and students study the material independently during the teaching and learning process. Google and the Science YouTube channel are two such. A kind of software known as "science mobile applications" is made expressly for use on portable, wireless computing devices like smartphones and tablets rather than in traditional work environments like desktop or laptop PCs. Google Drive and YouTube are two instances of science-related mobile applications (Paje et al., 2023).

Some of the issues identified by some studies are that while the benefits of teachers use of technology have been well recognized, research identifying factors contributing to this use revolves around studies that focus mainly on the effect of demographic variables of either schools or teachers, such as background (age, gender, and teaching experience) according to Hsu and Kuan (2014). Additionally, other issues would be teachers' readiness, pressure to use technology, availability and access to technology in school and elsewhere (Dogan, 2021).

The biggest obstacles faced by teachers have to do with the home study environment. These include organizing the workspace, maintaining a study routine, and avoiding distractions. The college students involved in the study found it rather easy to become proficient in technology. The participants found the recurring online classes' budgetary implications most challenging. Not all Filipino households have postpaid Internet access; most rely on data. Paying a hundred pesos for one to two gigabytes of data is required to purchase an Internet load, and this amount was frequently insufficient. "Not all the time I have money to load," said participant S66 (Barrot, Llenares, & del Rosario, 2021). Online education took up to Php500 (\$10) of the monthly budget in a separate account, which is difficult for families with variable incomes (Beltran, 2021).

Theoretical Underpinnings

The foundation of this investigation is built on three key theories: Lev Vygotsky's Social Constructivism Theory (1934), Richard Davis's Technology Acceptance Theory (1989), and David Perkins's Theory of Difficulty (2007).

The **Technology Acceptance Theory** supports the use of ICT-based instruction, emphasizing how individuals adapt to technology through behavioral intentions that drive actual usage (Charness and Boot, 2016). It helps identify the benefits and challenges of ICT integration in both traditional and modern classroom settings.

The **Social Constructivism Theory** contrasts with traditional instructivist approaches, as Vygotsky argued that learning arises through social interactions within a knowledge community. In this study, teachers act as learners, and ICT tools like wikis, blogs, mobile devices, and Virtual Learning Environments (VLEs) foster a collaborative, social constructivist learning environment.

Lastly, **Perkins's Theory of Difficulty** explains the challenges teachers face when integrating ICT. Perkins posits that mastering complex skills requires overcoming significant hurdles, with expertise enabling solutions for difficult tasks (Meagher, 2017). This theory is particularly relevant as it highlights the struggles, especially for experienced teachers, in adopting ICT-based instruction and the transformative potential of achieving such mastery.

Objectives

This study aimed to determine the level of competence, utilization, and difficulties of public elementary school teachers in ICT-Based Instruction in a medium-sized division in Southern Negros Occidental for the School Year 2023-2024. Specifically, this study sought to answer the following questions: 1) the level of competence of public elementary school teachers of ICT-based instruction in the area of facilities and equipment, productivity applications and online platforms; 2) the level utilization of public elementary school teachers of ICT-based instruction according to aforementioned areas; 3) the level of difficulties encountered by public elementary school teachers in ICT-based Instruction when grouped according to aforementioned variables; 4) the level of competence of public elementary

school teachers in ICT-based instruction when grouped according to aforementioned variables; and 5) the significant relationship between the level of competence and utilization.

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 utilized descriptive research design to determine the level of competence, utilization, and difficulties of public elementary school teachers in ICT-based instructions in one of the medium-sized divisions in Southern Negros Occidental during the School Year 2023-2024, and the results were used as the basis for an intervention plan. The descriptive study design approach aims to discover the new truth while concentrating on the current circumstances. There are various ways in which the truth might manifest itself, including a growth in the amount of information, a new generalization, a new "law," or a better understanding of a factor (Calmorin, 2016). The descriptive design was particularly apt for this research since the objective was to determine dominant relations, activities, results, prevailing concepts and attitudes, and emerging trends. This approach is systematic, whereby the observer merely observes and records one's behavior without exerting influence.

Study Respondents

The study's respondents were the 246 public elementary school teachers distributed in nine (9) clusters. Since the number of respondents is relatively large to handle, random sampling technique which is purposive in nature was used via Cochran formula to find the sample size. To get the percentage, the respondents from each section were divided by the total number of respondents and multiplied by the sample size. The researcher randomly selected the respondents from each section using the lottery technique.

Instruments

In this study, a self-made questionnaire was designed to determine the level of competence, utilization, and difficulties of public elementary school teachers in ICT-based instructions. The research instrument was subjected to validity (4.84-excellent) and for reliability (the level of Competence of public elementary school teachers in ICT-Based Instruction was 0.714, interpreted as "Acceptable"; the Level of Utilization of public elementary school teachers in ICT-Based Instruction is 0.806, interpreted as "Good" and Level of Difficulties of public elementary school teachers in ICT-Based Instruction is 0.894 interpreted as "Good"). The questionnaire was divided into two parts. The first part gathered the profile information of the respondents to establish their age, highest educational attainment, average family monthly income, and sex. The second part contained the questionnaire proper with 63-line items broken down as 21 line items for competence, another 21 line items for utilization, and another 21 for difficulties. The respondents were asked to rate each item using the five-point Likert scale, which contains the following scores: 5 (Always), 4 (Often), 3 (Sometimes), 2 (Rarely), and 1 (Almost Never).

Data Gathering Procedure

First, a formal letter was sent to the Schools Division Superintendent (SDS) informing her about this study, its purpose, and general coverage and, at the same time, seeking approval to conduct the study with the assurance that it will be done outside of school hours so as not to distract school routines. Following this, a letter was sent to the schools' administration heads with a photocopy of the SDS-sanctioned letter, along with the copy that was sent. The data-gathering instrument was administered either during the time people eat lunch or immediately after school hours. Retrieved the same 2-3 days afterwards. The raw data was collected and consolidated into one single spreadsheet that would be broken down further. The said data was converted into numerical code guided by a coding manual. This allowed computer processing, statistical derivations and tabular presentation. The Statistical Package for Social Sciences (SPSS) will be used in the computer processing of the encoded data.

Data Analysis and Statistical Treatment

Objective No.1 used a descriptive-analytical scheme and mean to determine the level of competence of public elementary school teachers in ICT-based instruction in terms of Facilities and Equipment, Productivity Applications, and Online Platforms.

Objective No.2 used a descriptive-analytical scheme and mean to determine the level of utilization of public elementary school teachers of ICT-based instruction in the aforementioned areas.

Objective No.3 used a descriptive-analytical scheme and mean to determine the level of difficulties encountered by public elementary school teachers in ICT-based instruction in the aforementioned areas.

Objective No. 4 used a relational analytical framework and Spearman rho to determine whether a meaningful correlation actually existed between the levels of competence that exist and their actual use.

Ethical Consideration

This study strives to minimize the risk of harm to its target respondents by assuring them the confidentiality of their responses and protecting their anonymity throughout the research implementation. At the onset, the researcher secures their free, prior informed consent and assures them of their right to withdraw from their research participation if deemed necessary.

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.

Table 1

Level of Competence of Public Elementary School Teachers of ICT-based Instruction of Facilities and Equipment

Items	Mean	Interpretation
<i>As a Teacher, I...</i>		
1. teach other teachers who are unable to operate some ICT facilities and equipment.	3.74	High level
2. use innovative methods of teaching such as ICT facilities such as interactive lessons, blended learning, etc.	4.10	High level
3. teach students how to use & operate modern gadgets.	4.18	High level
4. use a projector, interactive whiteboards, and a wide television screen to show subject-related videos.	3.76	High level
5. utilize all available ICT facilities & equipment in school.	3.98	High level
6. share usage with co-teachers and all working equipment in school.	3.87	High level
7. manipulate ICT- facilities with mastery.	3.93	High level
Overall Mean	3.94	High level

The overall mean score is 3.94, interpreted as "high level." Item 3, "*I teach students how to use and operate modern gadgets,*" got the highest mean score of 4.18, whereas item 1, "*I teach other teachers who are unable to operate some ICT facilities and equipment,*" got the lowest mean score of 3.74, both interpreted as high level.

The result reveals some struggle between and among teachers who, at the start, started learning to use ICT gadgets on their own with little help from the school's IT team or their co-teachers. Although the line item is on a high level, which is indicative that not all have the same experience, the fact remains that there were teachers who struggled for themselves as much as for others, thus the incapability to teach others how to use the gadgets that they themselves don't know how to use. Hence, the evolution of the educational landscape in the present times has helped learners and teachers grow towards embracing technology but, to an extent, has left some of them in this long but irreversible race.

This study's findings were corroborated by Dogan's (2021) research. In order to better understand how to use instructional and application software, the study looked into teachers' abilities to integrate technology into the classroom. The Technology Uses and Perceptions Survey (TUPS) survey, which involved 1335 K-12 teachers, provided the data that was used. The results of this study showed that instructors' perceived technology skills were the most important influence on how they used instructional and application software. Teachers' views about the usefulness of technology were directly and favorably impacted by their perceived abilities in using instructional and application software, as demonstrated by the models created in this study. We must fill in the gaps in the literature on technology use by emphasizing the collective effect of a variety of factors to explain teachers' use of technology (i.e., the effect of demographic factors and technology availability).

Table 2

Level of Competence of Public Elementary School Teachers of ICT-based Instruction of Productivity Applications

Productivity Application Items	Mean	Interpretation
<i>As a teacher, I...</i>		

1. use online applications in teaching students that could create an interactive teaching and learning environment.	4.02	High level
2. participate in various in-service training programs and workshops that are essential for professional development with the help of ICT.	3.79	High level
3. give students the opportunity to utilize other online learning sites available in safe networks and websites.	3.68	High level
4. manipulate different types of apps used for meetings, online teaching, and learning process. Ex. Zoom, Google Meet, Microsoft Teams, etc.	3.78	High level
5. guide students on how to utilize online applications that could enhance their knowledge and skills.	3.95	High level
6. teach students how to make use of online applications for studying purposes.	4.04	High level
7. have full mastery of most of the online learning applications.	3.75	High level
Overall Mean	3.86	High level

The overall mean score is 3.86, which means that teachers are highly competent in utilizing productivity applications. Item 6, "I teach students how to use online applications for studying purposes," got the highest mean score of 4.04, while item 3, "I give students the opportunity to utilize other online learning sites available in safe networks and websites," got the lowest mean score of 3.68, both interpreted as high level.

As a teacher, providing students with access to online learning sites can greatly enhance their learning experience. However, only some have the technical competence to navigate through other learning platforms, thereby creating a space to echo the same competence. Giving students the opportunity to learn from other available websites outside of the school's learning portal requires teachers to ensure that their recommended sites are useful in helping students fulfill their academic needs.

This result earned parallel findings from the study of Paje et al. (2021), who investigated teachers' utilization of computer-based technology with 41 science teachers in two state-owned secondary schools serving as respondents. Based on the findings, CBT in science instruction is a trend in 21st-century learning. Teachers utilize it in instruction to improve their teaching and uplift students' learning interests and concept understanding. However, teachers need help with low ICT literacy, unstable internet connection, and power interruption, and sometimes they find it too expensive to use the CBT.

Table 3

Level of Competence of Public Elementary School Teachers of ICT-based Instruction of Online Platform

Online Platforms		
Items	Mean	Interpretation
As a teacher, I...		
1. help guide students about the learning materials available on the internet, e-books, e-journals, e-magazines, and social sites like Linked-In, which are helpful in better learning of subject skills.	4.13	High level
2. use different online education platforms such as online classes, videos, presentations & recorded videos, w/c can be sent through Microsoft Teams, Zoom, or Google Meet.	3.97	High level
3. use different e-content in delivering the lessons and in giving remedial and enrichment classes.	3.99	High level
4. increasing the domain of knowledge with the help of e-journals, e-magazines & e-library, which can be achieved only through the use of ICT.	3.83	High level
5. use online platforms alternately with face-to-face classes whenever needed, like when the weather is bad.	3.75	High level
6. use online platforms to hold classes, meetings, or PTA meetings.	3.65	High level
7. utilize online applications to ease the exchange of information.	3.73	High level
Overall Mean	3.86	High level

The overall mean score is 3.86, interpreted as "high level". This means that teachers are highly competent in utilizing online platforms. Item 1 "As a teacher, I help guide students about the learning materials available on the internet, e-books, e-journals, e-magazines, and social media sites like Linked In, which are helpful in better learning of subjects" got the highest mean score of 4.13, while item 6 "As a teacher, I use online platforms to hold class, meetings or PTA meetings" got the lowest mean score of 3.65, both interpreted as high level.

This reveals that despite the seemingly high utilization of online platforms, there are few teachers who are not comfortable conducting classes and meetings in virtual mode. This can be an indicator that some teachers are still unable to navigate these platforms well, and their low level of competence could bring awkwardness.

Guanzon (2020) conducted a study on the ICT competence, effectiveness, and proficiency of teachers in one of the districts of a big-sized division in the Province of Negros Occidental. There were three (3) main topics covered in this study, which included teachers' competence with two (2) areas, namely software application and utilization of online resources; teachers' effectiveness with two (2) areas, namely instructional methods and instructional assessment; and lastly, teachers' proficiency with two (2) areas namely designing lessons in ICT and facilitating ICT sessions. The findings showed that the levels of teachers' competence, effectiveness, and proficiency were all at high levels. The results also showed a significant difference in the levels of teachers' competence, effectiveness, and proficiency across all variables.

Table 4

Level of Utilization of Public Elementary School Teachers of ICT-based Instruction of Facilities and Equipment

Facilities and Equipment Items	Mean	Interpretation
<i>As a teacher, I...</i>		
1. can operate computers, tablets & other gadgets in teaching.	4.30	High level
2. deliver lessons using digital equipment.	4.19	High level
3. teach students how to use and operate modern gadgets.	3.65	High level
4. use a wide television screen to show subject-related videos.	4.14	High level
5. utilize all available ICT facilities & equipment in school.	3.60	High level
6. share usage with co-teachers and all working equipment in school.	4.02	High level
7. teach other teachers who are unable to operate some ICT facilities and equipment.	3.88	High level
Overall Mean	3.97	High level

The overall mean score is 3.97, interpreted as "high level," which means that facilities and equipment are mostly available for teachers' utilization. Item 1, "As a teacher, I can operate computers, tablets, and other gadgets in teaching," got the highest mean score of 4.30, and item 5, "As a teacher, I utilize all available ICT facilities & equipment in school," got the lowest mean score of 3.60, both interpreted as high level.

Utilization-wise, it appeared that some teachers have issues with the utilization of some ICT gadgets in school. Possible reasons could be that the gadgets are for repair or under repair, may not be working at all, or are undersupplied, and one group has to wait while the other groups are using them.

In a related study, Montero (2020) looked into how instructors in one of the larger divisions of Central Negros Occidental school district 2020–21 used ICT-based learning tools in relation to students' academic achievement. The following areas were taken into consideration for this study: Internet and network applications, facilities and equipment, and productivity application software. The study's findings demonstrated the extent to which teachers used ICT-based learning in the areas of facilities and equipment, productivity application software, and internet and network application resources. The findings indicated that certain educators were not proficient in the use of Microsoft Excel when it came to productivity application software. According to the study, respondents were worried about inadequate management of scarce supplies and resources in the area of facilities and equipment. It was evident that there was a problem with accessing websites with learning resources regarding internet and network application resources.

Table 5

Level of Utilization of Public Elementary School Teachers of ICT-based Instruction of Productivity Applications

Productivity Applications Items	Mean	Interpretation
<i>As a teacher, I...</i>		
1. prepare some of my visual aids online using Canva, etc.	3.74	High level
2. provide some lessons in advance via group chat, canned video lessons, audio-recorded lessons, etc.	3.71	High level
3. allow students to utilize other resources in safe networks and websites.	4.20	High level
4. teach students how to make use of the internet connection for studying purposes.	4.23	High level
5. guide students on how to utilize available networks for learning.	4.18	High level
6. utilize MS Word & Excel for basic recording of scores, grades, and expenses.	4.34	High level
7. have full mastery of most Microsoft applications such as Word, Excel, PPT and Publisher.	4.13	High level

Overall Mean	4.07	High level
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The overall mean score is 4.07, interpreted as "high level," meaning that most teachers frequently utilize productivity applications. Item 6, "As a teacher, I utilize MS Word and Excel for the basic recording of scores, grades, expenses," got the highest mean score of 4.34, and item 2 "As a teacher, I provide some lessons in advance via group chat, canned video lessons, audio-recorded lessons, etc." got the lowest mean score of 3.71, both interpreted as high level.

The importance of using group chatting, pre-recorded videos, and pre-recorded lessons are optional, but admittedly, these may help improve learners' academic performance. Some teachers are hesitant to use them, while some teachers are not savvy enough to use them.

Eliademy is a web-based classroom that may be used to provide an alternate learning tool in an emergency. This was the focus of Francisco and Barcelona's (2020) study on the use of online platforms for flexible learning in Malolos, Bulacan. According to the findings, students overwhelmingly agreed that Eliademy can be used as a substitute tool for teaching and learning. They also noted that the platform is accessible, encourages time management and promptness, and presents a challenge for users. The researcher provided three simple procedures to create this web-based classroom: "Managing out," "Designing it," and "Signing in."

Table 6
Level of Utilization of Public Elementary School Teachers of ICT-based instruction of Online Platforms

Online Platforms		
Items	Mean	Interpretation
<i>As a teacher, I...</i>		
1. utilize group chats to easily contact learners, such as Messenger.	4.14	High level
2. teach learners to utilize online resources by providing them with specific course links.	3.98	High level
3. give quizzes and assignments online.	4.24	High level
4. direct and guide students in creating some reports and assignments using available online platforms.	3.81	High level
5. employ online applications to ease the exchange of information.	4.00	High level
6. use online platforms alternately with face-to-face classes whenever needed, like when the weather is bad.	4.29	High level
7. use online platforms to hold class meetings or PTA meetings.	4.22	High level
Overall Mean	4.10	High level

The overall mean score is 4.10, which is interpreted as a "high level," meaning that teachers are highly compliant in using online platforms in teaching. Item 6, "I use online platforms alternately with face-to-face classes whenever needed like when weather is bad," with the highest mean score of 4.29, while item 4, "I direct and guide students in creating some reports and assignments using available online platforms," with the lowest mean score of 3.81, both interpreted as high level.

There are teachers who could be more engaged in encouraging students to make their reports and assignments on the computer and with the use of the Internet. Others favor the utilization of some online platforms and others due to a lack of competence in using all these platforms.

Sayson's (2021) study in one of the medium-sized divisions in Negros Occidental regarding teachers' competence in handling ICT-based instructions involved areas in Online Learning Resources and Multi-Media Platform. The result showed that the level of teachers' competence in handling ICT-based instructions was high in online learning resources, word processing spreadsheets, and multimedia platforms. Among these areas, teachers were highly competent in utilizing various social media platforms and needed to be more competent in utilizing online resources. When grouped according to aforementioned variables, the study showed that the teachers are highly competent in utilizing various social media platforms and less competent in the utilization of online resources. There was no significant difference in the level of teachers' competence in handling ICT-Based Instructions when they were grouped and compared according to the aforementioned variables.

Table 7
Level of Difficulties of Public Elementary School Teachers of ICT-based Instruction of Facilities and Equipment

Facilities and Equipment		
Items	Mean	Interpretation
<i>As a teacher, I have difficulties...</i>		
1. in accessing school computers, laptops, or tablets.	1.93	Low level

2. in using the school's printer and other equipment.	2.02	Low level
3. in accessing ICT and modern teaching gadgets.	1.92	Low level
4. in utilizing the school's IT facilities.	1.96	Low level
5. using personal laptops/computers.	1.75	Low level
6. allotting students time to use tablets and computers in school.	1.80	Low level
7. borrowing/using other school-owned facilities.	1.58	Low level
Overall Mean	1.85	Low level

The overall mean score is 1.85, interpreted as "low level", which means that the problems encountered by teachers in terms of facilities and equipment are manageable. Item 7, "I have difficulties in borrowing/using other school-owned facilities," got the lowest mean score of 1.58, and item 2, "I have difficulties in using the printer and other equipment," got the highest mean score of 2.02, both interpreted as a low level.

In certain Philippine schools, fewer laptops and printers are used. Teachers need help to finish their allocated tasks because of their daily printing needs. According to the National Center for Education Statistics (2020), a large number of US teachers reported using ICT for instruction in traditional classroom settings. This information may shed light on their degree of experience when they move to virtual environments during the pandemic. Compared to the ICILS average of 48%, half of US grade-8 teachers reported "using ICT at school when teaching" on a daily basis in 2018. Nonetheless, this was less than the 76% of teachers in Moscow, 72% in Denmark, and 57% in Finland.

Table 8
Level of Difficulties of Public Elementary School Teachers of ICT-based Instruction of Productivity Applications

Productivity Applications Items	Mean	Interpretation
<i>As a teacher, I have difficulties...</i>		
1. using Microsoft applications with very limited knowledge.	2.22	Low level
2. creating online reports.	2.13	Low level
3. creating virtual files for students' grades and daily exam scores.	2.03	Low level
4. handling online classes due to technical limitations.	1.70	Low level
5. very limited online capability.	1.86	Low level
6. creating, editing, and copying edited MS Word files.	1.66	Low level
7. using Excel, PowerPoint, and other MS Office files for presentation and reporting.	1.71	Low level
Overall Mean	1.90	Low level

The overall mean score is 1.90, interpreted as "low level." This means that teachers' difficulties in productivity applications are manageable. Item 6, "I have difficulties in creating, editing, and copying edited MS Word files," had the lowest mean score of 1.66, and item 1, "I have difficulties using Microsoft applications with limited knowledge," had the highest mean score of 2.22, both interpreted as low level.

Microsoft applications range from simple to complicated, depending on one's specific needs. Not all educators are tech-savvy, and their limitations are the reason they have such limitations. It needs some comprehensive trainings for some teachers to overcome such difficulties.

Online learning is synonymous with online learning platforms. Online courses, programs, and subjects are defined as those that are offered through the Internet in the Philippines. This is only one of the many ways the DepEd has pushed for high-quality remote learning from public and private schools, and it has also released an infographic to help parents decide which kind of learning delivery is ideal for their kids (Reedly International School, 2022).

Table 9
Level of Difficulties of Public Elementary School Teachers of ICT-based Instruction of Online Platforms

Online Platforms Items	Mean	Interpretation
<i>As a teacher, I have difficulties...</i>		
1. accessing the eLRMDS.	1.62	Low level
2. accessing Learning Management System (LMS).	2.09	Low level
3. creating virtual chatgroups.	2.13	Low level
4. using Zoom, Google Classroom, and other meeting applications.	2.13	Low level
5. using available software such as Canva and Microsoft 365	2.23	Low level
6. utilizing related sites as additional teaching resources.	2.17	Low level
7. providing lectures online due to personal limitations.	2.15	Low level
Overall Mean	2.07	Low level

The overall mean score is 2.07, interpreted as "low level," implying that teachers' difficulties in online platforms are manageable. Item 1, "I have difficulties in accessing the LRMS," with the lowest mean score of 1.62, and item 6, "I have difficulties utilizing related sites as additional teaching resources," with the highest mean score of 2.17, both interpreted as low levels.

The ability of some teachers to navigate the internet depends on their technical competence. They can't teach what they don't know. Providing assistance to students is easy for some teachers, but for some, it may be difficult, especially for the older ones.

There are certain difficulties when studying on online platforms. This holds true for all parties involved, including parents, instructors, administrators, and students. In addition, teachers worry that extended school closures will negatively damage children's learning, undoubtedly affecting their future (De Guzman, 2021).

Table 10

Relationship between the level of Competence and the Level of Utilization of Public Elementary School Teachers of ICT-based instruction

Correlation	N	rho	p-value	Significant level	Interpretation
Level of Competence	246	0.138	0.031	0.01	Significant
Level of Utilization	246				

Table 10 reveals that teachers' competence directly affects their utilization level of ICT-based instructions. This means that they are competent in utilizing digital platforms, etc., and are more likely to utilize and integrate ICT in their everyday teaching. With the significant difference noted here, the hypothesis "there is no significant relationship between competence and utilization" is hereby rejected.

From this result, if the schools want to see higher engagement of teachers in ICT-based instructions, they need to enhance their competence.

According to Francisco and Barcelona's (2020) study on using online platforms for flexible learning in Malolos, Bulacan, Eliademy is user-friendly, can help with time management and promptness, and is challenging for users under time constraints, and has good internet connections. Therefore, it is regarded as important to follow the three simple procedures for constructing this web-based classroom: "Signing in," "Designing it," and "Managing out." Lastly, because these platforms have unique features of their own, the researcher also offered other possible substitute learning resources that teachers could use in accordance with the needs of the students (e.g., CourseSites, iTunes U, Latitude Learning, Myicourse, Schoology, ATutor, Dokeos, Moodle, etc.).

Conclusions

In conclusions, teachers were trained in school, and they do self-studying at home. Thus, it is not surprising that despite some issues, their competence was recorded at a high level. Teachers have no choice but to remain competent in integrating every facet of teaching because it is required for them to do so.

Integrating ICT-based instructions makes a difference in both teaching and learning experiences. Without undue delay on the part of the teachers, they highly utilize ICT not only in terms of pedagogical aspects but in their daily personal lives as well. This explains the high level of utilization of teachers.

It cannot be denied that teachers have their share of problems in implementing ICT-based instructions, but it can be safely said that all of their challenges are manageable. Without much effect on the children's learning process, teachers are coping well and dealing with several issues through collaboration.

Teachers' competence in ICT integration could be higher because it is required of them, and through learning the technology, they are able to provide learners with digital needs.

Teachers' skills in utilizing ICT-based instruction depend on the ICT training provided to teachers. Although some teachers are slowly learning the digital ways, they are improving daily.

With some limitations on the school's resources, some of the needed gadgets and other ICT facilities could not be purchased. In addition, some training needs to be provided, especially in terms of the utilization of digital platforms. Despite the challenges, teachers are working their way up to resolve minor issues.

There is a significant relationship between teachers' competence and utilization of ICT-based instructions because their ability to utilize ICT in teaching mainly depends on their skills, which are directly related to their competence. The more they know it, the easier it is for them to utilize it.

Recommendations

Based on the findings of the study, the following actions are hereby recommended:

Teachers' ICT Training and Digital Literacy. This program shall be divided into two (2) phases, namely, Training and Digital Literacy. For training, the school shall provide comprehensive training for teachers on effectively using ICT tools in the classroom. This includes both technical skills (using hardware and software) and pedagogical approaches.

Regarding Digital Literacy: Using ICT in the classroom can help instructors become more digitally literate. To fully participate in society, one must be able to find, evaluate, and produce knowledge and use new media critically. Summer Training must be an annual division-wide event that takes place during the first week of May. This is because, in order to use technology in the classroom effectively, instructors need to have both the necessary ICT skills and confidence. Furthermore, this will give students a proper understanding of the pedagogical function of ICT for an effective pedagogical integration.

Creation of Supporting Policies. Both in rural and urban schools, there is a defined localized policy that meets the unique demands of instructors. It is necessary to establish a working team in each school to support teachers' needs in successfully integrating ICT and formulate specific guidelines that will outline the digital platforms and communication needs that teachers and students must use. These guidelines will be developed through collaboration between the SDO's IT team and all school heads. The team will get together once a year to discuss and revise policies and procedures to support the unique requirements of educators, particularly with regard to the use of ICT-based instruction. Additionally, a continuous support system for educators will be established, encompassing opportunities for professional development, troubleshooting, and help.

Annual Validation of Teachers' ICT Skills. A yearly ICT validation exercise for educators is to make sure that all educators possess the necessary proficiency and utilization skills. These will also reveal the challenges teachers have with resources and tools, online learning environments, and productivity apps. Teachers are required to undertake validation once a year through a practical presentation of ICT integration. Basic operational data obtained with ICT technologies will be included in the validation questionnaire. The aforementioned validation will be ready for annual administration during the third week of May by the SDO's IT and HR Teams. The validation outcome will aid in pinpointing the areas in which educators require the proper technical support. The goal of this exercise is to increase their proficiency in and use of ICT-based teaching strategies.

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