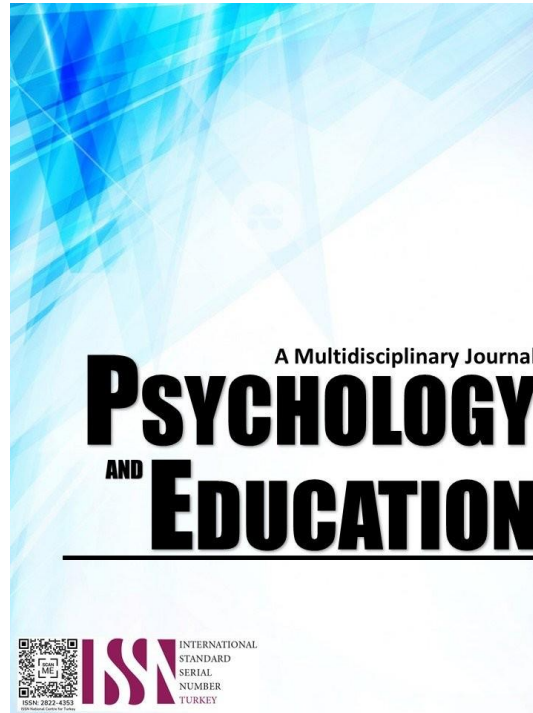


**INFORMATION AND COMMUNICATION TECHNOLOGY
PRACTICES OF ELEMENTARY TEACHERS IN
NUEVA VIZCAYA**



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Information and Communication Technology Practices of Elementary Teachers in Nueva Vizcaya

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Abstract

The purpose of this research was to determine the level of Information & Communication Technology (ICT) Practices of 83 teachers in Villaverde District, Division of Nueva Vizcaya, as well as to identify the challenges they encountered in using technology in the teaching-learning process and determine if there are significant differences on the ICT practices of teachers when grouped according to demographic profiles. The mixed method, particularly the sequential explanatory design, utilized a questionnaire as a data collection tool followed by an interview. Findings showed that most of the elementary teachers are middle-aged, with units in Master's, with more than 20 years in service, and most of them did not have technological advancement training. ICT practices of teachers in the Villaverde District were moderately practiced. There were significant differences in ICT practices among the age groups and length of service groups of teachers, but there was no significant difference in ICT practices among the educational attainment groups of elementary teachers and technological advancement training. Time constraints, lack of resources, lack of knowledge, and internet accessibility are the common challenges encountered by teachers in integrating technology into the teaching and learning process. Based on the findings of the study, contextualized learning and development will be proposed to address the challenges encountered by teachers in integrating technology into the teaching-learning process.

Keywords: *challenges, demographic profiles, ICT practices, time constraint*

Introduction

With the rapid advancement of technology, teachers are faced with the task of adapting and integrating technological tools into their instructional practices. The Department of Education acknowledges the importance of technology. Through DepEd Order No. 78, s.2010 entitled "Guidelines on the Implementation of the DepEd Computerization Program (DCP)," it aims to integrate ICT in the school system and raise the ICT literacy of learners, pupils, students, teachers, and school heads. Teachers must incorporate technology into their pedagogical approaches due to the rapid expansion of information and communication technologies (ICTs), which has turned students into digital learners (Akram, 2022). The effectiveness of this integration depends heavily on the attitudes, technological expertise, and skills of the teachers.

The integration of technology into education has become increasingly prevalent, prompting teachers to incorporate technology into their instructional practices. The study of Goldhaber, Khuan, Allyssa (2021) found that ICT in education has been shown to increase student engagement and knowledge retention. When ICT is included into lessons, students are more interested in their work. The use of technology offers several options to teach the same concepts in various methods, which can make learning more interesting and fun

However, teachers encountered challenges when it came to effectively utilizing ICT in their teaching methods due to insufficient technological abilities. Examining teachers' technological practices allows us to identify challenges and barriers they face when integrating technology. Studies conducted during this period highlight obstacles such as limited access to technology, insufficient training, and resistance to change. This supports the findings of Ghavifekr, S., Kunjappan, T., Ramasamy, L., Anthony, A. (2016) in their study that the key issues and challenges found to be significant in using ICT tools by teachers were: limited accessibility and network connection, limited technical support, lack of effective training, limited time and lack of teachers' competency.

One of the development needs of elementary teachers in Villaverde District as shown in the Consolidated Development Needs based on their Individual Performance Commitment Review Form (IPCRF) was Information Communication Literacy (ICT) literacy. Hence, the researchers conducted this study to determine the level of technological practices of teachers and address the issues faced by them. By examining these aspects, this study contributes to the existing literature on technology integration in education, providing valuable insights for improving instructional practices and supporting teacher professional development.

Research Objectives

The study aimed to determine the level of information and communication technology practices of elementary teachers in Villaverde District. Specifically, it aimed to:

1. Determine the demographic profile of the respondents.
2. Identify the level of Information and Communication Technology practices of the respondents.
3. Determine if there is a significant difference on the ICT practices of the respondents when grouped according to profile variables.
4. Evaluate the challenges encountered by the respondents in using technology.

5. Craft a contextualized professional development program for teachers based on the identified priority needs in using Information and Communication Technology (ICT) in the teaching-learning process.

Methodology

Research Design

A mixed-method approach was employed in this study, particularly the sequential explanatory design. The qualitative data was collected in the second phase of the study and were related to the outcomes from the first, quantitative phase.

Respondents

This study involved the teachers of Villaverde District, Schools Division of Nueva Vizcaya, who became the sampling frame of the study. Using Slovin's formula to compute the sample size, 83 out of the 105 elementary teachers in Villaverde District were asked to participate in the study. The respondents were chosen via proportional stratified random sampling.

Instruments

The research instrument employed was a researcher-developed questionnaire, which underwent validation by a panel of experts within the Schools Division of Nueva Vizcaya. This instrument utilized a 4-point Likert scale comprising 20 items designed to assess the ICT practices of elementary teachers. Part I of the questionnaire focused on gathering demographic information, including age, educational attainment, length of service, and participation in technological advancement training. Part II included statements related to evaluating the level of ICT practices among the teachers.

The validated researcher-developed questionnaire underwent validation by a panel of experts and was piloted before distribution. From the validation, a mean score of 4.55 which corresponds to their, more or less, strong agreement to the questions. It means that the instruments used were valid and reliable and measured the objectives of the study.

An open-ended question was asked from the respondents to evaluate the challenges they encountered as they used technology in the teaching-learning process. As a result of the analyzed responses, a contextualized learning and development program was crafted to cater to the needs of the teachers.

Procedure

After obtaining approval from the District Supervisor, elementary teachers within Villaverde District were invited to participate voluntarily in the study. Informed consent was secured from each participant.

To collect the profile and ICT practices, a survey questionnaire was administered to the teacher-respondents. On the other hand, the qualitative data were collected through interviews to obtain more profound insights into their experiences and perspectives especially the challenges they encounter in using technology in their classroom.

The questionnaire was disseminated among the selected teachers either in person or via a secure online platform, ensuring confidentiality and anonymity. Teachers were instructed on how to complete the questionnaire.

Completed questionnaires were collected and stored securely, with responses entered into a database or statistical software for analysis. Throughout the process, measures were taken to maintain quality control, ensuring accuracy, consistency, and completeness of the collected data. Subsequently, quantitative analysis was conducted to evaluate and interpret the level of technological practices among the elementary teachers involved in the study. After analyzing the quantitative data, an interview was conducted to the participants.

Results and Discussion

Demographic Profile of the Participants

This section presents the demographic profile of the participants in terms of age, educational attainment, length of service in DepEd and technological advancement trainings attended. The results are reflected in tables 3-6.

Age

Table 1 shows the frequency and percentage distribution of teachers according to age. Majority of teachers comprised of 25 or 30.1 percent fall under 41-50 age bracket; followed by 31-40 age range consisting of 24 or 28.9 percent; 20 or 24.1 percent were in the 51-60 age group; and 14 or 16.9 percent were 20-30 years old.

The table refers to the age of the teachers. Based on the data gathered, most of the teachers belong to the age bracket 41-50 and the least from 20-30 years old.

Table 1. *Frequency and percentage distribution of teachers according to age*

<i>Age</i>	<i>Frequency</i>	<i>Percentage</i>
20-30	14	16.9
31-40	24	28.9
41-50	25	30.1
51-60	20	24.1
Total	83	100.0

Teachers within the age bracket 41-50 had the highest teacher efficacy. Teacher efficacy refers to a teacher's belief in their capability to positively influence students' learning outcomes.

The finding is similar to the study of Wirmayani & Kurniawati (2021) which showed that teachers had higher teacher efficacy within the age bracket 41-50.

Educational Attainment

The table below refers to the highest level that the teachers have studied from undergraduate to graduate studies. Based on the data gathered, the highest educational attainment by the teachers was doctorate degree, majority of them were with units in master's degree and there were four teachers who were still under bachelor's degree.

Table 2. *Frequency and percentage distribution of teachers according to educational attainment*

<i>Educational Attainment</i>	<i>Frequency</i>	<i>Percent</i>
Bachelor Degree	4	4.8
With Units in Master's	59	71.1
Master's Degree	12	14.5
With Units in Doctorate	7	8.4
Doctorate Degree	1	1.2
Total	83	100.0

Table 2 shows that 59 or 71.1 percent of the teachers held a bachelor's degree with units leading to a Master's degree; 12 or 14.5 percent as Master's degree holders; 7 or 8.4 percent had units in Doctorate; 4 or 4.8 percent were holders of a Bachelor's degree; and 1 or 1.2 percent is a doctorate degree holder.

This finding implies that many of the respondents knew the importance of professional growth and development by pursuing post graduate studies.

This conforms to the study of Derije (2022) that majority of the respondents who graduated BEED and who earned units in Master's degree were fully aware of the advantages of pursuing continuing professional education by attending graduate studies.

Length of Service in DepEd

The table below refers to the length of service of the teachers in the Department of Education. Based on the data gathered, most of the teachers have more than 21 years of service followed by teachers with 0-5 years of service.

Table 3. *Frequency and percentage distribution of teachers according to length of service*

<i>Length of Service</i>	<i>Frequency</i>	<i>Percent</i>
0-5	18	21.7
6-10	15	18.1
11-15	16	19.3
16-20	14	16.9
above 21	20	24.1
Total	83	100.0

It can be gleaned in Table 3 that majority of the teachers had 21 years and above or 24.1 percent years in service; 18 or 21.7 percent had 0-5 years in service; 16 or 19.3 percent had 11-15 years in service; 15 or 18.1 percent have 6-10 years in service and 14 or 16.9 percent have 16-20 years in service.

This only shows that many teachers preferred to stay in the Department of Education.

Technological Advancement Training

The table below refers to the technological advancement training of teachers. Based on the data gathered, most of the teachers have no technological advancement training.

Table 4. *Frequency and percentage distribution of teachers according to technological advancement training*

<i>Technological Advancement Training</i>	<i>Frequency</i>	<i>Percent</i>
No	57	68.7
Yes	26	31.3
Total	83	100.0

It appears in Table 5 that majority of the teachers, comprised of 57 or 68.7 percent had no technological advancement training and 26 or 31.3 percent had technological advancement training. This implies that most of the teachers in Villaverde District had no trainings in ICT which could be a challenge for them to integrate ICT into the teaching-learning process.

This conforms to the study of Mahdi and Al-Dera (2013) that many of the respondents in both groups did not attend any training course in ICT. Therefore, ICT training courses should be provided to improve ICT integration into teaching and learning contexts.

Information and Communication Technology Practices

This section discusses the level of ICT practices of teachers, significant differences in the Information and Communication Technology (ICT) practices of teachers when grouped according to their profile variables and the challenges encountered in using technology in the teaching-learning process.

Table 5. *Information and Communication Technology practices of teachers*

<i>Item</i> <i>As a teacher, I</i>	<i>Mean</i>	<i>Description</i>
have the flexibility to select technologies that will improve the teaching methods for a particular lesson.	3.42	Moderately Practiced
have the option to select technologies that will improve students' learning experiences for a lesson.	3.40	Moderately Practiced
am thinking critically when it comes to incorporating technology within my classroom.	3.47	Moderately Practiced
can adapt the use of technologies that I am learning about to different teaching activities.	3.37	Moderately Practiced
think more deeply about the potential impact of technology on the teaching methods I employ in my classroom.	3.48	Moderately Practiced
can utilize technology resources to facilitate higher order thinking skills, including problem-solving, critical thinking, decision-making, knowledge and creative thinking.	3.41	Moderately Practiced
can integrate educational apps and software into the curriculum to provide interactive learning experiences in my subject.	3.24	Moderately Practiced
can employ technology to foster increased collaboration and communication to both students and teachers.	3.30	Moderately Practiced
know how to use technology to facilitate academic learning	3.32	Moderately Practiced
use a variety of technological tools in my teaching.	3.19	Moderately Practiced
am comfortable using technology to create and deliver engaging learning experiences.	3.20	Moderately Practiced
use online quizzes, surveys, and assessment platforms to measure student understanding.	2.49	Sometimes Practiced
am confident in my ability to troubleshoot technological problems.	2.77	Sometimes Practiced
am willing to learn new technologies to improve my teaching.	3.45	Moderately Practiced
use interactive simulations and virtual labs in my subjects like Science and Math.	3.00	Moderately Practiced
integrate technology into my teaching regularly.	3.11	Moderately Practiced
create video lectures or interactive content for students to access at home.	2.87	Moderately Practiced
adapt my teaching methods to incorporate new and emerging technologies.	3.16	Moderately Practiced
regularly use online resources and platforms for communication and collaboration with my students.	3.05	Moderately Practiced
stay updated on technological advancements related to education.	3.44	Moderately Practiced
TOTAL MEAN	3.21	Moderately Practiced



As shown in Table, the teachers had moderately practiced ICT (Overall Mean = 3.21). “As a teacher, I think more deeply about the potential impact of technology on the teaching methods I employ in my classroom got the highest mean (3.48).”

This implies that teachers had moderately practiced ICT and this should be given attention to enhance their knowledge and skills in ICT. Caluza et al. (2017) undertook a study to assess the ICT proficiency of public-school teachers at San Jose Central Elementary School, Division of Tacloban City, Philippines. The results indicated that most teachers had basic ICT skills, suggesting a need for improvement.

Result Of One-Way ANOVA and Independent Samples T-Test

Table 6. *Result Of One-Way ANOVA Test between Age and Technological Practices of Teachers **. The mean difference is significant at the 0.05 level.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.988	3	1.996	5.727	.001*
Within Groups	27.530	79	.348		
Total	33.518	82			

Table 6 shows the result of One-Way ANOVA test between the means of age and ICT practices of teachers. There was a significant difference in practices among the different age groups of elementary teachers; $F(3, 79) = 5.727, p = .001$.

This implies that age played a significant role in determining the differences in ICT practices among the teachers in Villaverde District. The findings of the study contradict the study of Kerzic, Danko, Zorko, & Decman (2021) which showed that age was not a factor in instructional ICT use, although some age-related differences appear in teachers’ personal ICT uses.

Result of Post Hoc Tests

Table 7. *Result of Post Hoc Test*

Age	Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
20-30	31-40	.79762*	.19853	<.001	.2766	1.3187
	41-50	.59429*	.19706	.018	.0771	1.1115
	51-60	.41429	.20571	.192	-.1256	.9542
31-40	20-30	-.79762*	.19853	<.001	-1.3187	-.2766
	41-50	-.20333	.16870	.625	-.6461	.2394
	51-60	-.38333	.17873	.148	-.8524	.0858
41-50	20-30	-.59429*	.19706	.018	-1.1115	-.0771
	31-40	.20333	.16870	.625	-.2394	.6461
	51-60	-.18000	.17710	.740	-.6448	.2848
51-60	20-30	-.41429	.20571	.192	-.9542	.1256
	31-40	.38333	.17873	.148	-.0858	.8524
	41-50	.18000	.17710	.740	-.2848	.6448

* The mean difference is significant at the 0.05 level.

Table shows the mean differences between the age groups in terms of ICT practices. Teachers aged 20-30 show significant differences in integrating ICT compared to those aged 31-40 and 41-50.

This implies that ages 20-30 teachers have higher practiced integration than teachers ages 31-40 and 41-50. There was no statistically significant difference of these practices between teachers aged 20-30 and those ages 51-60.

This finding conforms to the study of Islami, Hakim & Widiaty (2019) that the younger the age of a person was, the higher the level of his ICT abilities would be.

Result Of One-Way ANOVA Test between Educational Attainment and ICT Practices of Teachers

Table 8. *Result Of One-Way ANOVA Test between educational attainment and ICT practices of teachers*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.218	4	.804	2.071	.093
Within Groups	30.300	78	.388		
Total	33.518	82			

*The mean difference is significant at the 0.05 level.

Table 8 shows the result of One-Way ANOVA test between the means of educational attainment and ICT practices of teachers. There was no significant difference in ICT practices among the educational attainment groups of elementary teachers; $F(4, 78) = 2.071, p = .093$.

This implies that the differences in ICT practices among teachers might not be solely attributed to varying levels of educational attainment.

This finding conforms to the study of Yushau, B., & Nannim, F. A. (2020) that educational qualification of the respondents was not a significant factor influencing the level of ICT utilization in teaching.

Result of One-Way ANOVA Test Between Length of Service in DepEd and Information and Communication Technology (ICT) Practices of Teachers

Table 9. Result of One-Way ANOVA Test between length of service in DepEd and ICT

	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
Between Groups	4.909	4	1.227	3.346	.014
Within Groups	28.609	78	.367		
Total	33.518	82			

**The mean difference is significant at the 0.05 level.*

Table 9 shows the result of One-Way ANOVA test between the means of length of service in DepEd and ICT practices of teachers. There was a significant difference in ICT practices among the length of service groups of teachers; $F(4, 78) = 5.727, p = .014$.

This indicates that the length of service among teachers within the Department of Education (DepEd) was related to differences in their ICT practices. This suggests that teachers with varying years of service might have higher ICT practices.

The finding differs in the study of Mahdi and Al Dera (2013) that showed no significant difference in using ICT between the two groups of teachers according to their experience.

Result of Post Hoc Test

Table 10. Result of Post Hoc Tests

<i>Length of Service in DepEd</i>	<i>Length of Service in DepEd</i>	<i>Mean Difference (I-J)</i>	<i>Std. Error</i>	<i>Sig.</i>	<i>95% Confidence Interval</i>	
					<i>Lower Bound</i>	<i>Upper Bound</i>
0-5	6-10	.55556	.21173	.076	-.0357	1.1468
	11-15	.68056*	.20809	.013*	.0994	1.2617
	16-20	.19841	.21581	.889	-.4043	.8011
	above 21	.35556	.19676	.377	-.1939	.9050
6-10	0-5	-.55556	.21173	.076	-1.1468	.0357
	11-15	.12500	.21766	.978	-.4828	.7328
	16-20	-.35714	.22506	.510	-.9856	.2714
	above 21	-.20000	.20686	.869	-.7777	.3777
11-15	0-5	-.68056*	.20809	.013*	-1.2617	-.0994
	6-10	-.12500	.21766	.978	-.7328	.4828
	16-20	-.48214	.22164	.200	-1.1011	.1368
	above 21	-.32500	.20313	.502	-.8923	.2423
16-20	0-5	-.19841	.21581	.889	-.8011	.4043
	6-10	.35714	.22506	.510	-.2714	.9856
	11-15	.48214	.22164	.200	-.1368	1.1011
	above 21	.15714	.21104	.945	-.4322	.7465
above 21	0-5	-.35556	.19676	.377	-.9050	.1939
	6-10	.20000	.20686	.869	-.3777	.7777
	11-15	.32500	.20313	.502	-.2423	.8923
	16-20	-.15714	.21104	.945	-.7465	.4322

**The mean difference is significant at the 0.05 level.*

Table 10 shows the post hoc analysis conducted to examine ICT practices among teachers categorized by length of service in the Department of Education. There were significant differences in ICT practices between teachers with 0-5 years and 11-15 years of service. No significant variations were found between teachers with 6-10, 16-20, or over 21 years of service and other length of service categories ($p > .05$ for all comparisons). This suggests that while a significant difference was observed between the 0-5 years and 11-15 years groups, other tenure periods did not exhibit statistically significant distinctions in their ICT practices. These findings imply that certain specific spans of service within the DepEd might influence how teachers integrate technology into their teaching methodologies.

The results of the study contradict the study of Mahdi and Al Dera (2013) which indicated that there was no significant difference in

using ICT between the two groups of teachers according to experience.

Result of Independent Samples T-test on Technological Advancement Training and Technological Practices

Table 11. Result of Independent Samples T-test on technological advancement training and ICT practices

	<i>Levene's Test for Equality of Variances</i>		<i>t-test for Equality of Means</i>	
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>
Equal variances assumed	.110	.741	.120	81
Equal variances not assumed			.121	49.470

Table 11 shows the result of independent samples t-test between technological advancement training and ICT practices of teachers. There was no variation in means when equal variances were assumed.

This suggests that both groups' average scores or values were comparable. This resemblance may suggest that, even in spite of possible disparities in their training in technical advances, the two groups generally displayed similar levels or approaches with regard to technological practices because the p value was greater than 0.05.

Attendance to trainings and seminars would be important to enhance the skills and knowledge of teachers. The study of Champa (2019) revealed that teachers had insufficient training about ICT in teaching. It means that teachers had the insufficient source to get information and knowledge about how ICT used in teaching. Hence, attending trainings could be a way for teachers to improve their knowledge in ICT in teaching.

Challenges Encountered in Using Technology in the Teaching and Learning Process

This section discusses the practices implemented by the teachers of integrating technology in the classroom. Nonetheless, it was also the objective of this study to evaluate the challenges and considerations encountered by teachers in utilizing technology in the teaching and learning process to ensure the accessibility of quality education.

The identification and evaluation of the issues and challenges were considerably important for future studies to address. Hence the following were issues and challenges experienced by the teachers.

Time Constraint

Teachers' tasks in schools do not only focus on the teaching and learning process. There are different school programs and activities that needs to be implemented plus the reports to accomplish that hinders teachers to use and utilize technology in the teaching and learning process. "I can't make it because there's no enough time in doing it because of so many reports" revealed by one of the teachers. The study of Nyakito (2021) showed that participants expressed time constraints as one of the challenges hampering the integration of ICT in their instructional practices. Due to overlapping activities, teachers lack time which challenged them to explore technology resulting to lack of skill in integrating technology in the teaching and learning process. This supports David et al. (2019), where he mentioned that workload of public-school teachers was not only limited to teaching but also to other non-teaching tasks. Insufficient time challenged teachers to explore and utilize technology as it has resulted in a lack of knowledge and skills to integrate technology into the teaching and learning process as mentioned by teachers, "I don't know to use some of the application in teaching like canva and others".

Lack of Resources

Lack of resources such as funds. Although schools have received computers and gadgets through the DCP program of the Department of Education, still not all teachers are given the chance to have such gadgets and if so, "lack of finances for the maintenance of technologies like printer to produce quality materials for the learners" was revealed by the teachers. Lack of resources is one of the several barriers that hinder effective technology integration in the teaching-learning process, (Akram, 2020). As such, this could be a burden on the part of the teachers. There is no adequate computer technology because there was an insufficiency of funds to purchase facilities and gadgets and for the maintenance of technology coming from the DepEd. More than this, the cost of data to engage in online learning was found to be another challenge experienced by some of the teachers. Hence, sometimes it was being financed personally by teachers.

Moreover, lack of funds was also considered as the main factor for the learners to access technology, for example one of the teachers said that "not all learners have equal technology access and internet at home." This limits the learners to manipulate and use technology at home for further follow-up and increase of their knowledge.

Lack of Knowledge

Although teachers are very positive towards technology integration in the teaching and learning process, one of the teachers affirmed that she is "hard up making video presentation for her lessons" while other teachers said, "I find difficulty in coping with the new trends of technology". Perhaps, these teachers lack knowledge thus they need adequate training to equip themselves with the latest tools and platforms because technology nowadays is an important tool for upgrading the skills of the teachers, especially in the making

of instructional materials. Furthermore, the use of technology enhances the teaching and learning skills of the teachers. In the study conducted by Hero (2019), it was revealed that technology integration has a significant impact on teaching performance. Raja and Nagasubramani (2018) concluded that the introduction of technologies equipped learners and educators in the future.

Internet Accessibility

Internet accessibility provides a wealth of educational resources that facilitate communication and collaboration inside the four corners of a classroom, however, when there is poor internet connectivity, teachers tend to rattle and be disappointed. As revealed by the teachers, “the availability of Internet in every room” was one of the challenges they encountered when integrating technology into the teaching and learning process. “Unstable internet connectivity is one of my biggest problems” expressed by one of the teachers. Similarly, another teacher said that “internet log and other technical issues” are some of their experiences on ICT matters.

This conforms to the study of Clarin and Baluyos (2020) that poor internet connection is one of the challenges encountered by teachers in the implementation of online distance learning. This also supported the findings of Nayakito, Amimo & Allida (2021) that slow internet connectivity is one of the challenges of integrating Information and Communication Technology in teaching encountered by teachers in Uganda.

Priority Needs in Formulating a Contextualized Professional Development Program for Teachers

This section presents the priority needs in formulating a contextualized professional development program for teachers.

Based on the findings of the study, time constraint, lack of resources, lack of knowledge, and internet accessibility are the common themes encountered by teachers in integrating technology in the teaching and learning process. These are the topics that must be included in the formulation of contextualized learning and development program for teachers.

Conclusion

(1) Most of the elementary teachers were middle aged, with units in Master’s, with more than 20 years in service and most of them did not have technological advancement training. (2) Teachers in Villaverde District moderately practiced ICT. (3) Younger teachers use ICT in their classes more than their older counterparts. However, they have similar ICT practices regardless of their educational attainment or advancement trainings attended. (4) Time constraint, lack of resources, lack of knowledge, and internet accessibility were the common challenges encountered by teachers in integrating technology in the teaching and learning process. (5) Based on the findings of the study, a contextualized learning and development would be proposed to address the challenges encountered by teachers in integrating technology in the teaching-learning process.

(1) The administrators should develop a training program specifically designed for middle-aged teachers, those with units in Master’s and extensive teaching experience to enhance their technological skills. They should also address the lack of technological advancement trainings by providing relevant seminars or workshops. (2) The administrators should enhance their technological support to teachers in Villaverde District to improve their ICT practices by providing mentorship programs, training-workshops and access to updated technology tools. (3) The administrators should recognize the variations in ICT practices among different age groups and length of service. Provide a program that will meet the specific needs of each group and support must also be given to all educational attainment groups. (4) The administrators must prioritize solutions to common challenges faced by teachers in integrating technology in the teaching-learning process. Possible approaches might involve enhancing resource accessibility, dedicating specific time for training sessions, upgrading internet infrastructure, and establishing ongoing support systems. (5) A contextualized professional development program must be specifically designed to address the challenges identified by teachers in integrating technology. It should be interactive and adapted to the unique needs of the teachers in Villaverde District.

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