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Teachers' Proficiency in ICT Integration in Teaching

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Index Terms:

ICT integration, Teachers' ICT integration in teaching, Teachers' ICT proficiency, challenges encountered in improving ICT skills, attitude towards ICT integration

Abstract. In the contemporary era of rapid technological advancement, the integration of Information and Communication Technology (ICT) in education has become essential for effective teaching and meaningful learning. ICT enables educators to design more engaging, interactive, and student-centered learning environments while addressing diverse learning styles. It also provides access to a wide range of digital resources that can enhance both instruction and student outcomes. In this context, this study aimed to investigate the status of teachers in the Bayugan City Division with regard to their proficiency in integrating ICT into their teaching practices. The study employed a quantitative research design to systematically gather and analyze data. A total of 219 respondents participated in the study, consisting of teachers and master teachers from various schools within the division. Stratified sampling was used to select teacher respondents, while universal sampling was applied to include all master teachers. Data were collected to assess the participants' skills, knowledge, and experiences in using ICT tools and applications in the classroom. The findings revealed that many teachers demonstrated limited skills and insufficient knowledge in certain computer applications, which hindered their ability to fully integrate ICT into their teaching. Additionally, respondents reported encountering several challenges, including limited access to technology, inadequate digital literacy, and insufficient training opportunities. Despite these challenges, efforts by the Department of Education and other stakeholders have been made to address these issues by aligning initiatives with the ICT Manual for Teachers and promoting continuous professional development programs. Furthermore, the study underscored the critical role of administrative support, proper infrastructure, and sustained investment in technological resources to ensure successful ICT integration. Strengthening these areas is essential to empower teachers and improve the overall quality of education in the digital age.

Introduction

Information and communication technology (ICT) can be defined as diverse group of digital tools and resources that have utterly transformed the ways how information is being circulated and used (Basri et al., 2018). In recognition of the ICT's potential educational reform, the Philippine Department of Education (DepEd) has adopted a formally planned vision to implement it for all educational levels (DepEd Order No. 34, s. 2004; DepEd Order No. 4, s. 2019). This integration of ICT by teachers is in line with the basic Education Continuity Plan that is guided by DepEd (BE-LCP). This system was designed in cooperation with DepEd of the Philippines as it was considered to be the only method of continuation of education under COVID-19 limitations which were severe (Sabacajan and Moradods, 2023). The teachers' mastery in ICT integration is majorly connected to the curriculum, which is becoming more relevant and is embracing the Basic Education Learning Continuity Plan (BE-CLP). Integrating ICT into teaching process is totally dependent on teachers' ability and confidence in using ICT. Therefore, this study sought to investigate the effectiveness of elementary school teachers in utilizing ICT in the classroom learning environment.

Considering the advantages of integrating ICT in education, recent studies confirmed its transformative ability as well. According to Hailegebreal et al. (2022) ICT is an integral part of education as it acts as a transformative force which can be invaluable in transforming traditional teaching methods and thereby yielding an improved learning experience for the

students. The significance of teachers' capability to use ICT effectively comes from the fact that the twenty-first century calls for delivering instruction which caters to the evolving needs of the learners and, at the same time, ensuring that the students who graduate from school possess the skills that guarantee long-term success. In addition, demonstrating the positive correlation between ICT application and student learning, Wang et al. (2020), pointed out that technology can enhance the learning process. According to Johnson and Adams (2018), teacher now can make education more interesting with the use of ICT and improve their teaching strategies and techniques.

The effective application of ICT in education of Bayugan City challenge has been a challenge as it requires the teachers to attain optimal competence in ICT integration in teaching (Hailegebreal et al., 2022). Beyond training opportunities that have been well-documented and the resistance to change, inadequacies in planning of interventions become a major barrier (Ferede et al., 2022). This gap is most noticeable in the case of Bayugan City where there is a limited knowledge about the contextual dynamics, pedagogical approaches, and the necessary mechanisms for providing knowledge in the utilization of Microsoft application that is primarily used to aid teaching and learning processes (Schools Division of Bayugan City, 2023). The lack of proper understanding therefore blocks the achievement of the possible full potential of ICT integration within the education system of the Bayugan City, so this research aimed to address this gap comprehensively through the assessment of teachers' attitudes towards the ICT integration in the teaching, their level of computer skills and knowledge, and challenges met in improving their ICT integration in the teaching. This study provides a useful and helpful contributions as its findings encouraged not only the integration of ICT in teaching and how it could significantly improve the educational system in Bayugan City.

The research has important significance because it gives the policy makers a clear picture of what should be done as well as within the Department of Education of the Philippine (DepEd) where there is high efficiency in the ICT integration. More than that, its compatibility with the BE-LCP is an indication of its importance. The goal of this study was to guide the creation of comprehensive training programs, which are the basis of the development of competent educators in their use of ICT in teaching. Furthermore, the research takes the leading position in all aspects concerned with ICT integration and teacher's proficiency in ICT. Its results provide teachers information that could enable them to improve their teaching methods and address the requirements of today learning environment and allows them to utilize technology to its full potential.

Statement of the Problem

This study aimed to investigate the ICT Proficiency of the Elementary Teachers in Bayugan City in the academic year 2023-2024. Specifically, this research aimed to provide answers to the following:

This study aimed to investigate the ICT Proficiency of the Elementary Teachers in Bayugan City in the School Year 2023-2024. Specifically, this research aimed to provide answers to the following:

1. What is the respondent's profile in terms of:
    1.1 Age;
    1.2 Sex;
    1.3 Highest Educational Attainment;
    1.4 Teaching Experience; and
    1.5 Trainings attended related to ICT?
2. What is the respondents' level of ICT integration in teaching?
3. What are the respondents' attitudes towards ICT Integration in teaching?
4. What is the respondents' level of proficiency in ICT integration in teaching?
5. What are the challenges that the respondents encountered in terms of improving their proficiency in ICT integration in teaching?

Methodology

This chapter defines and explains the research design, the respondents and sampling procedure, and data gathering method used. It contains the research design, research locale, sampling design, research instruments, data gathering procedure and treatment of data.

Research Design

This study employed a quantitative developmental research design to investigate developmental processes and changes using numerical data and statistical analysis. It involves studying the proficiency level of teachers in integrating ICT into teaching. Explain phenomena, attitudes, views, behaviors, or other recognized variables by collecting numerical data that is subsequently analyzed using statistically based approaches (Kapici & Akçay, 2016). Giving a thorough explanation of the independent and dependent variables involved is a good fit for this study design.

Furthermore, a correlational research design was also used in the study because its objective was to identify the factors that seem to interact with one another. In this study, the researcher used a survey questionnaire to gather data on the profile of the respondents and it was correlated to their level of ICT integration in teaching, attitude, and their computer knowledge and skills.

Research Locale

This study was conducted in selected elementary schools in Bayugan City, Agusan del Sur, Philippines. Bayugan City is a locality in the Philippines, situated on the island of Mindanao. It is part of the province of Agusan del Sur, which is located in the Caraga region of the country. The city is known for its rich cultural heritage and natural beauty, with a mix of urban and rural areas that reflect the diverse and vibrant culture of the region. History is marked by its transformation from a small, rural community into a thriving urban center. It was officially granted city status on March 5, 2001. As it continues to develop, Bayugan City has become an important economic and educational hub in the Agusan del Sur province.

In terms of its elementary schools, Bayugan City is home to various public and private institutions dedicated to the education of young learners. These elementary schools play a vital role in shaping the educational foundation of students in the city. They offer a wide range of programs, teaching methodologies, and extracurricular activities to cater to the diverse needs and interests of their students.

The exact number and specifics of elementary schools in Bayugan City may vary over time due to changes in population and educational policies. However, these schools typically serve as the primary education institutions for children in the city, providing the fundamental knowledge and skills necessary for their academic and personal development.

Bayugan City serves as the primary research locale due to its significance as an educational hub within the province of Agusan del Sur. The research locale comprises 19 elementary schools: Mabuhay Elementary School, Verdu Elementary School, Montevista Elementary School, Bayugan West Central Elementary School, Maygatasan Elementary School, Cagbas Elementary School, Saguma Elementary School, Sagmone Elementary School, Gamao Elementary School, Bucac Elementary School, Bayugan S.D.A. Elementary School, INC., Lapana Elementary School, East Bayugan Central Elementary School, Sinadyap Elementary School, Fili Elementary School, Bayugan Central Elementary School, Sta. Irene Elementary School, Tagubay Elementary School, and Canayugan Elementary School.

The choice of these elementary schools in this city provides a specific and focused context for the investigation into the practical implications of Department of Education's (DepEd) BE-LCP, examining their influence on institutional practices and their contributipon to enhancing teachers' ICT proficiency. The selected elementary schools will be representative of the diverse educational settings within Bayugan City, ensuring that the research findings can capture a comprehensive understanding of teachers' proficiency in ICT integration in teaching in this specific locality.

Research Respondents

In this study, the researcher gathered the data from a total of 219 respondents from the selected elementary schools of Bayugan City, Agusan del Sur. It focused on 173 elementary school teachers and 46 master teachers. The respondents were selected using stratified sampling technique to select teacher respondents, ensuring a representative and diverse sample while universal sampling technique was employed specifically for selecting respondents the master teachers, aiming to include all eligible individuals within this subgroup for a comprehensive examination of their perspectives and experiences.

Research Instrument

In this study, data were collected using an adopted survey questionnaire to determine the proficiency, attitudes, challenges, and integration practices of educators regarding ICT integration in teaching. The questionnaire was adopted from seminal works in the field of educational technology, including the study of Ghavifekr et al. (2015) entitled "ICT Integration in Education: Incorporation for Teaching & Learning Improvement" and the study of Habibu et al. (2012) entitled "Difficulties Faced by Teachers in Using ICT in Teaching-Learning at Technical and Higher Educational Institutions of Uganda and the study of Liquigan (2022) entitled In-Service Teachers' Extent of Exposure and Level of Skills on the use of Technology: An Exploratory Study".

The survey questionnaires were divided into five main parts, each targeting different aspects related to the respondents' profile, level of ICT integration in teaching, attitudes towards ICT integration, level of computer skills and knowledge, and challenges encountered in improving proficiency in ICT integration.

The first part of the instrument was the profile of the respondents about their name (optional), sex, designation, highest educational attainment, age, teaching experience, and details of seminars/trainings attended relevant to ICT integration. This information helps in understanding the background and characteristics of the respondents, which can influence their attitudes, skills, and experiences related to ICT integration in teaching.

The Part II of the questionnaire assessed the level of ICT integration in teaching and learning processes using a Likert scale. The respondents rated their usage of ICT tools and technologies across various teaching activities, including knowledge acquisition, creativity enhancement, communication facilitation, confidence-building, skill development, critical thinking promotion, and active engagement. Understanding the level of ICT integration provides insights into current practices and areas for improvement, enabling the development of strategies to enhance ICT-enabled teaching and learning experiences. The questionnaire for this part was adapted from the study of Ghavifekr et al. (2015) entitled: ICT Integration in Education: Incorporation for Teaching & Learning Improvement

Further, the Part III of the research questionnaire assessed the respondents' attitude towards ICT Integration in teaching. Using a Likert scale ranging from Strongly Agree to Strongly Disagree, this part assessed respondents' attitudes towards ICT integration in teaching. It includes statements related to various aspects of ICT integration, such as the desire to learn effective approaches, availability of resources, performance improvement, competitiveness enhancement, quality of interaction, technological proficiency, instructional qualifications, and future use of ICT. This section provides insights into respondents' perceptions, preferences, and willingness to embrace ICT in their teaching practices. The questionnaire for this part was adapted from the study of Ghavifekr et al. (2015) entitled: ICT Integration in Education: Incorporation for Teaching & Learning Improvement.

The Part IV of the research questionnaire assessed the respondents' level of ICT proficiency in teaching. This section evaluated the respondents' proficiency in specific computer skills and applications using a Likert scale. It includes items related to word processing, spreadsheet management, PowerPoint presentations, web search, communication tools, multimedia applications, collaboration platforms (e.g., MS Teams, Schoology), and graphic design. By assessing respondents' computer skills and knowledge, areas of strength and weakness, which can inform training and support initiatives will be identified to enhance ICT integration capabilities. The questionnaire for this part was adapted from the study of Liquigan (2022) entitled: In-Service Teachers' Extent of Exposure and Level of Skills on The Use Of Technology: An Exploratory Study.

And the Part V was about the challenges encountered by the respondents in ICT Integration particularly in terms of improving their ICT integration skills. Using a Likert scale, this section identified the challenges respondents face in improving their proficiency in ICT integration in teaching. It covers various obstacles such as the availability of genuine software, insufficient training opportunities, lack of learning equipment and resources, reluctance to adapt to new technology, shortage of skilled personnel, time constraints, lack of confidence and knowledge, and inadequate technical support. Recognizing these challenges helps develop targeted interventions and support mechanisms to address barriers to effective ICT integration. The questionnaire for this part was adapted from the study of Habibu et al (2012) entitled: Difficulties Faced by Teachers in Using ICT in Teaching-Learning at Technical and Higher Educational Institutions of Uganda.

The survey questionnaire was structured to gather comprehensive information about the respondents' profile, challenges faced in ICT integration, and their level of computer skills and knowledge. This data could aid in understanding the current state of ICT integration in teaching and learning and inform the development of targeted interventions to support teachers in enhancing their ICT proficiency.

Data Gathering Procedure

The researcher gathered the needed data by personally distributing the questionnaires to the target respondents of this study. The researcher organized it into several phases to ensure ethics, data accuracy, and active participation. First, the researcher sought the guidance and approval of his thesis adviser to conduct and employ the research instrument that this study used.
After getting the approval of the research adviser, the researcher then addressed a letter signed by the researcher and the researcher's thesis adviser to the Dean of the Graduate School of North Eastern Mindanao State University to formally ask for permission to commence the data gathering for this study. After getting the approval, another letter was sent to the Schools Division Superintendent of Bayugan City and then to the principals of the selected schools to sought for their permissions to conduct the study and employ the questionnaires in their schools.

After getting all the approval and permissions needed, it was only then that the researcher met with the respondents. To initiate the distribution phase, a clear communication plan was developed, outlining the purpose, instructions, and timeline

for respondents. Their informed consents were also obtained, emphasizing the voluntary nature of participation and the confidentiality of responses.

The researcher personally distributed the research instrument to the respondents. To gather the required data, a modified adapted questionnaire was employed. The questionnaires were distributed to the identified target respondents along with a cover letter. This cover letter provided assurance regarding the confidentiality of their identity and encouraged honest responses. The distribution and retrieval process were conducted promptly, ensuring that questionnaires are collected immediately after completion. This approach minimizes the likelihood of data loss or participant attrition.

After data collection, the researcher proceeded with the tabulation and analysis of the research data. The collected data were categorized and tabulated for systematic organization. Statistical tools appropriate to the study were employed for data analysis, ensuring a rigorous and objective examination of the survey responses.

Finally, the interpretation process followed, involving a thoughtful analysis of the tabulated data in the context of the study's objectives. The findings were interpreted to derive meaningful insights, conclusions, and implications. Overall, this systematic approach ensured the ethical and effective collection, analysis, and interpretation of data in alignment with the study's objectives and research questions.

Results and Discussion

This chapter delves into the presentation, analysis, and interpretation of the following data on the respondents' profile in terms of age, sex, and highest educational attainment: the respondents' level of ICT integration in teaching; the respondents' attitudes towards ICT integration; their computer skills and knowledge; and the challenges they face in improving the skills of ICT integration.

Profile of the Respondents

By analyzing the age, sex, educational attainment of respondents, teaching experience, and seminars or trainings attended, this study aims to provide a comprehensive understanding of the sample population, enabling researchers to draw meaningful conclusions and develop evidence-based interventions tailored to the needs of diverse groups within society. The first problem delves into the profile of the respondents. In this study, it examines the profiles of respondents in terms of age, sex, and educational attainment. These demographic factors play significant roles in shaping perspectives, behaviors, and experiences, thus influencing the outcomes and interpretations of the research findings.

Indicator	Category	Frequency	Percentage
Age	51 years old and above	75	34.2
	46 – 50 years old	27	12.3
	41 – 45 years old	43	19.6
	36 – 40 years old	35	16.0
	31 – 35 years old	21	9.6
	26 – 30 years old	18	8.2
	Total	219	100
Sex	Male	13	5.94
	Female	206	94.06
	Total	219	100
Highest Educational Qualification	EdD/PhD	8	3.7
	MA/MS	32	14.6
	Baccalaureate	25	11.4
	Units Earned/Units	154	70.3
	Total	219	100
Teaching Experience	26 years and above	76	34.7
	21-25 years	20	9.1
	16-20 years	36	16.4
	11-15 years	25	11.4
	6-10 years	41	18.7
	5 years and below	21	9.6
	Total	219	100

Seminars/Trainings attended relevant to ICT Integration	Virtual Inservice Training for Public School Teacher	167	76.26
	Crafting Packaged Aided Instructional Materials	125	57.08
	Google Drive and Google Slides for Classroom Instruction	155	70.78
	Empowerment ICT to complement, enrich and transform education for better	87	39.73
	Technology-based Arts Training Workshop	100	45.66
	Learning Action Cell Sessions on ICT	89	40.64
	Training on Data Analysis	77	35.16

Table 1. Demographic profile of respondents

Table 1 presents the frequency and percentage distribution of the respondents' profiles. In terms of age, the largest proportion of respondents (34.2%) were 51 years old and older, indicating a significant presence of experienced educators in the sample. This aligns with broader demographic trends in the teaching profession, where older educators often comprise a substantial portion of the workforce (Goldhaber, 2021). Moreover, the relatively smaller percentages of respondents in younger age brackets, such as 26–30 years old (8.2%), highlighted the need to support early-career educators in developing ICT skills and integrating technology effectively into their teaching practices. Additionally, the distribution of the respondents' ages reveals a relatively balanced representation across other age brackets, with smaller percentages of respondents in each category.

In terms of sex, the distribution of the respondents revealed a dramatically high segment of female teachers among those who responded to the examined study, which has a percentage of 94.06% female and 5.94% male. The percentage of ICT integration in the study revealed that women teachers are the dominant gender in the teaching staff of the selected schools. In addition, the results further revealed that most of the respondents earned units in their master's degree, which has a percentage of 70.3%, while 3.7% of the respondents have an EdD or PhD. This implies a proactive approach among the respondents towards continuing professional development and acquiring knowledge that is beyond their initial degree. This implies that only a small proportion of the respondents have achieved the highest level of educational attainment in the field of education. Their level of educational attainment indicates not only their level of knowledge but also their experience, which is not only useful for them but also has a lot of chances for them to guide and mentor the less experienced ones and those who have lower educational attainment than them. Besides, the fact that they were already experienced and knowledgeable in their profession proves that they are devoted to education, and they have a thorough knowledge of the subtleties of teaching and learning. Learning from experienced educators is vital to make use of their knowledge, improve the educational results for the students, and enhance the professional development of the teaching community (Omito et al., 2019).

Furthermore, the results showed that the majority of the respondents have above 26 years of teaching experience, with 34.7% of the respondents, while the group of respondents with the lowest frequency was the respondents within the age range of 21–25 years of experience, with only 9.1% of the respondents. This indicates that a significant portion of the respondents already have extensive teaching experience, which suggests a deep understanding of pedagogical methods. They also have a wide range of classroom management strategies, apart from effective teaching strategies and techniques that cater to the different learning styles of their pupils to ensure a higher level of learning achievement.

The results also revealed that the respondents have attended seminars and trainings relevant to ICT integration, with 76.26% of them claiming to have attended virtual in-service training for public school teachers. This high representation of the respondents indicates that they have been actively seeking opportunities that could help enhance their knowledge and skills in ICT integration in teaching and further their professional development. However, in terms of training on data analysis, results showed that only 35.16% of the respondents attended, which indicates that only a very few of the teachers have background knowledge in data analysis.

Teachers Level of ICT Integration in Teaching

The integration of information and communication technology (ICT) in education has become essential in preparing students for the demands of the modern world. Teachers play a crucial role in this process, as their level of ICT integration significantly influences the effectiveness of technology-enhanced learning. The second problem delves into teachers's levels of ICT integration in teaching. This study examines the extent to which teachers incorporate ICT into their teaching practices, exploring the factors that facilitate or hinder its use. By assessing teachers' levels of ICT integration, we can identify areas for improvement and support, ultimately enhancing the overall quality of education.

As displayed in Table 3, findings revealed that the indicator "I use ICT to help my pupils find related knowledge and information for learning on the internet" got the highest weighted mean of 4.40, or always. The results indicated that the respondents have been using ICT to facilitate diverse learning activities, such as helping pupils find related knowledge and information on the internet.

On the other hand, the indicator "I used ICT to teach their pupils to consider the implications and opportunities of computer use" got the lowest weighted mean of 4.10, or often. This implies that there is a gap in teachers' professional development. Teachers might benefit from additional training or resources to help them better incorporate discussions about the implications of ICT into their lessons. Zhao et al. (2021) emphasized the underlined significance of pedagogical approaches in the use of ICT to increase student engagement, motivation, and achievement. The overall mean of 4.25, or always, indicates that respondents' level of ICT integration in teaching was at a high level. The mean indicates that they always incorporate ICT into their teaching strategies and techniques that are aimed at improving not only the learners' learning experiences but also their academic achievements as well.

Indicators	Weighted Mean	Adjectival Rating
I use ICT to help my pupils find related knowledge and information for learning in the internet.	4.40	Always
I use ICT to help improve my pupils' ability in reading, writing and speaking English.	4.34	Always
I use ICT to promote active and engaging lesson for my pupils' best learning experience.	4.32	Always
I use to ICT allow my pupils to be more creative and imaginative.	4.31	Always
I integrate ICT in my teaching to help broaden my pupils' knowledge paradigm.	4.26	Always
I use ICT as a means to increase my pupils' confidence to participate actively in the class	4.24	Always
I use ICT as a means to encourage my pupils to communicate more with each other.	4.18	Often
I use ICT as a tool to enable my pupils to express their ideas and thoughts better	4.18	Often
I use computer as a tool to teach new subject knowledge, i.e. the pupils acquire knowledge directly from the computer	4.15	Often
I use ICT to teach my pupils to consider the implications and opportunities of computer use	4.10	Often
Over-all Mean	**4.25**	**Always**

Table 2 Teachers' Level of ICT Integration in Teaching

Teacher attitudes play a significant role in the successful adoption and implementation of these technologies, influencing how effectively they are used to improve educational outcomes. The third problem delves into the teacher's attitudes towards ICT integration in teaching. By analyzing teachers' attitudes, we can gain valuable insights into the current state of ICT integration in education and identify strategies to foster a more positive and effective use of technology in teaching.

As shown in Table 4, the indicator "I would like to learn how ICT integration improves the quality of interaction among students and instructors" garnered the highest weighted mean, which is 4.68. or strongly agree. This implies how important it is for the respondents to understand the dynamics of ICT integration in developing a meaningful connection between them and their learners and encourage collaborative learning to help increase their learning achievements.

Meanwhile, with a mean of 3.12, or neutral, the results showed that the respondents were neutral in terms of their "concerns about the ICT integration system in school." The respondents' attitude of passive or neutral corresponds to whether they are not adamantly opposing or strongly supporting; rather, they probably have some kind of doubt or uncertainty to be discussed further.

Overall, educators expressed overwhelmingly positive attitudes towards ICT integration, with an overall mean score of 4.49, indicating "strongly agree." This can be regarded as an important indicator of a teacher's positive attitude towards ICT integration in teaching and accepting the need for on-going learning and continuous professional development in the field of ICT integration for the improvement of teaching and learning outcomes.

Teachers' Attitude Towards ICT Integration in Teaching

Indicators	Weighted Mean	Adjectival Rating
I would like to learn how ICT integration improves the quality of interaction among students and instructors	4.68	Strongly Agree
I would like to learn more about effective ICT integration approaches to teaching and learning	4.67	Strongly Agree
I would like to learn how the ICT integration system increases school competitiveness and reputation	4.66	Strongly Agree
I would like to learn what resources are available if the school decides to adopt ICT Integration	4.64	Strongly Agree
I would like to learn how ICT integration delivers better performance than traditional learning	4.64	Strongly Agree
I will use ICT in learning and teaching in the future	4.64	Strongly Agree
I would like to learn how to use technology and how to shift the way in which I organize and deliver material	4.63	Strongly Agree
I plan to use ICT in school as a part of learning and teaching often	4.63	Strongly Agree
I would like to learn what qualifications I must have to deliver effective instructions	4.56	Strongly Agree
I am not concerned about the ICT integration system in school	3.12	Neutral
Over-all Mean	**4.49**	**Strongly Agree**

Table 3: Teachers' Attitude Towards ICT Integration in Teaching

In addition, educators revealed their intentions to integrate ICT into their teaching practices in the future, as indicated by the high weighted mean and adjectival ratings of indicators such as engaging in the planning of using ICT in learning and teaching frequently, as well as intending to apply ICT in school as part of learning and teaching. This implies that teachers view ICT not only as an instrument but also as another medium for fostering creativity and taking education to a higher level.

Liu et al. (2021) emphasized the significance of a rounded strategy for ICT combination where human factors like the teacher's attitude, abilities, and instructional practice, as well as organizational and systemic aspects that may affect technology adoption and absorption in educational settings, were taken into consideration. According to Rafi et al. (2019), it is important to recognize teachers' positive attitudes towards ICT integration as a key step in advocating for significant and lasting changes in educational techniques. By promoting a culture of innovation, collaboration, and continuous learning, teachers can use ICT as a powerful tool to improve the quality of education, prepare students for digital life, and take part in the modernization of the education system (Omito et al., 2019).

Teachers Level of ICT Proficiency

This part focuses on assessing the current level of computer skills and knowledge among teachers, exploring how their technical competencies influence their teaching practices, and integrating technology in the classroom. The fourth problem sought to determine the level of ICT proficiency of the respondents. By understanding the strengths and areas for improvement in teachers' computer skills, we can develop targeted professional development programs and support mechanisms that enhance their technological capabilities, ultimately fostering a more dynamic and interactive learning environment for students.

Indicators	Weighted Mean	Adjectival Rating
A. Computer Skills		
Performing word processing applications	4.19	Proficient
Using web search applications	4.09	Proficient
Using PowerPoint applications	4.08	Proficient
Operating communication applications	3.88	Proficient
Using multimedia applications	3.87	Proficient
Using spreadsheet applications	3.81	Proficient
Using google meet applications	3.74	Proficient
Utilizing MS Teams applications	3.66	Proficient

Using video applications	3.47	Proficient
Using graphic applications	2.94	Moderately Proficient
B. Computer Knowledge		
Performing file management including deleting, saving, and renaming files	4.92	Highly Proficient
Turning on and shutting down a computer/laptop	4.9	Highly Proficient
Printing a document using a printer.	4.84	Highly Proficient
Starting and exiting a computer program.	4.8	Highly Proficient
Using the "search" command to locate the file	4.8	Highly Proficient
Creating a basic word document	4.75	Highly Proficient
Changing font and font size in a document	4.74	Highly Proficient
Moving, removing files from a hard drive to a USB	4.72	Highly Proficient
Creating a basic PowerPoint presentation.	4.58	Highly Proficient
Sending and receiving attachments through emailing messages	4.51	Highly Proficient
Mean	**4.26**	**Highly Proficient**

Table 4. Teachers Level of ICT Proficiency

As shown in Table 4, in terms of computer skills, with a mean of 4.19 and a qualitative interpretation of proficient, the indicator "Performing word processing applications" appeared to have the highest mean. This implies that the respondents are adept at these tools, which are essential for the successful integration of ICT in their teaching. On the other hand, the teachers were only moderately proficient in terms of "graphic applications," with the lowest weighted mean of 2.94, which implies that they needed further training and to acquire additional knowledge in terms of utilizing graphic applications.

While in terms of the respondents' level of ICT proficiency in terms of computer knowledge, the indicator "Performing file management, including deleting, saving, and renaming files," garnered the highest weighted mean among all indicators with a score of a score of 4.92, or highly proficient. The results further revealed that the indicator "receiving attachments through emailing messages" got the lowest weighed mean of 4.51, or highly proficient. This implies that the respondents need further training about sending and receiving attachments through email messages, and this also implies that the respondents have already acquired the ability to utilize the advanced features and functionalities of basic computer software applications and to manipulate existing digital teaching and learning materials based on their preferences and their learners.

With an overall mean of 4.26 and a qualitative interpretation of highly proficient, the results imply that the respondents' overall level of ICT proficiency is high despite being barely proficient in utilizing other computer applications. This would mean that the respondents have successfully incorporated their computer knowledge with their computer skills and availed themselves of the necessary abilities and understanding that are necessary to properly incorporate ICT in their teaching. The skills and confidence they develop ensure they can adopt and utilize ICT tools without fear while they teach, which could have a positive impact on their teaching methods.

Research by Atubi (2022) has emphasized the importance of targeted training programs and collaborative learning communities in building educators' capacity for technology integration and innovation, ultimately enhancing teaching effectiveness and student learning outcomes. Nonetheless, it is critical to recognize the difficulties posed by ICT integration in the classroom, including those about fairness, infrastructure, and digital literacy.

This result is also in line with the findings of the study by Mensah and Osman (2022), who found that teachers deal with multiple computer aid services, software solutions, and other similar functions. According to their research, teachers have sufficient knowledge and skills required to effectively integrate ICT technology in education. These findings are also supported by the findings from the Singhavi and Basargekar (2020) study, which was conducted to investigate the aspects that teachers use in perceiving their competency in the areas of ICT integration in the classroom. The findings of their study point to a variety of factors that affect the teachers' perceptions of successful ICT integration in teaching, such as the school environment, staff behavior (from leadership down to peers and management), school culture, and access to ICT resources.

Moreover, the findings of their study indicated that the teachers` confidence in integrating ICT into their teaching is improved by the teachers` perspective of ICT as a learning tool.

Challenges Encountered by the Teachers

Teachers face a variety of obstacles when it comes to effectively incorporating ICT into their teaching practices. These challenges include limited access to resources, insufficient professional development opportunities, resistance to change, and varying levels of technological literacy among educators. In this study, the fifth problem delves into the specific difficulties encountered by teachers in their efforts to improve ICT proficiency, highlighting the systemic and individual barriers that must be addressed.

Indicators	Weighted Mean	Adjectival Rating
Lack of learning equipment tools and resources	4.23	Strongly Agree
Lack of genuine software	4.20	Strongly Agree
Unstable and unreliable internet connection	3.97	Agree
Lack of sufficient trainings	3.59	Agree
Time limitation on the use of ICT resources	3.41	Agree
Lack of technical support"	3.18	Neutral
Lack of skilled personnel	3.11	Neutral
Lack of confidence	3.00	Neutral
Lack of knowledge	3.00	Neutral
Reluctance to adapt the new technology	2.85	Neutral
Over-all Mean	**3.45**	**Agree**

Table 5. Challenges Encountered in terms of Improving their Proficiency in ICT Integration in Teaching

As shown in Table 5, the indicator "lack of learning equipment, tools, and resources" got the highest weighted mean of 4.23, or Strongly Agree. This implies that there is a lack of availability of essential hardware and software tools, such as computers and tablets, to support effective ICT integration in teaching and learning. However, the respondents were neutral, and the other identified challenge that hinders successful integration is "reluctance to adapt a new technology," with the lowest weighted mean of 2.85 or neutral. This implies that the respondents do not find these factors challenging enough to affect their ICT integration skills.

With an overall mean of 3.45 or agree, the results imply that the respondents experienced those challenges, and agreeing on the importance of overcoming these hurdles becomes essential to them.

The study conducted by Ogundile et al. (2019) investigated the factors influencing the adoption of information and communication technology (ICT) in selected secondary schools in Ogun State, Nigeria. The findings revealed five key factors perceived by students as influential in ICT adoption: assistance or support factors, availability factors, infrastructure factors, learning tool factors, and cognitive factors. Consequently, these factors were identified through factor analysis, which grouped the ungrouped factors obtained using mean-weighted values into five dimensions. Ultimately, their findings suggested that addressing these factors could enhance the level of ICT adoption in Nigeria's secondary schools.

Conclusion and Recommendations

Conclusions

The following conclusions are generated based on the findings of the study:
A high level of ICT integration in teaching indicated that the teachers have been integrating ICT in their teaching and using it to help improve the learning experiences of their learners by allowing them to be creative, improve class participation, and broaden their knowledge paradigm by training and teaching them how to access the already available knowledge on the internet.

The teachers also have a positive attitude towards ICT integration in teaching, which can be attributed to their willingness to learn how ICT integration improves the quality of their interactions with their learners. The respondents' positive attitude towards the integration of ICT in teaching is further revealed by their higher level of desire to learn about the positive impacts of ICT integration not only on their teaching practices but also on its overall impact on the education system.

Furthermore, though the teachers were highly proficient in the basic functions of computers, such as performing file management, including deleting, saving, and renaming files, and turning and shutting down a computer or laptop, the respondents' proficiency in some computer applications, such as communication applications, multimedia applications, and MS Teams applications, is not that high, especially in terms of video applications and graphic applications.

In terms of challenges, the teachers noted the lack of learning equipment, tools, and resources, a lack of genuine software, and an unstable and unreliable internet connection as the major barriers that hinder the improvement of their proficiency in integrating ICT in teaching. These challenges were also found to be the limiting factor in the teachers' overall utilization of ICT technology.

Recommendations

Based on the results and conclusions of the study, the following recommendations are offered:
The Department of Education may use the results and findings of this study to assess the school administrators and provide them with information that is essential to understanding and addressing the challenges that hindered the improvement of the teachers' level of ICT proficiency. The results of the study could aid the DepEd in the development of targeted professional development programs, help them effectively allocate their ICT resources, and guide their implementation of strategic initiatives to increase ICT integration in their schools, especially the elementary schools in Bayugan City, so they can meet the demands of the digital era.

The administrators can use the results and findings of this study as their basis to determine their school's level of ICT integration into the educational process as well as its extent of efficiency in promoting students' academic progress. They may also use the findings of this study to develop strategies for professional development, aiding teachers in improving their proficiency and efficacy in utilizing technology for instructional purposes.

The teachers may use the results and findings of this study to reflect on their current practices and challenges in integrating ICT into teaching. They can use the results and findings of this study as the basis for selecting and formulating strategies for their own professional development, especially in improving their proficiency and efficacy in utilizing technology for instructional purposes.

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Competing Interests Statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study; all data used were obtained from previously published sources as cited in the reference list.

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Appendices

No appendices are attached to this study.