INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) COMPETENCY AND AWARENESS OF ELEMENTARY TEACHERS IN KABAYAN DISTRICT

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Information and Communication Technology (ICT) Competency and Awareness of

Elementary Teachers in Kabayan District

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Abstract

The confident and critical use of electronic media for business, recreation, communication,and education is what ICT competency stands for, which if properly integrated in the classroom will improve the teaching and learning process. This study determined the Information and Communication Technology (ICT) competency and awareness of elementary teachers in Kabayan District. The respondents are from 18 schools composed of 92 teacher using purposive sampling. The research design is descriptive comparative using survey questionnaire. Data were analyzed using mean and One- Way ANOVA . The results of the study showed that the competency level of the public school elementary teachers in technological concepts and operations; and pedagogical competency is"Basic". This means that that teachers are not yet fully equipped with the use of ICT in teaching. Also, there is a significant difference in the level of competence in the use of ICT in terms of technology operations and concepts and pedagogical competency in terms of age and years in service of the teachers. Moreover, in ICT ethics, security, and legal issues awareness, the teachers are in "Moderately Aware" level which shows that they hardly understand, and does not observe or implement such practice. In conclusion, teachers are not yet fully equipped with ICT knowledge and skills, and still unaware of ICT ethics, security and legal issues that are essential in teaching.

Keywords: technological concepts, pedagogical comptency, computer ethics, new normal

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Introduction and Rationale

Transitioning to the "new normal" era after the onslaught of COVID-19 has immensely challenged every aspect of the society. The corona virus is not just a mere health problem, it is as well as social and economic crisis. The pandemic has brought unprecedented difficulties in the provision of global education. According to the UNICEF monitoring, schools for more the 168 billion children have been completely closed for almost an entire year from the recommendations of the World Health Organization to contain the spread of the virus. In the Philippines, a DepEd data showed that 748 private schools affecting more than 40, 000 learners had stopped operations for the school year 2020-2021.

Nevertheless, the Department of Education is static on its maxim that learning should not halt. On the opening of classes for the school year 2020-2021, Secretary Leonor Briones articulated in her statement the Department's call that "education must continue", from the Marawi uprising to Coronavirus crisis. Education must continue whether face to face or virtual, with or without going to school. This is the Department of Education's Basic Education Learning Continuity Plan (BE-LCP) under the DepEd Order No. 012, s. 2020.

By its very name and as instituted by law, it is the authority of the Department of Education (DepEd) to ensure access to and always provide basic education for all learners. For this reason, DepEd—amidst the COVID-19 pandemic and given the quarantine situation—continues to explore, develop, and enhance online learning and teaching measures, and other alternative modes of education delivery. Along its mandate of ensuring learning continuity, the Department is duty-bound to protect the health and safety of learners, teachers, non-teaching personnel, and its school structures.

Towards this end, DepEd needs to step up its ICT Specifically, it needs to speed up the DepEd Computerization Program (DCP) and be prepared for any eventuality. This is anchored on four major areas of the Digital Rise Program under the Public Schools of the Future Framework pursuant to Sulong Edukalidad: a) Digital Literacy Skills, b) ICT-Assisted Teaching, c) ICT- Assisted Learning, and d) Automation of Organization Processes. (Llego, 2020)

In terms of teaching, teacher training to online instruction, blended learning and distance learning is also recommended to adjust to the new instructional format (Toquero, 2020). Teacher competencies in both pedagogy and technology should be reinforced. This transition to the new normal, from the four corners of the classroom to the borders of virtual reality, every learning institution needs to study how successful online learning is in providing quality education and outcomes-based education to students (Basilaia & Kvavadze, 2020). It is imperative for schools and universities to train teachers on how to teach online and to encourage them to devote their time to teaching online at least as a drill mechanism to prepare for unexpected events (Thornton, 2020).

The shift of teaching and learning from the public space (classrooms) to a more personal area (online), the role of the educator has also evolved. As the demand for personalized learning and online courses continues to be on demand, teachers are required upskill as much as, or even more than their students to deal with the new demand for future-proof pedagogy. As teaching and learning become more personalized, educators need to come up with innovative teaching methodologies on a case-to-case basis to suit the learner's requirement (Saxena, 2020). Thus, teaching during this pandemic requires more than just basic competency of teachers in ICT from the preparation of online lessons to crafting of quality self-learning modules; from providing feedback to students, maintaining constant communication with the supervisors, school heads and colleagues, and reporting to educational units to keep track of learning, through attending in webinars that will need them to manipulate online meeting apps. Plus, troubleshooting their own gadgets and devices in case of malfunctions.

However, despite of the great efforts exerted by the schools in providing the necessary technological resources like infrastructures, devices, and trainings, gaps still exist on how teachers utilize technology as a teaching and learning tool. Although ICT in education was introduced decades before the pandemic, computer literacy among teachers is still a big issue (Oco, 2013). According to Aldunate & Nussbaum (2015) as cited by Nueva (2019), their capacity to apply innovations in their own respective classes depends on the

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complexity of technology and their willingness to learn technology. They added that teachers who are early technology adopters and commit a significant portion of their time incorporating educational technology into their teaching are more likely to adopt new technology, regardless of its complexities.

Numerous worldwide and national research have been made on the assessment of ICT Literacy/ Competency of teachers but until the 21st Century, however, harnessing ICT continues to be a challenge to every institution, school, and individual. Oftentimes, the basic literacy that teachers needed is overlooked. Balanskat, Blamire, and Kefala (2006) argue that although teachers appear to acknowledge the value of ICT in schools, they continue encountering obstacles during the processes of adopting these technologies into their teaching and learning.

In Tinaleb Elementary School where the researcher resides, most of the teachers, including the school principal usually have a hard time in manipulating, maintaining, and troubleshooting gadgets, personal computers, and other devices. In using Microsoft applications, none of the seven teachers in the school have considered themselves proficient in using the applications which are very important in their teaching and administrative works. In terms of using the internet, at least two out of the seven teachers know how to properly download and upload files from websites. Two out of seven knows how to send and receive emails and other online applications like google meet, Microsoft teams, zoom, etc.

Most of the teachers said they have been attending district and division led ICT seminars especially before the start of school year 2020-2021 which aims to get them ready and equipped in teaching in the new normal, but most of the seminars are usually under the proficient level which the teachers may not be able to relate to because they still fall under the basic and/ or no competency level.

Ang and Sandaran (2020) found out that the lack of ICT literacy and time allocated for teaching and learning process as the main obstacles faced by English teachers in using ICT. In addition, the overall ICT literacy of the teachers were still limited and needed to be

improved especially in the use of the internet so that they would gain more confidence in implementing ICT in their classroom. While the findings show that the main problems that had restricted the teachers in using ICT in their teaching are the lack of ICT skills and confidence in implementing ICT in the classroom, the study recommended that schools would provide more training and ICT courses to teachers to improve teachers' ICT literacy as a measure to embrace the new normal of the Covid 19 pandemic digitalized era.

In the Philippines, research showed that teachers' ICT Literacy still falls on the basic level. This is supported by the research conducted by Jabido (n.d.) among the Elementary Teachers of Koronadal District. It suggests further that teachers can only perform some of the basic ICT operations and uses ICT sometimes at least once a week as a tool for teaching. The teachers sometimes use ICT specifically in Computer-Aided Instruction. The ICT capabilities of Schools in the City Division of Koronadal are at a satisfactory level and need upgrading in all aspects. There is inadequacy in the provision of ICT facilities to schools which hinders the use of ICT inside the classroom to enrich the teaching-learning process.

Also, the study of Verecio et. al. (2016) on the Assessment of ICT Competencies of Public School Teachers: Basis for Community Extension Program, also revealed that teachers have basic knowledge in ICT. This is not enough to say that teachers are already competent in ICT. Teachers need to be proficient in knowing where and when to use technology for teaching and other related tasks.

In the Cordillera region, there is limited research on ICT competencies and awareness of c ethics of elementary teachers. Thus, this study aimed to assess the level of competence in ICT and awareness on computer ethics of elementary teachers. The assessment of ICT competencies and awareness of teachers will be used as basis in designing programs or trainings in ICT which are suitable to their specific needs.

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Literature Review

Like in any other sector, the pandemic has had a significant impact on the education sector and provided a much-needed impetus for digitization. As reiterated by DICT Secretary Gregorio Honasan during the National ICT Month in 2020, ICT is turned to provide a semblance of continuity in the society and individual lives. The vital role of ICT is recognized in nation-building and ICT's pivotal role in implementing the 'new normal' in our country, particularly in our government, business, commerce, education, and health sectors. In relation to this, The Department recently directed its ICT Literacy and Competency Development Bureau (ILCDB), Cybersecurity Bureau, and Regional Offices to formulate and facilitate the conduct of webinars aimed at capacitating and upskilling the ICT competencies of teachers, administrators, educators, and students in different public and private educational institutions, and state universities and colleges (SUCs).

When teachers are digitally literate and trained to use ICT, these approaches can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings, and leave students better prepared to deal with ongoing technological change in society and the workplace.

Teachers need specific professional development opportunities to increase their ability to use ICT for formative learning assessments, individualized instruction, accessing online resources, and for fostering student interaction and collaboration. Such training in ICT should positively impact teachers' general attitudes towards ICT in the classroom, but it should also provide specific guidance on ICT teaching and learning within each discipline. Without this support, teachers tend to use ICT for skill-based applications, limiting student academic thinking. To support teachers as they change their teaching, it is also essential for education managers, supervisors, teacher educators, and decision-makers to be trained in ICT use. (UNESCO.org, 2019). Though no fault of their own, most teachers are not prepared to teach about computing or use a computer in teaching because they received their education "BC" before computers. Now they are finding they need computer literacy as part of their jobs. (Konan, 2010)

Even before the pandemic, numerous researches worldwide and national were conducted to assess the ICT literacy of teachers and its importance in the teaching and learning process and the teaching job as well. ICT use in the classroom is important for giving students opportunities to learn and apply the required 21st century skills. Hence studying the issues and challenges related to ICT use in teaching and learning can assist teachers in overcoming the obstacles and become successful technology users.

In the research of Bhebhe and Maphosa (2016) on Teachers' ICT Literacy in South Africa revealed that there is low level of utilization of ICTs in teaching and learning by teachers. The reasons for this ranged from teachers' computer illiteracy, unavailability of computers and power problems, among others. In this regard, in a world awash with technological advancement, some schools have some way to go in utilizing ICTs in teaching and learning. This study concludes that teachers and learners in most parts of the world remained deprived of ICT use as most schools were failing to meet proper ICT requirements needed for teaching and learning. The study also concluded that limited ICT usage in most schools has failed to prepare learners for the technological world that they would encounter after school. This is because according to Verecio et. al. (2016), teachers have basic knowledge of ICT. Teachers need to be proficient in knowing where and when to use technology for teaching and other related tasks.

On the different applications like the Microsoft Office, Reyes (2019) on his study on the Computer Competency Level of Elementary Teachers of Southern Tabuk District-1 that teachers can create their PowerPoint but are not yet proficient. Reyes added in his study that teachers with a rudimentary understanding of generating slideshows do not necessarily know how to design and add backgrounds. This agrees with the study of Okeke in Nigeria where teachers found no competency in using presentation tools. He also added in his study that the low competency of teachers using excel could result from the majority of teachers' lack of interest in calculations and formulas. Afshari et. al. (2008) also discovered that most of the principals in their study rarely use computers to create spreadsheets. On the use of ICT in pedagogy, Reyes in 2019 stated that some rely on younger coworkers or a computer

store for assistance. Dependency on others is usually why other teachers do not develop the necessary computer skills that can be obtained through the extent of use.

However, on other applications like word processing, Yildirim (2007) found that most Turkish teachers feel more competent with word processing than other computer abilities. It is known for making lessons more manageable, engaging, and motivational. According to Okeke (2020), a teacher can utilize this ability to generate weekly reports, lesson notes, and homework. Due to their frequent use of this program, teachers are proficient in this field.

The National ICT Competency Standard Framework (NICS) developed by the National Computer Center or NCC in the Philippines will be the main theoretical foundation of this study. The ICT Competency Standard Framework for teachers defines the competency outcomes and the supporting knowledge and skills that are needed to utilize ICT in performing the job roles related to teaching in the Philippine setting. It provides the performance indicators to evaluate the level of knowledge and competence of teachers to apply ICT in the educational setting.

Caluza, et.al (2017) discussed that the NICS structure is a wealth of information presented in a very compact form comprising the following elements. The *Standard Title* is a concise statement that describes the key area of competency. The *Standard Descriptor* is a brief description of the skills set covered by the standard. The *Statements* are described in outcome terms the key areas of competence covered by the standard. These are focused on performance and are demonstrable. The *Indicators* identify the actions an individual would normally take to perform the area of competence detailed in the relevant statement. These are specific evidence of the achievement of a defined skill or knowledge level or the competent completion of a task. In addition, Caluza, et.al (2017) also enumerated the different domains that are included within the framework.

Domain A: Technology Operations and Concepts Competency Descriptors. This domain includes competencies related to technical operations and concept and productivity usage of various ICT tools like computers and communication devices as well as applications that are available online or offline. Here the teachers will be tested to demonstrate knowledge and

skills in basic computer operation and other information devices including basic troubleshooting and maintenance of computers. This includes proficiency and skills in different productivity applications such as Word processing, Spreadsheets, Presentations, and Antivirus software. It also focuses on the use of Internet applications to search, locate, and retrieve information resources to support the learning environment. However, the current research will measure the most basic ICT skills and literacy of teachers that are commonly used in their teaching and administrative tasks especially during the new normal.

Domain B Social and Ethical competency descriptors. This domain includes competencies related to social, ethical, legal, and human issues and community linkage. This involves understanding and observing legal practices in the use of technology like the legal implications of Software Licenses and Fair Use, Intellectual Property Rights, the Ethical use of technology at both personal and professional levels, and respect for privacy and cyber etiquette, phone etiquette, and similar use of technology. Plan, model and promote a safe and sound technology-supported learning environment.

The new normal is the time when even teachers who had their education in the "BC", Before Computers era must adapt themselves with the use of technology in their everyday life. Thus, it is important for them not just to equip themselves with technological competencies, but more importantly to be also knowledgeable with the social and ethical issues in ICT especially since they are exposed to social media activities daily.

Domain C Pedagogical competency descriptor. This domain includes competencies related to the use of technology in the following components of an instruction process: 1) planning and designing effective learning environments and experiences supported by technology; 2)implementing, facilitating, and monitoring teaching and learning strategies that integrate a range of information and communication technologies to promote and enhance student learning; and 3) assessing and evaluating student learning and performances. Apply and evaluate the usage of ICT integration in the teaching-learning process and use results to refine the design of learning.

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As mentioned, there are types of learning modalities that could be applied in the new normal namely: Distance Learning, Blended Learning, Face-to-face, and Online Learning. A School may choose any learning modality that is suited in the community in the light of the pandemic. In the Philippines, the common modality being used especially in public schools is Modular Distance Learning. However, whatever learning modality is being used in the school, technology integration and the role of ICT cannot be condemned. In this pandemic, ICT Literacy among teachers serves as the backbone of global educational provision.

Domain D is the Professional Competency descriptor. This domain includes competencies related to professional growth and development, research, innovation, and collaboration. Proactively engage in exploring and learning new and emerging technologies. Identify educational sites and portals suitable to their subject area. Join online communities, subscribe to relevant mailing lists and online journals• Review new and existing software for education• Recommend useful and credible websites to colleagues and Continuously evaluate and reflect on the use of technology in the profession for development and Conduct research on the use of technology in the classroom. In general, this set of competencies aims to prepare teachers to become users of various ICTs to help both the students and their benefit from the technology. In the end, the prime benefits are 1) access to information and knowledge resources, 2) communication and knowledge sharing, and 3) work efficiency.

Since the coronavirus prevents us from engaging in large crowds, training and seminars are also prevented. Hence, schools are advised to have their own initiative to join webinars and online training that will enhance them professionally, especially in ICT and pedagogy. However, challenges like poor internet connections are experienced by most of them. Thus, the need of having teachers to use ICT in mentoring and coaching colleagues is a necessity.

Research Questions

This study aimed to assess the level of Information Communication Technology (ICT) Competencies of Public Elementary School Teachers of Kabayan District. Specifically, it sought answers to the following:

1. What is the level of competence of the respondents in the use of ICT in terms of:

   a. technology operations and concepts, and

      i. Basic ICT and internet

      ii. Word Processing

      iii. Spreadsheet

      iv. Presentation

   b. pedagogical competencies?

2. Is there a significant difference in the level of competence of the respondents in the use of ICT in terms of technology operations and concepts, and pedagogical competencies in terms of age?

H_o: There is no significant difference in the level of competence of the respondents in the use of ICT in terms of technology operations and concepts, and pedagogical competencies in terms of age.

3. Is there a significant difference in the level of competence of the respondents in the use of ICT in terms of technology operations and concepts, and pedagogical competencies in terms of years in service?

H_o: There is no significant difference in the level of competence of the respondents in the use of ICT in terms of technology operations and concepts, and pedagogical competencies in terms of years in service.

4. What is the level of awareness of the respondents in ethics, security, and legal issues associated with using the computers?

Scope and Limitation

This study focused on the assessment of the ICT competencies of teachers of Kabayan District, Benguet Division specifically in terms of technology operations and concepts, use of ICT in pedagogy, and their awareness in the ethics, security, and legal issues associated with using the computers. The study determined the difference in the level of competence of the respondents in ICT in terms of age and years in service. Mean and ANOVA were used to analyze the data.

Research Methods

Research Design

This study was conducted using a descriptive comparative research design, which used a survey questionnaire that assessed the ICT competencies and awareness of Public Elementary School Teachers of Kabayan District.

Population and/ or Sampling

The respondents of the study were 92 elementary teachers. Purposive sampling was done in the selection of 18 schools out of 22 elementary schools in Kabayan district. Since some barangays are composed of three to four schools like Ballay, Bashoy, and Gusaran, one school from the said barangays was not involved in the study. For convenience, schools were rather chosen purposively not randomly.

Data Collection

The researcher used a survey questionnaire as the primary data-gathering tool for this study. The instrument consisted of three parts; the first part is composed of the demographic profile of the teachers that includes age and number of years teaching. The second part focused on the ICT Competency assessment of technology operations and concepts; and pedagogical competencies. The third part determined the level of awareness of computer ethics and security. The competencies were based on the National ICT Competency Standard for Teachers.

Data Analysis

4 point Likert Scale and mean was used to determine the respondents' competence level on the use of ICT in terms of technology operations and concepts, pedagogical competency, and their level of awareness of the ethical and security issues on the use of computers. The One- way ANOVA was used to determine the significant difference in the ICT competencies of the respondents in terms of age and years in service.

Table 1.1

Level of Competence in ICT

Relative Value	Weight Ranges	Level of Competence	Description
4	3.25 – 4.00	Competent	has the ability to teach others the skill; has put the skill into practice; can guide or coach others; has large-scale experience.
3	2.51 – 3.25	Approaching Competent(AC)	Independent contributor; has applied or practiced the skills at moderate levels; no large-scale experience.
2	1.76 – 2.50	Basic (B)	Understand the concepts but may not have experienced using them. Needs guidance to practice the competency.
1	1.00 – 1.75	No Competence (NC)	Does not have any knowledge on the competency mentioned.

Table 1.2

Level of Awareness in ICT

Relative Value	Weight Ranges	Level of Competence	Description
4	3.25 – 4.00	Very Much Aware (VMC)	Possesses proficiency and knowledge of the indicator mentioned and can apply them.
3	2.51 – 3.25	Aware (A)	Can adequately understand the topic/ issue.
2	1.76 – 2.50	Moderately Aware (MA.)	Cannot understand some aspects and parts of the topic/ issue; needs expert guidance.
1	1.00 – 1.75	Not Aware (NA)	can hardly understand the topic/ issue, even with guidance. Never observed and implemented such.

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Ethical Issues

The voluntary participation of respondents in the research is important. Moreover, participants have the right to withdraw from the study at any stage if they wish to do so. Participants were fully informed. The informed consent were obtained having the necessary forms. The principle of informed consent involved providing sufficient information and assurances about taking part to allow individuals to understand the implications of participation and to reach a fully informed, considered, and freely given decision to do so, without the exercise of any pressure or coercion. The School Head's consent on the conduct of the study was sought. The use of offensive, discriminatory, or other unacceptable language were avoided in the formulation of Questionnaire and Focus group questions. Privacy and anonymity or free of personal identification information of respondents are of paramount importance. Maintenance of the highest level of objectivity in discussions and analysis throughout the research was observed.

Results and Discussion

Table 2.1 presents the level of competence of the respondents in ICT technology operations and concepts specifically on the use of basic ICT and the Internet. The teachers level of competence in the use of basic ICT and the internet is " Basic" which means that they understand the concepts but may not have experienced using them and they need guidance to practice the competency. Also, the teachers are "Competent" in only eight out of 22 skills in using basic ICT and the internet.

The teachers showed a "competent level" in the basic use of computers and printers, yet a "basic level" most on comptencies involving the use of the internet. The highest level of competence of the teachers is in booting up, restarting, and shutting down of a computer, while the lowest level of competence is understanding the terms browser, cookie, cache, and proxy. Similarly, Okeke (2020) stated in his study that teachers in Rivers East model primary schools are fairly proficient in using email. This is evident in the inefficiency of the

school's communication system. Most model primary school principals rarely communicate with parents and teachers via email.

Moreover, this shows that the teachers still need guidance in applying the essential computer competencies. The findings support the study of Verecio et. al. (2016) that teachers have basic knowledge of ICT. Teachers need to be proficient in knowing where and when to use technology for teaching and other related tasks. Mahmud & Ismail (2010) also added that teachers especially the older ones and normally with more teaching experience need to be identified, and provided with specially designed training programs, in various forms of ICT courses and workshops.

Table 2.1

Use of Basic ICT and the Internet.

SKILL	Mean	Descriptive Evaluation
1. Define Information Technology, Communications Technology, and other ICT-related terms	2.45	Basic
2. Discuss the steps in connecting to the Internet	2.42	Basic
3. Boot up, restart, and shut down a computer	2.91	Competent
4. Change desktop properties and icons by name, size, and type	2.64	Competent
5. Install/uninstall an application	2.38	Basic
6. Switch between open applications	2.55	Competent
7. Identify and differentiate the types of files/documents and associated programs (ex. mp4, mp3, png, jpeg, doc, ppt, Xls, pdf)	2.34	Basic
8. Manage files (create/ delete folders, move/ delete/ restore/ copy/ paste files)	2.77	Competent
9. Manage a printer (Connect and set up a printer, cancel a print job, open print queues, adjust print settings and properties)	2.67	Competent
10. Do basic printer troubleshooting (reset, nozzle check and head clean, ink flush, paper jam)	2.57	Competent
11. Use the Control Panel for basic PC configuration and troubleshooting	2.19	Basic
12. Understand the terms browser, cookie, cache, and proxy	2.02	Basic
13. Access the web (Open and close a browser, Change the browser home page, go to a URL, activate a hyperlink, Refresh a web page, Delete the cache)	2.20	Basic
14. Use bookmarks (bookmark a webpage, open a bookmarked webpage)	2.04	Basic
15. Download webpages (Download text files, image files, sound files, video files, software from the web)	2.32	Basic
16. Register for a new email account (personal and school email)	2.40	Basic
17. Create and send a message including the recipient address, subject, message, and file attachment	2.46	Basic
18. Sign in and out of your email using a computer and smartphone	2.53	Competent
19. Open and download an email attachment	2.44	Basic

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20. Understand why and how to reply, reply to all, and forward a message	2.51	Competent
21. Understand the basics of email etiquette (salutations and closing, avoiding all caps, using subject line, knowing who to cc or bcc, etc.)	2.29	Basic
22. Manage email (delete and retrieve, identify spam, unsubscribe from an unwanted mailing list)	2.22	Basic
Total	**2.42**	**Basic**

The level of competence of the respondents in ICT technology operations and concepts specifically on Word Processing is shown in Table 2.2. The level of competence of the respondent in word processing is " Approaching Competence" which indicates that they apply or practice the skills at moderate level, and has no large-scale experience.Also, the fundamental word processing applications is the highest level of competence among all the competencies.

The competency includes formatting text in a document, including face, style, size, color, text effects, and spacing. The mean also illustrates that the respondents can format a paper competently, like adjusting line and page breaks, pagination, and inserting headers, footers, line numbers, and footnotes. They can also select, move, cut, and paste text within and across documents. It also depicts that the teachers can insert characters and symbols in their documents independently. The responses also showed that the teachers could independently print a document and change printer options and properties.

According to Okeke (2020), a teacher can utilize this ability to generate weekly reports, lesson notes, and homework. Due to their frequent use of this program, teachers are proficient in this field. In their study, Yildirim (2007) found that most Turkish teachers feel more competent with word processing than other computer abilities. It is known for making lessons more manageable, engaging, and motivational.

Table 2.2

Demonstrates knowledge and skills in using Word Processing tools.

SKILL	Mean	Descriptive Evaluation
1. Create, save, and edit a new or existing document	3.28	Approching Competent
2. Format text (face, style, size, color, text effects, spacing)	3.15	Approaching Competent
3. Format paragraph (alignment, justify, spacing, indent, numbering, bulleting)	3.22	Approaching Competent
4. Format document (line and page breaks, pagination, margins, size, and orientation)	3.14	Approaching Competent
5. Inset headers, footers, line numbers, footnotes, table of contents	2.83	Approaching Competent
6. Select, move, cut, copy, and paste texts within and between documents	3.13	Approaching Competent
7. Insert characters and symbols	3.08	Approaching Competent
8. Insert and format tables (add borders and shading, change cell attributes, apply automatic formatting)	2.95	Approaching Competent
9. Insert and format pictures	2.98	Approaching Competent
10. Preview a document (Zoom in and Out, Switch to one-page, multiple-page, full-screen views)	2.90	Approaching Competent
11. Print a document	3.31	Approaching Competent
12. Change other printer options and properties	3.13	Approaching Competent
Total	**3.09**	**Approaching Competent**

Table 2.3 shows the level of competence of the respondents in ICT technology operations and concepts specifically on Spreadsheet application with a " Basic" level of competency. The lowest is depicting basic competence in creating formulae in excel like average, sum, vlookup, what-if analysis, and others. This result implies that the teachers have limited knowledge and have not yet practiced using and creating certain formulae in excel. The highest level was obtained along entering data in a cell, entering data in multiple cells, inserting rows and columns, and deleting rows and columns. Okeke (2020) concluded in his study that the low competency of teachers using excel could result from the majority of

teachers' lack of interest in calculations and formulas. These findings concur with those of Afshari et. al. (2008), who discovered that most of the principals in their study rarely use computers to create spreadsheets.

Teachers still need guidance to practice the competency, or they may understand the concept but may not have experienced using it. According to Reyes, in 2019, when all school forms (SF 1-10) and the Learners Information System (LIS) were encoded in Microsoft Excel, teachers must use excel to encode the appropriate data for submission to the division office. This contributes to the fact that teachers are not yet adept at encoding data on a worksheet. Additionally, working was more convenient, mainly when dealing with multiple working tables.

Table 2.3

Demonstrates knowledge and skills in using the tools in a Spreadsheet application.

SKILL	Mean	Descriptive Evaluation
1. Manage workbooks (open and close a workbook, open multiple workbooks, switch between workbooks)	2.26	Basic
2. Select a cell, a range of cells, a range of non-adjacent cells, an entire worksheet, an entire row, an entire column	2.30	Basic
3. Enter data in a cell, enter data in multiple cells, insert rows or columns, delete rows or columns	2.37	Basic
4. Handle worksheets (Insert, delete, copy, move, rename sheets within a workbook)	2.37	Basic
5. Format data in a worksheet (Use number styles, apply font formatting options, apply alignment options, sort data, filter data)	2.27	Basic
6. Format worksheet (margins, orientation, scaling, headers and footers, page numbers, dates, and time)	2.32	Basic
7. Create formulas and functions (Average, Sum, VLOOKUP, What-if Analysis, etc.)	2.00	Basic
8. Create and format charts/ graphs	2.17	Basic
9. Preview a worksheet	2.37	Basic
10. Print a worksheet according to the size	2.37	Basic
Total	**2.28**	**Basic**

Table 2.4 presents the competency level of elementary teachers in Kabayan District in Presentation is "Basic". This means that the elementary teachers of Kabayan District are not yet adept at using presentation tools. They all obtained a basic level in all the skills under the competency. The lowest level was obtained under applying slide layouts and templates. The result collaborates with the study of Reyes (2019) on the Computer Competency Level of Elementary Teachers of Southern Tabuk District-1 that teachers can create their PowerPoint but are not yet proficient. Reyes (2019) added in his study that teachers with a rudimentary understanding of generating slideshows do not necessarily know how to design and add backgrounds. Creating a slideshow involves using and adding some effects to make it more engaging. Some educators prefer short slideshows for simple assignments and refuse to add designs. One problem is that teachers frequently download PowerPoints that have already been created and utilize them immediately in the classroom.

Further, Okeke (2020) in Nigeria where teachers found no competency in using presentation tools. He added that this might be because teachers prefer to instruct and illustrate using a whiteboard and marker instead of presentation slides.

Table 2.4

Demonstrates Knowledge and Skills in Using The Tools in a Presentation Application

SKILL	Mean	Descriptive Evaluation
1. Discuss basic presentation techniques	2.31	Basic
2. Manage presentations using a presentation tool	2.33	Basic
3. Create slides and use different slide views	2.30	Basic
4. Apply slide layouts and templates	2.16	Basic
5. Format Texts	2.29	Basic
6. Insert pictures, images, drawn objects, charts, and graphs	2.31	Basic
7. Create slide show and apply slide show effects (Add preset text, image animation effects to slides, change preset animation effects, Add transition effects between slides)	2.30	Basic
8. Prepare outputs (Create speaker's notes, create handouts, change slide setup, hide or show slides, start a slide show)	2.24	Basic
9. Print slides	2.39	Basic
10. Discuss basic presentation techniques	2.29	Basic
Total	**2.31**	**Basic**

The level of competence of the respondents in pedagogical competencies is presented in table 3, showing "Basic" level of comptence. Among the ten skills mentioned under the competency, the lowest level, shows that teachers have minimal or no knowledge of using photo editing, video editing, and audio editing software to be used for instruction. These skills are essential in teaching during the pandemic since the system requires teachers to use audio, videos, and pictures to enhance online and offline distance learning. The respondents also has basic level in downloading and saving a specified location instructional files from the web like videos, pictures, worksheets, pdf files, ppt files, documents, and software, which still fall under the basic level. This corroborates with the findings of Reyes (2019) that some rely on younger coworkers or a computer store for assistance. Dependency on others is usually why other teachers do not develop the necessary computer skills that can be obtained through the extent of use. It also implied that they still have basic competence in downloading Self-learning modules from verified sources set by the Department of Education.

The responses yielded still under basic level on using different platforms to communicate with pupils, parents, and coworkers. In joining synchronous webinars, and staff meetings using video conferencing apps like google meet and zoom, and troubleshooting common technical issues encountered during virtual conferences, classes, meetings, and webinars. This is agreed upon by the result of the study of Dalayan and Estrellado (2020) which revealed that teachers can start and join meetings competently but are only moderately competent in customizing settings and interacting with co-participants.

In addition, findings showed that the teachers minimally demonstrate internet skills for distance learning, including connecting a device to the internet, navigating to a website, closing and enabling pop-ups, and making use of common website interactions like a play button and activating hyperlinks. They cannot also independently use productivity tools like google docs and google sheets.

Teachers' ability to configure video conferencing apps/services needs to be improved. The study reveals teachers should improve their video conferencing skills. A

training program should be conducted to acquire fundamental abilities in using video conferencing apps/services since it's helpful in today's context where teachers can engage with colleagues for planning, attending seminars, and engaging pupils without breaking social distance health regulations.

On the other hand, they are competent enough to create lesson plans, WHLP, and other administrative tasks using ICT. This is because most of these documents are accomplished on word processing tools which showed their high competency level in the previous tables. It also showed that the teachers could independently answer online surveys and fill out online forms.

Table 3

Pedagogical Competency

SKILL	Mean	Descriptive Evaluation
1. Download and save to specified location instructional files from the web (pictures, videos, worksheets, pdf files, ppt files, documents, workbooks, etc.)	2.49	Basic
2. Download Self- learning modules from verified sources (DepEd Commons, LRMDS, SLM links from Regional and Local sources)	2.38	Basic
3. Create lesson plans/ WHLP and other administrative tasks/ works using ICT.	2.71	Competent
4. Use different platforms to communicate learning to pupils and parents (Group messenger chat, video chat/ calls, Learning Management System)	2.47	Basic
5. Use photo editing, video editing, and audio editing software to be used for instruction (e.g., Adobe Photoshop, Moviemaker, Audacity)	1.98	Basic
6. Join synchronous webinars, class meetings, and staff meetings using video conferencing apps and utilize the tabs and buttons in a VC app (mute, turn on/off video, chat, and change screen view)	2.46	Basic
7. Troubleshoot common technical issues encountered during virtual conferences, classes, meetings, and webinars (internet speed, audio, and video issues)	2.18	Basic
8. Demonstrate internet skills essential for distance learning, including connecting a device to the internet, navigating to a website, closing and enabling pop-ups, and making use of standard website interactions, e.g., play buttons, hyperlinks	2.16	Basic

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9. Use productivity apps to work in real-time with other people (e.g., Google Docs, Google Sheets)		2.21	Basic
10. Answer online surveys and fill out online forms (Google Forms)		2.60	Competent
	Total	**2.36**	**Basic**

The overall level of competence of the respondents in technological operations and concepts, and pedagogical competency is "Basic" as shown in table 4. The respondents needs guidance to practice the competencies as they do not have enough knowledge. This only means that teachers still need to improve their competency in Basic ICT and Internet, Word Processing, Spreadsheet, Presentation, and Use of ICT in Pedagogy.   According to UNESCO (2019), it is essential for education magaers, supervisors, teacher educators, and decision-makers to be trained. Moreover, Konan (2010) emphasize that they need computer literacy as part of the job.

Table 4

Overall Result of Technological Operations and Concepts and Pedagogical Competency

ICT Competency	Mean	Descriptive Evaluation
A. Technology Operations And Concepts	2.52	Basic
1. Basic ICT and Internet	2.42	Basic
2. Word Processing	3.09	Approaching Competent
3. Spreadsheet	2.28	Basic
4. Presentation	2.31	Basic
B. Pedagogical Competency	2.36	Basic
Overall Mean	**2.44**	**Basic**

Table 5 presents the significant difference in terms of age in the competencies of teachers in terms of Technological Operations and Concepts and Pedagogy. Since the P-value (0.0003) is lower than the alpha value of 0.05 which shows that means of the sample significantly differs. Thus, theres a significant difference between the level of competency in terms of ICT and Pedagogical based on the teachers age. This only means that ICT and Pedagogical competency is affected by the age of teachers. These results agree to Dalayan and Estrellado (2022) that there is a trend for teachers to reflect a little decline in computer

use as age increases. This means that teachers should continue to attend trainings on productivity tools in order to increase their proficiency with these applications. This may necessitate that school officials give instructors with age-specific training so that they can meet the needs of veteran teachers (teachers aged 40 to 60) who require more support than younger teachers who are adept at utilizing these applications on their own computers.

Table 5

Difference in the Level of Competence in ICT Technological Operations and Concepts, and Pedagogical Competencies of Teachers According to Age.

Source of Variation	SS	df	MS	F	P-value	F crit	Decision
Between Groups	2.006238	7	0.286605	7.265475	0.006012	3.500464	Reject the null hypothesis
Within Groups	0.315581	8	0.039448				
Total	2.321819	15					

The significant difference in terms of years in service in the competencies of teachers in terms of Technological Operations and Concepts and Pedagogy is presented in table 6. Since P-value is higher than the alpha value of 0.05 which shows that the means of the sample do not significantly differ. Thus, there is no significant difference between the Level of competency in terms of ICT and Pedagogical based on years of teaching. This only means that ICT and Pedagogical competency does nt depend on the years of service or teaching. This result supports the findings of Mahmud & Ismail (2010) that teachers especially the older ones and normally with more teaching experience need to be identified, and provided with specially designed training programs, in various forms of ICT courses and workshops. Love (2002) as cited by Mahmud & Ismail 2010, found out that younger teachers are usually more technology savvy than the teachers with more teaching experience. As postulated by Rakes et al (2006) teachers need appropriate and satisfactory training to aid them integrate technology in schools.

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Table 6

Significant Relationship between Technological Operations and Concepts, and Pedagogical Competencies of Teachers and their Years in Service

Source of Variation	SS	df	MS	F	P-value	F crit	Decision
Between Groups	1.28614	4	0.321535	3.89692	0.084087	5.192168	Do not Reject null hypothesis
Within Groups	0.41255	5	0.08251				
Total	1.69869	9					

Table 7 displays the level of awareness of teachers on the computer ethics and security. This standard covers the requirements to understand the important security and legal issues associated with using computers. Alongside using computers and taking advantage of the benefits they contribute in simplifying ones works are ethics and legal issues one must understand before using them. This means that before using a technology, one must understand personal property and user rights. In this area, the awareness of the teachers is "Moderately Aware" which implies that they do not have much knowledge on the meaning of personal property and user rights. It showed that the respondents are not yet fully aware on the concept of software privacy and violation of copyright laws.

The lowest level is that the teachers still lacks proper knowledge in explaining the concept of Security like security threats, security techniques, and the use of anti- virus software. The teachers also scored low on understanding digital foorprint using social media platforms. A digital footprint is the trail of data you leave behind while online. It includes online photos, posts, and words. It includes passwords, demographic data, online purchases, and IP addresses. Your digital footprint is partly public and partly private (for example, emails, photos, or information). Publicizing one's digital footprint can damage their online reputation. Kardiasmenos (2018) reiterated that teachers and digital leaders in schools must understand the importance of creating a digital footprint and model positive digital footprint behaviors at all times. As a teacher, you need to think carefully about the

impact of your digital footprint on professional perception; it can impact: your online reputation, your real-life reputation, your employment prospects, your admission to school, university or professional associations, your personal and professional, relationships with people in your network, and the reputation of people in your network.

Table 7

Level of Awareness on the Computer Ethics and Security

SKILL	Mean	Descriptive Evaluation
1. Understand personal property and user rights	2.45	Moderately Aware
2. Understand the concept of software piracy and violation of copyright laws	2.46	Moderately Aware
3. Recognize examples of copyright violations, computer fraud and possible penalties	2.27	Moderately Aware
4. Apply common courtesies and acceptable use policies while telecomputing	2.33	Moderately Aware
5. Explain the concept of Security (security threats, security techniques, use of anti- virus software)	2.17	Moderately Aware
6. Recognize and respond to ethical situations and cyber security issues involving computing devices of all forms	2.32	Moderately Aware
7. Recognize the privacy issues associated with computers, such as password, user ID, and access rights	2.37	Moderately Aware
8. Recognize the purpose and value of backing up data, software to a removable storage device	2.33	Moderately Aware
9. Apply fundamental principles of computer security (secure computer, scan for viruses)	2.31	Moderately Aware
10. Understand the importance of digital footprint using different social media platforms	2.26	Moderately Aware
Total	**2.32**	**Moderately Aware**

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Conclusions and Recommendations

Conclusions

Based on the findlings, the following conclusions were derived:

1. The level of competency of teachers in the use of ICT in terms of technology operations and concepts; and pedagogical competencies is "Basic" which indicates that teachers are not yet fully equipped with the use of ICT in teaching.

2. There is a significant difference in the level of competence in the use of ICT in terms of technology operations and concepts and pedagogical competency in terms of age.

3. There is a significant difference in the level of competence competence in the use of ICT in terms of technology operations and concepts and pedagogical competency in terms of years in service.

4. The level of awareness of the respondents in ethics, security, and legal issues associated with using the computers is "Moderately Aware" indicating that they hardly understand the issue even with guidance, and does not observe or implement such .

Recommendations

Based on the conclusions of the study, the following recommendations are:

1. Schools should organize Learning Action Cell sessions among teachers according to their level of ICT competency.

2. Aside from trainings and LACs, teachers should individually uplift themselves professionally to adapt with the growing world of modern technology and pedagogy.

3. Teachers should always try use ICT independently and not to depend on younger colleagues in the accomplishment of tasks related to ICT. Extent of use of ICT affects the competency level of person.

4. Trainings or orientations on ethics, security, and legal issues on ICT shall be provided to the teachers.

Plan for Dissemination and Advocacy

The researcher plans to disseminate its positive results through Learning Action Cell sessions to be done first in her home school. A series of training programs will also be proposed based on the results of the study to schools and the district to cater to the ICT literacy needs of the teachers for a successful teaching- learning process in the new normal.

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Financial Report

A. Supplies and Materials					
Activity	Item Specifications	Unit	Quantity	Cost	Total
Implementation of the study and Preparation of Research Papers, Instructional Materials/Worksheets, and other documents	Catus A4 Bond Paper, 500 pcs, 70gsm	ream	10	225.00	2,250.00
	Expressions A4 Brown Folder Tagboard with fastener	pc	35	18.00	630.00
	EPSON 003 Ink Black 65ml	bottle	10	275.00	2, 750.00
	EPSON 003 Ink Cyan 65ml	bottle	2	300.00	600.00
	EPSON 003 Ink Yellow 65ml	bottle	2	300.00	600.00
	EPSON 003 Ink Magenta 65ml	bottle	2	300.00	600.00
	Sandisk Ultrafit USB 3.0 128gb flashdrive	pc	1	1,126.00	1,126.00
B. Domestic Travel Expenses					
Submission of First Tranche Deliverables with wet signatures (CE,MOA,WFP)	Motorcycle and Van (School- Van terminal-La Trinidad)	two way	1	1,300.00	1,300.00
C. Communication Expenses for the Implementation / Conduct of the Study					
Validation of Instruments / Questionnaire	Load of Validators/ Experts	card	5	310.00	1,550.00
Implementation of the study - Data Gathering /Collection, Preparation and submission of research papers and other documents (District wide)	Regular Load of proponent	card	15	320.00	4,800.00
	Internet Load of proponent	card	10	500.00	5,000.00
D. Other Expenses					
				TOTAL	20,806.00

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