

Level of Computer Literacy of Barangay Officials of Tandaay, Nabua, Camarines Sur: Basis for Community Extension Program

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ABSTRACT

This study aims to determine the level of computer literacy of the barangay officials in Tandaay as the basis for a community extension program. Purposive sampling was used as a sampling technique to determine the respondents. With that, a total of 37 elected and appointed barangay officials comprised the study respondents. This study is a descriptive-correlational research that made use of a checklist questionnaire to gather the data. The frequency and percent distribution, weighted mean, order ranking method, and chi-square test of independence were used to interpret the collected data. The findings revealed that the elected and appointed barangay officials are "Somewhat Unaware" in terms of computer navigation skills and online communication skills. For Microsoft Office skills and computer troubleshooting skills, the respondents are found to be "Unaware". For the factors affecting the respondents' level of computer literacy, the result revealed that the respondents "Agree" that the indicators in computer navigation skills, Microsoft Office skills, online communication skills and computer troubleshooting skills affect their computer literacy, especially their willingness to learn and use the computer. Moreover, there is a significant difference between the respondent's profile and their level of awareness in computer literacy. As an output, the researchers proposed an intervention plan to improve the computer literacy of the respondents. This intervention plan

is a basic computer learning workshop designed and aligned based on the results of the survey.

Keywords

Barangay Officials
Community Extension
Computer Literacy
Information Technology

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Introduction

With the advent of globalization, information technology has become more pervasive. It becomes less of a choice and more of a need, to be aware of the importance of computers and adaptability to the digital world. To enable people to accomplish more in an efficient and productive work environment. The study by Ref. [1] stated that the use of information and communication technology (ICT) to improve governance, particularly in the barangay, by enhancing the government's role in service delivery, public administration, and the promotion of participatory democracy is gaining popularity all over the world. The vast majority of jobs these days involve a level of computer use. When the global pandemic strikes in the year 2020, it increased the distance between work, activities, and operations for organizations. Computer skills have become a valuable asset in the professional setting. However, in the new era of technology, some employees, usually the elderly, find it hard to operate tools and use basic computer operations, Microsoft Office, Internet connectivity, online applications, and computer troubleshooting. With these, organizations that fail to adapt in a timely and coordinated manner will struggle to thrive or survive.

Computer literacy is the ability of a person to understand how computers operate and to use their various programs [2]. Ref. [3] also states that a computer-literate individual can use a computer for communication, research, entertainment, and work. Computer skills are vital nowadays, especially for Barangay Tandaay officials to keep up with the increasing use of technology in the workplace and to deal with the problems related to their functions. For them to be productive in these modern times, they must provide excellent public service, livelihood sources, and a better living to the people through new advancements. Thus, it may contribute to and bring social and economic changes in the community.

Barangay Tandaay consists of seven zones and is one of the barangays included in the Municipality of Nabua. It is headed by their Barangay Chairman together with the Barangay Kagawad, Sangguniang Kabataan (SK), Secretary, Treasurer, Tanod, Barangay Health Workers (BHW), Lupon members, and the Alternative Learning System (ALS) personnel. As mentioned

by the Barangay Secretary during a pre-interview, its total population as of the year 2023 is 1,904 with 934 females and 970 males. Moreover, the Barangay Hall of Tandaay is equipped with various technologies, namely One computer set, One laptop, and Two printers, that the officials can use in their work. However, it is also stated by some barangay officials and employees of Tandaay, that the Secretary and SK are the only ones who use and have knowledge of using those gadgets, while the rest of the barangay officials use a logbook, for recording the barangay-related data.

This study is anchored on Republic Act No. 7160, or the Local Government Code of 1991, as its legal basis [4]. The Code mentioned that the Local Government Units (LGUs) must achieve full development as self-reliant communities and become more effective partners in achieving national goals. Also, the barangay officials are responsible for duties such as preparing the barangay's annual executive and supplemental budgets and all documents in line with the Commission on Elections (COMELEC). Thus, the barangay officials must have computer skills to efficiently carry out their obligations.

In addition, another legal basis of this study is the Commission on Higher Education (CHED) Memorandum Order No.52, series of 2016. It is stated therein that Higher Education Institutions (HEIs) must contribute to extension programs that will aid in social and economic growth [5]. The extension programs should help discover practical, evidence-based, and science-based solutions to real-world challenges faced by partner citizens and communities of the institutions. The Camarines Sur Polytechnic Colleges (CSPC) is one of the HEIs that places a high value on helping their partner communities by providing community extension programs. Some community extension services they offered, particularly the Bachelor of Science in Office Administration (BSOA), are records management, stenography, and computer literacy.

The felt need of this study is to help the Barangay Tandaay officials become computer literate since most of them are unable to use computers, yet most of the transactions are now computerized. For instance, sometimes they traditionally disseminate information, notably using a megaphone. The fact that Barangay Tandaay is about a 20-minute drive from the town proper of the Municipality of Nabua can be the reason why most of the barangay officials are not familiar with using computers. Barangay officials must be computer literate since it is an advantage as it enables them to work effectively, efficiently, productively, and in a modern way. More so, this Barangay was chosen as the only respondent of this study due to the observation of one of the researchers, who is a resident of the said barangay, which helped to come up with this study.

This study seeks to determine the level of computer literacy of Barangay Officials of Tandaay, Nabua, Camarines Sur. The researchers examined the factors relative to the extent of the Barangay Officials' computer literacy, which focuses on their computer navigation skills, Microsoft Office skills, online communication skills, and computer troubleshooting skills. In addition, the results of this study served as a basis for the researchers' proposed community extension program to further improve the respondents' level of awareness in computer literacy.

Theoretical Framework

As shown in Figure 1, this study is based on Jean Piaget's cognitive learning theory. It is a theory that describes how the mind of a learner absorbs, organizes, stores, and retrieves information [6]. Moreover, Ref. [7] defines cognitive learning theory as having three key components: comprehension, memory, and application. This theoretical framework shows how barangay officials will develop information through cognitive learning. The first component is comprehension. It states that to make cognitive learning effective and beneficial, the learners must know the purpose and be certain of the reasons why they want or need to learn. In relation to the study, the Barangay Officials of Tandaay must first understand the reason why they need to acquire new computer knowledge. Understanding the benefits of learning how to use the computer will motivate them to do so.

The second component is memory, which states that having a deep understanding of the subject enables the learners to relate new knowledge to the previous information and experiences they have. The respondents may acquire new knowledge by participating in basic computer learning workshops, where they will learn how to use the various features of the computer. Cognitive learning discourages cramming, as it makes the learning process ineffective. Therefore, it is important to explain every topic clearly for the respondents to absorb it completely. After the learning process, the acquired knowledge will be related to the respondents' past knowledge to further improve their skills.

The third component is the application of previous and new information. The learners will now apply the new skills and information they have learned to real-life situations. This component also assists learners in improving their problem-solving abilities. In relation, Barangay Officials can gain knowledge by applying what they know about computers in their work. There is a high chance that they will keep that information if they continuously apply it in their work, which will help them do their jobs more effectively.

Given that context, when cognitive learning is applied in this study, the Barangay Officials can learn to use the computer in all aspects. The researchers perceive that through basic computer learning workshops, the respondents will acquire new information to improve

their computer skills. Then, by applying their past and new computer knowledge, they will learn how to use computers effectively. Thus, the respondents will be more productive and accomplish their tasks faster.

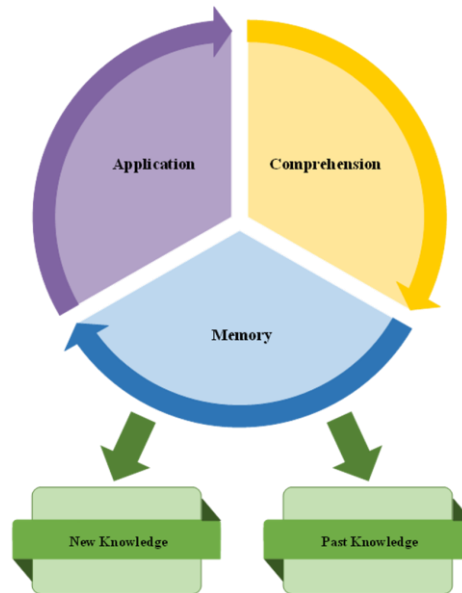


Figure 1. Theoretical Paradigm

This study aims to determine the level of computer literacy of Barangay Officials of Tandaay, Nabua, Camarines Sur as a basis for its Community Extension Program. Specifically, this study aimed to provide answers to the following objectives:

1. know the profile of the respondents in terms of Personal, Professional, and Employment,
2. determine the level of awareness in computer literacy of Barangay Officials in Tandaay in terms of Computer Navigation Skills, Microsoft Office Skills, Online Communication Skills, and Computer Troubleshooting Skills,
3. identify the factors affecting the level of awareness in computer literacy of the Barangay Officials in Tandaay in terms of Computer Navigation Skills, Microsoft Office Skills, Online Communication Skills, and Computer Troubleshooting Skills,
4. know the significant relationship between the profile of the respondents and their level of awareness in computer literacy, and
5. propose an intervention plan to improve the computer literacy of Barangay Officials of Tandaay, Nabua, Camarines Sur.

Methodology

A. Locale of the Study

This study was conducted at Barangay Tandaay, Nabua, Camarines Sur, Philippines. It has a total population of 1,904 as of the 2023 profiling. The Barangay consists of seven zones where there are 235 in Zone 1, 364 in Zone 2, 180 in Zone 3, 265 in Zone 4, 266 in Zone 5, 349 in Zone 6, and 245 in Zone 7.

B. Research Design

This study determined the level of computer literacy among the Barangay Officials of Tandaay, Nabua, Camarines Sur. This is a Quantitative Type of research, specifically adopting the Descriptive-Correlational Research Design. Descriptive-Correlational Research makes use of two research designs, which are Descriptive and Correlational. It is a non-experimental research design that examines the relationship between two variables. According to Ref. [8] and Ref. [9], the goal of Descriptive-Correlational is to describe the relationship between the two variables and their relationships. Aside from identifying the level of awareness of the Barangay Officials' computer literacy, this study also examined the relationship between the respondents' profiles and their level of awareness in computer literacy. As this research design suggests, the researchers did not alter and manipulate any variables.

C. Respondents

The respondents to this study were the 37 elected and appointed Barangay Officials at Tandaay. This includes the Barangay Chairman, Barangay Kagawads, Barangay Secretary, Barangay Treasurer, Barangay Health Workers (BHW), Barangay Tanod, Sangguniang Kabataan (SK), Lupon members, and Alternative Learning System (ALS) personnel of Barangay Tandaay, Nabua, Camarines Sur. The researchers believed that these people had enough knowledge of the subject to complete the research. Moreover, a purposive sampling technique was used to identify the participants of this study, where only Barangay Officials who are working in the office and are entitled to use the computer were the respondents. Their participation was vital for the success of this research.

D. Research Instrument

The primary research instrument of this study is a questionnaire checklist. The researchers developed the questions in the questionnaire by deriving them from the objective of the study, which is used to gather the needed data. The questionnaire consists of five sections. The first section includes the consent form, which states that the information obtained from this study is confidential, secured, and solely for research purposes. The second part is the respondents' demographic profile, including personal, professional, and employment information. The third and fourth sections contain the questions that were useful in solving the problem and achieving

the purpose of this study. The last part of the survey is the respondents' recommendations that will help them improve their computer literacy, which is also the basis for the community extension program.

E. Data Gathering Procedure

First, the researchers prepared a Consent Letter to the Barangay Captain of Tandaay to get approval to conduct a study on him in his capacity as Barangay Captain and the other Barangay Officials. Second, the validated questionnaire was distributed to all Barangay Officials after the Consent Letter was approved. The respondents took 10 to 20 minutes to answer the survey questionnaire. After gathering the data, statistical analysis began, followed by Interpretation, Conclusion, and Recommendations.

F. Statistical Treatment of Data Gathered

The following statistical measures were used for the treatment of the data gathered:

1. Frequency and Percent Distribution. These statistical tools helped categorize the Barangay Officials of Tandaay based on their personal, professional, and employment profiles. The percentage also presents the actual response of the respondents to the research's specific questions.
2. Weighted Mean. This statistical measure was used to calculate the average of the responses in sections three and four of the survey questionnaire.
3. Likert Scale. This was utilized in qualifying and interpreting the weighted mean for each indicator in sections three and four of the survey questionnaire.

Table 1 shows the Likert scale to interpret the data gathered in the respondents' level of awareness in computer literacy verbally.

Table 1. Scale Interpretation for the level of awareness

Scale	Range	Verbal Interpretation
4	3.25 – 4.00	Aware
3	2.50 – 3.24	Somewhat Aware
2	1.75 – 2.49	Somewhat Unaware
1	1.00 – 1.74	Unaware

Table 2 shows the Likert scale to interpret the gathered data on the factors affecting the respondents' level of awareness in computer literacy verbally.

Table 2. Scale Interpretation for factors affecting the respondent

Scale	Range	Level of awareness
4	3.25 – 4.00	Strongly Agree
3	2.50 – 3.24	Agree
2	1.75 – 2.49	Disagree
1	1.00 – 1.74	Strongly Disagree

4. Order Ranking Method. This statistical method was used to rank respondents' profiles, their preferred recommendations, and the given indicators based on their responses.
5. Chi-Square Test of Independence. This was used to test the significant relationship between the profile of the respondents and their level of awareness in computer literacy.

Results and Discussion

A. The Profile of Barangay Officials in Tandaay.

1. Respondents' profile.

In terms of Age, out of 37 Barangay Officials, 27.03% are aged 50 to 59 years old, 21.62% are aged 60 to 69 years old, 16.22% are aged 70 to 79 years old, 13.51% are aged 20 to 29 years old, the same percentage value is identified for respondents aged 40 to 49 years old, and the remaining 8.11% are for respondents aged 30 to 39 years old. In terms of Sex, 54.05% are male, while the remaining 45.95% are female. In terms of Civil Status, 59.46% of the respondents are married, 27.03% are single, and 13.51% are widowed.

2. Respondents' professional profile.

In terms of Educational Attainment, 40.54% are high school graduates, 37.84% are college graduates, 13.51% are vocational graduates, and the remaining 8.11% are elementary graduates. In terms of Eligibility, 64.90% of the respondents have no eligibility, 21.60% have Barangay Official Eligibility (BOE), 10.80% have Barangay Health Workers Eligibility (BHWE), and 2.70% have a Professional Regulation Commission (PRC) License. In terms of the Number of Training Attended by the respondents, 83.78% have none, 8.11% have one, 5.41% have two, and the remaining 2.70% have three.

3. Respondents' employment profile.

In terms of the Position, 2.70% are Barangay Chairman, and the same percentage value was identified in the position of SK Chairman, Barangay Secretary, Treasurer, and ALS personnel. Moreover, 18.90% are composed of Barangay Kagawad, and the same percentage value is also found in the position of Barangay Tanod. 10.80% of the respondents are the SK Kagawad, and the same percentage value is also identified in the position of Barangay Health Workers, and the remaining 27.10% are the Lupon members. In terms of the Length of Service, 32.43% of the respondents served for 1 to 4 years, 21.62% served for 5 to 8 years, and the remaining 45.95% served for 9 to 12 years. In terms of Monthly Income, 70.30% have a monthly income of ₱1,501.00 to ₱4,000.00, 21.60% have ₱9,001.00 ₱11,500.00, and 2.70% have ₱4,001.00 to ₱6,500.00, ₱6,501.00 to ₱9,000.00, and ₱11,501.00 to ₱14,000.00

B. The Level of Awareness in Computer Literacy of Barangay Officials in Tandaay.

1. Computer Navigation Skills.

This study shows that the respondents' level of awareness in computer navigation is only "Somewhat Unaware". They have relatively limited awareness of navigating computers, including their different features and applications. This was supported by the research of Ref. [10] who discovered that the majority of village authorities in Purbalingga, Indonesia, were 50 years old or older, had a high school education, and had a low basic computer literacy level, which includes turning off and on the computer and managing files and folders. This implies that barangay officials, particularly the adults and who do not have a college diploma, can only use the most basic computer features. They utilized computers multiple times but in the same usage patterns, which is why their skills are limited. Even though they can navigate computers, they are not proficient in using them and still need improvement to make use of their computer skills effectively and efficiently in their tasks. See Table 3 for the respondents' level of awareness in computer literacy in computer navigation skills.

Table 3. Respondents' Level of Awareness in Computer Literacy in Computer Navigation Skills

Indicators	Weighted Mean	Verbal Interpretation
Boot and navigate computers.	2.03	Somewhat Unaware
Edit, save, and share files on a computer.	1.92	Somewhat Unaware
Open applications in the Start Menu.	2.08	Somewhat Unaware
Identify and use a particular computer function required to complete a specific task.	1.84	Somewhat Unaware
Recover the deleted files on a computer.	1.78	Somewhat Unaware
Compress and extract files using	1.76	Somewhat Unaware
Average Weighted Mean	1.90	Somewhat Unaware

2. Microsoft Office Skills.

It shows that Barangay Officials' awareness of Microsoft Office is low or they are "Unaware". It means that the respondents are unfamiliar with using fundamental Microsoft Office applications to prepare important documents needed, such as reports, presentations, budgetary records, and other necessary files for the barangay. This is further supported by the research of Ref. [10], who also stated that the level of computer utilization in Purbalingga village officials, particularly in using Microsoft Word and Excel for work, is "Poor". Furthermore, the result was contradicted by the study by Ref. [11] who mentioned that government personnel and officials are skilled in utilizing processing and spreadsheets. Therefore, these two studies' results suggest that even though Microsoft Office software is used in the workplace by the Barangay Officials, it does not guarantee

that the officials will be literate enough when it comes to using them to prepare documents and reports. Some Barangay Officials just use common and basic features, which might enhance or limit their abilities. See Table 4 for the respondents' level of awareness in computer literacy in microsoft office skills indicators weighted mean verbal interpretation.

Table 4. Respondents' Level of Awareness in Computer Literacy in Microsoft Office Skills Indicators Weighted Mean Verbal Interpretation

Indicators	Weighted Mean	Verbal Interpretation
Use basic formatting and features in MS Word, MS PowerPoint, and MS Excel.	1.89	Somewhat Unaware
Use MS Word's advanced features.	1.70	Unaware
Create presentations with animations, transitions and customized templates in MS PowerPoint.	1.57	Unaware
Use MS Excel to perform various accounting tasks and record keeping.	1.70	Unaware
Identify the different file extensions and types in MS Word, MS PowerPoint, and MS Excel.	1.89	Somewhat Unaware
Convert one MS file type to another.	1.70	Somewhat Unaware
Average Weighted Mean	1.74	Unaware

3. Online Communication Skills.

It reveals that in terms of online communication skills, the Barangay Officials are only "Somewhat Unaware" of using the Internet and various browsers and online applications through a computer. This result is supported by Ref. [12] who mentioned that BHWs in Davao City do not have knowledge of computers which is why they disseminate information through text messages or verbally. Also, the research by Ref. [13] found that the level of online public services of village officials of Kelurahan Ciwaringin Bogor before the website management training is not good enough. It means that not all village officers can implement and use e-Government websites web-based applications to serve their constituents. This supports the table above since only a few barangay officials utilized computers to do tasks regarding online communication (e.g., email). However, this was contradicted by Ref. [11] and Ref. [14], who stated that government officials and staff were skilled in telecommunications and using the Internet, particularly in searching, summarizing, downloading, analyzing, and using data. These results suggest that Barangay Officials' awareness towards online communication varies. Therefore, encouraging them to join online communication workshops and utilizing computers in their work will help them to improve their skills. See Table 5 for the respondents' level of awareness in computer literacy in online communication skills.

Table 5. Respondents' Level of Awareness in Computer Literacy in Online Communication Skills

Indicators	Weighted Mean	Verbal Interpretation
Operate different browsers	1.89	Somewhat Unaware
Upload and download files from the Internet and share and gather information.	1.95	Somewhat Unaware
Use different webmail providers and their features.	1.73	Unaware
Operate video conferencing applications to attend seminars and meetings.	1.78	Somewhat Unaware
Identify and manage website pop-ups.	1.62	Unaware
Add and manage extensions in browsers.	1.73	Unaware
Average Weighted Mean	1.78	Somewhat Unaware

4. Computer Troubleshooting Skills.

This study also reveals that for computer troubleshooting skills, the Barangay Officials of Tandaay are “Unaware.” They have limited awareness of how to troubleshoot a computer and other devices attached to it including a printer, modem, and flash drive. The result was supported by the study of Ref. [10] that the village officials in Purbalingga have level two or low technical knowledge of the operating system and printing documents. In addition, the results show that the village officials' basic computer abilities and computer usage are at level two as well. However, Ref. [11] discovered that government officials and employees are skilled in computer database networking, set up maintenance, and troubleshooting while being highly skilled to skilled in Computer Operations Skills, Word Processing, Spreadsheets, and Telecommunications. With these studies, this could suggest that troubleshooting a computer is already quite an advanced skill for an individual. To troubleshoot a computer, Barangay Officials must first have a basic grasp of computer operation, especially with the new computer inventions, or be literate in other computer skills (e.g., navigating a computer and its applications). See Table 6 for the respondents' level of awareness in computer literacy in computer troubleshooting skills.

The overall results indicate that the computer literacy of Barangay Officials of Tandaay in all aspects is “Low” and needs to be improved, as these abilities are essential for their jobs. The results of the study conducted by Ref. [11] contradict the data presented in the table below. According to her results, the government employees and officials in the municipality of Calinog, Iloilo, Philippines are skilled in using various functions in computers, including computer operations, set-up maintenance and troubleshooting, word processing, spreadsheet, and telecommunications.

Table 6. Respondents' Level of Awareness in Computer Literacy in Computer Troubleshooting Skills

Indicators	Weighted Mean	Verbal Interpretation
Use a computer output and input devices and icons.	1.84	Somewhat Unaware
Repair simple to complicated computer and gadget problems.	1.57	Unaware
Install, set up, and upgrade a software program or application on the computer.	1.59	Unaware
Reboot the operating system safely.	1.62	Unaware
Scan and remove viruses in the computer and any other devices attached to it.	1.59	Unaware
Connect computers to other devices and equipment.	1.84	Somewhat Unaware
Average Weighted Mean	1.68	Unaware

This could imply that the respondents in her study often utilize computers in their work, which helps them practice their skills and be aware of the various functions of computers. See Table 7 for the overall respondents' level of awareness in computer literacy.

Table 7. The Overall Respondents' Level of Awareness in Computer Literacy

Variables	Average Weighted Mean	Verbal Interpretation	Rank
Computer Navigation Skills	1.90	Somewhat Unaware	1
Microsoft Office Skills	1.74	Unaware	3
Online Communication Skills	1.78	Somewhat Unaware	2
Computer Troubleshooting Skills	1.68	Unaware	4

C. The Factors that Affect the Level of Awareness in Computer Literacy of Barangay Officials in Tandaay.

1. Computer Navigation Skills.

The respondents "Agree" that the indicators in the table affect their level of awareness in computer literacy in terms of Computer Navigation Skills. Particularly their willingness to learn and the frequent usage of computers in the Barangay Hall. See Table 8 for the factors that affect the respondents' level of awareness in computer literacy in computer navigation skills.

This result is supported by Ref. [15] who stated that the lack of computer facilities hinders the improvement of the computer skills of the LGU employees in Opol, Misamis Oriental. This was confirmed by Ref. [16] who claim that the frequent use of computers improves the respondents' computer skills. The result of this study and the previous studies shows that the factors indicated in the table not only proved to affect the computer literacy of the Barangay Officials in Tandaay but also some Barangay Officials' literacy from other locations as well. Microsoft Office Skills. The respondents "Agree" that the listed

indicators affect their level of awareness of computer literacy in Microsoft Office Skills, such as the familiarity with advanced MS Word and MS Presentation features and the preferability to use manual calculations rather than MS Excel in accomplishing accounting tasks.

Table 8. The Factors that Affect the Respondents' Level of Awareness in Computer Literacy in Computer Navigation Skills

Indicators	Weighted Mean	Verbal Interpretation
Personal knowledge or experience with computers and different gadgets connected to the computer.	2.97	Agree
Lack of computers or laptops in the workplace.	2.92	Agree
Frequent usage of computers in the barangay hall to do tasks.	3.19	Agree
Easy access to online tutorials, training, and seminars on using different computer features and applications.	3.16	Agree
Willingness and interest to learn and use computers when performing tasks in barangay.	3.27	Strongly Agree
Moral and financial support from LGU for continual computer literacy skills improvement.	3.16	Agree
Average Weighted Mean	3.11	Agree

This result is supported by Ref. [17] who state that familiarity with Microsoft Office and seldom usage of Excel affect the respondents' computer literacy. This research also reveals that the limited knowledge of barangay officials on how to use a computer, particularly in MS Excel, MS PowerPoint, and an advanced level in MS Word, affects the transactions in the barangay halls in a way that will slow them down. These results suggest that limited knowledge of Microsoft Office software, particularly MS Excel is seen as the most common factor that affects the respondents' computer literacy.

Table 9 shows the factors that affect the respondents' level of awareness in computer literacy in Microsoft Office skills.

Table 9. The Factors that Affect the Respondents' Level of Awareness in Computer Literacy in Microsoft Office Skills

Indicators	Weighted Mean	Verbal Interpretation
Lack of familiarity with the basic formatting and features of MS Office software.	2.76	Agree
Lack of knowledge of the advanced MS Word features.	2.73	Agree
Familiar with advanced features of MS PowerPoint.	2.81	Agree
Preferability to use manual calculation over MS Excel for accounting tasks.	2.97	Agree
Using outdated versions of MS Office software.	2.95	Agree
Lack of Microsoft Office subscription.	3.19	Agree
Average Weighted Mean	2.90	Agree

2. Online Communication Skills

The respondents “Agree” that the listed indicators affect their level of awareness in computer literacy in terms of online communication skills. Particularly the availability of different browser extensions and easy access to all features of online applications. This result was contradicted by Ref. [17] and Ref. [18], who state that the major constraints that affect the communication skills of the respondents are the lack of and slow internet connectivity. The results of this study and past studies vary because the latter focus on factors related to electricity and internet connectivity, while the former focuses on online applications. Table 10 shows the factors that affect the respondents’ level of awareness in computer literacy in online communication skills.

Table 10. The Factors that Affect the Respondents’ Level of Awareness in Computer Literacy in Online Communication Skills

Indicators	Weighted Mean	Verbal Interpretation
Familiar with only 1 browser.	2.95	Agree
Anxiety in using online applications.	2.92	Agree
Availability of webmail providers and video conferencing applications.	2.86	Agree
Easy access to all features of online applications, including premium features.	3.14	Agree
Easily scared by website pop-ups.	2.86	Agree
Availability of different browser extensions.	3.03	Agree
Average Weighted Mean	2.96	Agree

3. Computer Troubleshooting Skills

The respondents “Agree” that the indicators affect their level of awareness in computer literacy in terms of computer troubleshooting, especially the misconception that computers are hard to repair and the availability of anti-virus software. This result is supported by Ref. [19] who states that the lack of familiarity with computer problems is one of the factors that affect the computer literacy and productivity of the respondents because errors and computer malfunctions disrupt the work.

The overall results revealed that the respondents “Agree” that the indicators affect their level of awareness in computer literacy in terms of computer navigation, Microsoft Office, online communication, and computer troubleshooting skills. This result was supported by Ref. [12] and Ref. [15] who revealed factors like lack of computer facilities and communication technology affect respondents’ computer literacy. Also, Ref. [16] and Ref. [20] assert that frequent and continuous use of computers is a push factor that affects the respondents’ computer literacy. These factors can be the focus of improvement to enhance the level of computer literacy of the respondents.

Table 11. The Factors that Affect the Respondents' Level of Awareness in Computer Literacy in Computer Troubleshooting Skills

Indicators	Weighted Mean	Verbal Interpretation
Familiar with basic computer applications and functions of basic computer hardware and software.	2.84	Agree
The computer is outdated, lagging, freezing, overheating, or not turning on.	2.86	Agree
The input or output devices are not properly working.	2.84	Agree
Familiar with common computer problems.	2.86	Agree
The computer has antivirus installed software.	3.03	Agree
Misconception that computer systems and other gadgets are hard to repair.	3.08	Agree
Average Weighted Mean	2.92	Agree

Table 12 shows the overall factors that affect the respondents' level of awareness in computer literacy

Table 12. The Overall Factors that Affect the Respondents' Level of Awareness in Computer Literacy

Variables	Average Weighted Mean	Verbal Interpretation	Rank
Computer Navigation Skills	3.11	Agree	1
Microsoft Office Skills	2.90	Agree	4
Online Communication Skills	2.96	Agree	2
Computer Troubleshooting Skills	2.92	Agree	3

The Significant Relationship between the Respondents' Profile and Level of Awareness in Computer Literacy The result of the study revealed that the computed values are greater than their corresponding critical value, which leads to the rejection of the null hypothesis and is deemed "Significant." This implies that there is a significant relationship between the profile of the respondents and their level of computer literacy in terms of computer navigation skills, Microsoft Office skills, online communication skills, and computer troubleshooting Skills.

Table 13 shows the significant relationship between the respondents' profile and level of awareness of computer literacy.

D. Intervention Plan to Improve the Level of Computer Literacy of Barangay Officials of Tandaay, Nabua, Camarines Sur

From the results presented above, the researchers proposed an intervention plan for a basic computer learning workshop in the form of a community extension program. This program will assist the Barangay Officials to improve their computer literacy. The enhancement of the respondents' knowledge and skills in using computers would also benefit

the Local Government Unit (LGU) of Barangay Tandaay and their constituents as it will increase the Barangay Officials' efficiency and productivity in delivering public service to their whole community.

Table 13. The Significant Relationship between the Respondents' Profile and Level of Awareness in Computer Literacy

Profile	Computed Value				Critical Value	Decision	Interpretation
	Comp. Nav.	MS Office	Online Com.	Comp. T.S.			
Age	157.30	33.41	157.77	136.80	25.00	Reject Ho	Significant
Sex	49.42	52.60	45.33	73.44	7.82	Reject Ho	Significant
Civil Status	30.78	42.65	46.31	49.62	12.59	Reject Ho	Significant
Educational Attainment	93.49	107.73	94.18	86.89	16.92	Reject Ho	Significant
Eligibility	49.06	62.44	55.34	45.90	16.92	Reject Ho	Significant
Number of Trainings Attended	73.74	87.89	80.86	73.55	16.92	Reject Ho	Significant
Position	215.16	246.63	252.47	229.35	40.11	Reject Ho	Significant
Length of Service	32.26	51.52	33.72	36.33	12.59	Reject Ho	Significant
Monthly Income	32.34	24.20	31.27	31.72	21.03	Reject Ho	Significant

Furthermore, this will lead to the modernization of transactions and operations in Barangay Tandaay, which can bring a faster, more convenient and organized administration. The allotted budgetary requirement for this workshop is ₱32,500.00 which will be sourced from the barangay fund. The resources needed for the program are sounds, tables, chairs, projectors, screen projectors, laptops, foods and certificates. Also, the CSPC must provide school bus for the transportation of the persons involved in the community extension program.

Table 14. Intervention Plan Matrix

Specific topics		Objectives		Programs / Project Actions	Time Table	Expected Output
Computer Navigation						
1.	Booting and configuring the computer	1.	To be familiar with the various buttons and basic computer features. Together with its corresponding functions.	Basic computer learning workshop (hands-on) in Computer Navigation	Day 1	The barangay officials of Tandaay must be able to boot and navigate computers easily.
2.	Navigating computer	3.	To be familiar with the computer software and its functions.			
Computer Troubleshooting						
1.	Connecting the computer to other devices and equipment	1.	To be knowledgeable of various devices that are connected to the computer, as well as those functions.	Basic computer learning workshop (hands-on) in Computer Troubleshooting	Days 2 & 3	The barangay officials of Tandaay must be able to connect computers to output and input devices . Also, they are expected to fix the common computer problems.
2.	Repairing simple problems in computers and other gadgets connected to it.	2.	To be knowledgeable with fundamental computer troubleshooting ways to fix common computer problems.			
Microsoft Office						
1.	Identifying the MS Word and Excel application's interface	1.	To become familiar with the most important features of MS Word and Excel that are commonly used in every document.	Basic computer learning workshop	Days 4 & 5	The barangay officials of Tandaay must have a basic knowledge of MS

Specific topics	Objectives	Programs / Project Actions	Time Table	Expected Output
2. Basic MS Word Formatting	2. To be knowledgeable with the various formatting in MS Word to create a document that is easier to understand, organized, and in a more professional appearance.	(hands-on) in Microsoft Office		Word and Excel interface, as well as be able to perform MS Word basic formatting and MS Excel formulas.
3. Basic MS Excel Formulas	3. To learn the different MS Excel formulas to perform computerized calculations of many data.			
Online Communication				
1. Familiarizing different types of browsers and search engines	1. To become familiar with the basics of using the World Wide Web.	Basic computer learning workshop (hands-on) in Online Communication	Day 6	The barangay officials of Tandaay must gain insights on the various types of browsers and search engines and how they are utilized. Also, respondents must be able to effortlessly upload and download files from the Internet.
2. Uploading and downloading files on the Internet	2. To learn how to upload and download files from the Internet.			
Person Involved: Dr. Maria Joy Iglesia (Dean of CTHBM); Mrs. Syrell M. Hallare (Program Chair of BSOA); Speaker or trainer from CTHBM – CSPC; Volunteered BSOA students; Ms. Maria Letecia C. Barela (Extension Coordinator)				

Conclusion and Recommendations

This study revealed that the majority of respondents are appointed Barangay Officials, male, 50 years old and younger, married, have a monthly income of less than ₱4,000.00, have no eligibility, and have not attended any computer related training. While, almost half of them are high school graduates and have served for more than 9 years in the barangay. The result also shows that the Barangay Officials of Tandaay have a low level of computer literacy. They have little to no awareness of navigating a computer and using Microsoft Office, the Internet and online applications, and troubleshooting a computer, all of which are essential skills in today's digital age. Moreover, the respondents "Agree" that the indicators listed in the factors, affect their overall level of awareness in computer literacy. Lastly, the result shows that there is a significant relationship between the respondents' profile and their overall level of awareness in computer literacy. To help the Barangay Officials of Tandaay to be more aware and skilled in using computers in all aspects, this study recommends they must undergo computer workshops. Since the results indicate that they are not aware enough, they could begin by attending training concentrating on understanding the fundamental use of computers like how to navigate them, which is also vital for mastering other computer skills. After the training, it is recommended that the Barangay Tandaay officials practice and implement what they have learned to retain and improve their skills over time.

Conflict of Interest

The authors declare that there is no conflict of interest.

Level of Computer Literacy of Barangay Officials of Tandaay, Nabua, Camarines Sur: Basis for Community Extension Program (Nodado et al.)

References

- [1] Carpio, C. O. (2020). Barangay Management System. *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, 3(2), 26-32. <http://ijmrapp.com/wp-content/uploads/2020/07/IJMRA-P-V3N1P78Y20.pdf>
- [2] Singh, A. (2022). *Computer Literacy*. LinkedIn. <https://www.linkedin.com/pulse/computer-literacy-anus-hka-singh/>
- [3] Pitman Training Kenya. (2023). *Why You Need to Become Computer Literate (And How To Do It)*. LinkedIn. <https://www.linkedin.com/pulse/why-you-need-become-computer-literate-how-do-pitman-training-kenya/>
- [4] Republic Act No. 7160. (1991). *An Act Providing for a Local Government Code of 1991*. Official Gazette. <https://www.officialgazette.gov.ph/1991/10/10/republic-act-no-7160/>
- [5] Commission on Higher Education. (2016). *CHED Memorandum Order No. 52, series of 2016*. <http://archive.ovcrd.upd.edu.ph/wp-content/uploads/2016/10/CMO-52-s.-2016.pdf>
- [6] Main, P. (2022). *Cognitivism Learning Theories: A teachers guide*. *Structural Learning*. <https://www.structural-learning.com/post/cognitivism-learning-theories>
- [7] Valamis. (2023). *Cognitive learning*. Valamis. <https://www.valamis.com/hub/cognitive-learning>
- [8] IvyPanda. (2023). *Descriptive Correlational Design in Research*. <https://ivypanda.com/essays/descriptive-statistics-and-correlational-design/>
- [9] Bhat, A. (2023). *Descriptive Correlational: Descriptive vs Correlational Research*. QuestionPro. <https://www.questionpro.com/blog/descriptive-research-vs-correlational-research/#:~:text=Descriptive%20correlational%20research%20is%20a,claims%20about%20cause%20and%20effect>
- [10] Waluyo, R., Gunawan, F.E., & Setiawan, I. (2022). The Measurement of Information and Communication Technology Literacy: A Case Study of the Village Officials in Purbalingga. *CommIT (Communication and Information Technology) Journal*, 16(1), 19-25. <https://doi.org/10.21512/commit.v16i1.7118>
- [11] Lagon, R. M. C. P. (2019). Computer Literacy and Job Performance of Government Employees and Officials in the Municipality of Calinog. *Int. J. of Adv. Res.*, 7(8), 247-257. <http://dx.doi.org/10.21474/IJAR01/9497>
- [12] Gallegos, I. N., Comidoy, M. D., Cabal, M. S., Acol, P. M., & Polistico, A. (2023). Communication Needs of Barangay Health Workers Situated at the City Landfill of Davao, Philippines, in Delivering Health Care Services. *Journal of Development Communication*, 34(1), 1-5. <https://jdc.journals.unisel.edu.my/index.php/jdc/article/view/243/174>
- [13] Sadih, H. T. & Ishlah, M. S. N. (2020). Website Management Training and ICT Literacy Evaluation of Kelurahan Ciwaringin Bogor Authorities. *International Journal of Quantitative Research and Modeling*, 1(2), 67-75. <https://doi.org/10.46336/ijqrm.v1i2.26>
- [14] Grgurevic, D., Sosko, G. B., Buntak, K., & Kurti, F. (2022). Digital Literacy of Local Government Employees as a Necessary Factor in the Implementation and Development of Sustainable Mobility Projects: Case of Croatia. *International Journal for Quality Research*, 16(2), 495-514. <https://doi.org/10.24874/IJQR16.02-11>
- [15] Roble, D. B., Laniton, J. M., & Dagaraga, L. M. B. (2021). Challenges & Way Forward of the Computer Literacy Training Program for Local Government Employees in Opol, Misamis Oriental, Philippines. *Sci. Int. (Lahore)*, 33(5), 415-418. https://www.researchgate.net/publication/355901835_Challenges_Way_Forward_of_the_Computer_Literacy_Training_Program_for_Local_Government_Employees_in_Opol_Misamis_Oriental_Philippines
- [16] König, R., & Seifert, A. (2022). Digitally Savvy at the Home Office: Computer Skills of Older Workers During the COVID-19 Pandemic Across Europe. *Front. Sociol.*, 7. <https://doi.org/10.3389/fsoc.2022.858052>
- [17] Libo-on, J. T., Penuela, V. L., Anayan, N. Q., & Rafol, M. R. (2021). Barangay Officials and Employees' Personal Computer Operation Competency: A Baseline Study. *International Journal of Advance Study and Research Work*, 4(1), 2581-5997. https://issuu.com/ijasrwedior/docs/barangay_officials_and_employees_personal_computer
- [18] Santiago Jr., C. S., Ulanday, M. L. P., Centeno, Z. J. R., & Bayla, M. C. D. (2021). Access, Skills and Constraints of Barangay Officials towards the Use of Information and Communications Technology (ICT). *International Journal of Knowledge Content Development & Technology*, 11(2), 37-54. <https://doi.org/10.5865/IJKCT.2021.11.2.037publication>

- [19] De Guzman, S. S. (2018). Computer literacy of public servants. Philstar Global.
<https://www.philstar.com/opinion/2018/11/19/1869722/computer-literacypublic-servants>
- [20] Bona, J. T., & Camara, J. S. (2021). Digital Literacy among Elected Barangay Officials as an Input to a Community Extension Program. Southeast Asian Journal of Science and Technology, 6(1), 14-22.
<https://www.sajst.org/online/index.php/sajst/article/view/160>

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