Improving Computer Literacy of Barangay Secretaries and Treasurers of Eastern Lines Barangays of Maco through Comprehensive Workshop: A Study

ABSTRACT

This study aimed to assess and enhance the computer literacy skills of barangay secretaries and treasurers in the Local Government Unit of Maco, Davao de Oro, Philippines. Using a quantitative descriptive comparative approach, the study measured participants' skill levels before and after a comprehensive seminar-workshop. Conducted from January to August 2024 across twelve barangays in the Eastern Line, the study included 22 respondents—both the appointed secretary and treasurer from each barangay. Initially, participants showed a low proficiency in computer literacy, with a mean score of 1.89, indicating a limited ability to use basic computer applications. Following the intervention, this score increased to 3.036, reflecting a moderate skill level. This improvement underscores the effectiveness of targeted training in closing digital literacy gaps among government employees. Enhanced computer skills among barangay officials not only improve job performance and satisfaction but also contribute to more efficient community service delivery.

Keywords: Computer Literacy Skills, Comprehensive Workshop, Barangay Secretaries and Treasurers, Local College, Philippines

1. INTRODUCTION

In today's generation, computer literacy skills are essential for every individual, be it students or employees. From that of a private company or institutions to the government agencies. From local to national level. Computer literacy skills enable individuals to make their work more effective and efficient. A person who has this skill can easily adapt to the fast-evolving society and the demands of work. Thus, everyone finds this very important to learn and master.

Oberländer et al. (2020) offer a holistic view and broaden the scope of the concept of digital competencies, thereby focusing on applications at work. They combine diverse methods to integrate different perspectives on digital competencies. Additionally, eleven half-structured interviews based on the critical incidents technique (CIT) were conducted to gain insights into the perspectives of professionals with expertise in digitalization processes and digital competencies. Subsequently, researchers with different educational backgrounds clustered the results from both approaches and agreed on twenty-five dimensions that constitute digital competencies for white-collar workers with office jobs, encompassing a large variety of knowledge, skills, and abilities. The results of this research indicate that even though there is overlapping content, each perspective adds unique content to the concept of digital competencies at work. By creating a coherent and detailed framework and a definition, our research enhances the applicability of professional learning and development of digital competencies at work.

In addition, Kastorff et al. (2023) claims that during the COVID-19 pandemic, adolescents' technology use increased in terms of both, study-related and social purposes. Although our results suggest that adolescents' use of technology for study-related purposes increased during the COVID-19 pandemic, adolescents from educationally disadvantaged families still appear to be at risk of being left behind by the even more rapid digitization of the COVID-19 pandemic.

In Nigeria, Faga, et.al., 2022 assessed the computer literacy skills of academic staff of University of Jos (UNIJOS). The study found that staff

have average computer literacy skills, but face challenges such as inadequate funds, inadequate power supply, lack of government sponsorship, time constraints, irregular organization of IT programmes, inadequate Internet cafes, too much workload for academic staff and inadequate computer training centers.

Moreover, in Silang, Cavite, Philippines, Santiago et al. (2021) surveyed 121 barangay officials, focusing on their access, skills, and constraints to Information and Communication Technology (ICT). Most officials have personal computers at home and in the office, with mobile data and office internet connectivity. Most are proficient in computer usage, but face slow internet bandwidth and low-income status as constraints. Despite these issues, most prefer office computers for accessing necessary information. The respondents were competent enough to handle their jobs well, but slow internet and low financial resources may hinder their ICT usage.

Also, Bona and Camara (2021) assessed digital literacy among 56 elected barangay officials in Agno, Pangasinan. The results showed that some officials have access to personal computers and digital gadgets at home and in the office, using their mobile data and office internet connectivity. However, many officials have attended training seminars and workshops to enhance their knowledge about computer program skills. This could help them improve their role in service delivery and public administration, promoting transparency and increased responsiveness. The Local Government Unit (LGU) supported the study, but most respondents were still on an intermediate level in digital literacy. Limitations faced by the officials included fear of using computers and insufficient electricity supply. Despite these limitations, the study found no significant differences in abilities and limitations among male and female barangay officials. The respondents were competent enough to handle their jobs, but personal knowledge or experience and costly internet connectivity may hinder their use of digital gadgets and equipment.

Given all these related situations, the researchers find it necessary to conduct this study to assess the level of computer literacy skills among the barangay secretaries and treasurers in the Municipality of Maco, Davao de Oro in order to provide intervention program if necessary. The findings of this research are intended to provide avenue to improve the computer literacy skills among the respondents for them to be more effective and efficient in their workplace. Lastly, the results of this study will be shared through neighboring barangays, and municipalities in the province to enhance their computer literacy skills.

1.1 Statement of the Problem

1. What is the level of the Computer Literacy Skills of the respondents before the intervention program?

2. What is the level of the Computer Literacy Skills of the respondents after the intervention program?

3. Is there a significant difference between the Computer Literacy Skills of the respondents before and after the intervention program?

1.2 Conceptual Framework

This study utilized the schematic diagram to illustrate the flow of the study and to understand the research direction.

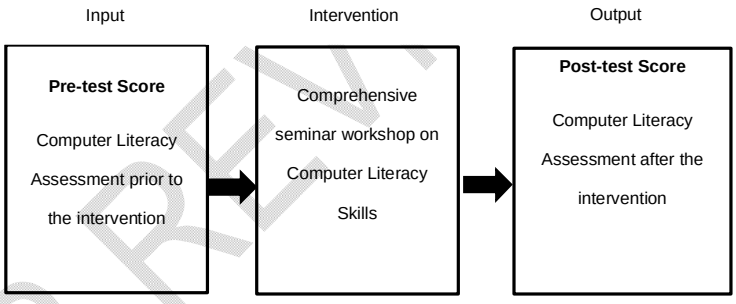

Figure 1. *The schematic diagram of the study*

1.3 Scope and Delimitation

This research will focus on assessing the computer literacy skills among barangay secretaries and barangay treasurers of Eastern Line Barangays in the Municipality of Maco. The participants of this study are the currently and officially appointed barangay secretaries and barangay treasurers in the respective Eastern Line Barangays in the Municipality of Maco.

This research delimits only to the selected participants and not to those who do not belong to the population of the study, for example, barangay officials. Using the quantitative method, the researchers will analyze the following data gathered from the survey on computer literacy skills of barangay secretaries and barangay treasurers.

2. METHODS

2.1 Research Respondents

The respondents of this study are the primary source of information and data. Respondents are identified through the help of barangay officials. The respondents are the currently and officially appointed barangay secretaries and barangay treasurers in the Eastern Line Barangays in the Municipality of Maco.

2.2 Research Design

This research utilized the quantitative descriptive comparative approach. Descriptive-comparative research is a quantitative research design that aims to describe the differences between groups in a population without manipulating the independent variable (Mary Ann Cantrell, 2011; Formplus Blog, 2020).

2.2 Sampling

The participants are selected through purposive sampling. Anita S. et.al (2013) describes that 'sample' is a subset of the population, selected so as to be representative of the larger population. The researchers identified participants base from their appointment as barangay secretary and barangay treasurer. The sampling design is based on the judgment of the researcher as to who will give the best data to succeed for the objectives study (Etikan, I., & Bala, K.,2017). In line with this, the researchers chose the respondents who fit the following criteria: (1) The participant must be currently and officially appointed as barangay secretary and/or barangay treasurer. (2) The participants must have experience using computers as part of their job/work.

2.2 Research Locale

This research was conducted at the identified Eastern Line Barangays in the Municipality of Maco, Province of Davao de Oro, namely: Anibongan, Concepcion, Dumlan, Lapu-lapu, Libay-libay, Lumatab, Magangit, New Asturias, New Visayas, Pangi, Sangab, and Taglawig.

2.3 Data Collection and Analysis

In gathering and analyzing the average of participants' level of computer literacy skills, the researchers gathered the scores in a pretest. The gathered data were subjected to statistical treatment to find out the level of participants' computer literacy skills before the intervention. Based on the result, the researchers designed a comprehensive workshop to enhance the computer literacy skills of the respondents. After the series of workshops, the respondents took the survey test again as their post-test. The gathered data were again subjected to statistical treatment to find out the level of participants' computer literacy skills after the intervention. Using the descriptive comparative analysis, the researchers were able to find out if there was a significant difference between the computer literacy skills of the participants before and after the intervention program.

3. RESULTS AND DISCUSSION

3.1 Overall Assessment of Computer Literacy Before the Intervention

Table 1 presents the overall assessment of computer literacy before the intervention of the barangay secretaries and treasurers in Eastern line barangays in the municipality of Maco province of Davao de Oro with a mean of 1.89 which has a descriptive equivalent of low. This result implies that the barangay secretaries and treasurers portray a low level of computer literacy skills.

The result supports the idea cited in the study of Libago et al. (2024), which shows that many Filipinos, particularly in rural or less urbanized areas, have limited access to technology and face barriers to improving computer literacy and digital literacy. Their findings suggest that low computer literacy and digital literacy, such as the levels described in the data, are not uncommon due to a lack of exposure to technological resources and training.

How would you rate your computer skills? Working with…	Mean	Descriptive Equivalent
1. Word processing applications	2.4	Low
2. Spreadsheet applications	1.95	Low
3. Database applications	1.7	Low
1 Presentation applications	1.7	Low
2 Multimedia applications	1.5	Low
3 Web design applications	1.3	Very Low
4 Web search applications	1.55	Low
5 Communication applications	2.2	Low
How would you rate your computer literacy?	2.15	Low
How would you rate your Internet literacy?	2.1	Low
How would you rate your current typing skills?	2.25	Low
Average Mean	**1.89**	**Low**

Table 1. Overall Assessment of Computer Literacy Before the Intervention

Moreover, based on a study conducted by the Philippine Statistic Authority, 61% of Filipino homes do not have Internet access, impeding the advancement of digital skills Roxas-Chua, 2019). Additionally, 30% of the Philippine population has basic computer and digital skills, according to an assessment by Temasek and Google. The outdated digital infrastructure, like sluggish Internet access and restricted connectivity, restricts the capacity of Filipinos to participate in and engage in activities associated with computers and hone their literacy (Cabading, 2021).

Furthermore, the Digital Divide Theory of Van Dijk (2005) could support the claim, as it posits that disparities in access, motivation, skills, and usage lead to gaps in digital literacy. In rural areas, limited access to infrastructure and education significantly contributes to this divide, leading to lower digital literacy levels as reported.

Also, Kersley (2023) reported that there is a prevailing problem with the lack of digital skills among elected officials that affect public service. He implied that the lack of technology competency among elected officials and workers in the government service is holding back the improvement of digital public service and the efficiency of government offices. This problem should be addressed as digital technology influences everything the government does. All public employees must have a basic understanding of digital literacy, especially those in leadership positions. This is particularly true in light of the rapid advancement and widespread use of digital technology, which may either benefit or harm society (Androsoff, 2021).

In addition, Hardyman et al., (2021) and Dzulkifli et al. (2023)emphasize that capacity building in public sector organizations is a complex, multidimensional, and dynamic process that plays a crucial role in enhancing the overall effectiveness, efficiency, responsiveness, and service delivery capabilities of government agencies.

Thus, Maco de Oro College conducted a comprehensive seminar-workshop to improve the computer literacy skills of barangay secretaries and treasurers of Eastern Lines barangays of the Municipality of Maco. This seminar-workshop aims to enhance the computer literacy skills of the participants, thus helping them to be more effective and productive in their job or tasks assigned to them.

3.2Overall Assessment of Computer Literacy After the Intervention

Table 2 presents the overall assessment of computer literacy after the intervention of the barangay secretaries and treasurers in Eastern line barangays in the municipality of Maco province of Davao de Oro with a mean of 3.036 which has a descriptive equivalent of moderate. This result implies that the given intervention is effective and the barangay secretaries and treasurers have improved to moderate computer literacy skills.

The result supports the idea cited in the study of Laniton et al. (2021), which highlights that structured computer literacy workshops significantly improve the digital competencies of local government employees. Through targeted training programs, employees were able to increase their proficiency in applications such as word processing, spreadsheets, and web search tools, with measurable improvement in workplace efficiency. This aligns with the findings in your table, where computer literacy was upgraded to moderate levels after the intervention.

How would you rate your computer skills? Working with…	**Mean**	**Descriptive Equivalent**
4. Word processing applications	3.2	Moderate
5. Spreadsheet applications	2.8	Moderate
6. Database applications	2.8	Moderate
6 Presentation applications	3.0	Moderate
7 Multimedia applications	3.0	Moderate
8 Web design applications	2.6	Moderate
9 Web search applications	3.4	Moderate
10 Communication applications	3.4	Moderate
How would you rate your computer literacy?	3.0	Moderate
How would you rate your Internet literacy?	3.0	Moderate
How would you rate your current typing skills?	3.2	Moderate
Average Mean	**3.036**	Moderate

Table 2. Overall Assessment of Computer Literacy Before the Intervention

Moreover, employers hire job applicants who are computer literate and evaluate their level of computer literacy to see how well they can do the tasks that will be assigned to them. Turner (2023) explained that office workers should prioritize improving their computer skills as it is an essential element that could be added to one's resume, they can add it as a job description, it enhances performance at work, and it provides more job opportunities.

As society today lives with digital technologies and is also growing with it, digital and computer literacy should be one of the priorities. Reitz (2020) mentioned that to serve the citizens, governments must take the lead and be at the forefront of utilizing digital technology, and citizens must possess the skills necessary to drive developments in both government and other industries.

Also, a study conducted by Lagon et al. (2022) revealed that computer literacy, job satisfaction, and job performance among government officials are positively correlated. This implies that when the employees are computer literate and knowledgeable in using computers, they are most likely to perform better in their work and are satisfied with the outcome of the tasks assigned to them.

Furthermore,Oladimeji et al. (2024)explores the relationship between digital literacy and productivity among Nigerian local government employees. A survey with 113 employees found that digital literacy positively impacts productivity. Access to Information and Communication Technology (ICT) moderates this relationship. The study contributes to the understanding of the performance benefits of digital literacy in the workplace and suggests that public organizations should invest in structured digital skills development programs to motivate employees and improve productivity.

4. CONCLUSION

The barangay secretaries and treasurers exhibit modest computer skills and a positive attitude toward technology. While they may have a basic familiarity with various computer applications and the Internet, their proficiency level is rated as low, indicating a need for improvement in utilizing advanced features and performing complex tasks. However, their willingness to learn, coupled with a strong belief in the importance and benefits of computer usage, suggests a promising foundation for skill development.

The intervention significantly improved the computer literacy skills of the barangay secretaries and treasurers in the Eastern line barangays of the Municipality of Maco. The mean score improvement from 1.89 (low) to 3.036 (moderate) demonstrates the effectiveness of the comprehensive seminar-workshop in addressing the digital literacy gap. The findings indicate that providing targeted computer literacy training can significantly enhance the digital capabilities of government employees, resulting in better job performance, increased job satisfaction, and more efficient service delivery to the community.

5. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are suggested:

(1) To further improve the computer literacy of barangay secretaries and treasurers, it is recommended that regular, advanced-level training sessions be conducted. These should focus on more complex applications, such as database management and web design, to ensure a higher level of competency.

(2) The local government should invest in improving access to technology, such as better internet infrastructure and updated computer equipment, to maintain and enhance the skills learned during the intervention.

(3) Assessments should be conducted to measure the retention of skills and identify areas that may need additional training or reinforcement. This would ensure that employees continue to grow their digital literacy.

(4) Consider extending the training program to other local government units and public servants in neighboring regions to promote digital inclusivity and improve public service efficiency throughout the municipality.

(5) Digital and computer literacy should be integrated into the hiring and continuous professional development criteria for local government employees to ensure that all public servants are equipped to handle modern digital tasks.

DISCLAIMER (Artificial intelligence)

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been

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