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Digital Literacy Index of Barangay Officials in Sulop, Davao Del Sur

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ABSTRACT
This quantitative study was conducted to determine the digital literacy index of barangay officials in Sulop Davao del Sur. Using purposive sampling, 250 respondents were selected among elected officials and appointed employees of the 25 barangays of Sulop, Davao del Sur. Primary data using survey questionnaire was used to obtain information on the extent of digital literacy index of the respondents in terms of information and data literacy, communication and collaboration , digital content creation, safety and security , and problem solving skills. The result reveal that overall Relative Importance Index (RII) of 0.65 likewise indicates a moderate level of digital literacy among barangay officials in the municipality.
Keywords: *Digital literacy, Barangay Officials, ICT Skills, Local Governance*

I. INTRODUCTION

The integration of digital technologies in public administration has significantly transformed governance systems worldwide, leading to the development of e-government initiatives aimed at improving public service delivery, administrative efficiency, and citizen engagement (Mensah, 2020; Yan & Lyu, 2023). E-government uses information and communication technologies (ICT) to make government work better and support democracy (Umbach & Tkalec, 2022). Digital governance goes beyond just providing services. It also helps with bigger development goals like digital literacy, inclusion, connectivity, and trust in institutions, which are all in line with the 2030 Sustainable Development Agenda (SALTO Participation & Information Resource Centre, 2025).

As emphasized by Muhammad (2024) and Boyd (2024), digital literacy is a major factor in how well e-government works. It goes beyond just knowing how to use a computer and includes being able to get, evaluate, make, and share information through digital platforms. It also includes being aware of online safety, being a responsible digital citizen, being able to think critically, and being able to adapt to new technologies. Individuals with sufficient digital literacy are better equipped to use digital public services, engage in governance processes, and support evidence-based decision-making within public institutions.

Even though digital transformation is becoming more important, many local governments still don't use ICT enough, especially in developing areas (Misuraca et al., 2017). Research in the Philippines has revealed enduring deficiencies in computer literacy and digital citizenship among barangay officials, who are the primary executors of local governance (Agapen, 2024). Limited access to formal ICT training limits their ability to use digital tools effectively for important administrative tasks like record keeping, communication, reporting, and planning based on data (Valera & Briones, 2014).

The uneven use of ICT at the barangay level shows that local government units are having trouble with bigger structural issues. A lot of barangays still don't have enough digital infrastructure, funds, or reliable internet connections (Bona & Camara, 2021; Santiago Jr. et al., 2021). These problems are worse in rural areas, which makes the digital divide between urban and rural areas even bigger. Even when basic hardware and internet access are available, the lack of institutional support and structured programs to build capacity often keep technology from having a big impact (Misuraca et al., 2017).

Empirical evidence highlights the importance of systematically assessing digital competencies among barangay officials. The Digital Literacy Index (DLI), which measures proficiency

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in areas such as word processing, internet navigation, spreadsheet and presentation tools, online communication, data management, and digital citizenship, provides a practical framework for identifying skills gaps and training needs. Research conducted in various local contexts demonstrates considerable disparities in digital literacy levels, influenced by variations in infrastructure, training opportunities, and institutional support. Results show that structured ICT training programs can greatly improve digital skills, which shows how important it is to have targeted capacity-building programs (Bona & Camara, 2021; Santiago Jr. et al., 2021).

The barangay is the most important political unit in the Philippines. It is in charge of carrying out government programs and providing public services. Using ICT in a smart way can make governance better, encourage community development that includes everyone, and make government more responsive to the needs of its citizens. But there are still problems that make it hard for ICT to work well at the local level, such as not enough money, bad infrastructure, and low digital literacy (Albarillo et al., 2022).

In response to these challenges, this study seeks to assess the Digital Literacy Index of barangay officials in Sulop, Davao del Sur. The study aims to provide empirical evidence regarding the extent of digital literacy, thereby informing the development of strategic interventions and training programs that enhance digital competencies, facilitate effective e-government implementation, and mitigate the digital divide in local governance.

Obejctive of the study
To detrmien the digital literacy index of barangay officials in Sulop, Davao Del Sur
Review of Relation Literature

Digital Literacy

In today's digital world, digital literacy is an important skill for people to have in order to get along well in a society that is becoming more and more connected through technology. Digital literacy means knowing how to use and interact with ICT, as well as being able to critically evaluate, understand, and use information. People who are good with technology can use it to find information, talk to others, work together, and take part in community life (Sharma et al., 2016). Digital literacy also means knowing how important privacy and security are when using digital technology. This means keeping your personal information safe and being aware of the security risks that come with using the Internet and other digital media. Digital literacy also includes knowing how to understand and control your digital identity, which includes your online reputation and the digital traces you leave behind when you do things online (Akman et al., 2023).

Information and Communication Technology (ICT) plays a vital role across various industries, organizations, and government sectors, enabling the completion of everyday tasks such as email communication and virtual meetings. Proficiency in ICT skills enhances efficiency, particularly in tasks like data storage and encoding through technological tools. Understanding these skills and actively developing them is beneficial regardless of the career path one pursues. ICT has revolutionized services for individuals, businesses, and governments, contributing to advancements in technology, economic growth, enhanced welfare services, and even influencing political processes (Cruz-Jesus et al., 2016).

Matli and Ngoepe (2020) say that ICT is a skilled field and that not being good at it can lead to discrimination in some communities. Digital literacy and mobile learning (m-learning) are both important for promoting digital social inclusion. Barangay officials and functionaries need to take part in capacity-building programs that are meant to improve their ICT skills in order to fix this. They should also keep getting better at these skills by practicing with the right ICT tools on their own.

Digital literacy goes beyond just knowing how to use information and communication technologies (ICTs) well; it also includes knowing how to use them in a responsible and moral way. It means knowing not only how to use ICTs for work and personal reasons, but also how to keep your privacy and safety safe when you interact with people online. Teaching people how to use technology gives them the skills they need to analyze and evaluate information, work together and communicate well, and keep up with changes in the digital world. To do well in today's tech-driven and connected world, people need to embrace and improve their digital literacy (Boyd, 2024).Digital literacy is more than just knowing how to use a phone or computer. It includes a lot of different skills, like the ability to use digital technologies to find, evaluate, create, and share information. This means knowing how to use search engines, knowing how to protect your privacy and security online, and being able to tell the difference between reliable and false information. Digital literacy also means being able to think critically, solve problems, and learn how to use new technologies (Muhammad, 2024).

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The International Telecommunication Union (2016) found that there is a strong link between economic growth and the growth of ICT. Having computers that can connect to the internet and the skills needed to use them has greatly improved how ICT tools are used and how they benefit different groups, such as people, the government, and businesses. The increasing importance of ICT in boosting economic productivity is a major factor in social and economic growth, as it has a positive effect on growth, productivity, and jobs (Toader et al., 2018). Awhareno and Nnadi (2017) said, on the other hand, that problems are worse in rural areas. Barangay officials can't talk to each other well because the internet is slow. The situation is made worse by things like not having enough money, not having enough technical skills, and being afraid to use ICT tools.

II. METHODOLOGY

Method Used. This study adopted a quantitative non-experimental research design using cross sectional design. This design allows the researcher to investigate further and acquire a better understanding of factors and variables being considered, with the end purpose of coming up with more reliable information.

Source of Data. The primary source of data was used in the study. The data are gathered through a structured survey questionnaire designed to assess their digital literacy skills, availability of ICT resources, and the extent of digitalization practices in governance of elected barangay officials of Sulop, Davao del Sur, including barangay captains, kagawads, secretaries, and treasurers.

Data Gathering Instrument. This study employed a researcher-developed questionnaire to collect the necessary data. The questionnaire consists of 20 items that assess the digital literacy of barangay officials in Sulop, Davao del Sur. The instrument underwent validity and reliability test.

Sampling Technique. The researcher employed a purposive sampling method. For this study, a purposive sampling method was used to choose 250 barangay officials from Sulop, Davao del Sur.

Statistical Treatment. Relative Importance Index (RII) was used to determine the digital literacy index of barangay officials in Sulop, Davao Del Sur.

III. RESULT

Presented below is the digital literacy index of barangay officials of Suold, Davao del Sur. It shows that the overall Relative Importance Index (RII) of 0.65 shows that barangay officials in Sulop, Davao del Sur have a moderate level of digital literacy. This means that officials can use digital tools for everyday tasks, but they are not very good at higher-level digital skills like data analysis, cybersecurity, and innovation.

Digital Content Creation (RII = 0.67) and Communication and Collaboration (RII = 0.67) were the two highest-rated dimensions. This shows that officials are most confident in using digital tools to share information, talk to each other, and make simple digital outputs like reports and announcements. This shows that people can use social media or online platforms for public communication and basic e-governance functions. This finding aligns with the European Commission's (2022) Digital Competence Framework for Citizens (DigComp 2.2) and the UNESCO (2018) Digital Literacy Global Framework, both of which acknowledge communication and content creation as essential for civic engagement and e-governance. The same thing happened in DICT's (2019) National ICT Household Survey, where Filipinos were more likely to use digital communication than to analyze data or solve problems.

Information and Data Literacy (RII = 0.66) comes next, which means that officials can search for, store, and organize barangay data, but they still need to get better at checking and analyzing digital information before using it. International studies stress that the ability to critically evaluate online information is a major factor in digital maturity (Van Audenhove, 2024). Training on how to check data, research ethics, and how to use verified digital repositories. As suggested by UNESCO (2018), this would improve decision-making in barangay governance that is based on facts.

Safety and Security (RII = 0.64) got a slightly lower index, which means that people were somewhat aware of data protection and cybersecurity but didn't always follow the rules. This could put information privacy and system integrity at risk, which shows how important it is to keep training people on data privacy. The Data Privacy Act of 2012 (Republic Act 10173) says that public institutions must use technical and organizational safeguards (National Privacy Commission, 2016). Setting up privacy policies, password management rules, and regular cybersecurity drills at the barangay level is in line with these national laws (National Privacy Commission, 2012).

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Table 1. Digital Literacy Index of Barangay Officials in Sulop, Davao Del Sur

Variable	Mean	RII	Interpretation
Information and Data Literacy	3.30	0.66	Moderate
Communication and Collaboration	3.33	0.67	Moderate
Digital Content Creation	3.34	0.67	Moderate
Safety and Security	3.22	0.64	Moderate
Problem-Solving and Innovation	3.12	0.62	Moderate
Overall	3.26	0.65	Moderate

Legend:

RII Range	Interpretation
0.81 – 1.00	Very High Importance
0.61 – 0.80	High Importance
0.41 – 0.60	Moderate Importance
0.21 – 0.40	Low Importance
0.00 – 0.20	Very Low Importance

The lowest-rated domain is Problem-Solving and Innovation (RII = 0.62), reflecting limited capacity in applying digital tools for innovative governance solutions and troubleshooting technical challenges. This suggests a need for interventions to enhance critical thinking, adaptability, and innovation in using digital technologies. The World Bank (2020, 2025) similarly notes that inadequate infrastructure constrains the adoption of advanced e-governance solutions. Thus, barangay officials' modest performance in this domain points to the need for targeted interventions—such as hands-on workshops on e-governance applications, data analytics, and mobile-based service systems—to foster adaptive learning and innovation.

Summary

This study was conducted to determine the digital literacy index of barangay officials in Sulop, Davao del Sur. Non-experimental research design using cross sectional design was used and survey questionnaires were distributed among barangay officials in Sulop, Davao del Sur which were selected through purposive random sampling. The result reveal that that the overall Relative Importance Index (RII) of 0.65 likewise indicates a moderate level of digital literacy among barangay officials in the municipality.

Conclusion

The study concluded that the digital literacy index of barangay officials of Sulop, Davao del Sur is moderate.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are proposed for each stakeholder to strengthen digital literacy and support e-governance transformation in Sulop, Davao del Sur:

Barangay Local Government Unit (BLGU). Barangay administrations are encouraged to design and implement localized capacity-building programs focused on enhancing officials' competencies in data management, digital communication, cybersecurity, and innovation. Trainings should be hands-on and role-specific, ensuring that officials like kagawads and captains—who showed lower scores—receive targeted interventions. BLGUs should also allocate budgetary resources for the procurement of ICT equipment, stable internet connectivity, and software tools necessary for digital operations. Establishing Barangay ICT Committees or Digital Focal Persons can institutionalize digital initiatives and sustain technology adoption.

Local Government Unit (LGU). The municipal government may use the findings of the study as a baseline in formulating ICT policy and digital infrastructure planning of the municipality. The LGUs may collaborate with different government agencies such as the Department of Information and Communications Technology (DICT) and the Department of the Interior and Local Government (DILG) to integrate barangays into national e-governance systems such as eLGU and eGovPH. The LGU may also develop and implement municipal-wide digital transformation roadmaps and conduct may regular digital readiness assessments to monitor progress and guide strategic investments in ICT development.

Barangay Officials. Barangay officials may take proactive steps to enhance their individual ICT skills through continuous learning, participation in different training including online courses, and utilization of different digital tools in enhancing everyday governance tasks. They are also encouraged to adopt digital record management systems, utilize secure communication platforms, and practice cyber hygiene measures to protect barangay data and ensure compliance with the Data Privacy Act of 2012 (RA 10173). Officials should also promote peer mentoring, where more digitally proficient members (e.g., secretaries or treasurers) help train others, fostering a culture of shared digital competence.

Community. The community may be engaged as active partners in the barangay's digital transformation. BLGUs can organize digital literacy and e-citizenship seminars for residents to promote awareness and inclusivity, especially in remote areas. Establishing barangay information kiosks, social media portals, or online feedback systems will improve access to public information and strengthen transparency and citizen participation.

Future Researchers. Future studies should build upon this research by examining the relationship between digital literacy, e-governance adoption, and citizen satisfaction across different localities. Researchers may explore qualitative perspectives to understand behavioral, cultural, and infrastructural barriers to digital transformation, or use advanced statistical modeling (e.g., SEM or CFA) to validate causal relationships among variables. Comparative studies between lowland and upland barangays or between municipalities can further guide policy and program design.

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