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Research Article

Bridging the Digital Divide in Education Among University Faculty, Teachers, K-12 Learners, and Parents: A Research-Based Extension Project of the College Of Education Science Essu– Can-Avid Campus

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ABSTRACT

This study examined the digital competence profiles of K7-K12 students and their parents in the Philippines, focusing on five key areas: information processing, communication, content creation, safety, and problem-solving. The research revealed significant disparities in digital competencies across different barangays (local administrative divisions), suggesting a strong influence of geographical factors on digital skill acquisition. Interestingly, while high school education significantly impacted parents' information processing abilities, it had little effect on other digital competence areas. Factors such as sex, age, and general education level showed minimal impact on digital competencies for both parents and students. The study found moderate levels of digital competence among participants, with notable variations across different domains.

For students, the analysis showed that grade level significantly influenced digital competencies, particularly in communication, content creation, and safety. This highlights the evolving nature of digital skills as students progress through their education. The chosen educational track or strand also impacted students' self-assessment of their digital skills, especially in content creation. These findings underscore the need for targeted digital literacy programs, particularly in disadvantaged areas and demographics with limited educational backgrounds. The research advocates integrating digital literacy into the educational curriculum and implementing community-based training sessions to enhance digital competencies.

The study's results provide valuable insights for educational policymakers and community leaders, emphasizing the need to address the digital divide and ensure equitable access to digital skills and resources. By fostering a digitally literate society, this research aims to enhance engagement and participation in the digital world, benefiting current and future generations. The findings highlight the importance of considering local contexts and demographic factors when developing strategies to improve digital competencies in educational settings.

Keywords: Competence, Digital, DigCompEdu, Community-based extension session, Ascertaining, Parents, K7 to K12 High school Students

INTRODUCTION

In multiple regions across the nation, students are consistently demonstrating subpar academic performance in both domestic and global assessments. Additionally, a significant number of students are opting to discontinue their education at both elementary and high school levels.This indicates a decline in the quality of the Philippine

educational system. Additionally, little progress has been made in the alternative learning system, which means that a large number of the estimated 16 million individuals, both children and adults, who have not yet finished their fundamental education are not receiving the necessary support. Secondary schools, particularly those most affected by the Digital Divide, require assistance to keep up with their academic endeavors. Amid this challenging period, we have an opportunity to tackle the problem of inequitable educational access by directly examining the Digital Gap by detecting disparities and allocating resources to strategies that enhance all children's ability to access and benefit from learning opportunities [1].

Furthermore, there has been minimal advancement in the alternative learning system, resulting in a significant portion of the approximately 16 million individuals who require basic education not being able to access it. essential assistance. Secondary schools, especially those that are significantly impacted by the Digital Divide, need help to maintain their academic pursuits. During this difficult moment, we have the chance to solve the problem of inequitable access to education by directly confronting it. The concept of the Digital Divide involves recognizing disparities and distributing resources towards efforts that improve access and utilization of digital technologies. The capacity of all children to obtain and derive advantages from educational opportunities [1].
In the Philippines, each student is given only PPP USD417 per year, which is significantly less than the amounts allocated in Thailand (PPP USD995), Korea (PPP USD2,289), The Netherlands (PPP USD4,369), and the United States (PPP USD7,186) (UNESCO, 205). The purchasing power parity of the Philippines rose from 14.6 LCU (Local Currency Unit) per international dollar in 2002 to 19.2 LCU per international dollar in 2021, with an average annual growth rate of 1.4%. The field of education, which includes the DepEd, SUCs, the CHED), and the TESDA, has received a budget augmentation of 8.2 percent in the 2022 NEP Budget, amounting to Php852.8 billion [2]. The Constitution mandates that this sector will continue to get the highest priority in terms of budget allocation.

The Philippines has enacted a national policy on digital competence through Republic Act# 10844 [3]. This act established the (DICT), which is responsible for developing the country's ICT sector. Moreover, the National Framework Plan for ICTs in Basic Education guides the development of ICT programs, resource generation, and allocation [4] [5]. Despite this, it appears that local barangays lack access to information about the requirements of this competitive landscape. The DepEd has launched a Digital Program named “Rise” aimed at addressing challenges related to digital learning and educational technology while also taking additional measures to bridge the gap in access to digital technology [4] [5].

Furthermore, a significant portion of the national budget, excluding debt payments, is dedicated to education, with a massive 89% of the DepEd budget being used to pay the salaries of its workforce, which consists of over 500,000 employees [5] [6]. Given that the alternative learning system, which includes nonformal and informal education, receives less than 1% of the DepEd budget, there are hardly surprising shortages in teachers, classrooms, and textbooks [5] [6]. The impact of these resource limitations is exacerbated by DepEd's highly centralized and hierarchical organization, frequent changes in leadership, narrow-minded planning, and bureaucratic techniques that inhibit innovative thinking and disconnect the department from its communities.

DepED faces challenges in maintaining a balance between ensuring excellent education and providing access. Nevertheless, educational institutions encounter supplementary apprehensions as a result of globalization, the swift progression of novel digital technology, and the shift towards a "knowledge-based economy." Moreover, K to 12 High School students residing in the area designated as the PBB region or Barangay Pandol, Boco, and Balagon, as specified in Executive Order#70 issued by President Duterte in December 2018, fall under the classification of an insurgent territory. This categorization is consistent with establishing the National Task Force to End Local Communist Armed Conflict (NTF-ELCAC) as a nationwide approach. Following its establishment in December 2018, the task force has successfully fostered coordination among the relevant authorities, leading to a significant milestone in eradicating local armed conflict [7].

The NTF-ELCAC has effectively addressed all strategies and initiatives of the CTG, encompassing all government entities that comprise the 12 pillars - local government autonomy, Stratcom, legal cooperation, localized agreements engagement, decreasing poverty and livelihood, EClip and amnesty, global engagement, situational knowledge and understanding, management, infrastructure is provided and resource generation, safety of the public, criminal justice, and economic growth support [7].

The workforce believes that the most straightforward aspect of dealing with the NPA's armed wing is addressing the issues of recruitment and funding, which need to be sufficiently tackled in prior administrations, leading to the persistence of the problem. The Department of Budget and Management (DBM) emphasized in its briefing to the House of Representatives that "assisting local governments" is a top priority in the budget. The estimated budget for this particular expenditure priority was around P28.9 billion, out of which P10 billion was allocated to support the Barangay Development Program of the NTF-ELCAC. The agency's Barangay Development Program aims to implement socioeconomic initiatives in areas with a history of violence to foster development [7].

It has been suggested that this transformation is necessary for youngsters and students to engage in and contribute to a digitally advanced society [8]. Håkansson Lindqvist [9] argues that educational strategies commonly highlight digital technology's potential to improve or revolutionize teaching and learning methods in K-12 schools.

This third research study program aims to address the disparity in the availability of digital educational resources among various demographic groups in our community. This supports Eastern Samar State University's dedication to excellence in instruction, which is one of its four core missions. Thus, this ongoing research inquiry is now in progress.

Study Objectives

The project's major purpose was to close the digital divide among education stakeholders by conducting research-based extension training programs on digital competence for teachers, ICT proficiency for parents, and information literacy for K-12 students.

The goal of this study was to profile parents. Their high school students' digital competency is living in the upstream barangays but enrolled as K -12 in different strands in the lone public school of Can-avid, Eastern Samar, as they are the primary recipients as university entrants. They would be the change agents of the future. They will play an important role in improving K-12 pupils' digital competencies. This third study aimed to (1) Ascertain the demographic characteristics of students and their parents concerning (a1) Barangay geographical location, (b) gender, (c) age, (d_1:parents) educational attainment, (parents) junior/senior high year level; (e_1:parents) monthly income; (e_2:students) if senior high: track/strand; (f_1:parents) if child/children enrolled in junior/senior high; (f_2:students) if there is internet access, how & what type of device;(g_1: parents) if there is internet access, how & what type of device; (g_2: students) description on the private use of digital technologies; (h_2:students) how well learning environment meet the given criteria (2) Determine parents' and children's digital competencies in (a) processing of information, (b) communication, (c) creating content, (d) safety, and (e) solving a problem, and (3) establish a link between the these two objectives.

METHODOLOGY

Profiling of Participants

The parents and their high school students enrolled across year levels and strand/track enrolled in the academic year 2020-2021 were identified using purposive sampling. In this example, a total enumeration of the three (3) Upstream Barangay high school students enrolled in the Can-avid National High School sample of 216 people (113 students and 103 parents) was chosen as these barangays are identified as the PBB region by the NTF-ELCAC and one of the beneficiaries of the University's agency cooperation to the said task force.

Data collection procedures and instrumentation

Khateeb [10] utilized the Survey on Digital Competence to evaluate the digital proficiency of potential educators in five areas: (a) processing of information, (b) communication, (c) creating content, (d) safety, and (e) solving a problem. Ferrari [11] asserts that the Digital Competence Framework for Citizens [12] confers advantages onto European citizens. Their research moreover assists individuals in diverse circumstances to enhance their digital proficiency. DigComp aids in the identification of the digital knowledge and culture that individuals, organizations, and enterprises need for their social and personal life [11]. Various institutions and individuals in European contexts have already adopted the current structure [13]. **Table 1** below displays the Cronbach alpha value of 0.811 and the Fleiss Multi-Rater Kappa of Overall Agreement value of 0.064.

Table 1. Fleiss Multirater Kappa of Overall Agreement

	Kappa	Asymptotic			Asymptotic 95% Confidence Interval	
		Standard Error	z	Sig.	Lower Bound	Upper Bound
Overall Agreement	.064	.003	22.049	.000	.064	.064

a. Sample data contains 52 effective subjects and 37 raters.

According to Khateeb [10], the items have acceptable internal consistency. In addition, this suggests that there are significant connections between the test items. As a result, this study decided to use the questionnaire.

The questionnaire used in the study by Cebi [14] was validated by the College of Computer Studies and Education faculty group of experts. Their feedback was incorporated to tailor it to the contextualized setting of ESSUC, without considering the digital divide, which was particularly evident. The survey included a question using a 5-point Likert scale, where a response of 1 indicated "strongly disagree" and a response of 5 indicated "strongly agree." The surveys were distributed in hard copy format, subsequently gathered, and then systematically arranged and analyzed utilizing office productivity tools (spreadsheets) to provide more efficient and methodical data analyses.

Analyzing Statistical Data

This third study utilized descriptive-correlational analytic methods to examine the provided data. Before commencing the research, the assumptions that formed the basis of the analysis were subjected to testing. The responses to each item are evaluated using normality distributions that are stratified proportionately. In contrast to previous research, this study discovered that the kurtosis and skewness values for each item varied between -1.789 and 0.566 [14] since the numbers did not meet the specific criteria set by Tabachnick and Fidell [15], the Independent Sample t-test is used, which relies on precise standard distribution assumptions.
Similarly, the analysis determined whether each subgroup had a normal distribution. Skewness and Kurtosis both determined that the calculated mean and standard deviation values of the parents and their high school student's attendance status for each item had similar standard errors: 330 and.650; .251 and .498, respectively. Moreover, the analysis of demographic data using an independent t-test indicates a divergence in attitudes between parents and high school students. A one-way ANOVA was used [16] with IBM SPSS 25.0 software to compare differences in their digital capabilities.

RESULTS

A. Demographic Insights and Digital Competence among Parents of Junior and Senior High School Learners

The study investigating the digital proficiency of parents of adolescents ranging from grades 7-10 (junior high) to grades 11-12 (senior high) revealed a varied demographic composition. The largest proportion of respondents hailed from Barangay 2 (41.75%), followed by Barangay 1 (34.95%) and Barangay 3 (23.3 %). The gender distribution was predominantly female, constituting 73.79% of the sample. In terms of education, a majority of the parents (72.82%) had attained the lowest education level (Level 1), with fewer parents at Level 2 (23.30%) and Level 4 (3.8 %). Regarding income, most parents were in the middle-income bracket (Income level 2: 40.78%, Income level 3: 31.07%), with fewer in the lower (22.33%) and higher income brackets (5.8 %). A significant majority (80.58%) had attended high school.

Our sample's mean age of parents was 3.23 years, with a standard deviation of 0.42, suggesting a relatively homogenous age group. In assessing digital competence, the mean scores were generally low across all areas: Information Processing *(Mean = 0.52, SD = 0.94)*, Communication *(Mean = 0.48, SD = 0.80)*, Content Creation *(Mean = 0.45, SD = 0.86)*, Safety *(Mean = 0.67, SD = 0.72)*, and Problem-solving *(Mean = 0.49, SD = 0. 5)*. These findings indicate a moderate level of digital competence among parents, with some variability as evidenced by the standard deviations.

B. Analysis of Digital Competencies Across Demographic Parents' Profiles

Barangay

Information Processing: An F-value of 8.61 and a p-value of 0.00036 suggest a statistically important difference in information processing skills across parents from different barangays. The barangay of residence may play a critical role in shaping these digital skills, potentially due to differences in access to digital resources or educational opportunities.

Communication, with an F-value of 19.55 and a p-value significantly less than 0.00001, highlights a substantial variation in communication skills across different barangays. It underscores the influence of geographic location on the ability of parents to communicate effectively in digital environments.

Content Creation, with an F-value of 35.13 and a p-value of approximately 0, also implies significant disparities in content creation skills among parents from different barangays. This finding points to the unequal distribution of skills necessary for creating digital content, which could be influenced by local educational programs or access to technology.

Safety: An F-value of 16.24 and a p-value well below 0.00001 demonstrate significant differences in digital safety skills based on the barangay. This suggests a varying level of awareness or education regarding online safety and security among parents in different areas.

Problem-solving: An F-value of 26.89 and a p-value close to 0 suggest statistically notable variations in problem-solving skills in digital contexts among parents from different barangays, highlighting the role of local factors in cultivating these competencies.

The findings above conformed with the study of Garcia, A. & Santos, M. (2020) that barangay (geographical location) significantly influenced digital competencies [17].

Sex

For all digital competence categories *(Information et al., Problem-solving)*, Their F-values range from 0.59 to 3.45, whereas the associated p-values range from 0.066 to 0.444.

suggest ***no statistically significant differences based on the parents***' sex. This indicates that gender does not play a major role in differentiating digital skills among parents.

Age

Age did not significantly impact most digital competencies statistically, with F-values relatively low (range from 0.068 to 3.20) together with p-values not meeting the threshold for significance in categories like *(a) processing of information, (b) communication, (c) creating content, (d) safety, and (e) solving a problem*. The marginally significant result in *Problem-solving* (a F-value of 3.20, p-value of 0.077) indicates a slight variation in this skill with age, but not to the degree that strongly differentiates digital competence among parents of different ages.

Educational Attainment

Education levels did not significantly affect parents' digital competencies, overall F-values, which *range from 0.294 to 2.39,* and the p-values, which *range from 0.096 to 0.746*, indicate the statistical significance across all categories. Thus, the differences in parents' educational backgrounds do not substantially influence their digital skills.

Monthly Income

Income level showed no significant impact on most digital competencies *(Processing of Information, Communication, Creating Content, Safety),* with *F-values below 1.65* and p-values not indicating statistical significance. However, a notable exception was observed in Problem-solving, where an *F-value of 3.16 together with a p-value of 0.028* suggest that income level may influence parents' digital problem-solving skills.

With Junior/ Senior High School Children

The analysis revealed a significant difference in Information Processing abilities based on whether parents attended high school *(F-value of 6.51, p-value of 0.0022)*, suggesting that basic education plays a critical role in developing these digital skills. For other digital competencies *processing of information, communication, creating content, safety, and solving a problem,* the F-values and p-values did not indicate significant differences, implying that high school attendance does not markedly impact these areas of digital competence. These findings conformed with the

study of Cruz, R. et al. (2021) regarding the impact of high school education on parents' information processing abilities [18].

C. Demographic Insights and Digital Competence among Junior and Senior High School Learners

The primary objective of this third study was to analyze and examine the digital proficiency levels of students in Grades 7-10 (Junior High) and Grades 11-12 (Senior High), using a comprehensive dataset to analyze demographic variables. Key demographic variables under scrutiny included 'Upstream Barangay,' 'Sex,' 'Age,' 'Grade Level,' and 'Strand/Track.' We conducted a detailed statistical journey, examining frequencies, percentages, means, and standard deviations.

The demographic breakdown revealed that 'Upstream Barangay' primarily consisted of Barangay Balagon (45.13%), followed by Barangay Boco (30.09%) and Barangay Pandol (24.7 %). In terms of 'Sex,' females constituted 65.49%, overshadowing Males at 34.1%. 'Age' was predominantly in under 18 (78.76%), with lesser representation in between 18-25 (19.47%) and over 30 years (1.7 %). 'Grade Level' presented a more balanced distribution, peaking slightly in Grade 9 (23.0 %). 'Strand/Track' was majorly represented by Humanities and Social Science (72.5 %). The mean and standard deviation across these categories indicated a varied spread, suggesting a diverse cohort in terms of barangay, gender, age, grade level, and educational strand/track.

D. Digital Competence Profiles Across Demographic Variances

Delving deeper into the digital competencies, our analysis via ANOVA unearthed significant insights across the five core areas of digital competence contextualized within the demographic profiles. These competencies spanned processing of information, communication, creating content, safety, and solving a problem.

Notably, ***'Upstream Barangay,'*** widely spread across the three barangays, displayed significant differences in Communication (*B4, p = 0.015*) and Content Creation (*C3, p = 0.04*). It indicates varying levels of proficiency or self-perception in these digital competencies based on the barangay of residence. Regarding the COMMUNICATION (B4) category, a significant difference was found in responses based on 'Upstream Barangay. ' How learners from different barangays respond to this question varies significantly. The p-value of 0.015 indicates a strong statistical significance. Regarding the CONTENT CREATION (C3) category, the responses to this question likewise demonstrate a notable disparity based on the 'Upstream barrio,' resulting in a p-value of 0.034. This suggests that the barrio may impact learners' self-perception regarding content creation skills.

'Age' had a marked influence on Information Processing *(A1, p = 0.022)*, suggesting age-related differences in how students process digital information in the INFORMATION PROCESSING(A1) category. The age of learners significantly affects responses to this question (p-value of 0.0 2). Different age groups may perceive their information-processing abilities differently.

There was no statistically significant disparity in replies based on the learners' sex. For the surveyed questions, male and female learners had similar patterns of responses.

The **'Grade Level'** emerged as a critical determinant in shaping digital competence, influencing Communication *(B4, p = 0.038),* several facets of Content Creation *(C1, p = 0.020; C2, p = 0.0002; C4, p = 0.034)*, and Safety *(D2, p = 0.0* 1). Regarding the COMMUNICATION(B4) category: Similar to 'Upstream Barangay,' grade level significantly influences responses to this question (p-value of 0.038), suggesting variation in communication self-perception across different grade levels. In terms of the CONTENT CREATION (C1, C2, C4) category, the significant results in multiple sub-questions (p-values of 0.020, 0.0002, and 0.034) indicate that learners' grade levels have a noteworthy impact on how they view their content creation abilities. Regarding the SAFETY (D2) category, Grade level also impacts responses to this question (p-value of 0.011), implying differences in safety-related perceptions across grades. These findings underscore the evolving nature of digital competencies as students progress through junior to senior high school, reflecting developmental and educational influences. This conforms with the findings of Rungduin T. et al. (2020) that grade level significantly influenced students' digital competencies [19].

5. Finally, for the "**Strand/Track,"** In terms of the CONTENT CREATION (C2) category, the strand or track chosen by the learners influences their responses to this question (p-value of 0.042), indicating that learners in different strands/tracks perceive their content creation skills differently. Previously discussed: Significant

influence on Content Creation (2). Additional findings would reveal how the chosen educational track or strand impacts students' self-assessment of their digital skills, and it agrees with the finding of Mendoza, R. & Rivera, J. (2023) regarding the impact of chosen educational track/strand on students' self-assessment of digital skills [20].

DISCUSSIONS

The ANOVA analysis revealed significant findings about parents' digital competence profiles. Notably, the area of residence (Barangay) significantly influenced all five digital competencies, suggesting a disparity in digital skills based on geographic location. This disparity could be attributed to varying access levels to digital resources or educational opportunities in different barangays. Interestingly, high school education significantly impacted Information Processing abilities, indicating that basic education is crucial in developing certain digital skills.

However, other demographic factors such as sex, age, and general education showed no significant influence on digital competencies. These factors do not markedly affect parents' ability to engage with digital platforms or technologies. Income level showed a significant impact only on Problem-solving, perhaps indicating that higher income levels might provide greater exposure to problem-solving scenarios in digital contexts.

These results highlight the critical areas for targeted interventions, especially in enhancing digital competencies in underserved barangays and among parents with lower educational backgrounds. Considering the growing significance of digital literacy in contemporary society, these insights are vital for educational policymakers and practitioners aiming to bridge the digital divide among parents of junior and senior high school students.

In conclusion, our study highlights the intricate relationship between demographic factors and digital competencies among junior and senior high school students. The significant variances observed across different demographic categories emphasize the need for nuanced educational strategies. These strategies should cater to students' diverse digital needs and capabilities, ensuring a well-rounded and inclusive digital education framework.

In summary, the findings illuminate the diverse digital competence profiles of junior and senior high school learners across various demographic dimensions. This diversity underscores the need for tailored educational approaches and resources catering to learners' varied digital competencies at different educational stages and backgrounds. Such targeted strategies are crucial for enhancing digital literacy and competence among learners in an increasingly digital-centric educational landscape.

CONCLUSION, RECOMMENDATIONS, AND IMPLICATIONS

Conclusion

A statistical investigation of the digital competency profile of parents of kids in grades 7–12 shows important findings. The most notable conclusion is the relationship between physical location (Barangay) and basic education (High School attendance) on certain digital abilities. While sex, age, and total education level had little effect on digital skills, income level significantly impacted problem-solving abilities in digital settings. The overall trend suggests that parents have modest levels of digital competence, varying across categories such as processing of information, creating content, communication, solving a problem, and safety,

The third study has yielded valuable insights into the digital competency profiles of secondary school students at both the junior and senior levels. It highlights the varied nature of these competencies across students from different demographic backgrounds. The findings revealed notable variances in digital skills related to information processing, communication, content creation, and safety, which are influenced by grade level, age, and geographical location. These results underscore the complexity of digital literacy development among adolescents and highlight the need for a multifaceted approach to digital education.

Recommendations

For Targeted Digital Literacy Programs: Create and execute digital literacy programs for areas with poorer digital competencies, as shown by considerable disparities across barangays. Tailoring these programs to each area's requirements and difficulties might increase their efficacy. During digital competency training, the focus can be on teaching individuals how to create content effectively utilizing digital technologies and how to handle technical problems that may arise when using multimedia and equipment. *This training can be offered through community-based extension services in collaboration with Parent-Teacher Associations (PTAs), teachers, and Civil Society Organizations (CSOs) in the barangay. The same training can also be provided to teachers and barangay officials;*

this is validated by the study by Besa, L. (2019) regarding the need for targeted digital literacy programs in disadvantaged areas to address the digital divide in Philippine education [21].

For Educational Policy Reforms: Include digital literacy in adult education programs, particularly for parents who did not finish high school. It might help close the gap in information processing abilities.

In-Focused Interventions: Particular attention should be paid to areas where substantial differences were discovered, such as content creation and communication. Targeted interventions include specialist workshops, improved curricular material, and incorporating practical digital activities.

For Community Collaboration: Schools should work with local communities, particularly in varied barangays, to better understand and integrate local context into digital education, making learning more meaningful and successful.

For Community-Based Initiatives: Collaborate with local community centers and schools to provide seminars and training sessions for parents, focusing on topics such as internet safety, content production, and issue resolution.

For Study and Continuous Monitoring: Conduct more studies better to understand the root causes of digital competency gaps. Regular monitoring and assessment of digital literacy efforts are critical to ensuring they match the community's changing demands.

For Money-Sensitive Strategies: Recognize how money influences problem-solving abilities in digital content. Create methods that ensure equitable opportunity for digital competence development regardless of economic position.

For Continued Research: It's crucial to regularly study and assess the development of digital skills over time, especially given the rapid advancement of digital technologies. Therefore, future research could benefit from conducting comprehensive studies covering all aspects of digital competence. It is possible to draw generalizable conclusions about digital competency, including analyzing cause-and-effect relationships. Based on the study's findings, it is recommended that mothers and junior high school students improve their communication and online safety skills. Hence, it is essential for local officials and high school teachers to integrate community-based home visits and digital competency training into their procedures.

Implications

This third study’s result has various ramifications for pedagogical methodology and policy. The results highlight the necessity for the school system to address the digital gap among parents.

It is crucial because parental digital literacy significantly influences children's access to and engagement with digital learning resources. Policymakers should consider these results when developing digital infrastructure and educational policies to provide equal access to digital resources across barangays.

The research focuses on bigger topics, such as social fairness and access to education. Addressing these gaps is critical for creating an inclusive digital society where everyone can explore the digital realm.

Parental engagement in Education: Increasing parents' digital competency may increase their active involvement in their children's schooling , especially as digital platforms become more integrated into schooling.

Educational Practice: Educators should know pupils' different digital abilities and tailor their teaching approaches appropriately. It might include adopting tailored teaching tactics to address various learning demands.

Curriculum Development: Curriculum makers should include more dynamic and adaptable digital literacy components that may be tailored to specific learner profiles. Policymakers should acknowledge the relevance of digital literacy in contemporary education and provide schools with the resources and assistance to help them build these abilities. It includes funding for teacher training, infrastructure, and curriculum development.

Further Research: This study contributes to the growing corpus of research on digital competence in education, highlighting the significance of further investigations into the impact of rapidly evolving digital environments on student learning.

PROPOSED UTILIZATION/DISSEMINATION ACTIVITIES EMANATING FROM RESULTS OF THE STUDY

Objective	Strategies	Responsible Persons	Potential adopters/ beneficiaries	Expected output	Proof of utilization	Monitoring
For **Study 4** (1) Implement the training workshop among Education Stakeholders as an Extension program.	Present the result and the proposed **study 3** for In-house review for external funding as an extension program with a signed MOA.	Dennis Afable; for source out of funds thru for a study leader, Jean Afable, Salvador Gersin, Shoven M. Afable; co-study leaders scheduling of extension program location addresses	Education Stakeholders CSOs in every barangay and also PTAs and cooperatives which primarily rely on digital tools	Submitted, Examined, & Reviewed by Evaluators, submission to the IM committee for local publication -Signed MOA for BOR Approval	Stakeholders Certificate of Output shown via Completion of the activity BOR Approval	Liquidation Papers, if externally granted, institutional review quarterly, Impact Study

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