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TRANSFORMATIVE LEARNING THROUGH THE BITES PROGRAM: EVALUATING ITS IMPACT ON THE TECHNOLOGICAL PROFICIENCY OF RESIDENTS IN BARANGAY SAN GABRIEL, BORONGAN CITY

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ABSTRACT

This study determined the impact of the Basic Information Technology Education Services (BITES) program by the College of Computer Studies at Eastern Samar State University on the technological proficiency of barangay officials in Barangay San Gabriel, Borongan City. Using a descriptive research design, the study measured participants' proficiency levels before and after the training through surveys. Results showed significant improvement, with initial proficiency rated as partially proficient (2.00) and post-training proficiency as highly proficient (4.29). A paired t-test confirmed this improvement was statistically significant ($p < .001$). The program's overall impact was rated as highly impactful, especially in practical training sessions and job performance relevance. The study recommends replicating the BITES program in other communities, updating training materials, optimizing training duration, and providing ongoing support to maintain proficiency. This research highlights the vital role of IT education in empowering local officials and fostering sustainable community growth.

KEYWORDS: *impact, extension, higher education, SUC, ICT*

INTRODUCTION

For a state university to achieve success, it must excel in its mandated four-fold functions: instruction, research, extension, and production (Medina, 2019). While instruction and research are undeniably important, state universities and colleges (SUCs) must also prioritize community extension. Community extension programs are essential because they allow universities to apply their knowledge and resources to address local needs and challenges (Angima & Gaebel, 2018). By engaging directly with the community, universities can foster social and economic development, enhance the quality of life for residents, and promote sustainable practices. Moreover, these programs provide valuable experiential learning opportunities for students and faculty, helping them to develop practical skills and a deeper understanding of societal issues. In doing so, SUCs not only fulfill their mission of education and research but also contribute to the broader well-being and progress of the communities they serve. Universities and higher education institutions play a vital role in improving communities in several significant ways. Firstly, they act as hubs of knowledge creation and dissemination (Berchin et al., 2021). Through research and innovation, universities generate new ideas, technologies, and solutions that address pressing community issues, ranging from health and environmental sustainability to economic development and social justice (De Amorim et al., 2020). By applying their research findings to real-world challenges, universities help foster advancements that improve the quality of life for community members.

In today's rapidly evolving digital world, technological proficiency has become a critical skill for personal, educational, and economic development. However, many communities, particularly in rural or underserved areas, often lack access to essential Information Technology (IT) education and resources. Santiago et al. (2021) mentions that there are several constraints in the performance of barangay officials in the Philippines, one if this is the use of ICT. To address this gap, the Basic Information Technology Education Services (BITES) program was introduced by the College of Computer Studies of Eastern Samar State University Main Campus, aiming to provide comprehensive IT education and training to residents of selected communities. The program predominantly implemented in Barangay San Gabriel, a selected service community of the institution. The BITES program is designed to enhance the technological skills of individuals, enabling them to navigate and utilize various digital tools and platforms effectively. This initiative is not only focused on bridging the digital divide but also on fostering a culture of lifelong learning and adaptability in a technology-driven society.

This research seeks to evaluate the impact of the BITES program on the technological proficiency of the barangay officials of Barangay San Gabriel. By assessing the program's effectiveness, we can understand how well it equips participants with the necessary IT skills and knowledge. The study aims to identify the transformative changes in participants' ability to use technology for various purposes, such as education, employment, and daily life tasks. Furthermore, this study will explore the broader social and economic implications of improved technological

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proficiency among the residents, including better job opportunities, increased productivity, and improved quality of life. By documenting these outcomes, the research will provide valuable insights into the role of IT education programs like BITES in community development, addressing the critical gap in understanding how such programs contribute to sustainable community growth and empowerment.

OBJECTIVES OF THE STUDY

This research aims to evaluate the impact of the Basic Information Technology Education Services (BITES) program of the College of Computer Studies of Eastern Samar State University - Borongan on enhancing the technological proficiency of Barangay San Gabriel officials, with the aim of improving barangay services and operations. Specifically this study aims to:

1. Determine the demographic profile of respondents;
2. Measure the initial and post-training levels of technological proficiency among barangay officials who participated in the BITES program;
3. Determine if there is a significant difference between the initial and post-training level of technological proficiency among barangay officials; and
4. Evaluate the level of impact of the BITES program in achieving its intended goals and objectives, including participant satisfaction and program delivery.

METHODS

Research Methods

This study employed a descriptive research design facilitated by a survey questionnaire. This approach was chosen because it enables a thorough exploration of the quantitative component, which includes pre- and post-program assessments to gauge shifts in technological proficiency. Descriptive research is particularly suitable for this purpose as it facilitates a comprehensive examination, identification of patterns, and recognition of trends (Akdemir et al., 2015). Its non-experimental nature aligns with the study's objective of observing and describing existing phenomena within the real-world context, without manipulating variables.

Respondents

The respondents for this study will include barangay officials who have participated in the BITES program in Barangay San Gabriel, as well as a representative sample of community members who have interacted with or benefited from the services provided by the barangay officials. This approach ensures a comprehensive understanding of the program's impact from both the participants' and the community's perspectives.

Instrumentation

The questionnaire was developed by the researchers by incorporating the existing institutional impact assessment tool and adding specific parts such as feedback and perceptions of the conducted activity. It was validated by non-participants as they answered the questionnaires while statistician examined the degree of reliability.

Data Analysis

For this study, descriptive statistics was used employing univariate analysis through computations of frequencies, means, and percentages for objectives numbers 1, 2 and 4. For objective 2 and 4, the scale shown below was used to determine the level of technological proficiency of respondents and the impact of the BITES program.

Technological proficiency

4.20 – 5.00 - Highly Proficient
3.40 – 4.19 - Proficient
2.60 – 3.39 - Moderately Proficient
1.80 – 2.59 - Partially Proficient
1.00 – 1.79 – Poorly Proficient

Program Impact

4.20 – 5.00 - Highly Impactful
3.40 – 4.19 - Impactful
2.60 – 3.39 - Moderately Impactful
1.80 – 2.59 - Partially Impactful
1.00 – 1.79 - Low Impact

Paired t-test was used to assess the significant difference between the initial and post-training levels of technological proficiency among barangay officials. The level of significance is set at .05 level of significance for rejecting and accepting the null hypotheses. For objective 5, topic modelling specifically the Latent Dirichlet algorithm was employed to determine the hidden themes within the collection of feedback and responses.

Ethical Considerations

During the conduct of this study, the researcher addressed several ethical issues and concerns to ensure the study was conducted with full confidentiality and anonymity. Adherence to study protocol assessments and standards was observed, particularly in gathering and managing the population and data. Voluntary participation was emphasized, with the purpose and aims of the study explained to respondents to respect their decision to participate. Privacy and confidentiality were strictly maintained, with all data used solely for the study's completion. Plagiarism was avoided by using tools like Turnitin to ensure originality, and the study showed no evidence of fabrication or exaggeration, maintaining the integrity of the research findings.

RESULTS

As can be gleaned in table 1, respodents of the training program were mostly females comprising 71% of the total number of respondents. This suggests a higher participation rate among women in the BITES program, potentially reflecting broader trends in community involvement or interest in technological proficiency among female residents. Meanwhile, the involvement of community leaders, such as the Chairman and Kagawads, underscores the program's potential to influence policy and decision-making processes within the barangay. These findings imply that the BITES program is reaching key stakeholders who can champion the integration of technological proficiency in various community functions. The program's impact is likely to

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be multifaceted, affecting not only individual skill sets but also broader community development and governance.

Table 1. Distribution of Respondents based on Demographic Profile

Demographic Profile	Frequency	Percentage (%)
Gender		
Male	4	29%
Female	10	71%
Position		
Chairman	1	7%
Kagawad	5	36%
Secretary	1	7%
Treasurer	1	7%
BHW	6	43%

Table 2 shows the initial and post-training levels of technological proficiency of the barangay officials who underwent training under the BITES program. The initial training level was rated at 2.00, indicating that participants were only partially proficient in technological skills before the training. After the training, the proficiency level increased significantly to 4.29, categorizing participants as highly proficient. This improvement suggests that the BITES program was effective in enhancing the technological skills of the participants. This is further shown in table 3 where the results of a paired t-test comparing the initial and post-training technological proficiency levels is elucidated. The p-value of less than .001 indicate that the difference between the initial and post-training proficiency levels is statistically significant. This means that the observed improvement in technological proficiency is not due to random chance, but is a reliable and significant outcome of the BITES program. The results demonstrate that the BITES program had a substantial positive impact on the technological proficiency of barangay officials. The significant increase from partial proficiency to high proficiency, as confirmed by the paired t-test, underscores the effectiveness of the program. These results imply that similar IT education initiatives could be highly beneficial in other communities, potentially leading to widespread improvements in technological skills and overall community development. Further, the result in consistent with the finding of Khoir and Davison (2019), mentioning that ICT play a significant role in helping the community members to develop themselves in terms of both economic development and social tie maintenance.

Table 2. Initial and Post-training Levels of Technological Proficiency

Training	Average	Interpretation
Initial Training	2.00	Partially Proficient
Post Training	4.29	Highly Proficient

Table 3. Paired T-test of the Initial and Post-training

Measure 1	Measure 2	t	df	p	Interpretation
Initial Training	Post Training	16.27	23	<.001	Significant

The impact of the BITES program on the participants is clearly demonstrated through various measures, with results showing that the program was highly impactful overall, achieving an average rating of 4.39. Specifically, the relevance of the content to the participants' needs received a rating of 4.3, indicating that the training was highly aligned with what the participants required. The trainer's expertise was rated at 4.23, also reflecting a high level of impact and satisfaction. The training materials provided were deemed impactful with a rating of 4.19, suggesting that while effective, there might be slight room for improvement in this area.

The hands-on practice sessions were particularly beneficial, receiving a rating of 4.5, highlighting the importance of practical experience in learning ICT skills. The duration of the training was rated as impactful at 4.17, indicating that while the length of the training was adequate, some participants might have preferred a different duration. Confidence in using ICT tools after the training was rated at 4.4, and the improvement in performing ICT skills

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was equally rated at 4.4, both showing significant gains in participants' technological capabilities.

The impact on participants' ability to perform their jobs was rated at 4.6, the highest individual rating, emphasizing the direct benefit of the program on job performance. Lastly, the overall quality of the training program was rated at 4.7, indicating that participants found the program to be of exceptionally high quality.

These results suggest that the BITES program was highly effective in meeting the needs of the participants and significantly enhancing their ICT skills and job performance. The high ratings across various aspects of the program imply that it was well-designed, well-delivered, and highly beneficial. This success underscores the potential for such programs to be replicated in other communities to similarly enhance technological proficiency and job performance. Future initiatives could focus on maintaining the strengths of the program while exploring minor adjustments in training materials and duration to maximize impact.

Table 4. Impact of the BITES Program

Relevance of content to your needs	4.3	Highly Impactful
Trainer's expertise	4.23	Highly Impactful
Training materials provided	4.19	Impactful
Hands-on practice session	4.5	Highly Impactful
Duration of the training	4.17	Impactful
Confidence in using ICT tools after this training	4.4	Highly Impactful
Improvement in the performing ICT skills	4.4	Highly Impactful
Impact on your ability to perform your job	4.6	Highly Impactful
Overall quality of the training program	4.7	Highly Impactful
Overall impact	4.39	Highly Impactful

CONCLUSION

The BITES program has demonstrated considerable success in enhancing the technological proficiency of barangay officials in Barangay San Gabriel. Participants exhibited a marked improvement in their ICT skills, progressing from a basic level of proficiency before the training to a highly proficient level after the program. This significant enhancement in skills is supported by statistical evidence, underscoring the effectiveness of the training. Participants reported that the program was highly relevant to their needs and praised the expertise of the trainers. The hands-on practice sessions were particularly impactful, helping participants gain practical experience and confidence in using ICT tools. Additionally, the program had a positive effect on participants' job performance, highlighting its practical benefits in their roles as barangay officials. The program was well-received and considered of high quality, indicating its success in meeting the goals of technological empowerment and skill development.

RECOMMENDATIONS

To build on the success of the BITES program and ensure its continued impact, the following recommendations are proposed:

1. Replicate the BITES program in other barangays and communities to enhance technological proficiency and job performance on a wider scale.
2. Continuously update and diversify the training materials to keep them relevant, engaging, and effective.
3. Evaluate and adjust the training duration based on participant feedback to better meet their preferences and optimize learning outcomes.
4. Establish a follow-up mechanism to provide ongoing support and resources to participants, ensuring sustained proficiency and addressing emerging challenges.

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