Impact Assessment on the Technology-Based Extension Projects: A Basis for Designing Sustainable Extension Activities

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Abstract. This study aimed to conduct an impact assessment on the technology-based extension projects undertaken by the faculty extensionists from the College of Information and Communications Technology to provide a basis for designing sustainable extension activities. Descriptive research was utilized for this study. The researchers employed a survey instrument via Google Form to gather data from the 25 respondents from the city of Cabanatuan, province of Nueva Ecija. Results show that the college caters to a diverse range of beneficiaries. Beneficiary respondents believed that the projects had contributed to their capacity building, computer literacy, and livelihood. Their participation in the extension project made them productive at work and allowed them to develop new knowledge and skills relevant to contributing to community building. The researchers suggest that the results be utilized to design sustainable extension projects, consider partnerships with other higher learning institutions, and conduct regular evaluations and assessments of different extension projects.

Keywords: Community Development; Extension; Impact Assessment; Technology-Based Projects.

INTRODUCTION

One of the fourfold duties of a state university in globalization has a crucial impact on the development of Philippine higher education institutions. It permits the cross-border and cross-cultural exchange of products, technology, information, and other resources [1]. It also enables diverse communities to collaborate and share ideas for improving and enhancing their lives. Higher education institutions (HEIs) are challenged by globalization to pursue excellence continuously.

The four roles of higher education institutions are effective instruction, research, community service, and production. These essential functions contribute to the holistic development of the learner and the community. Teaching is about giving students knowledge and skills, research is about coming up with new theories and practices for the university and the community, community service is about making the community better and affecting the lives of many different people, and production is about getting more resources and making more money [2].

One of the fundamental functions of higher education institutions is to conduct extension initia-

tives. The Commission on Higher Education of the Philippines issued Memorandum Order 52 series of 2016 articulating policies and guidelines on HEI community extension programs for the "provision of space to discover practical, evidence-based, and scientific solutions that can address real-world social, economic, and environmental challenges of partner citizens and communities" [3].

The purpose of extension projects is to assist many stakeholders with sustainable programs and activities. Authors [4] say that an extension project resulted in moderate changes in community knowledge, attitudes, and lifestyles, based on a survey they conducted to evaluate the impact of extension projects done between March 2009 and December 2015. The transfer of learning and the development of new information and skills among beneficiaries for their growth, improvement, and community development might be one of the activities undertaken in an extension project.

Information technology (IT) has become a crucial factor in several businesses' accelerated expansion and advancement. IT contributes to achieving sustainable growth and developing commu-

nities, whether in the health sector, governance, business and corporate industries, agriculture, or education. When extending IT-related activities, programs, and projects, an impact assessment must be done to determine the project's strengths and weaknesses and new opportunities for developing new projects, programs, and services for the community.

This article describes the evaluation of the extension projects completed by faculty extensionists from a higher learning institution in Nueva Ecija, Philippines. The impact assessment results provide a greater understanding of the project's effects on the various beneficiary groups. The study also allows faculty extensionists and the college to develop new initiatives, programs, and activities for the stakeholders' benefit and determine how well they have benefited the various community members.

Statement of the Problem

In general, this study aimed to conduct an impact assessment of the extension project undertaken by the faculty extensionists from the College of Information and Communications Technology.

Specifically, it sought to answer the following:

1. How may the profile of the beneficiaries be described in terms of age, civil status, sector, municipality, income?

2. How may the impact assessment of the extension project be described in terms of capacity-building, computer literacy, livelihood?

3. How may the overall impact assessment of the extension project conducted by faculty extensionists from the College of Information and Communications Technology be described?

4. Is there a significant difference in the beneficiaries' level of knowledge before and after the extension activity?

5. Is there a significant difference between the computer literacy level of the beneficiaries before and after the conduct of the extension activity?

METHODS

The descriptive research design is a quantitative research strategy employed in this study. To clearly understand the population and find solutions to the research topic, the researchers sought to describe it methodically. Researchers were able to figure out how the projects that faculty extensionists from the College of Information and Communication Technology (CICT) worked on affected the community.

The study was conducted in Cabanatuan, Nueva Ecija Province, Philippines. It involved the beneficiaries of different extension projects undertaken by the CICT. From December 2021 to March 2022, twenty-five people volunteered to participate in the impact assessment. The instrument is composed of two parts. The first part includes the demographic profile of the respondents. The second part covers closed-ended questions inquiring about the impact of the extension projects on the respondents' capacity building, computer literacy, and Livelihood.

The instrument used was subjected to face and content validity tests. Reliability analysis was also conducted to assess the project's capacity building, computer literacy, Livelihood, and overall impact.

Table 1 presents the reliability analysis. Calculated Cronbach's alpha for the scales indicates that the instrument was valid and reliable.

Table 1 − Reliability Analysis

Scale	Cronbach's Alpha	No. of Items
Capacity Building	0.905	7
Computer Literacy	0.918	6
Livelihood	0.983	10
Overall Impact Assessment	0.973	9

In the conduct of data gathering, the researchers engaged in a series of activities:

1. Performed a review of related literature and studies relevant to understanding the topic under investigation and the essential steps to be conducted for impact assessment.

2. Sought permission to conduct the study.

3. Utilized Google Forms because the conduct of the data gathering happened during the time of a pandemic.

4. Informed the respondents of the objectives of this study. The implications and impact of their participation were also explained.

5. Respondents were assured that the data gathered were treated with the utmost confidentiality

and anonymity and that their involvement would not cause any harm to them.

6. The researchers collected, analyzed, and interpreted the data using appropriate statistical tools.

Table 2 presents the response mode and scoring guide used for this study.

Table 2 – Response Mode and Scoring Guide

Numerical Rating	Range	Level of Agreement	Level of Impact
4	3.25-4.00	Strongly Agree	Very High Impact
3	2.50-3.24	Agree	High Impact
2	1.75-2.49	Disagree	Low Impact
1	1.00-1.74	Strongly Disagree	Very Low Impact

RESULTS AND DISCUSSION

Profile of the Respondents. The following data show the shape of the CICT's Extension Program beneficiaries from 2016–2020.

Figure 1 presents the age distribution of the beneficiary respondents who participated in the survey conducted by the college. Data show that the beneficiaries came from different age groups: early adults (ages between 20 and 40), middle adults (ages between 40 and 60), and late adults (above 60).
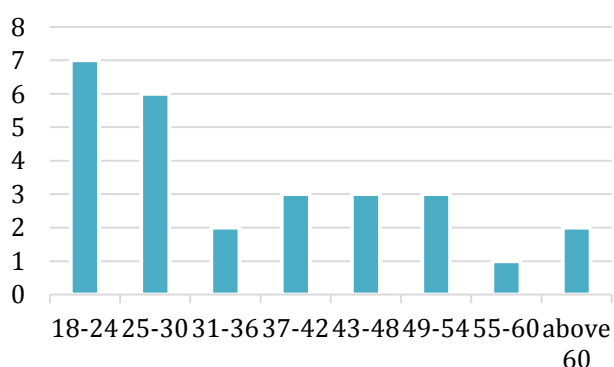

Figure 1 – Age Distribution

This finding implies that the college could reach out to different groups of people through the extension projects and activities that the faculty extensionists had conducted.

Figure 2 below depicts the data on the civil status of the respondents. More than half of the respondents are married (58%).
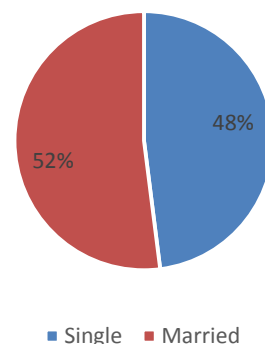

Figure 2 – Civil Status

This finding shows that ICT proficiency is needed by everyone. Even married individuals and/or working parents must gain essential competencies and skills.

Regarding the beneficiaries' place of residence, Figure 3 below shows that most of them, 56%, reside in municipalities outside of Cabanatuan City but still within the province of Nueva Ecija. It is noteworthy that there were also a few beneficiaries who lived outside of the area.
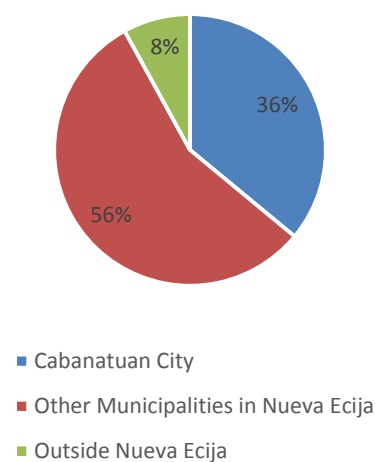

Figure 3 – Place of Residence

This is a good indicator that the college was able to design and implement extension projects that are relevant and interesting to individuals and working professionals who do not reside in the province.

Figure 4 below presents the data on the sectors represented by the extension beneficiaries of the college.
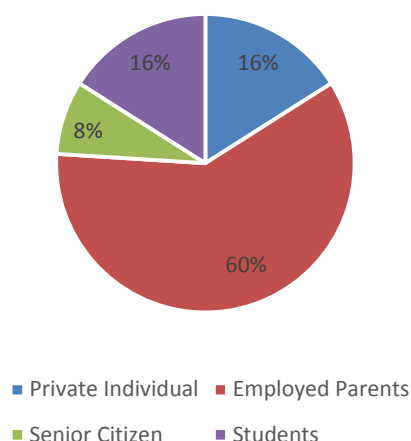

Figure 4 – Sectors They Belong

It can be seen from Figure 4 that 60% of the respondents describe the industry of employed parents. This means that the extension projects designed and conducted by the CICT faculty extensionists focused on the ICT skill- and capability-building of employed individuals and parents.

The data on the monthly family income is shown in figure 5 below. As can be gleaned from the figure, the payment of the respondent-beneficiaries did not have a significant increase from 2016–2020.
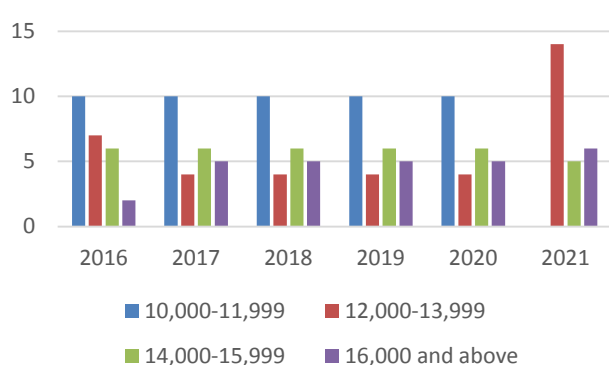

Figure 5 - Monthly family income

This implies that the skills- and capacity-building seminars, training and workshop sessions, and other skill-based extension activities will not immediately impact the individuals' incomes. This further suggests that these individuals be trained or exposed to entrepreneurship training or workshops so they will be able to gain

knowledge on how they can use their technical knowledge to get additional income for their families.

Impact Assessment on Capacity-Building, Computer Literacy, and Livelihood. Table 3 presents the impact assessment results on the extension project in terms of capacity-building for the beneficiaries. Findings show that the overall impact of the extension activity on capacity building has a very high impact on the overall mean score of 3.62. Specifically, the beneficiaries expressed that the learning they had acquired from the extension projects was beneficial to their professions and hobbies (μ = 3.76). The knowledge that the beneficiaries developed from the extension project was relevant (μ = 3.72) and essential for them to start new business ventures (μ = 3.72).

Furthermore, the beneficiaries expressed that the extension projects helped them to land better jobs (μ = 3.60), develop their confidence (μ = 3.52), and produce a new source of possible personal income generation activities (μ = 3.52). Lastly, results show that the knowledge they have developed through the extension project can be shared with others to empower other individuals as well (μ = 3.52). These findings imply that the CICT's extension projects on capability building have been implemented successfully.

Table 3 – Impact Assessment of Extension Project relating to Capacity Building

Item Statements	Mean	Verbal Interpretation
CB1	3.76	Strongly Agree
CB2	3.52	Strongly Agree
CB3	3.52	Strongly Agree
CB4	3.52	Strongly Agree
CB5	3.60	Strongly Agree
CB6	3.72	Strongly Agree
CB7	3.72	Strongly Agree
Grand Mean	3.62	
Verbal Interpretation	Very High Impact	

Table 4 shows the result of the impact assessment of the extension project on computer literacy. The data in table 4 reveals that the overall impact of the extension projects on computer literacy is very high, as reflected in the overall computed mean score of 3.73. Specifically, through these projects, the beneficiaries learned new technological knowledge and developed skills essential to becoming empowered citizens (μ = 3.76). Further, beneficiaries expressed that

their acquired knowledge helped them improve their work quality ($\mu = 3.76$) and expand their computer literacy and skills ($\mu = 3.76$).

Table 4 – Impact Assessment of Extension Project relating to Computer Literacy

Item Statements	Mean	Verbal Interpretation
CL1	3.76	Strongly Agree
CL2	3.72	Strongly Agree
CL3	3.76	Strongly Agree
CL4	3.76	Strongly Agree
CL5	3.68	Strongly Agree
CL6	3.68	Strongly Agree
Grand Mean	3.73	
Verbal Interpretation	Very High Impact	

The knowledge they have gained also assists them in effectively using computers, allowing them to increase their productivity and work efficiency.

Table 5 shows the data on the impact of the extension projects of the college on the Livelihood of the beneficiary-respondents.

Table 5 – Impact Assessment of Extension Project relating to Livelihood

Item Statements	Mean	Verbal Interpretation
L1	3.04	Agree
L2	2.84	Agree
L3	2.64	Agree
L4	2.64	Agree
L5	2.60	Agree
L6	2.64	Agree
L7	2.60	Agree
L8	2.64	Agree
L9	2.60	Agree
L10	2.60	Agree
Grand Mean	2.68	
Verbal Interpretation	High Impact	

As seen from the table, the respondents believed that the extension projects and/or programs they attended impacted their Livelihood, as evidenced by the overall computed mean of 2.68, described as "High Impact". This may not be solely due to their attendance and participation in the extension projects of the college. Still, the learning they have gained from these activities has helped them become more confident in doing their work, making them more productive.

Overall Impact of the Extension Projects. Table 6 below shows the overall impact of the extension projects implemented by the college from 2016-2020.

Table 6 – Overall Impact Assessment of the Extension Project Rendered to the Beneficiaries

Item Statements	Mean	Verbal Interpretation
OIA1	3.04	Agree
OIA2	2.92	Agree
OIA3	2.88	Agree
OIA4	2.80	Agree
OIA5	2.88	Agree
OIA6	2.72	Agree
OIA7	2.80	Agree
OIA8	2.84	Agree
OIA9	2.84	Agree
Grand Mean	2.86	
Verbal Interpretation	High Impact	

The findings reveal that these projects were meaningful to the respondents for the following top three reasons:

1) they increased their productivity ($\mu = 3.04$);

2) they provided an opportunity to help the community ($\mu = 2.92$);

3) they sparked their sense of volunteerism ($\mu = 2.88$). It is, therefore, safe to say that the extension projects of the CICT helped these individuals become productive members of the organizations, in particular, and the community, in general.

Comparison of the Level of Knowledge Before and After the Extension Projects. The table 7 below shows the comparison of the levels of knowledge and capacity of the beneficiaries before and after the conduct of the extension projects.

Table 7 – Difference between the Level of Knowledge/Capacity before and after the Extension Activity

Item	t	df	Sig (2-tailed)	Decision
Before and After the Extension Activity	-20.189	24	0.000	Significant

As seen from the table, the computed p-value of 0.000 indicates a significant difference in the scores given by respondents. This implies that

the respondents believe that their knowledge and capacity have been strengthened after attending the extension program/s of the college.

Comparison of the Level of Computer Literacy Before and After the Extension Projects. Similarly, table 8 shows a significant difference in the rating given by the beneficiaries regarding their computer literacy level before and after the extension activity, as evidenced by the computed p-value of 0.000. This means that the computer literacy level of the respondents has improved significantly.

Table 8 – Difference between the Computer Literacy Level before and after the Extension Activity

Item	t	df	Sig (2-tailed)	Decision
Before and After the Extension Activity	-12.273	24	0.000	Significant

CONCLUSIONS

After the data had been collated and interpreted, the researchers arrived at the following conclusions: They thought that: 1) the College of Information and Communications Technology's extension projects helped a wide range of people; 2) the people who took part in the projects thought that they helped them build their skills, learn how to use computers, and make a living; 3) their participation in the college's skills training and workshops made them more productive at work; 4) the extension projects were a good idea.

Based on the conclusions presented above, the following are recommended: 1) To use the results of this study as a starting point for making community-based extension projects that will last; 2) Think about forming ties or partnerships with other colleges or institutions to make the CICT's extension program better and more valuable; 3) Conduct regular evaluations or assessments of the college's various extension projects so that satisfaction surveys or research can be conducted each school year. This can be a good data source for the following impact assessment survey.

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