

The Perceived Impact of the Community Extension Activities: A Case of the Electrical and Electronics Engineering Programs in a State College in the Philippines

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ABSTRACT This study determines the impact of the extension services and activities conducted by the electrical and electronics engineering programs of the Camarines Sur Polytechnic Colleges, Philippines for the period 2016-2018. Extension services and activities were categorised as skills training, advocacy and outreach programs. Results found that the extent of implementation was moderate. Indicators on the outcomes of skills training were agreed by the respondents, while advocacy and outreach were strongly agreed. Indicators on the impact of skills training on social aspects are strongly agreed upon while economic aspects are agreed upon. The impact of advocacy and outreach programs on social and economic aspects were strongly agreed upon. Likewise, the outcomes of skills training have no relationship on both the social and economic impacts, while advocacy and outreach programs do have a relationship on the social and environmental impacts. Recommendations were proposed to enhance further the extension services and activities of the electrical and electronics engineering programs.

INTRODUCTION

Community development focuses primarily on the attention of the community-building behaviour of individuals and community institutions, which would lead to normative theories about the local conditions necessary to foster resident engagement and skill-building and the collective action required of community institutions (Dorius 2011). It can be understood as a planned effort to build assets that increase the capacity of residents to improve their quality of life. These assets may include several forms of community capital, for instance, physical, human, social, financial, environmental, political, and cultural (Green and Haines 2016). It is a process where government, non-government organisations, the volunteer sector, and even private corporations work together to empower communities and bring about a change in many aspects of community living, especially in the areas of social, economic, cultural as well as environmental (Perkins et al. 2004; Rahim and Asnarulkhadi 2010). The focus of the community development process is the people's involvement, whereby the community members come together to collectively take action to meet their shared goal(s) or generate a solution to a shared problem (Rahim and Asnarulkhadi 2010). Community development is a dynamic process involving all seg-

ments of the locality, including the often-overlooked youth population. The key component of this process is found in the creation and maintenance of channels of interaction and communication among diverse local groups that are otherwise directed toward their more individual interests (Chua et al. 2014).

According to the Higher Education Modernisation Act of 1997, the Commission on Higher Education (CHED) maintains high-quality college education through its trifold functions, which include instruction, research, and community extension service. Due to this, along with instruction and research, the focus of higher education places significant importance on extension services (Montalbo 2016).

Based on CHED Memorandum Order No. 52, series of 2016, extension programs in higher education institutions allow students to find real-world, evidence- and science-based solutions to the social, economic, and environmental problems their partner citizens and communities face. As institutions that produce information and ideas through research and inventions, this new path of extension policy paves the way for improving the populace's lives. It provides a route for sustainable community development.

Extension service generally refers to transferring innovation and technology to a specific clientele to enhance people's way of life. This necessi-

tates that extension work be defined as a well-planned program of bringing research and technology results to rural people to help them solve their production problems. Extension work must also be defined as a democratic and cooperative endeavour among many agencies and groups designed to provide the clientele with the most recent scientific information (Consolacion and Francisco 1988; Ammakiw 2013).

The process of transferring technology and innovation to a specific clientele to enhance people's way of life is known as an extension service. This necessitates that extension work be defined as a well-planned program of bringing research and technology results to the rural people to help them solve their production problems. Extension work must also be defined as a democratic and cooperative endeavour among many agencies and groups designed to provide the clientele with the most recent scientific information (Felicen et al. 2014).

Higher education institutions want to increase their capacities and resources in a community where many lack adequate access to resources and education to better people's lives and build communities. Therefore, extension programs and services are means for higher education institutions to accomplish these objectives.

There are various modalities of extension programs. This can involve students and faculty in assisting local organisations, institutions, and communities with development. Examples of extension activities include skills training, advocacy programs, outreach activities, technical consultancy, technology transfer, etc.

The Camarines Sur Polytechnic Colleges has been actively extending community extension work for so long. This is to ensure the achievement of one of its goals to improve the quality of lives through the conduct of demand-driven and research-based extension services. For the past years, the CSPC has undergone various partnerships with the communities, not just in the Municipality of Nabua but throughout the Rinconada area. With this partnership, a lot of extension works have been accomplished that resulted in the upliftment of the quality of life and the development of the communities in the various barangays in the Rinconada area. Through these extension activities and services, it is important to determine the impact of these activities on the beneficiaries.

Objectives

This study aimed to assess the impact of the electrical and electronics engineering programs' community extension activities and services. Specifically, it sought to determine:

1. The extent of implementation of the extension activities and services as perceived by the extensionists.
2. The outcomes of the activities and services in terms of skills training, advocacy programs, and community outreach.
3. The impact of the extension activities in terms of social, economic and environmental aspects.
4. If there is a significant relationship between the outcomes and the impact of the extension services and activities.
5. To propose recommendations to improve the extension services of the electrical and electronics engineering programs.

MATERIAL AND METHODS

This research is evaluation research. Also known as program evaluation, evaluation research is defined as a form of disciplined and systematic inquiry that is carried out to arrive at an assessment or appraisal of an object, program, practice, activity, or system to provide information that will be of use in decision making (Kellaghan 2010). This entails a structured assessment of the value of resources committed to a project or specific goal. It often adopts social research methods to gather and analyse useful information about organisational processes and products (Mathison 2004).

The first group of respondents is the beneficiaries from the various partner barangays and institutions. The number of beneficiaries was determined based on the documentary analysis conducted on the profile of extension activities and services rendered. Convenience sampling was employed to determine the sample using Slovin formula and the distributions are shown in Table 1.

The second group of respondents are the extensionists/extension workers. Eight (8) faculty-extensionists served as the respondents in assessing the extent of implementation of extension activities and services. The questionnaire was drafted by the researcher using validated questionnaires from other studies. The researcher sought permission to distribute questionnaires to the re-

Table 1: Samples for skills training

<i>Skills training</i>	<i>Beneficiaries</i>	<i>Sample</i>
Electrical Installation and Maintenance under DSWD-SLP	20	13
Electrical Installation and Maintenance under DSWD-SLP	47	31
Electrical Installation and Maintenance under DSWD-SLP	32	21
Electrical Installation and Maintenance under Sustainable Anti-Poverty Project (SAPP)	15	10
Skills Training on Basic Electrical Repair for Household Owners	50	33
Skills Training on Basic Electronic Repair of Appliances and Gadgets for Household Owners	50	33
Total	214	141
<i>Barangay</i>	<i>Beneficiaries</i>	<i>Sample</i>
San Roque Madawon, Nabua, Camarines Sur	120	62
San Miguel, Bato, Camarines Sur	106	55
Ilian, San Nicolas, Iriga City	103	54
Brigada Eskuwela (San Miguel, Bato/ San Antonio National HS, Iriga/ Zeferino Arroyo High School)	45	23
Total	374	194

Note: DSWD-SLP means Department of Social Welfare and Development-Sustainable Livelihood Project

spondents/participants. Various modes of data collection were considered. Due to the pandemic's current health situation, virtual/online modes of data gathering were used.

RESULTS

Extent of Implementation of Extension Services and Activities

The extent of the implementation of extension services and activities is shown in Table 2. These were evaluated by the faculty-extensionists. Overall, the mean rating is 3.38, which is moderately implemented.

Outcomes of Extension Activities and Services

The assessment of the outcomes of skills training, advocacy, and outreach programs are shown in Table 3. For skills training, the overall mean is 3.46, which is interpreted as agree, and for the advocacy and outreach programs, 3.61 and 3.68 respectively, both are interpreted as strongly agree.

Impact of Skills Trainings

The results on the impact of skills training are shown in Table 4. The overall mean for the social impact is 3.53, which is interpreted as strongly agree,

while 3.47 for the economic impact is interpreted as agree.

Table 2: Extent of implementation of extension services and activities

<i>Activities</i>	<i>WI</i>	<i>VI</i>
1. Preparation of project proposal	3.25	MI
2. Consultation with the stakeholders	3.63	FI
3. Conduct of orientation	3.63	FI
4. Use of available materials and other resources	3.38	MI
5. Allotment of time and duration of the activities	3.38	MI
6. Allotment of budget.	2.75	MI
7. Schedule of available time of extensionists/extension workers	3.25	MI
8. Delivery of the necessary skills and information to the beneficiaries	3.75	FI
9. Active participation of the extensionists/workers	3.63	FI
10. Conduct of evaluation after the activity	3.13	MI
Overall Mean	3.38	MI

Legend: WM-Weighted Mean; VI-Verbal Interpretation; FI-Fully Implemented; MI-Moderately Implemented
Note: Cronbach alpha is 0.853 (good)

Impacts of Advocacy and Outreach Programs

The impacts of advocacy and outreach programs are shown in Table 5. The overall mean for social and environmental impacts are 3.63 and 3.67 respectively, and both are interpreted as strongly agree.

Table 3: Outcomes of extension activities and services

<i>Skills training (Cronbach alpha is 0.812-good)</i>		<i>WM</i>	<i>VI</i>
1.	Provided knowledge and skills relevant to the training conducted	3.53	SA
2.	Provided an avenue to build self-confidence and morale	3.46	A
3.	Enhanced ability for decision-making skills	3.49	A
4.	Provided opportunities to meet other people	3.58	SA
5.	Gave opportunities to make behaviour changes	3.43	A
6.	Assisted in finding a job, and/or helped in the present job	3.28	A
7.	Helped in enhancing effectiveness in working with others	3.45	A
	Overall Mean	3.46	A
<i>Advocacy programs (Cronbach alpha is 0.740-acceptable)</i>			
1.	Provided knowledge and information on the various advocacies conducted	3.74	SA
2.	Gave awareness on the basic applications of the various advocacies	3.72	SA
3.	Provided ideas on how to maximise the potential of community resources	3.51	SA
4.	Provided an avenue in the improvement of the way of living	3.44	A
5.	Helped develop and build self-confidence and morale	3.64	SA
	Overall Mean	3.61	SA
<i>Outreach programs (Cronbach alpha is 0.817-good)</i>			
1.	Provided an avenue in developing teamwork and unity between extensionists and beneficiaries	3.89	SA
2.	Helped the community for development in terms of economic and social infrastructure	3.72	SA
3.	Gave the community facilities and other resources	3.53	SA
4.	Helped in keeping the cleanliness and orderliness of the community	3.70	SA
5.	Provided materials and other resources to beneficiaries	3.56	SA
	Overall Mean	3.68	SA

Legend: WM-Weighted Mean; VI-Verbal Interpretation; SA-Strongly Agree; A-Agree

Table 4: Impacts of skills trainings

<i>Social impact (Cronbach alpha is 0.825-good)</i>		<i>WM</i>	<i>VI</i>
1.	Became a productive member of the society	3.45	A
2.	Developed a sense of teamwork and unity	3.49	A
3.	Learned how to value the sense of responsibility	3.52	SA
4.	Boosted self-confidence and morale	3.49	A
5.	Skilled in providing transfer of knowledge to other people	3.48	A
6.	Developed the capacity in maximising and valuing the importance of time	3.59	SA
7.	Helped other people in the community	3.64	SA
8.	Respected, valued and understood other people in the community	3.57	SA
	Overall Mean	3.53	SA
<i>Economic impact (Cronbach alpha is 0.752-acceptable)</i>			
1.	Found job and became employed	3.45	SA
2.	Increased household income	3.48	SA
3.	Bought appliances and other household gadgets	3.44	A
4.	Gained properties and other assets	3.44	A
5.	Sent children to schools	3.55	SA
6.	Sustained family's basic needs	3.51	SA
7.	Provided the family with monetary savings	3.44	A
	Overall Mean	3.47	A

Legend: WM-Weighted Mean; VI-Verbal Interpretation; SA-Strongly Agree; A-Agree

Relationship Between Outcomes and Impacts

The relationship between the outcomes and impacts of extension activities and services are shown in Table 6. The computed values of 0.072

and 0.05 for social and economic impacts respectively, are lesser than the tabular value of 0.166. Thus, the null hypotheses are accepted. For the advocacy program, the computed values are 0.610 and 0.391 for social and environmental aspects,

Table 5: Social impact of advocacy and outreach programs

<i>Social impact (Cronbach alpha is 0.769-acceptable)</i>	<i>WM</i>	<i>VI</i>
1. Became a productive member of the society	3.65	SA
2. Developed a sense of teamwork and unity	3.84	SA
3. Learned how to value the sense of responsibility	3.57	SA
4. Boosted self-confidence and morale	3.68	SA
5. Skilled in providing transfer of knowledge to other people	3.58	SA
6. Developed the capacity in maximising and valuing the importance of time	3.54	SA
7. Helped other people in the community	3.65	SA
8. Respected, valued and understood other people in the community	3.56	SA
Overall Mean	3.63	SA
<i>Environmental impact (Cronbach alpha is 0.803-good)</i>		
1. Sustained cleanliness in the surroundings	3.68	SA
2. Conservation of resources	3.56	SA
3. Conservation of energy	3.76	SA
Overall Mean	3.67	SA

Legend: WM-Weighted Mean; VI-Verbal Interpretation; SA-Strongly Agree; A-Agree

Table 6: Relationship between outcomes and impact

<i>Outcomes</i>	<i>Computed r_s</i>	<i>Critical value at 0.05 level of significance</i>	<i>p-value</i>	<i>Decision on H_o</i>	<i>Interpretation</i>
<i>Skills training</i>					
Social	0.072	0.166	0.395	Accept	NS
Economic	0.050	0.166	0.553	Accept	NS
<i>Advocacy program</i>					
Social	0.610	0.141	0.000	Reject	S
Environmental	0.391	0.141	0.000	Reject	S
<i>Outreach program</i>					
Social	0.717	0.141	0.000	Reject	S
Environmental	0.411	0.141	0.000	Reject	S

Legend: NS-Not Significant; S-Significant

respectively. These values are greater than the tabular value of 0.141. Thus, the null hypotheses are rejected. Lastly, the computed values for social and environmental impacts are 0.717 and 0.411, respectively. These are greater than the tabular value of 0.141. Thus, the null hypotheses are rejected.

DISCUSSION

On the extent of implementation, there were six indicators rated moderately implemented and four indicators as fully implemented. On the preparation of project proposals and evaluation after the activity, it is noted that only some extensionists prepare proposals and conduct evaluations, and only those proponents or project leaders or the extension office do these. The use of available materials and other resources, allotment of budget, time and duration, and schedule of available

time of extensionists were also rated moderately implemented.

The expected outcomes in the conduct of the skills training are majorly agreed upon by the respondents (3.46). These were stated in the various training regulations, which are composed of various competencies that are basic, common and core. Basic competencies contribute to the improvement of the soft skills of the students, such as communication, teamwork, confidence, and the like, while the common and core competencies contribute to the technical skills necessary for the trainees to be learned. All the indicators for the outcomes of advocacy programs were rated by the respondent as strongly agree, having an overall rating of 3.61. Results implied that the advocacy programs conducted by the electrical and electronics engineering programs had achieved the objectives set. The overall rating on the assessment of the outcomes

of outreach programs is 3.68 (strongly agree). Results showed that the outreach programs had achieved the desired outcomes, which included developing teamwork and unity between the extensionists and beneficiaries. It is supported by a study that community extension serves as an avenue to express ideas and work collaboratively with the community (Chavis and Wandersman 1990; Perkins and Long 2002; Addai et al. 2023). Giving the community facilities and other resources and providing materials and resources to the beneficiaries are also outcomes of the outreach programs. This is supported by the study suggesting that participation in community extension programs is critical in bringing benefits to the families in the community (Llenares and Deocaris 2018).

It is noted that for the skills training, the overall rating on the social impact is 3.53, which is strongly agreed. Results showed that skills training is a contributory factor for the development of social aspects of the respondents. Moreover, the overall mean rating on the economic impact of skills training is 3.47 (agree). Most respondents strongly agreed that they found a job, became employed, increased household income, sent children to school, and sustained the family's basic needs. Though some of them currently do not have work due to the pandemic, they rated the indicators on bought appliances and household gadgets, gained properties and other assets, and provided the family with monetary savings as agreed. This implies that all the respondents can provide for the basic needs of their families. Still, some of them cannot provide other material needs such as appliances, assets, and monetary savings. It is further supported by the study of Tawiah (2020), which highlighted the importance of skills training and learning efforts in enhancing economic development. It is also clearly seen that the advocacy and outreach programs are instrumental in developing the social aspects. All the indicators were rated as strongly in agreement, with an overall rating of 3.63. This high result also agrees with the studies of Asio et al. (2022) and Tagalik et al. (2023), that the various advocacy and outreach programs were seen to be important factors in the development of the community toward societal transformation. Likewise, on various advocacy and outreach programs, the respondents strongly agreed on the environmental impact. Through advocacies on power saving and care for electronic gadgets and

appliances, the respondents gained the necessary information relevant to the advocacies resulting in the application of this knowledge in the conservation of resources and energy. With sustained outreach programs on the clean-up drive being conducted regularly, the CSPC and the community have the same goal of achieving a clean and orderly community.

This study found no significant relationship between skills training outcomes and social impact. It can be noted that the outcomes of the training do not affect the social aspects of the beneficiaries. According to some of the beneficiaries, there needs to be more discussions on the part of the basic competencies, which they think is a contributory factor in developing their soft skills such as communication, teamwork, self-confidence, etc. Though the relevant skills were sufficiently discussed through the common and core competencies, sufficient time should also be allotted for the basic competencies. Likewise, it was found that there is no significant relationship between the outcomes of skills training and economic impact. This is because some of the respondents currently do not have work due to the pandemic, and for some who are working, the income they receive is just sufficient for their daily needs.

Further, it was found that there is a significant relationship between the outcomes of advocacy programs and the social and economic impacts. Findings showed that the outcomes of the advocacy programs influence the social and environmental aspects. Through the various advocacies, the social well-being of the respondents improved. They were given the opportunity to be with CSPC in delivering various information relevant to their day-to-day life, which may result in social transformation. Likewise, various involvement in environmental education supports improving environmental attitudes and behaviours (Al Balushi and Ambusaidi 2023), thus affecting environmental changes.

Further, there is found to be a significant relationship between the outcomes of outreach programs and the social and environmental impacts; it is further supported by the study of Maisog (2023) that outreach programs influence the social and environmental aspects. The various outreach programs developed unity and teamwork between the extensionists and the community. It is, along with the goal of the extension services of CSPC, that

the community must feel the presence of CSPC through the various extension services and activities. With these outreach programs, the CSPC and the community were given the opportunity to work together for the common good. Moreover, along with environmental aspects, the outcomes of the clean-up drive initiated by the programs were instrumental in achieving the culture of maintaining the cleanliness of the surroundings.

CONCLUSION

The extension is one of the mandates of higher education institutions. This is a social responsibility of the institution, which aims to build relationships between the school and the community. Extension involves various programs and activities that will require the active participation of both the extensionist/extension workers and the community. Data were gathered from the identified respondents who were the beneficiaries of the various extension services and activities conducted by the electrical and electronics engineering programs. These extension services and activities were categorised as skills training, advocacy, and outreach programs. Evaluation of the extent of implementation of the various services and activities was conducted based on faculty-extensionists' perceptions and was evaluated as moderately implemented. The respondents majorly agreed with the assessment of skills training outcomes, while they strongly agreed on advocacy and outreach programs. On the impact of the skills training, respondents strongly agreed on the social aspect while agreeing on the economic aspect. Likewise, all strongly agreed on the impact of advocacy and outreach programs on both the social and environmental aspects.

RECOMMENDATIONS

Extension services and activities being conducted must be long-term, comprehensive, well-planned, organised, and implemented with the support of the administration, faculty extensionists, students, and the community. Research-based extensions for the programs must also be conducted since almost all the extension services and activities are demand-driven. Active participation of faculty members must be sought since the extension is the least function being performed by the faculty in terms of initiating extension services and

activities, as shown in the involvement of faculty members.

The results of this study found no significant relationship between the outcomes of the skills training to the social and economic impacts. This is because the study was done only 2 or 3 years after conducting the skills training. It is suggested that the extension office must provide intervention to further assist the beneficiaries in their employment. Since this study focused on the beneficiaries' perceived impact of extension services and activities, a holistic impact assessment must be conducted (that is, the inclusion of all the beneficiaries as respondents, impact assessment to be undertaken after 5 years of implementation, etc.). Evaluation and assessment of impact of extension services and activities must be regularly conducted for continuous quality improvement.

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