



Utilization of Research-based Product through Skills Training and Technology Transfer Towards Community

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Abstract

This study explores the role of research-based product utilization in community development through skills training and technology transfer. The extension activity was conducted in three barangays—Unidad, Aras-Asan, and Bacolod—within Cagwait, Surigao del Sur, Philippines, with the Nagkahiusang Kababayenhan of Cagwait (NKC), a women's organization composed of housewives, 4Ps members, unemployed individuals, out-of-school youth, and PWDs, as the primary beneficiaries. Funded under the Sustainable Activities and Fecund Engagement (SAFE) Project through GAA, the initiative provided training in the production of Kangkong Cookies, Puto Bila-Bila (*Eleusine Indica*), and Coco Sweet. A mixed-methods approach was employed to evaluate the effectiveness of the program through a satisfaction assessment of 64 respondents across three barangays. The evaluation, based on a weighted mean rating system, revealed that Kangkong Cookies was most significant in Barangay Bacolod (4.97), while Puto Bila-Bila and Coco Sweet achieved the highest satisfaction ratings (5.00) in Barangays Unidad and Bacolod. The consolidated results indicated that Puto Bila-Bila and Coco Sweet had the highest overall weighted mean (4.98). The study underscores the potential of research-based products in fostering economic opportunities and community resilience. Sustaining these initiatives can further enhance local livelihoods and contribute to long-term community development.

Keywords

Utilization, Innovation, Skills Training, Technology transfer, Community

INTRODUCTION

The utilization of research-based products through skills training and technology transfer is a powerful approach to drive community development and improve lives. By leveraging the knowledge and innovations generated in research institutions and universities, and effectively transferring them to the community, we can create tangible solutions to address local challenges and needs. That aligns with (Madiclum, 2023) that the Extension Office of the University seeks to systematize its impact, particularly in improving the standards of living of the clients in contributing toward poverty alleviation in the communities and nation-building as the research beneficiaries of the research. However, community engagement has been considered a fundamental component (Gilmore, 2020) while universities have, in the last decades, started to reposition themselves in society. Keywords in their endeavors to do so are 'valorization' and 'entrepreneurship' (Blankestien et. al, 2019); Van de Burgwal, et.al. 2019).

In addition, Community engagement provides a medium of collaborating or informing a variety of stakeholders (Seo, 2022), aimed at obtaining public opinions and feedbacks on city planning and development (Aguilar et al., 2021; Fredericks et al., 2020). The integration of research-based products into practical applications is essential for fostering sustainable development and enhancing community livelihoods. The study seek bridge the gap between innovative research outcomes and their real-world implementation. By equipping communities with the necessary skills and transferring cutting-edge technologies, this program seeks to empower individuals, improve productivity, and promote economic growth. This initiative not only enhances the adoption of advanced solutions but also ensures that the benefits

of research are widely accessible, leading to more resilient and self-sufficient communities. Through collaborative efforts and a focus on capacity building, this approach fosters a culture of innovation and knowledge-sharing that drives long-term progress and societal well-being.

OBJECTIVES

The primary objective of the study is to empower communities by providing them with the knowledge, skills, and resources necessary to effectively adopt and utilize innovative research-based products. The initiative aims to: equip community members with the technical skills and knowledge required to implement and sustain research-based products through targeted skills training programs. Ensure the successful transfer of relevant technologies from research institutions to community settings, enabling practical applications that address local needs. Support the integration of research-based solutions into everyday practices, thereby improving productivity, enhancing livelihoods, and contributing to the overall well-being and resilience of the community. Encourage a culture of innovation by fostering partnerships between researchers, industry, and community stakeholders, ensuring that research outputs are tailored to meet the specific challenges and opportunities within the community. Continuously assess the effectiveness of skills training and technology transfer activities to ensure that they are meeting the desired outcomes and making a tangible difference in the community.

METHODOLOGY

The research design used in the study is mixed method. There are series of interview and Q&A's as to the re-demonstration of the beneficiaries after the proponents shared the knowledge and skills to them. After the series of extension activity conducted, the beneficiaries answered the evaluation sheet for us to know if they are satisfied with the activity. The implementation of the extension activity was funded by GAA specifically the DBM in the Sustainable Activities and Fecund Empowerment (SAFE) Project by the proponents. In this project are composed of many activities and one of the activities were technology transfer through skills training of Kangkong Cookies, Puto Bila Bila and Coco Sweet a research-based products in three adapted barangays of NEMSU Cagwait Campus.

RESULTS AND DISCUSSION

Table 1 Skills training and technology transfer on Kangkong Cookies

Criteria	Unidad (Mean)	Aras-asan (Mean)	Bacolod (Mean)	Grand Mean	SD
1. Relevance of Program	5	4.90	5	4.97	0.04
2. Impact to Beneficiaries/Participants	4.83	4.84	5	4.89	0.07
3. Choice of Topic	4.76	4.91	4.9	4.86	0.06
4. Conduct of Extension Services on Time	4.93	4.91	4.9	4.91	0.01
5. Properly planned and well-managed activity	4.90	4.90	5	4.93	0.04
6. Monitored and Evaluated	4.93	4.81	5	4.91	0.07
7. Extended Programs and Services are Sustainable with Funding Support from the Administration	4.95	4.88	5	4.94	0.04
Grand Mean	4.90	4.87	4.97		

In Table 1 shown high ratings indicate positive reception and overall effectiveness of the extension services. Extension programs play a crucial role in bridging research and community needs by enhancing skills, transferring knowledge, and promoting sustainable practices (Rivera & Alex, 2004). The data suggests that Barangay Bacolod has achieved the highest effectiveness in implementing extension programs, possibly due to stronger community engagement and administrative support. As to the relevance of the program, with grand mean of 4.97 and 0.04 standard deviation, this suggests that the topics and activities of the extension services align well with the community's needs. Studies highlight that relevance is a critical factor in successful extension initiatives (Leeuwis, 2004), ensuring that programs are demand-driven rather than supply-driven. The sustainability of extension programs is highly rated, indicating strong financial and administrative support. Effective funding mechanisms contribute to long-term impact and scalability (Anderson & Feder, 2007). This suggests that the program's sustainability strategies are well implemented across locations.

Among the 7 indicator of extension activities, the table 2 shows that the barangay got the highest weighted mean of 5 are Unidad and Aras-asan. It is evident that Puto Bila-Bila is significant to the said barangays. These findings align with previous studies emphasizing the importance of well-structured community extension programs in promoting sustainable livelihood initiatives (Alfonso, 2020; Cruz & Reyes, 2019). Proper planning, execution, and funding support are critical in ensuring the long-term viability of such programs (Gonzales et al., 2021). The success of Puto Bila-Bila serves as a model for other community-based initiatives, underscoring the significance of stakeholder involvement and program adaptability to local contexts.

Table 2 Skills training and technology transfer on Puto Bila-Bila

Extension Activities	Unidad	Aras-Asan	Bacolod	Total
1. Relevance of Program	5	5	5	5
2. Impact to Beneficiaries/Participants	5	5	5	5
3. Choice of Topic	5	5	5	5
4. Conduct of Extension Services on Times	5	5	4.9	4.96
5. Properly Planned and Well-Managed Activity	5	5	4.9	4.96
6. Monitored and Evaluated	5	5	5	5
7. Extended Programs and Services are Sustainable with Funding Support from the Administration	5	5	5	5
Total	5	5	4.97	

Table 3 Skills training and technology transfer on Coco Sweet

Extension Activities	Unidad	Aras-Asan	Bacolod	Total
1. Relevance of Program	5	5	5	5
2. Impact to Beneficiaries/Participants	5	5	5	5
3. Choice of Topic	5	5	5	5
4. Conduct of Extension Services on Times	5	5	4.9	4.96
5. Properly Planned and Well-Managed Activity	5	5	4.9	4.96
6. Monitored and Evaluated	5	5	5	5
7. Extended Programs and Services are Sustainable with Funding Support from the Administration	5	5	5	5
Total	5	5	4.97	

The results of the skills training and technology transfer on Coco Sweet, as presented in Table 3, indicate a highly positive evaluation across all assessed criteria. The extension activities received perfect scores (5.0) in most categories, including program relevance, impact on beneficiaries, topic choice, monitoring and evaluation, and sustainability with administrative funding. The slight variation in scores for the conduct of extension services (4.96) and proper planning and management (4.96) in Bacolod suggests minor areas for improvement but still reflects a well-executed program overall. These findings highlight the effectiveness of the initiative in delivering relevant and impactful training to participants. The results align with best practices in extension service programs, emphasizing structured planning, timely execution, and sustainability (Rivera & Qamar, 2003).

Table 4 Consolidated as to barangays utilized the research-based food products

Extension Activities	Kangkong Cookies	Puto Bila-Bila	Coco Sweet	Total
1. Relevance of Program	4.97	5	5	5
2. Impact to Beneficiaries/Participants	4.89	5	5	5
3. Choice of Topic	4.86	5	5	5
4. Conduct of Extension Services on Times	4.91	4.96	4.96	4.96
5. Properly Planned and Well-Managed Activity	4.93	4.96	4.96	4.96
6. Monitored and Evaluated	4.91	5	5	5
7. Extended Programs and Services are Sustainable with Funding Support from the Administration	4.94	5	5	5
Total	4.91	4.98	4.98	

The findings in Table 4 indicate that the research-based food products introduced through extension activities were highly rated across all criteria, demonstrating their effectiveness and relevance to the community. The overall ratings ranged from 4.86 to 5, with the highest scores (5) observed in key areas such as program relevance, impact on beneficiaries, and sustainability. The slightly lower scores, such as 4.86 for the choice of topic, suggest minor areas for improvement, though the general assessment remains overwhelmingly positive. The results affirm that the extension services were well-managed, timely, and impactful, aligning with best practices in community-based interventions (Garcia & Santos, 2021). The high ratings in sustainability further emphasize the potential for long-term benefits when administrative support is present. These findings support the effectiveness of structured extension programs in promoting food innovation and community engagement.

CONCLUSION

Based on the findings of the study, three barangays—Unidad, Aras-Asan, and Bacolod—served as partner agencies of the university. The beneficiaries of the extension activity included NKC's, out-of-school individuals, the unemployed, and persons with disabilities (PWDs). The utilization of research-based food products such as Kangkong Cookies, Puto Bila-Bila, and Coco Sweet in skills training through technology transfer proved to be highly significant to the beneficiaries, as reflected in the highest weighted mean scores. This indicates the effectiveness of the program in addressing community needs and promoting livelihood opportunities.

RECOMMENDATION

The North Eastern Mindanao State University – Cagwait Campus should continuously monitor and evaluate the utilization of research-based food products to ensure sustainability and maximize the project's impact. Aligning extension activities with the needs and available resources of the beneficiaries is crucial for long-term success. Moreover, the continuation of extension projects is recommended to further empower community engagement and uphold the university's commitment to social responsibility.

ACKNOWLEDGMENTS

The proponent expresses deep gratitude to the partner agencies and beneficiaries for their unwavering support in implementing the extension services in their barangays. Special thanks also go to the NEMSU Administration for funding the research-based products, allowing the university to extend its services and contribute to community development.

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