

## Keywords

Community Extension, Impact Assessment, University Extension Services, Community Empowerment, Sociotechnology Training, Livelihood Development, Program Evaluation

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# Impact Assessment of Parents' Empowerment and Development through Sociotechnology Trainings in Base Camp, Maramag, Bukidnon (Phase 1)

## Abstract

Community extension programs serve as a vital mechanism through which higher education institutions fulfill their social responsibility by transferring knowledge, technology, and practical skills to underserved communities. This study evaluated the impact of the Parents' Empowerment and Development through Sociotechnology Trainings implemented by the College of Human Ecology, Central Mindanao University, in Base Camp, Maramag, Bukidnon. Specifically, the study aimed to determine the socio-demographic profile of the beneficiaries, assess the impact of the extension program on participants' knowledge, skills, attitudes, values, economic well-being, and environmental awareness, identify the challenges encountered during program implementation, and evaluate the overall effectiveness of the extension activities.

A descriptive research design employing both quantitative and qualitative approaches was utilized. Twenty-three beneficiaries participated in the study through a structured survey questionnaire, key informant interviews, and focus group discussions. Descriptive statistics, weighted means, frequencies, percentages, and paired-sample t-tests were employed to analyze the collected data.

The findings revealed that the extension program significantly improved participants' knowledge, practical skills, values, and attitudes toward responsible parenting, livelihood development, food safety, environmental conservation, and income-generating activities. Participants reported increased household income following the training, largely attributed to the establishment of small livelihood enterprises utilizing the skills acquired during the extension activities. Statistical analysis demonstrated significant improvements across all assessed domains ( $p < 0.001$ ). Furthermore, beneficiaries highly rated the relevance, effectiveness, efficiency, and sustainability of the program. No major challenges were reported during the planning, implementation, and monitoring phases, reflecting effective collaboration between the university and the partner community.

The study concludes that sociotechnology-based extension programs contribute substantially to community empowerment by enhancing human capital, promoting sustainable livelihoods, and strengthening community resilience. Continuous implementation, regular monitoring, and the development of long-term impact assessment mechanisms are recommended to maximize the sustainability of university extension initiatives.

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## 1. INTRODUCTION

Higher education institutions (HEIs) play a fundamental role in national development by generating knowledge and extending scientific, technological, and social innovations beyond the confines of the classroom. In addition to instruction and research, extension services constitute one of the four major functions mandated for Philippine higher education institutions under Republic Act No. 7722. Through extension programs, universities bridge the gap between academic knowledge and community needs by delivering relevant technologies, practical skills, and educational interventions that contribute to improving the quality of life of marginalized populations.

Community extension has evolved from a traditional knowledge-transfer approach into a participatory process that empowers communities to become active partners in development. Rather than merely disseminating information, contemporary extension programs emphasize capacity building, stakeholder engagement, sustainable livelihood development, and social transformation. Universities therefore function not only as centers of academic excellence but also as catalysts for inclusive community development by addressing socioeconomic, educational, environmental, and health-related concerns.

Central Mindanao University (CMU), through its Extension Office and various academic colleges, has consistently implemented community-based extension programs aligned with its institutional vision of promoting sustainable development and social responsibility. The College of Human Ecology actively conducts sociotechnology training programs that integrate family development, responsible parenting, nutrition, food processing, handicraft production, livelihood enhancement, and environmental conservation. These interventions aim to strengthen family welfare while simultaneously improving household income and community resilience.

Among the partner communities of the College of Human Ecology is Barangay Base Camp in the Municipality of Maramag, Bukidnon. The community has benefited from a series of extension activities designed to enhance the knowledge, skills, attitudes, and values of parents through practical and sustainable technologies appropriate to their socioeconomic conditions. Training programs included responsible parenting seminars, conflict management, sewing and handicraft production, food safety and sanitation, food processing, nutrition education, and entrepreneurial development.

While numerous extension activities have been implemented over the years, systematic evaluation of their long-term outcomes remains limited. Measuring the impact of extension programs is essential to determine whether the intended objectives have been achieved and whether the interventions have generated meaningful improvements in the lives of beneficiaries. Impact assessment also provides valuable evidence for institutional planning, resource allocation, policy formulation, and continuous improvement of future extension initiatives. Furthermore, documenting measurable outcomes strengthens the accountability of

higher education institutions in fulfilling their public service mandate.

Previous studies have demonstrated that effective community extension programs enhance participants' knowledge and technical competencies, improve livelihood opportunities, strengthen social relationships, and encourage environmentally responsible behaviors. However, the magnitude of these impacts varies depending on community participation, program design, institutional support, and sustainability mechanisms. Consequently, regular assessment is necessary to determine the effectiveness of extension interventions within specific local contexts.

This study was therefore conducted to evaluate the impact of the Parents' Empowerment and Development through Sociotechnology Trainings implemented by the College of Human Ecology at Base Camp, Maramag, Bukidnon. Specifically, it assessed changes in beneficiaries' knowledge, skills, attitudes and values, economic conditions, and environmental awareness following their participation in the extension program. The findings are expected to provide empirical evidence that can guide the continuous improvement of community extension programs and strengthen the university's contribution to sustainable community development.

## 2. LITERATURE REVIEW

### University Extension Programs and Community Development

Community extension is recognized as one of the fundamental functions of higher education institutions (HEIs), complementing instruction and research in promoting sustainable societal development. Universities are expected not only to generate knowledge but also to ensure that such knowledge reaches communities through outreach initiatives, capacity-building programs, and technology transfer. Extension services facilitate collaboration between academic institutions and local communities by addressing pressing social, economic, educational, environmental, and health-related challenges.

The Commission on Higher Education (CHED) mandates Philippine higher education institutions to actively engage in community development through extension services under Republic Act No. 7722. These programs provide opportunities for universities to respond to community needs while simultaneously enriching faculty expertise and student learning through experiential engagement. Effective extension initiatives strengthen institutional social responsibility and contribute directly to the achievement of national and local development goals.

Several studies have demonstrated that successful university extension programs improve beneficiaries' livelihood opportunities, health practices, educational awareness, and community participation. Sustainable extension programs emphasize participatory planning, community ownership, and continuous monitoring to ensure long-term impact rather than one-time interventions.

### Community Empowerment through Sociotechnology

Community empowerment refers to enabling individuals and groups to gain knowledge, confidence, skills, and resources necessary to improve their living conditions.

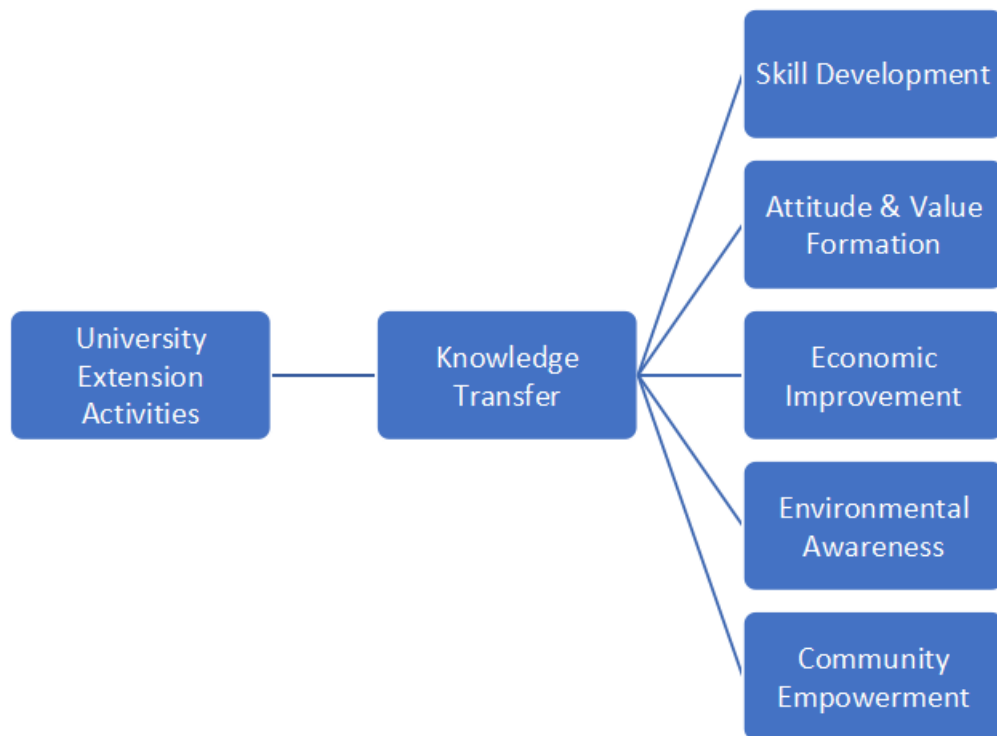
Sociotechnology combines social interventions with practical technologies that are locally appropriate, affordable, and sustainable. Through sociotechnology training, communities acquire practical competencies that directly address household and livelihood needs.

Programs involving livelihood development, handicraft production, food processing, responsible parenting, nutrition education, and environmental conservation have consistently demonstrated positive impacts on household income, women's participation, family well-being, and community resilience.

Empowerment is generally reflected through improvements in:

- Knowledge acquisition
- Practical skills
- Positive attitudes
- Values formation
- Economic independence
- Environmental responsibility

These dimensions collectively contribute to improving overall quality of life.



**Figure: 1- Conceptual Framework of Community Empowerment through Sociotechnology Training**

#### **Knowledge, Skills, Attitudes and Values (KSAV) Framework**

Many extension evaluations adopt the Knowledge–Skills–Attitudes–Values (KSAV) framework because behavioral change occurs progressively. Knowledge represents cognitive understanding gained through education and training. Skills refer to the ability to practically apply acquired knowledge in everyday situations. Attitudes reflect individuals' perceptions, beliefs, and willingness to adopt positive behaviors, while values influence long-term decision-making and personal responsibility.

Extension interventions are considered successful when improvements occur simultaneously across all KSAV dimensions. Numerous studies have shown that livelihood and family development training significantly increase participants' confidence, decision-making ability, and willingness to adopt innovative practices.

In community-based extension, knowledge alone is insufficient unless translated into practical skills and

reinforced by positive attitudes and values that sustain behavioral change over time.

#### **Livelihood Development through Extension Programs**

Livelihood enhancement remains one of the primary objectives of university extension services. Capacity-building programs focusing on food processing, handicraft production, entrepreneurship, and financial literacy enable beneficiaries to diversify income sources and improve household economic stability.

Previous studies have found that participants who receive practical livelihood training often establish micro-enterprises or engage in home-based production activities that generate supplementary income. Such interventions contribute to poverty reduction while strengthening household resilience against economic uncertainties.

Moreover, entrepreneurship-oriented extension programs encourage innovation by utilizing locally available resources, recyclable materials, and indigenous knowledge systems to create marketable products.



**Figure 2: Community Empowerment Process**

### **Environmental Sustainability in Community Extension**

Environmental sustainability has become an integral component of community extension programs. Universities increasingly integrate waste management, recycling, food safety, sanitation, and environmental conservation into extension activities to promote sustainable community practices.

Training beneficiaries on transforming recyclable materials into handicrafts not only creates livelihood opportunities but also contributes to environmental preservation. Likewise, promoting proper food safety practices reduces health risks while improving household sanitation.

Studies consistently report that environmental awareness significantly increases following community education programs, particularly when participants actively engage in hands-on activities.

### **Program Evaluation and Impact Assessment**

Impact assessment is a systematic process used to determine whether extension programs achieve their intended objectives. Unlike output evaluation, which

measures activities conducted, impact assessment evaluates changes experienced by beneficiaries after participating in extension interventions.

Common dimensions assessed include:

- Knowledge improvement
- Skill enhancement
- Behavioral change
- Economic benefits
- Environmental awareness
- Community satisfaction
- Sustainability

Program evaluation commonly utilizes the OECD-DAC evaluation criteria:

- Relevance
- Effectiveness
- Efficiency
- Impact
- Sustainability

These dimensions provide a comprehensive assessment of extension performance and guide continuous program improvement.

**Table 1: Extension Evaluation Dimensions**

| Evaluation Dimension | Purpose                                 |
|----------------------|-----------------------------------------|
| Relevance            | Measures alignment with community needs |
| Effectiveness        | Determines achievement of objectives    |
| Efficiency           | Evaluates resource utilization          |
| Impact               | Measures long-term changes              |
| Sustainability       | Assesses continuity of benefits         |

### **3. RESEARCH GAP**

Previous studies have consistently demonstrated the significant role of university extension programs in promoting community development, improving livelihoods, and enhancing beneficiaries' knowledge and skills. Likewise, sociotechnology-based interventions have been recognized as effective approaches for empowering communities through technology transfer, capacity building, and sustainable livelihood initiatives. Existing research has also highlighted the importance of

extension services in fostering environmental awareness, responsible parenting, and community participation.

Despite these contributions, most published studies have primarily focused on evaluating participants' satisfaction, immediate learning outcomes, or the implementation process of extension programs. Relatively few studies have comprehensively assessed the multidimensional impact of university extension initiatives by simultaneously examining changes in beneficiaries' knowledge, skills, attitudes and values, economic conditions, and environmental awareness. Furthermore,

there remains limited empirical evidence on the long-term effectiveness of integrated sociotechnology training programs implemented by higher education institutions in rural communities, particularly within the context of Bukidnon, Philippines.

In addition, previous evaluations have rarely incorporated both quantitative and qualitative approaches to provide a holistic assessment of extension outcomes. The integration of statistical analyses with beneficiaries' lived experiences is essential for understanding not only whether changes occurred but also how and why these changes contributed to community empowerment and sustainable development.

To address these gaps, the present study evaluates the impact of the Parents' Empowerment and Development through Sociotechnology Trainings (Phase 1) implemented by the College of Human Ecology, Central Mindanao University, in Barangay Base Camp, Maramag, Bukidnon. By examining multiple dimensions of program outcomes—including knowledge, skills, attitudes and values, economic improvement, environmental awareness, implementation challenges, and overall program effectiveness—this study provides a comprehensive evaluation of the extension program and contributes empirical evidence to strengthen future university-community engagement initiatives and extension policy development.

#### 4. RESEARCH OBJECTIVES

The primary objective of this study was to evaluate the impact of the Parents' Empowerment and Development through Sociotechnology Trainings (Phase 1) implemented by the College of Human Ecology, Central Mindanao University, among the beneficiaries in Base Camp, Maramag, Bukidnon.

Specifically, the study aimed to:

1. Describe the socio-demographic characteristics of the respondents in terms of age, sex, civil status, household size, household type, number of children, religion, ethnicity, language spoken, educational attainment, monthly household income, source of income, and occupation.
2. Assess the impact of the extension program on the respondents' knowledge acquired through the sociotechnology training activities.
3. Determine the extent to which the extension program enhanced the respondents' practical skills in livelihood development, food processing, handicraft production, responsible parenting, and related community-based activities.
4. Evaluate the influence of the extension program on the respondents' attitudes and values toward family development, community participation, environmental stewardship, and lifelong learning.
5. Assess the economic impact of the extension program by examining changes in the respondents' household income and livelihood opportunities after participating in the training.

6. Determine the environmental impact of the extension program by assessing improvements in environmental awareness and the adoption of sustainable practices among the respondents.

7. Examine whether significant differences existed in the respondents' knowledge, skills, attitudes, and values, economic condition, and environmental awareness before and after participation in the extension program.

8. Identify the challenges encountered during the planning, implementation, and monitoring of the extension activities.

9. Evaluate the overall effectiveness of the extension program in terms of relevance, effectiveness, efficiency, and sustainability.

#### 5. MATERIALS AND METHODS

##### Research Design

This study employed a descriptive research design using a mixed-methods approach to assess the impact of the Parents' Empowerment and Development through Sociotechnology Trainings (Phase 1) implemented by the College of Human Ecology, Central Mindanao University. The descriptive quantitative approach was utilized to determine the extent of changes in the respondents' knowledge, skills, attitudes, and values, economic condition, and environmental awareness following their participation in the extension program. Qualitative methods, including Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs), were conducted to supplement the quantitative findings by providing in-depth insights into the beneficiaries' experiences and perceptions regarding the extension activities.

The integration of quantitative and qualitative data enabled a comprehensive evaluation of the program's effectiveness and its contribution to community empowerment.

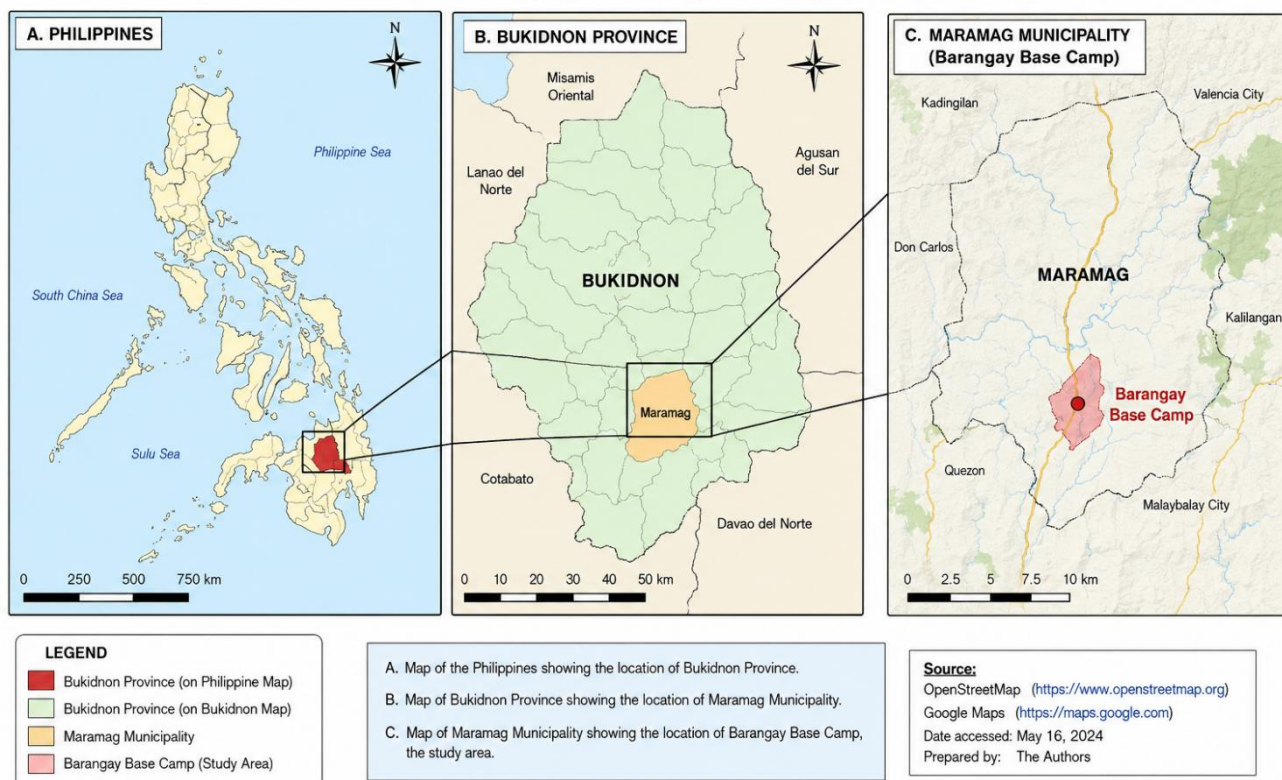
##### Study Area

The study was conducted in Barangay Base Camp, Municipality of Maramag, Province of Bukidnon, Philippines. Barangay Base Camp is one of the partner communities of the College of Human Ecology under its community extension program. The area was purposively selected because it has been the recipient of various sociotechnology extension activities focusing on responsible parenting, livelihood development, food processing, handicraft production, nutrition education, and environmental conservation.

Maramag is predominantly an agricultural municipality where farming serves as the primary source of livelihood for most households. Despite its agricultural potential, many families continue to experience socioeconomic challenges that necessitate continuous capacity-building interventions. The implementation of the Parents' Empowerment and Development through Sociotechnology Trainings was intended to strengthen household capabilities by providing practical knowledge and skills that support sustainable livelihoods and improve family well-being.



Figure 1. Location Map of Barangay Base Camp, Maramag, Bukidnon, Philippines



**Figure 1. Geographic location of Barangay Base Camp, Municipality of Maramag, Bukidnon, Philippines, the study area for the assessment of the Parents' Empowerment and Development through Sociotechnology Trainings.**

### Respondents of the Study

The respondents of the study consisted of 23 beneficiaries who participated in the Parents' Empowerment and Development through Sociotechnology Trainings conducted by the College of Human Ecology. The respondents were selected because they had completed the extension activities and were capable of providing information regarding the program's impact. Participation in the study was voluntary. Only beneficiaries who attended the training sessions and provided informed consent were included in the evaluation. Respondents represented different demographic and socioeconomic backgrounds, allowing the study to capture a broad perspective on the effectiveness of the extension program.

### Sampling Technique

A purposive sampling technique was employed in selecting the respondents. This non-probability sampling method was considered appropriate because the study specifically targeted individuals who had participated in the extension program. Since the primary objective of the research was to evaluate the impact of the training activities, only beneficiaries who possessed direct experience with the intervention were included in the study.

Purposive sampling ensured that the collected data were obtained from respondents who were knowledgeable about the program and capable of providing reliable information regarding its outcomes.

### Research Instrument

Data were collected using a researcher-developed structured questionnaire designed based on the objectives

of the study and existing literature on extension program evaluation. Before its administration, the questionnaire was reviewed by experts in community extension and research to establish its content validity. Necessary revisions were incorporated based on the recommendations of the validators.

The questionnaire consisted of several sections. The first section gathered the respondents' demographic information. The succeeding sections measured the perceived impact of the extension program on knowledge acquisition, skills development, attitudes and values, economic improvement, and environmental awareness using a five-point Likert scale. Additional items assessed the challenges encountered during program implementation and the overall effectiveness of the extension activities.

To complement the survey data, Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) were conducted with selected beneficiaries. These qualitative methods provided detailed information regarding participants' experiences, perceived benefits, and suggestions for improving future extension programs.

### Data Collection Procedure

Before data collection, permission to conduct the study was obtained from the appropriate university authorities and the local government officials of Barangay Base Camp, Maramag, Bukidnon. The objectives of the study were explained to the respondents, and informed consent was obtained before administering the questionnaire.

The survey questionnaires were personally distributed and collected by the researchers to ensure completeness and accuracy of responses. During the data collection

process, Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) were also conducted to validate and enrich the quantitative findings. Responses from the interviews were documented and organized for thematic analysis.

After data collection, all questionnaires were checked for completeness, coded, and encoded into Microsoft Excel before being transferred to the Statistical Package for the Social Sciences (SPSS) for statistical analysis.

#### Data Analysis

The collected data were analyzed using both descriptive and inferential statistical techniques. Frequency counts and percentages were used to summarize the demographic characteristics of the respondents. Weighted means and standard deviations were computed to determine the respondents' level of agreement regarding the impact of the extension program on knowledge, skills, attitudes and values, economic condition, environmental awareness, and program effectiveness.

To determine whether significant differences existed between the respondents' conditions before and after participating in the extension program, a paired-sample t-

test was employed. The level of statistical significance was set at  $p < 0.05$ . Qualitative data obtained from the Key Informant Interviews and Focus Group Discussions were analyzed using thematic analysis, allowing the researchers to identify recurring themes that supported and explained the quantitative findings.

#### Ethical Considerations

Ethical principles were strictly observed throughout the conduct of the study. Participation was entirely voluntary, and respondents were informed of the objectives, procedures, potential benefits, and confidentiality of the research before providing their consent. Participants were assured that their responses would be used solely for academic and research purposes and that their identities would remain anonymous.

The respondents were informed of their right to withdraw from the study at any stage without any negative consequences. All collected data were treated with the utmost confidentiality and stored securely to protect participants' privacy. The study adhered to the ethical standards of Central Mindanao University concerning research involving human participants.

## 6. RESULTS

**Table 1. Profile of the Respondents, Base Camp, Maramag, Bukidnon, June 2022**

| Age              | Frequency | Percent |
|------------------|-----------|---------|
| 24               | 1         | 4.30    |
| 27               | 1         | 4.30    |
| 28               | 1         | 4.30    |
| 30               | 1         | 4.30    |
| 31               | 1         | 4.30    |
| 33               | 2         | 8.70    |
| 35               | 2         | 8.70    |
| 36               | 2         | 8.70    |
| 38               | 1         | 4.30    |
| 39               | 2         | 8.70    |
| 40               | 1         | 4.30    |
| 42               | 2         | 8.70    |
| 44               | 2         | 8.70    |
| 47               | 1         | 4.30    |
| 48               | 1         | 4.30    |
| 53               | 1         | 4.30    |
| 65               | 1         | 4.30    |
| Total            | 23        | 100.00  |
| Gender           | Frequency | Percent |
| Male             | 0         | 0.00    |
| Female           | 23        | 100.00  |
| Total            | 23        | 100.00  |
| Civil Status     | Frequency | Percent |
| Single           | 1         | 4.30    |
| Married          | 20        | 87.00   |
| Widow            | 1         | 4.30    |
| Others           | 1         | 4.30    |
| Total            | 23        | 100.00  |
| Household Number | Frequency | Percent |
| 1                | 2         | 8.70    |
| 2                | 2         | 8.70    |
| 3                | 2         | 8.70    |
| 4                | 6         | 26.10   |
| 5                | 8         | 34.80   |

|                               |                  |                |
|-------------------------------|------------------|----------------|
| 6                             | 2                | 8.70           |
| 8                             | 1                | 4.30           |
| Total                         | 23               | 100.00         |
| <b>Type of Household</b>      | <b>Frequency</b> | <b>Percent</b> |
| Single Family                 | 18               | 78.30          |
| Extended Family               | 4                | 17.40          |
| Two or more                   | 1                | 4.30           |
| Total                         | 23               | 100.00         |
| <b>Number of Children</b>     | <b>Frequency</b> | <b>Percent</b> |
| 1                             | 4                | 17.40          |
| 2                             | 8                | 34.80          |
| 3                             | 7                | 30.40          |
| 4                             | 2                | 8.70           |
| 6                             | 2                | 8.70           |
| Total                         | 23               | 100.00         |
| <b>Religious Affiliation</b>  | <b>Frequency</b> | <b>Percent</b> |
| Roman Catholic                | 22               | 95.70          |
| Baptist                       | 1                | 4.30           |
| Total                         | 23               | 100.00         |
| <b>Ethnic Origin</b>          | <b>Frequency</b> | <b>Percent</b> |
| Cebuano                       | 14               | 60.90          |
| Talaandig                     | 1                | 4.30           |
| Ilonggo                       | 4                | 17.40          |
| Tagalog                       | 1                | 4.30           |
| Boholano                      | 1                | 4.30           |
| Others                        | 2                | 8.70           |
| Total                         | 23               | 100.00         |
| <b>Language Spoken</b>        | <b>Frequency</b> | <b>Percent</b> |
| Bisaya                        | 20               | 87.00          |
| Ilonggo                       | 2                | 8.70           |
| Tagalog                       | 1                | 4.30           |
| Total                         | 23               | 100.00         |
| <b>Educational Attainment</b> | <b>Frequency</b> | <b>Percent</b> |
| High School Level             | 2                | 8.70           |
| High School Graduate          | 17               | 73.90          |
| College Level                 | 4                | 17.40          |
| Total                         | 23               | 100.00         |
| <b>Monthly Salary</b>         | <b>Frequency</b> | <b>Percent</b> |
| 1,000-3,000                   | 6                | 26.10          |
| 3,001-5,000                   | 5                | 21.70          |
| 5,001-7,000                   | 7                | 30.40          |
| 7,001-9,000                   | 1                | 4.30           |
| 9,001-11,000                  | 1                | 4.30           |
| 11,001-above                  | 3                | 13.00          |
| Total                         | 23               | 100.00         |
| <b>Sources of Income</b>      | <b>Frequency</b> | <b>Percent</b> |
| Farming                       | 9                | 39.10          |
| Government Employee           | 3                | 13.00          |
| Private                       | 3                | 13.00          |
| Business                      | 3                | 13.00          |
| Others                        | 5                | 21.70          |
| Total                         | 23               | 100.00         |
| <b>Occupation</b>             | <b>Frequency</b> | <b>Percent</b> |
| Barangay Official             | 1                | 4.30           |
| Barangay Worker               | 9                | 39.10          |
| Housewife                     | 11               | 47.80          |
| Self-employed                 | 2                | 8.70           |
| Total                         | 23               | 100.00         |



| Number of Visits | Frequency | Percent |
|------------------|-----------|---------|
| Once a month     | 4         | 17.40   |
| Twice a month    | 3         | 13.00   |
| Once a week      | 15        | 65.20   |
| Thrice a month   | 1         | 4.30    |
| Total            |           | 100.00  |

Table 1 presents the socio-demographic profile of the respondents who participated in the Parents' Empowerment and Development through Sociotechnology Trainings. The respondents were characterized according to selected demographic variables, including age, sex, civil status, household size, household type, number of children, religious affiliation, ethnic origin, language spoken, educational attainment, monthly income, source of income, occupation, and frequency of program visits. These characteristics provide a comprehensive overview of the participants and describe the socio-economic and household context of the beneficiary community in Barangay Base Camp, Maramag, Bukidnon.

Understanding the respondents' socio-demographic characteristics is essential because these factors may influence their participation in extension activities, access to resources, adoption of new knowledge and technologies, and capacity to apply acquired skills within their households and communities. Variations in educational attainment, occupation, income, and family structure may also affect how participants perceive, utilize, and benefit from community-based extension interventions. Establishing the respondents' profile provides an important context for interpreting the outcomes of the extension program. Specifically, it serves as the basis for assessing how the Parents' Empowerment and Development through Sociotechnology Trainings influenced the respondents' knowledge, skills, attitudes, and values, economic condition, and environmental awareness. By examining program outcomes within the demographic context of the participants, the study offers a more comprehensive evaluation of the effectiveness and relevance of the extension intervention in addressing the needs of the target community.

**Table 2. Acquired Knowledge of Respondents**

| INDICATOR                                                                                                                                      | Before |             | After |                |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|-------|----------------|
|                                                                                                                                                | Mean   | Descriptive | Mean  | Descriptive    |
|                                                                                                                                                | Score  | Value       | Score | Value          |
| I have knowledge of different types of marital conflicts, how to handle each of these conflicts, and how to resolve them in a peaceful manner. | 3.7    | Agree       | 4.7   | Strongly Agree |
| I have knowledge of parental duties and responsibilities and the effective ways of imposing discipline on children's misbehavior.              | 3.9    | Agree       | 4.8   | Strongly Agree |
| I have knowledge of pajama pattern drafting by using a manila paper.                                                                           | 3.4    | Undecided   | 4.7   | Strongly Agree |
| I know about pajama making.                                                                                                                    | 3.6    | Agree       | 4.6   | Strongly Agree |
| I have knowledge on pouch making out of old denim pants.                                                                                       | 3.3    | Undecided   | 4.5   | Strongly Agree |
| I have knowledge on bag making out of an unused tarpaulin.                                                                                     | 3.3    | Undecided   | 4.7   | Strongly Agree |
| I know blouse pattern drafting.                                                                                                                | 3.3    | Undecided   | 4.8   | Strongly Agree |
| I have knowledge of the basics in food safety and sanitation.                                                                                  | 3.6    | Agree       | 4.8   | Strongly Agree |
| I have knowledge of food processing such as pineapple jam, mango jam, chayote mixed pickles, longganisa, and Spanish style sardines.           | 3.8    | Agree       | 4.9   | Strongly Agree |
| I have knowledge of nutritional guidelines for Filipinos and preparation of low-cost nutritious recipes.                                       | 3.8    | Agree       | 4.9   | Strongly Agree |
| Weighted Mean                                                                                                                                  | 3.57   | Agree       | 4.74  | Strongly Agree |

Legend:

|            |   |                   |
|------------|---|-------------------|
| 1.00-1.50  | - | Strongly Disagree |
| 1.51-2.50  | - | Disagree          |
| 2.51-3.5   | - | Undecided         |
| 3.51 – 4.5 | - | Agree             |
| 4.51-5     | - | Strongly Agree    |

Table 2 presents the respondents' level of knowledge before and after participating in the Parents' Empowerment and Development through Sociotechnology Trainings. The overall weighted mean increased from 3.57 (Agree) before the

intervention to 4.74 (Strongly Agree) after the training, indicating a substantial improvement in participants' knowledge across all learning domains. Before the intervention, respondents generally reported moderate knowledge, with higher baseline ratings in parenting, family relationships, nutrition, and food processing, suggesting that these areas were already familiar through their everyday experiences. In contrast, livelihood-related topics such as blouse pattern drafting, pouch making, and bag making received the lowest pre-training ratings, reflecting limited prior exposure to these technical skills.

This pattern is consistent with adult learning theory, which emphasizes that learners build new knowledge on prior experiences while acquiring unfamiliar competencies through active engagement (Knowles et al., 2020; Kolb, 2015). Following the training, all knowledge indicators were rated "Strongly Agree," with the highest scores recorded for food processing and nutritional guidelines. The notable improvement in livelihood-related competencies suggests that the training effectively addressed participants' learning needs through lectures, demonstrations, and hands-on activities. Similar findings have been reported in community extension programs, where participatory learning approaches strengthen knowledge acquisition and support the adoption of new practices (Davis et al., 2012; FAO, 2022). Overall, the findings indicate that the extension program successfully enhanced participants' knowledge of family development, nutrition, food safety, conflict management, and livelihood skills. By integrating these complementary areas into a community-based learning approach, the program strengthened participants' capacity to apply knowledge that supports improved household well-being, informed decision-making, and sustainable livelihood opportunities.

**Table 3. Acquired Skills of Respondents**

| INDICATOR                                                                                                                                         | Before |             | After |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|-------|----------------|
|                                                                                                                                                   | Mean   | Descriptive | Mean  | Descriptive    |
|                                                                                                                                                   | Score  | Value       | Score | Value          |
| I have skills in identifying the different types of marital conflicts, handling each of these conflicts, and resolving them in a peaceful manner. | 3.7    | Agree       | 4.8   | Strongly Agree |
| I have skills in performing parental duties and responsibilities and the effective ways of imposing discipline on children's misbehavior.         | 3.9    | Agree       | 4.8   | Strongly Agree |
| I have skills in pajama pattern drafting using a manila paper.                                                                                    | 3.7    | Agree       | 4.9   | Strongly Agree |
| I have skills in pajama making using the sewing machine.                                                                                          | 3.6    | Agree       | 4.9   | Strongly Agree |
| I have skills in pouch making out of old denim pants.                                                                                             | 3.6    | Agree       | 4.7   | Strongly Agree |
| I have skills in bag making out of an unused tarpaulin.                                                                                           | 3.6    | Agree       | 4.7   | Strongly Agree |
| I have skills in blouse pattern drafting.                                                                                                         | 3.4    | Undecided   | 4.8   | Strongly Agree |
| I have skills in preparing food following safety practices.                                                                                       | 3.6    | Agree       | 4.8   | Strongly Agree |
| I have skills in processing pineapple jam, mango jam, chayote mixed pickles, longganisa, and Spanish style sardines.                              | 3.6    | Agree       | 4.8   | Strongly Agree |
| I have skills in preparing low-cost and nutritious recipes utilizing local ingredients.                                                           | 3.8    | Agree       | 4.8   | Strongly Agree |
| I have skills in proper costing of food for income generation.                                                                                    | 3.8    | Agree       | 4.7   | Strongly Agree |
| Weighted Mean                                                                                                                                     | 3.64   |             | 4.8   |                |

Legend:

|            |   |                   |
|------------|---|-------------------|
| 1.00-1.50  | - | Strongly Disagree |
| 1.51-2.50  | - | Disagree          |
| 2.51-3.5   | - | Undecided         |
| 3.51 – 4.5 | - | Agree             |
| 4.51-5     | - | Strongly Agree    |

Table 3 presents the respondents' perceived level of practical skills before and after participating in the Parents' Empowerment and Development through Sociotechnology Trainings. The overall weighted mean increased from 3.64 (Agree) before the intervention to 4.80 (Strongly Agree) after the training, indicating a substantial improvement in participants' practical competencies. Before the intervention, respondents generally reported moderate skill levels, with the highest ratings in parenting responsibilities, preparing nutritious meals, and food costing. In contrast, blouse pattern drafting received the lowest pre-training rating, suggesting limited prior experience with technical livelihood skills. This pattern reflects adult learning principles, which recognize that learners build on existing experiences while acquiring new competencies through practical engagement (Knowles et al., 2020). Likewise, experiential learning theory emphasizes that technical skills are strengthened through active participation and repeated practice (Kolb, 2015). Following the training, all skill indicators were rated "Strongly Agree," with the highest scores recorded for pajama pattern drafting and pajama making. The marked improvement in sewing, food processing, food safety, parenting, and conflict management suggests that the participatory and hands-on training effectively translated knowledge into practical competence. Similar findings have been reported in community extension programs, where experiential learning enhances skill acquisition and

increases participants' confidence in applying new practices in their households and communities (Davis et al., 2012). Overall, the findings demonstrate that the extension program successfully strengthened participants' practical capabilities by integrating family development, livelihood enhancement, and nutrition education within a community-based learning approach. These improvements highlight the potential of participatory extension programs to build practical skills that support household well-being, livelihood opportunities, and sustainable community development.

**Table 4. Acquired Values and Attitudes of Respondents**

| INDICATOR                                                                                                                                                                         | Before |             | After |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|-------|----------------|
|                                                                                                                                                                                   | Mean   | Descriptive | Mean  | Descriptive    |
|                                                                                                                                                                                   | Score  | Value       | Score | Value          |
| I show respect and empathy to my spouse as my partner in raising our family.                                                                                                      | 3.9    | Agree       | 4.9   | Strongly Agree |
| I understand the importance of the need for the parents to trust, discipline, and respect their children.                                                                         | 3.8    | Agree       | 4.9   | Strongly Agree |
| I believe in giving quality time and showing patience in dealing with my children and my spouse.                                                                                  | 4      | Agree       | 4.9   | Strongly Agree |
| I believe that it is better to motivate the child and avoid the use of physical punishment malpractices as a form of discipline.                                                  | 3.8    | Agree       | 4.9   | Strongly Agree |
| I believe that making handicrafts such as pajama, pouch and blouse out of old denims and unused tarpaulin are saleable in the community.                                          | 3.6    | Agree       | 4.8   | Strongly Agree |
| I believe that making handicrafts such as pajama, pouch and blouse out of old denims and unused tarpaulin are source of additional family income.                                 | 3.9    | Agree       | 4.9   | Strongly Agree |
| I believe in the importance of food safety education as a measure against foodborne illnesses.                                                                                    | 4      | Agree       | 5     | Strongly Agree |
| I believe that engaging in any livelihood activities such as processing pineapple jam, mango jam, chayote mixed fruits, longganisa and Spanish style sardines increase my income. | 3.7    | Agree       | 4.8   | Strongly Agree |
| I believe that it is better to prepare low cost and nutritious recipes utilizing local ingredients for my family.                                                                 | 4      | Agree       | 4.9   | Strongly Agree |
| I believe that it is better to be aware of the correct techniques of costing the recipes for income generation.                                                                   | 3.7    | Agree       | 4.9   | Strongly Agree |
| I believe the importance of essential nutrients during pregnancy and lactation and breast feeding.                                                                                | 4      | Agree       | 4.9   | Strongly Agree |
| Weighted Mean                                                                                                                                                                     | 3.86   | Agree       | 4.90  | Strongly Agree |

Legend:

|            |   |                   |
|------------|---|-------------------|
| 1.00-1.50  | - | Strongly Disagree |
| 1.51-2.50  | - | Disagree          |
| 2.51-3.5   | - | Undecided         |
| 3.51 – 4.5 | - | Agree             |
| 4.51-5     | - | Strongly Agree    |

Table 4 presents the respondents' attitudes and values before and after participating in the Parents' Empowerment and Development through Sociotechnology Trainings. The overall weighted mean increased from 3.86 (Agree) before the intervention to 4.90 (Strongly Agree) after the training, indicating stronger positive attitudes toward responsible parenting, healthy family relationships, food safety, nutrition, and livelihood development. Before the intervention, respondents generally expressed positive attitudes toward family welfare and healthy practices, with the highest ratings for spending quality time with family, food safety, nutritious meal preparation, and proper nutrition during pregnancy and breastfeeding. In contrast, comparatively lower ratings were observed for the marketability of recycled handicrafts, the income potential of livelihood activities, and recipe costing, suggesting less confidence in the economic value of these livelihood opportunities. Following the training, all indicators were rated "Strongly Agree," with the highest score recorded for the importance of food safety education in preventing foodborne illnesses (5.00). The marked improvement in livelihood-related attitudes suggests that the program strengthened participants' appreciation of handicraft production, food processing, and product costing as practical income-generating opportunities. Similar findings have been reported in community extension programs, where participatory and hands-on learning approaches foster positive attitudes and increase participants' willingness to apply newly acquired skills in their households and communities. Overall, the

findings indicate that the extension program strengthened attitudes and values that support family well-being and sustainable livelihoods. By reinforcing positive perspectives alongside knowledge and practical skills, the program created a stronger foundation for adopting practices that contribute to improved household welfare and community development.

**Table 5. Impact Assessment of Respondents on Economic Aspect**

|                                                                                                         | Mean             |                   |
|---------------------------------------------------------------------------------------------------------|------------------|-------------------|
| Monthly income before the training                                                                      | 4,130.43         |                   |
| Monthly income after the training                                                                       | 6,660.87         |                   |
| In general, how would you assess your income from before the training and now?                          | <b>Frequency</b> | <b>Percentage</b> |
| Decrease                                                                                                | 0                | 0                 |
| Same                                                                                                    | 0                | 0                 |
| Increase                                                                                                | 23               | 100%              |
| Total                                                                                                   | 23               | 100%              |
| If there are changes (increase or decrease) of your income to what factors you attribute these changes? | <b>Frequency</b> | <b>Percentage</b> |
| Increase number of earning household members                                                            | 2                | 8.70%             |
| Increase of salary                                                                                      | 2                | 8.70%             |
| Establishment of business after the training                                                            | 19               | 82.61%            |
| Total                                                                                                   | 23               | 100%              |

Table 5 presents the economic outcomes of the Parents' Empowerment and Development through Sociotechnology Trainings. The results show a clear improvement in the respondents' household income after participating in the extension program. On average, monthly household income increased from ₱4,130.43 before the training to ₱6,660.87 after the intervention. Consistent with this finding, all respondents (100%) reported that their income had increased compared with their situation before joining the program.

When asked what contributed to the increase in income, most respondents (82.61%) identified the establishment of a business after the training as the primary reason. Only a few attributed the increase to higher salaries (8.70%) or an increase in the number of income-earning household members (8.70%). These responses suggest that the livelihood component of the program played an important role in creating opportunities for additional income, particularly by encouraging participants to apply the skills they acquired through the training. The increase in household income corresponds with the program's focus on practical livelihood activities, including food processing, sewing, handicraft production, and product costing. These skills provided participants with opportunities to produce marketable products and explore small-scale income-generating activities within their communities. Similar findings have been reported in community extension programs, where practical, skills-based training has been associated with improved livelihood opportunities, increased household income, and greater economic participation among beneficiaries. Although household income may also be influenced by broader economic and social factors, the respondents consistently attributed their improved income to livelihood activities initiated after the training. This suggests that the extension program provided practical opportunities that participants were able to translate into economic benefits. Overall, the findings highlight the potential of integrated community-based extension programs to strengthen household livelihoods by equipping participants with relevant skills, encouraging entrepreneurship, and expanding opportunities for sustainable income generation.

**Table 6. Impact Assessment of Respondents on Environment**

| INDICATOR                                                                                                                                           | Before |             | After |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|-------|----------------|
|                                                                                                                                                     | Mean   | Descriptive | Mean  | Descriptive    |
|                                                                                                                                                     | Score  | Value       | Score | Value          |
| I am aware of preserving the environment through the proper disposal of waste materials after food processing.                                      | 4      | Agree       | 4.8   | Strongly Agree |
| I am aware to conserve the environment by transforming unused household materials such as old denim pants and tarpaulin into saleable handicrafts.  | 3.9    | Agree       | 4.8   | Strongly Agree |
| I am aware in collecting and recycling unused materials such as old denims and tarpaulins for income generation and conservation of the environment | 3.8    | Agree       | 4.9   | Strongly Agree |
| I am aware in sharing my ideas to other people in the community on how to utilize recyclable materials.                                             | 3.8    | Agree       | 4.7   | Strongly Agree |

|                                                                                                                                                        |      |       |      |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------|----------------|
| I am aware on the importance of proper monitoring and promoting cleanliness in the food preparation.                                                   | 4    | Agree | 4.7  | Strongly Agree |
| I am aware in practicing hand washing using soap before and after the preparation of food to avoid the spread of contagious bacteria causing diseases. | 3.9  | Agree | 5    | Strongly Agree |
| I am aware on the importance of using clean utensils in food preparation and processing to avoid contamination.                                        | 4.3  | Agree | 5    | Strongly Agree |
| I am aware in ensuring that the kitchen area is free of pets and pests to avoid food contamination and spoilage.                                       | 4.2  | Agree | 5    | Strongly Agree |
| I am aware of maintaining the cleanliness of the kitchen area to ensure the safety of my family.                                                       | 4.2  | Agree | 5    | Strongly Agree |
| I am aware in promoting the implementation of environmentally sound waste management system in our home and in our community.                          | 4.1  | Agree | 5    | Strongly Agree |
| Weighted Mean                                                                                                                                          | 4.02 | Agree | 4.89 | Strongly Agree |

Legend:

|            |   |                   |
|------------|---|-------------------|
| 1.00-1.50  | - | Strongly Disagree |
| 1.51-2.50  | - | Disagree          |
| 2.51-3.5   | - | Undecided         |
| 3.51 – 4.5 | - | Agree             |
| 4.51-5     | - | Strongly Agree    |

Table 6 presents the respondents' environmental awareness before and after participating in the Parents' Empowerment and Development through Sociotechnology Trainings. The overall weighted mean increased from 4.02 (Agree) before the intervention to 4.89 (Strongly Agree) after the training, reflecting greater awareness of environmental conservation, food safety, waste management, and the productive use of recyclable materials. Before the training, respondents already demonstrated relatively high awareness of household sanitation and food safety. However, lower ratings were observed for recycling household materials for income generation and sharing recycling practices within the community (both 3.80), suggesting that participants were less familiar with linking environmental conservation to livelihood opportunities. After the intervention, all indicators were rated "Strongly Agree," with mean scores ranging from 4.70 to 5.00. The greatest improvement was observed in indicators related to recycling and environmentally sound household practices, suggesting that the training increased participants' appreciation of how resource conservation can also support livelihood development. Similar findings have been reported in community extension programs, where participatory learning encourages the adoption of sustainable practices by linking environmental stewardship with everyday household activities and income-generating opportunities. Overall, the findings suggest that the Parents' Empowerment and Development through Sociotechnology Trainings strengthened participants' environmental awareness and reinforced practices that support both household well-being and environmental sustainability. Integrating environmental education with livelihood development appears to be an effective strategy for promoting responsible resource use while creating opportunities for community empowerment.

**Table 7. T-test result on the Assessment of the Conducted Extension Activity in terms of Knowledge, Skills, Values and Attitudes, Economic and Environmental Impact**

|                             | Mean     | sd       | t       | p-values |
|-----------------------------|----------|----------|---------|----------|
| Knowledge Before            | 3.57     | 0.85     | -25.319 | 0        |
| Knowledge After             | 4.74     | 0.48     |         |          |
| Skills Before               | 3.65     | 0.84     | -21.629 | 0        |
| Skills After                | 4.80     | 0.41     |         |          |
| Values and Attitudes Before | 3.86     | 0.76     | -22.215 | 0        |
| Values and Attitudes After  | 4.90     | 0.33     |         |          |
| Income Before               | 4,130.43 | 1,582.70 | -8.028  | 0        |
| Income After                | 6,660.87 | 2,602.40 |         |          |
| Environmental Before        | 4.03     | 0.52     | -24.384 | 0        |
| Environmental After         | 4.87     | 0.33     |         |          |

Table 7 presents the results of the paired-samples t-test comparing the respondents' pre- and post-intervention assessments of knowledge, skills, attitudes and values, household income, and environmental awareness. Significant differences were observed across all outcome variables, indicating substantial improvements following participation in the Parents'



Empowerment and Development through Sociotechnology Trainings ( $p < .001$  for all comparisons). Participants' knowledge significantly increased from a mean of 3.57 (SD = 0.85) before the intervention to 4.74 (SD = 0.48) after the training ( $t = -25.319$ ,  $p < .001$ ). Similarly, practical skills improved from 3.65 (SD = 0.84) to 4.80 (SD = 0.41) ( $t = -21.629$ ,  $p < .001$ ), while attitudes and values increased from 3.86 (SD = 0.76) to 4.90 (SD = 0.33) ( $t = -22.215$ ,  $p < .001$ ). These findings suggest that the extension program effectively strengthened participants' cognitive, practical, and behavioral competencies across the major learning domains. The analysis also revealed a significant improvement in respondents' economic condition. Average monthly household income increased from ₱4,130.43 (SD = ₱1,582.70) before the intervention to ₱6,660.87 (SD = ₱2,602.40) after the training ( $t = -8.028$ ,  $p < .001$ ). In addition, environmental awareness significantly improved, with mean scores increasing from 4.03 (SD = 0.52) to 4.87 (SD = 0.33) ( $t = -24.384$ ,  $p < .001$ ). These results suggest that the program's integrated approach, which combined family development, livelihood enhancement, and environmental education, was associated with positive outcomes extending beyond knowledge acquisition to practical skills, attitudes, household livelihood, and environmental responsibility. Overall, the statistically significant improvements across all measured domains provide empirical evidence that the Parents' Empowerment and Development through Sociotechnology Trainings achieved its intended outcomes among the participating beneficiaries. While the pre–post design does not eliminate the possibility that external factors also contributed to these changes, the consistent pattern of improvement across all indicators highlights the potential of integrated community-based extension programs to strengthen human capital, promote sustainable livelihoods, and encourage environmentally responsible practices. These findings are consistent with recent extension and community development research emphasizing that participatory, skills-based interventions can generate meaningful improvements in individual and household capacities when training is closely aligned with local needs and contexts.

**Table 8. Respondents' Assessment of Potential Challenges Encountered During the Planning, Implementation, and Monitoring of the Extension Program**

| <b>A. PLANNING</b>                                                                                                | <b>Frequency<br/>(Answered No)</b> | <b>Percentage</b> |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------|
| There is no direct focal person to contact with and discuss the concerns and needs of the community.              | 23                                 | 100%              |
| Lack of involvement of Barangay officials in the planning stage                                                   | 23                                 | 100%              |
| There is no clear understanding between the community and the College in the conduct of Extension Activities.     | 23                                 | 100%              |
| Lack of communication between the Barangay Captain and the extension coordinator of the College.                  | 23                                 | 100%              |
| Lack of proper consultation by the College to the community.                                                      | 23                                 | 100%              |
| <b>B. IMPLEMENTATION</b>                                                                                          | <b>Frequency<br/>(Answered No)</b> | <b>Percentage</b> |
| Lack of financial resources to fund extension activities that demand Barangay's counterpart.                      | 23                                 | 100%              |
| Lack of support from Barangay officials.                                                                          | 23                                 | 100%              |
| Lack of time to participate/attend in the activities conducted by the College of Human Ecology.                   | 23                                 | 100%              |
| Lack of equipment in support to extension services.                                                               | 23                                 | 100%              |
| Difficulty understanding the lectures during the training/ Seminar.                                               | 23                                 | 100%              |
| Lack of cooperation among the participants to attend seminars/ trainings conducted.                               | 23                                 | 100%              |
| <b>C. MONITORING</b>                                                                                              | <b>Frequency<br/>(Answered No)</b> | <b>Percentage</b> |
| The proximity of the adopted school was far that somehow makes it difficult to conduct regular on-site monitoring | 23                                 | 100%              |
| Vehicles are inaccessible to reach baranggay anytime                                                              | 23                                 | 100%              |
| Lack of time by the College Extension Coordinator and implementers to monitor the project                         | 23                                 | 100%              |
| Lack of monitoring strategies/approaches by the implementer                                                       | 23                                 | 100%              |

Table 8 summarizes the respondents' assessment of potential challenges encountered during the planning, implementation, and monitoring of the Parents' Empowerment and Development through Sociotechnology Trainings. All respondents (100%) answered "No" to every listed challenge, indicating that none of the proposed issues were perceived as barriers

to the implementation of the extension program. Across all phases of implementation, respondents reported no concerns related to stakeholder coordination, community consultation, financial support, participant engagement, training delivery, equipment availability, or program monitoring. Likewise, transportation, accessibility, and monitoring strategies were not considered constraints. These findings suggest that the program was implemented through effective planning, strong collaboration between the College and the Barangay, and well-established monitoring mechanisms. Overall, the absence of perceived implementation challenges highlights the value of collaborative planning, clear communication, and active stakeholder participation in supporting successful community-based extension programs. These findings are consistent with participatory extension approaches, which emphasize that strong institutional-community partnerships enhance program implementation, participant engagement, and the sustainability of extension initiatives.

**Table 9. Project Evaluation of the Respondents**

|                                                                                                            | <b>Mean</b> | <b>Descriptive Value</b> |
|------------------------------------------------------------------------------------------------------------|-------------|--------------------------|
| <b>Relevance</b>                                                                                           |             |                          |
| The project activities reasonably linked to the intended effects.                                          | 4.43        | Agree                    |
| The project addressed the identified problems.                                                             | 4.74        | Strongly Agree           |
|                                                                                                            |             |                          |
| The project is based on the needs of the participants.                                                     | 4.70        | Strongly Agree           |
| Weighted Mean                                                                                              | 4.62        | Strongly Agree           |
| <b>Effectiveness</b>                                                                                       |             |                          |
| The project improved my knowledge on the proper way of disciplining my children.                           | 4.83        | Strongly Agree           |
| The project improved the health or nutrition of the participants.                                          | 4.83        | Strongly Agree           |
| The project has attained its outlined objectives.                                                          | 4.70        | Strongly Agree           |
| The activities were used appropriately.                                                                    | 4.91        | Strongly Agree           |
| Weighted Mean                                                                                              | 4.82        | Strongly Agree           |
| <b>Efficiency</b>                                                                                          |             |                          |
| The activities conducted were cost-efficient.                                                              | 4.74        | Strongly Agree           |
| The objectives were achieved at the least cost.                                                            | 4.74        | Strongly Agree           |
| Services were provided in time.                                                                            | 4.73        | Strongly Agree           |
| Impacts were achieved within the appropriate period.                                                       | 4.73        | Strongly Agree           |
| Weighted Mean                                                                                              | 4.74        | Strongly Agree           |
| <b>Sustainability</b>                                                                                      |             |                          |
| The knowledge gained is continually being used or shared.                                                  | 4.70        | Strongly Agree           |
| The skills acquired is continually being practiced.                                                        | 4.70        | Strongly Agree           |
| The project resulted to other outcomes or outputs that are of used continually and benefits the community. | 4.91        | Strongly Agree           |
| Weighted Mean                                                                                              | 4.77        | Strongly Agree           |

Legend:

- 1.00-1.50 - Strongly Disagree
- 1.51-2.50 - Disagree
- 2.51-3.5 - Undecided
- 3.51 – 4.5 - Agree
- 4.51-5 - Strongly Agree

Table 9 presents the respondents' overall evaluation of the Parents' Empowerment and Development through Sociotechnology Trainings in terms of relevance, effectiveness, efficiency, and sustainability. The program received consistently high ratings across all dimensions, with weighted mean scores ranging from 4.62 to 4.82, all interpreted as "Strongly Agree." These findings indicate that participants perceived the program as responsive to community needs, effectively implemented, and capable

of generating meaningful and sustained benefits. Among the four dimensions, effectiveness received the highest weighted mean (4.82), reflecting participants' positive assessment of the program's ability to improve parenting practices, health and nutrition awareness, and achieve its intended objectives. Sustainability also received a high rating (4.77), suggesting that participants continued to apply and share the knowledge and skills gained beyond the training. Similarly, the high ratings for relevance (4.62) and efficiency (4.74) indicate that the program

addressed community needs while delivering activities in a timely and cost-effective manner. Overall, the evaluation supports the effectiveness of the Parents' Empowerment and Development through Sociotechnology Trainings as a community-based extension initiative. The consistently high ratings across all dimensions reinforce the importance of needs-based planning, participatory implementation, and capacity building in designing extension programs that generate sustainable benefits for communities.

## 7. CONCLUSION

The findings of this study demonstrate that the Parents' Empowerment and Development through Sociotechnology Trainings made a positive contribution to the participating households. Following the implementation of the program, respondents reported significant improvements in their knowledge, practical skills, attitudes and values, household income, and environmental awareness. These results highlight the value of integrating family development, livelihood enhancement, nutrition education, and environmental stewardship within a single community-based extension program. The consistently high ratings for relevance, effectiveness, efficiency, and sustainability further indicate that the program was responsive to the needs of the community and delivered benefits that participants considered meaningful and applicable to their daily lives. Equally important, the absence of perceived challenges during the planning, implementation, and monitoring phases underscores the importance of effective collaboration between the College and the Barangay in achieving successful program implementation. Overall, the study provides evidence that well-designed, participatory extension programs can strengthen household capacities while supporting broader community development goals. By combining practical skills training with family welfare and environmental education, higher education institutions can play an important role in empowering communities and promoting sustainable and inclusive local development.

## 8. RECOMMENDATIONS

With the conclusions above, the following are now recommended:

That the College will conduct more training on maternal health care, specific program for malnourished children and nutrition trainings per purok;

For better coordination, the adopted barangay should assign a barangay official who will take charge of extension, partnerships, and linkages;

To completely operationalize the boundary of instruction and extension, the faculty members have to be given enough time for the extension activities.

## 9. DISCUSSION

The present study evaluated the impact of the Parents' Empowerment and Development through Sociotechnology Trainings (Phase 1) implemented by the College of Human Ecology, Central Mindanao University, on the beneficiaries in Barangay Base Camp, Maramag, Bukidnon. The findings demonstrate that the extension program positively influenced the respondents'

knowledge, skills, attitudes and values, economic well-being, and environmental awareness, indicating that university-led extension initiatives can serve as effective mechanisms for community empowerment and sustainable development. The improvement in the respondents' knowledge after participating in the training reflects the effectiveness of the extension activities in transferring relevant information and practical concepts. This finding supports the view that university extension programs function as important platforms for disseminating scientific knowledge and appropriate technologies to local communities. Previous studies have similarly reported that well-designed extension interventions significantly enhance participants' understanding of livelihood practices, family welfare, and community development by promoting continuous learning and informed decision-making.

The significant enhancement of practical skills further indicates that the sociotechnology training successfully strengthened the beneficiaries' capacity to apply newly acquired knowledge in their daily lives. The development of technical and entrepreneurial skills is essential for improving household productivity and creating sustainable livelihood opportunities. This finding aligns with earlier research emphasizing that hands-on extension activities contribute more effectively to long-term community development because beneficiaries gain competencies that can be directly translated into economic activities and improved household management. The positive changes observed in attitudes and values suggest that the extension program influenced not only cognitive learning but also behavioral and social dimensions of community development. The increased appreciation of responsible parenting, community participation, cooperation, and environmental responsibility demonstrates that extension education can promote holistic personal development. Such findings reinforce the concept that successful extension programs should integrate value formation with technical training to encourage lasting behavioral change. The study also found positive economic outcomes among the respondents following their participation in the training program. Improvements in household income and livelihood opportunities indicate that the knowledge and skills acquired through sociotechnology training enabled beneficiaries to engage in more productive economic activities. Although income improvement varied among respondents, the overall trend suggests that community-based livelihood interventions can contribute meaningfully to household economic resilience and poverty reduction. Similarly, the improvement in environmental awareness reflects the effectiveness of integrating environmental education into university extension activities. The respondents demonstrated greater awareness of proper waste management, resource conservation, and sustainable environmental practices after completing the program. This finding highlights the importance of incorporating environmental sustainability into community development initiatives to promote responsible resource utilization and long-term community resilience. The paired-sample t-test further confirmed that the observed improvements across the assessed domains were statistically significant. These results provide

empirical evidence that the extension program achieved measurable outcomes rather than changes attributable to chance. The statistical findings strengthen the conclusion that university-community partnerships can generate substantial educational, social, economic, and environmental benefits when extension activities are responsive to local needs and actively involve community members. Although respondents identified several implementation challenges, these issues did not substantially affect the overall success of the program. The favorable evaluation of the program's relevance, effectiveness, efficiency, and sustainability demonstrates that the extension activities were well planned and appropriately aligned with the needs of the beneficiary community. Continuous monitoring, stakeholder participation, and regular feedback mechanisms remain essential for further improving future extension initiatives. Overall, the findings reinforce the important role of higher education institutions in advancing community development through extension services. By integrating knowledge transfer, skills development, livelihood promotion, environmental education, and value formation, university extension programs contribute to empowering individuals and strengthening community resilience. The study therefore provides empirical support for the continued implementation and expansion of sociotechnology-based extension initiatives as a strategy for achieving inclusive and sustainable rural development.

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