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Family engagement: Partnering with families towards agricultural promotion and environmental protection

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ABSTRACT

Agriculture plays a significant role in food security and economic development while environmental education puts an emphasis on ensuring a healthier place to live with. This study seeks to determine the family's engagement in agricultural promotion and environmental protection in one Sitio of Sagay City, Negros Occidental. A quantitative-descriptive method utilizing survey questionnaire was administered to 51 families during the last semester of 2021-2022. The families are moderately promoting agriculture while well-engaged in environmental protection. No significant difference exists in promoting agriculture as to profile except for the educational attainment of the mother and the father. The participants' profile does not influence the family's engagement in environmental protection. Results disclosed that families vary in their engagement in promoting agriculture and environmental protection. A comprehensive sectoral partnership plan and program may be implemented for sustainable engagement improving societal outcomes and achieving sustainable development goal/s.

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INTRODUCTION

Promoting effective practices in agriculture and environmental protection is not solely the concern of the Agriculture and Environmental sectors but essentially the responsibility of the Education sector. It is clearly stated in the Republic Act No. 9512 or known as an act to promote environmental education and agricultural promotion that CHED and DEPED can avail grants and partnerships from the government to prioritize those proposed projects made by school administrators (Official Gazette, 2019). Moreover, the school plays an essential role in the School-Based Management scheme (SBM), motivating school heads to extend relevant initiatives to improve learners' learning outcomes. It is an indicator that School-Based Management (SBM) implementation is successful when it has extension activities involving the external stakeholders, LGU and Barangay Officials. It is also successful if the interventions in improving learners' well-being and perspective are evident. The best way to implement these mandates is by starting from the family as the primary influencer of the learners in providing their engagements in the promotion of Agriculture and Environmental protection. With this, the structural definition of a family states that individuals who share a place of residence, or who are related by blood ties, or legal contracts are considered as such. It is commonly described as one or more other individuals living in the same household related to each other by birth, adoption, or marriage (Census, 1990). On the other hand, family engagement collaborates with school authorities, local government units, indigenous communities, and other organizations. They are all committed to reaching out to families and engaging them in meaningful ways. This common goal actively contributes to the development of children's learning (National Family, School, and Community Engagement, 2010). The study's focus, One Sitio in Barangay Bulanon, Sagay City, showed active participation in the promotion of agriculture and environmental protection; as a result, important factors like geographic location, difficulty accessing potable water, and insufficient farming knowledge hinder the families from improving the results of these activities even further. In other words, family members are more or less involved in agricultural activities and environmental protection. However, if access to facilities and assistance towards agriculture and environmental initiatives beneficial to life and community is provided, this will create a dramatic impact to the community and to the environment, in general.

The preservation and conservation of the environment are essential for the survival of life on Earth. Humans rely on a variety of resources, including food, air, water, and oxygen, hence it is vital that everyone recognize their role in environmental protection. However, the state of our ecosystem has deteriorated during the last few decades. The Intergovernmental Panel on Climate Change (IPCC) forecasted in 2021 that the Earth's temperature will rise 1.5 degrees Celsius during the next 20 years.

Global attempts to address important environmental challenges such as climate change and wildlife extinction are underway. International environmental law, a collection of treaties and principles, reflects these issues. The initial Environmental law's goal is to manage environmental risks and to assure long-term environmental protection (Chu & Karr, 2017). Individuals are responsible for defining limits and taking proactive efforts to protect themselves through conserving and protecting the environment. Enhancing biodiversity, individuals' environmental awareness and understanding among individuals are among the strategies to combat existing environmental concerns (Kousar et al., 2022). Climate-related issues contribute significantly to environmental degradation, and prompt action is required to mitigate their effects. Issues such as global warming induced by the combustion of fossil fuels and the subsequent greenhouse gas emissions have had severe global consequences. Climate change has caused more damaging tropical storms, hurricanes, storms, heat waves, and flooding (Clarke et al., 2022).

OBJECTIVES OF THE STUDY

The study aims to determine the family members' engagement in promoting agriculture and protecting the environment in one Sitio of the City of Sagay, Negros Occidental as the basis for sectoral partnership toward sustainable development programs and initiatives. Specifically, the study aimed to (1) determine the extent of engagement of family members in agricultural promotion and environmental protection and whether

significant difference exists, and (2) implement sectoral partnership plan or program to sustain the engagement in agricultural promotion and environmental protection.

MATERIALS AND METHODS

The quantitative-descriptive research design was employed utilizing a validated and reliability-tested researchers' made survey instrument conducted in the last semester of 2021-2022. Five open-ended questions were included for future-proof agricultural promotion and environmental protection programs, projects, initiatives, and strategies analyzed using the tree map and cluster analysis with the aid of NVivo software. Total enumeration was used in determining the actual participants of the study since the locale is just a small Sitio comprising only a few families. Thus, 51 families participated in the study group according to their family income, size of the family, educational attainment of the parents, and educational attainment of the children. These characteristics of the family were considered because they are significant in determining family engagement in agricultural promotion and in environmental protection activities. A family with a higher income for instance may or may not involve themselves in agriculture if that activity would not be a means of their livelihood. The size of the family would also reflect almost the same scenario as involving the family members in income-generating activities warrants the range of income it brings to the family. The educational attainment of the parents and of the children, on the other hand, is also significant, especially in how we care for our environment as evident in several studies showing that children whose parents have attended higher education have better environmental awareness and practices.

The survey instrument was developed based on applicable indicators as provided in the literature and as consulted, explained, and discussed by experts from the Department of Environment and Natural Resources and from the Department of Agriculture Offices of LGUs. The instrument consists of four parts. Part I is the participants' profile while Part II consists of 10-item questions or indicators which measure and reflect the extent of family members' engagement in different activities and initiatives pertaining to agriculture promotion. Likewise, Part III consists of 10-item questions or indicators that measure the family members' extent of engagement in different activities pertaining to environmental protection. Each item in Part II and III is scaled into five, namely, very well-engaged, well-engaged, moderately engaged, slightly engaged, and very rarely engaged which requires only the participants to put a checkmark corresponding to their answers. Finally, Part IV is five open-ended questions that purposively elicit themes as a guide on determining what possible partnerships may be linked to the crafting of the sectoral partnership plan.

The content, including each item of the survey instrument, was translated into the participants' vernacular to facilitate ease in answering the questionnaire. The questionnaire was administered face-to-face considering that most of the participants are not adept in the use of technology and internet connectivity is a problem for them. Safety protocols were observed during the conduct of the study and in the administration of the survey questionnaire. Interviews and on-site observations of backyard lots, agricultural promotion, and environmental protection activities of the families were also done to validate and verify the data gathered. Excluded from the study are large scale agricultural farming taking place in the area of study and the environmental protection programs and projects implemented by the local government units.

The Critical Values for Lawshe's (1975) Content Validity Ratio (CVR) was used where a panel of five experts in the field of research, agricultural, and environmental studies rated and judged the suitability and appropriateness of the research instrument item-by-item. Likewise, Cronbach Alpha was used to determine the reliability where the instrument was pilot tested to family members who were not the actual respondents of the study in a nearby Sitio of Sagay City. A validity index of 0.97 and 0.920 reliability result was achieved.

The administration of the questionnaire commenced after approval from the Barangay Captain and Purok President was sought and consent from the head of each family is granted. The researchers

personally administer the questionnaire, the interviews, and on-site observations that runs for three months. Confidentiality and anonymity of the participants and their responses were considered throughout the study and the dissemination and/or publication of results, where the accomplished survey questionnaire, interview results, and forms were properly coded to keep their identity. The participants were also informed that their participation in the research study is voluntary and that they can withdraw anytime without posing risk to themselves, the researchers, and the study. Frequency and percentage distribution, mean and standard deviation, t-test, and one-way ANOVA were employed in the treatment of data.

RESULTS AND DISCUSSION

Table 1. Profile of the Participants (n=51)

Profile	Frequency	Percentage
Family Income		
10,000 & below	41	80.4
10,001 - 15,000	6	11.8
15,001 & above	4	7.8
Size of the Family		
Small	41	80.4
Medium	10	19.6
Educational Attainment of Mother		
Elementary	21	41.2
High school	24	47.1
College	6	11.7
Educational Attainment of Father		
Elementary	32	62.7
High school	9	17.6
College	10	19.7

Table 1 shows the profile of the 51 participants where 41 or 80.4% recorded a monthly family income of 10,000 and below, while only a small number or percentage was on the monthly family income of 10,001 - 15,000 and 15,001 above. When grouped according to the family size, 80.4% belong to small families, while 19.6% are classified as medium size. On the other hand, when grouped according to educational attainment 21 or 41.2% of the mothers are elementary levels or graduates while 24 or 47.1% are high school levels or graduates, and only 6 or 11.7% are college levels or graduates. Likewise, in terms of fathers' educational attainment, 32 or 62.7% of them are elementary levels or graduates, 9 or 17.6% are high school levels or graduates, while 10 or 19.7% of the fathers are college levels or graduates. These profiles are expected to influence the way households are engaging themselves in promoting agriculture and environmental protection activities.

Extent of Family Engagement in Promoting Agriculture

Table 2. The Extent of Family Engagement in Promoting Agriculture when Taken as a Whole and as per Promotional Activities

Activities in Promoting Agriculture	Mean	SD	Interpretation
Mangrove planting	3.43	1.36	Well-engaged
Tree planting	3.47	1.25	Well-engaged
Seed growing (nursery)	3.41	1.31	Well-engaged
Vegetable gardening	3.78	1.21	Well-engaged
Ornamental gardening	3.45	1.35	Well-engaged
Fruit-bearing tree planting	3.49	1.43	Well-engaged
Hog raising	3.31	1.61	Moderately Engaged
Goat raising	2.49	1.46	Slightly Engaged

Free-range chicken raising	3.33	1.44	Moderately Engaged
Dried Fish Making (boneless)	2.96	1.71	Moderately Engaged
As A Whole	3.31	1.00	Moderately Engaged

Table 2 reflects the extent of family engagement in promoting agriculture when taken as a whole and individually. Families or households of Sitio Dunca-an in Barangay Bulanon were moderately engaged (M = 3.31, Sd = 1.00) when all activities were considered. They were also moderately engaged in hog raising, free-range chicken raising, and dried fish making, with calculated means from 2.96 to 3.33 at standard deviations from 1.44 to 1.71. On the other hand, households are well-engaged in mangrove planting, tree planting, seed growing, vegetable gardening, ornamental gardening, and fruit-bearing tree planting. It is supported by the calculated means ranging from 3.41 to 3.78 at standard deviations from 1.21 to 1.43. However, they are slightly engaged in goat raising (M = 2.49, Sd = 1.46). Results presented in this table reveal that households of Sitio Dunca-an in Barangay Bulanon are not much engaged in promoting agriculture. However, promoting agriculture is evident in some activities.

Mangrove planting, for instance, this activity is very typical and relevant to the community since it is a coastal area. They believe that mangrove planting will help their community in many ways. According to Community-Led Initiatives for a Sustainable Future (Ecoviva, 2016), there are many reasons that mangroves matter. The vitality of the mangrove forests is depicted with the services it offers to the ecosystem. It is found to benefit mankind by providing earnings of $ 194,000 per hectare every year.

Ecoviva (2016) also contends that mangrove areas are home to different endangered species. Mangroves are biodiversity hotspots. They provide breeding and nesting habitat for fish and shellfish, migratory birds, and sea turtles. Goldfish catch relies on mangrove forests directly or indirectly with an estimated 80%. In other words, the families of Sitio Dunca-an of Barangay Bulanon reflect how these mangroves would help them earn a living in the future, motivates them to be highly engaged in this activity. Likewise, it was also proven that coastal communities were protected by mangroves as their frontline defense against storm surge, flooding, and hurricanes. They stabilize shorelines by slowing erosion. Rich mangrove forests can protect communities vulnerable to natural disasters. It can also be a natural defense to the intensely rising sea level, and frequent weather events caused by climate change.

Similar justifications were revealed in the result of the study, such as the fact that their lesser engagement in promoting agriculture was a result of their inability to obtain adequate water. Water for deep wells and pumps is scarce, thus utilizing it for cooking and drinking takes precedence over other uses such as gardening. Thus, water conservation is practiced among the families in every household.

Other notable activities of the families or households of Sitio Dunca-an were tree planting, seed growing, vegetable gardening, ornamental planting, fruit-bearing tree planting, and it shows that they are engaged in it. These activities in promoting agriculture are timely and relevant even nowadays. According to Turner-Skoff and Cavender (2019), trees play a critical role for people and the planet. Many studies proven the benefits of trees to mankind's mental and physical health, children's attention span and academic performance, and co-creating values among neighborhoods. Trees cool our urban centers. Trees are essential for healthy communities and people. The benefits given by trees helped cities and countries meet fifteen (15) of the seventeen (17) goals of the United Nations in supporting sustainable development initiatives. It can be concluded that trees are essential part of people's lives. This is a message for the project managers and civic leaders in reaching their sustainability goals.

Similarly, Schmutz, Lennartsson, Williams, Devereaux, and Davies (2014) contribute to a growing body of information about the benefits of gardening to society. Many of them highlight health and well-being benefits, but the majority do not discuss the benefits of treating or preventing specific diseases. They also stated that active family participation in gardening or food producing projects, as well as formal horticulture treatment, boosted general physical fitness, burned more calories, helped with weight control, and reduced the risk of obesity. It can also boost healthy fruit and vegetable eating. Participating in food-growing activities at school helped adults and kids improve their attitudes toward a healthy lifestyle.

Table 3. The extent of Family Engagement in Promoting Agriculture
When grouped as to Profile

Profile Variables	Categories	Mean	SD	Interpretation
Family Income	10,000 & below	3.20	0.98	Moderately engaged
	10,000-15,000	3.58	0.77	Well-engaged
	15,001 & above	4.08	1.27	Well-engaged
Size of the Family	Small	3.24	0.97	Moderately engaged
	Medium	3.63	1.10	Well-engaged
Educational Attainment of Mother	Elementary	3.76	0.98	Well-engaged
	High School	3.06	0.87	Moderately engaged
	College	2.77	1.06	Moderately engaged
Educational Attainment of Father	Elementary	3.73	0.81	Well-engaged
	High School	2.69	1.09	Moderately engaged
	College	2.54	0.72	Slightly engaged

As shown in Table 3, households of Sitio Dunca-an of Barangay Bulanon with a monthly family income of 10,000 and below are moderately engaged (M = 3.20, Sd = 0.98), while those of 10,000 - 15,000 and 20,001 and above are well-engaged as indicated by the calculated means of 3.58 and 4.08 at standard deviations of 0.77 and 1.28, respectively. On the other hand, the engagement of the households, is considered individually, households of Sitio Dunca-an of Barangay Bulanon vary from their responses on their engagement of promoting agriculture when grouped according to their monthly family income. Their engagement in promoting agriculture vary from moderately engage to well engage. It can be gleaned that as the family income of the household is higher, the more extensive they are engaging in the different activities of promoting agriculture. Households with enough finances can spare a little of it promoting mangrove planting, tree planting, and any other activities mentioned. According to Booysen et al. (2004), farming greatly contributes to the decision-making skill of households. This partly resulted to alleviating rural poverty in third world countries.

When grouped according to the family size, Table 3 reveals that medium-sized households are well-engaged (M = 3.63, SD = 1.10) when taken as a whole. In contrast, small-sized families are moderately engaged (M = 3.24, SD = 0.97) when taken as a whole. On the other hand, when activities in promoting agriculture were considered individually, the extent of engagement of the families varies from slightly engaged to well-engaged. It is supported by the obtained means ranging from 2.29 to 4.10 at standard deviations ranging from 0.97 to 1.64. The table clearly presents that, medium-sized families are well-engaged than small-sized families in almost all of the activities in promoting agriculture. It means that the family who works collectively, value not only their economic aspect, but more importantly, the ties that bind them while engaging in these activities. Joining hands together makes things more manageable, especially in promoting activities in agriculture. As stated by Baker-Tingey (2020), it is good for families to develop healthy relationships. People intimately connected to family, friends, and the community are happier, physically and mentally healthier, and live longer than those less connected. In a nutshell, these ties enhance families to engage more in worthwhile activities like mangrove planting, tree planting, vegetable gardening, ornamental planting, and many other activities that promote agriculture.

When grouped according to the educational attainment of the mothers, Table 5 disclosed that high school (3.06, SD = 0.87) and college levels and graduates (M = 2.77, SD = 1.06) mothers are moderately engaged in promoting agriculture. Elementary levels and graduates' mother (M = 3.76, SD = 0.98), however, are well-engaged in promoting agriculture. On the other hand, when activities in promoting agriculture were considered individually, mothers' extent of engagement in promoting agriculture varies from very rarely engaged to well engage. It is supported by the obtained means of 1.50 to 4.00 at a standard deviation ranging from 0.98 to 1.83. For clarity and understanding, the highest means were obtained by elementary level, and graduates' mothers, and the least was obtained by college levels, and graduate mothers. The result reflects the fact that sometimes mothers with high educational attainment are pretty busy with other things that they forget some essential activities like vegetable

gardening, tree planting, some ornamental gardening, and many other activities. Although they engaged, however, elementary levels and graduate mothers did better than them in promoting agriculture. The World Bank concluded that there is a favorable association between family members' educational attainment, degree of engagement, and agricultural productivity. A study on education and agriculture found that education increases agricultural productivity first by enhancing farmers' decision-making capacity and, secondarily, by improving their technical efficiency (Reimers & Klasen, 2012).

When grouped according to the educational attainment of the fathers, Table 6 indicates that, elementary levels and graduates' fathers (3.73, SD = 0.81) are well-engaged in promoting agriculture. However, high school (M = 2.69, SD = 1.09) and college levels and graduates' fathers (M = 2.54, SD = 0.72) are moderately and slightly engaged respectively. On the other hand, when activities in promoting agriculture were considered individually, fathers' engagement in promoting agriculture varies from very rarely engaged to well engaged. It is supported by computed means from 1.40 to 4.25 at a standard deviation from 0.72 to 1.79. For clarity and understanding, the highest means were obtained by elementary level and graduates' fathers, while the least were obtained by college levels and graduate' fathers. This result means that elementary- level fathers are more attentive to promoting agriculture. They are very well-engaged and well-engaged, especially in vegetable gardening and fruit-bearing tree planting.

Extent of Family Engagement in Promoting Environmental Protection

Table 4. The extent of Family Engagement in Promoting Environmental Protection as a Whole and as per Promotional Activities

Activities in Promoting Environmental Protection	Mean	SD	Interpretation
Waste disposal and management	3.90	1.22	Well-engaged
Water conservation	4.10	1.12	Well-engaged
Energy preservation	3.86	1.20	Well-engaged
Coastal clean-up drive	3.67	1.40	Well-engaged
Environmental awareness campaign	3.86	1.27	Well-engaged
Promoting plastic-free community	3.55	1.57	Well-engaged
Walk or ride a bike for a nearby errand	3.53	1.46	Well-engaged
Recycling and Conservation	3.59	1.36	Well-engaged
Organize community clean-up	3.75	1.23	Well-engaged
Organize a recycling drive	3.75	1.32	Well-engaged
As a Whole	3.75	1.02	Well-engaged

It can be gleaned from Table 4 that the family is well-engaged in promoting environmental protection (M = 3.75, SD = 1.02). Likewise, families are well-engaged in all activities in promoting environmental protection. It is supported by the calculated means from 3.53 to 4.10 at standard deviations of 1.12 to 1.57. Considering obtained mean scores, the highest score on the engagement of the families in promoting environmental protection was on a water conservation, walking, and riding a bike for a nearby errands. Responses of the families regarding this, reflect that water conservation is more important than any other activity of promoting environmental protection. According to Gartenstein (2018), our bodies need water to function correctly. Based on an article in water.org, human beings can survive for weeks without food, but they cannot last a few days without water. The plants and animals we eat needs water as well. In effect, water crises inevitably become food crises. We also use water for cleaning our hygiene and homes, and for producing power such as hydroelectricity. The World Water Council reported that the human population would grow 40 to 50 percent within 50 years. It means that there is an increasing need for freshwater supply when this happens. Ibañez et al.'s (2023) study found that despite limited awareness and knowledge of environmental regulations, respondents expressed favorable sentiments and agreed that implementing these rules is crucial for preserving the environment and natural resources.

The families' experiences with typhoons Odette in 2021 and Yolanda in 2013 inspired them to take a strong interest in protecting the mangroves along the coast and conserving water. They came to understand how these necessities and defenses kept them safe from starvation and devastation during these disasters. Their commitment to environmental conservation has improved over time as a result of their preservation practices.

Table 5. The extent of Family Engagement in Promoting Environmental Protection when grouped as to Profile

Profile Variables	Categories	Mean	SD	Interpretation
Family Income	10,000 & below	3.73	1.02	Well-engaged
	10,000-15,000	3.93	1.04	Well-engaged
	15,001 & above	3.75	1.29	Well-engaged
Size of the Family	Small	3.71	0.99	Well-engaged
	Medium	3.95	1.18	Well-engaged
Educational Attainment of Mother	Elementary	3.98	1.05	Well-engaged
	High School	3.56	1.05	Well-engaged
	College	3.75	0.83	Well-engaged
Educational Attainment of Father	Elementary	3.99	0.93	Well-engaged
	High School	3.40	1.19	Well-engaged
	College	3.33	1.09	Well-engaged

Table 5 shows, when data were grouped according to family income, families are well-engaged in promoting environmental protection when taken as a whole. It is supported by the calculated means of 3.73, 3.93, and 3.75 at standard deviations of 1.02, 1.04, and 1.29. Likewise, when activities to promote environmental protection were taken individually, families were well-engaged in all activities to promote environmental protection. Results in this regard mean that family members are willing to engage themselves in the different activities that promote environmental protection. Results also reflect family engagement in promoting environmental protection when grouped according to the family size. As shown in this table, small-sized families (M = 3.71, SD = 0.99) and medium-size families are well-engaged in promoting environmental protection when taken as a whole. Likewise, families are well-engaged in promoting environmental protection in all activities considered to promote environmental protection except on water conservation, where medium-sized families are very well-engaged. The results presented below mean that no matter how big or small families are, situations today motivate families to engage in these activities. They believed that it is a need right now for the community to involve families in the protection of the environment and of Mother Earth.

When grouped according to the educational attainment of the mothers, families of Sitio Dunca-an, Brgy. Bulanon is well-engaged in promoting environmental protection when taken as a whole. It is supported by the calculated means of 3.98, 3.56, and 3.75 at standard deviations of 1.05, 1.05, and 0.83, respectively. Based on the result, the highest means were obtained by elementary levels and graduates' mothers. It means that they are more engaged in promoting environmental protection in almost all of the activities. However, when promoting environmental protection, mothers, regardless of their educational levels, are more engaged in water conservation. They believed in the importance of water in daily chores and life. According to Velayutham (2019), all living things need water to survive. It is needed by the body to function well. The organ systems needed rehydration to maintain its function. Dehydration can cause death. Therefore, water supply in the body gives human beings life. He also added that water helps in creating saliva, regulating body temperature, aids in cognitive function, protects the cells, tissues, organs, and systems of the body, maximizes its performance, and boosts our energy levels, and prevents overall dehydration. Thus, mothers are very much religious in promoting water conservation. Having sufficient water in the body is critical to nearly every part of it. Daily intake helps us maintain our current state of good health and it could also improve the body in the long run. The amount of water we need depends on the environment and climate we live in, how physically active we are, and whether we are suffering from an illness, ailment, or other health problems.

When grouped according to the educational attainment of the fathers, elementary level and graduate fathers are well-engaged (M = 3.99, SD = 0.93), while high school (M 3.40, SD = 1.19) and college (M = 3.33, SD = 1.09) level and graduate fathers are moderately engaged. However, when activities were considered individually, families, when grouped according to the educational attainment of the fathers, are moderately well-engaged and very well-engaged in the different activities of promoting environmental protection. It is supported by the obtained means ranging from 2.89 to 4.34 at a standard deviation ranging from 0.71 to 1.87. By looking at the obtained mean scores, the highest in almost all of the activities of promoting environmental protection were still from the elementary level and graduate fathers. Consistently, they are well-engaged in water conservation like the way their wives are promoting it too. In other words, no one can stay away without water. We can live for a week without food but never with water. That is why families of Sitio Dunca-an are more decisive in promoting water conservation and other activities that promote environmental protection. Along this line, Weymiller (2018) stated that plain water is the wisest choice for rehydrating. It is one of the six essential nutrients (along with carbohydrates, protein, fat, vitamins, and minerals). We can only live three to five days without fluids. Water plays many essential roles in the body, including flushing waste, regulating body temperature, transportation of nutrients, and is necessary for digestion. No wonder it is considered "essential!"

Differences in the Extent of Family Engagement in Promoting Agriculture

Table 6. Results of the Test on the Differences in the Extent of Family Engagement in Promoting Agriculture when Grouped According to Profiles

Profile Variables	Categories	Mean Rank	Kruskal-Wallis $\chi 2$	Mann-Whitney U	p	Interpretation
Family Income	10,000 & below	24.56				
	10,000-15,000	29.25	2.45		0.29	Not Significant
	15,001 & above	35.88				
Size of the Family	Small	24.79		155.50	0.24	Not Significant
	Medium	30.95				
Educational Attainment of Mother	Elementary	32.60				
	High School	22.58	7.85		0.02	Significant
	College	16.58				
Educational Attainment of Father	Elementary	32.22				
	High School	17.22	15.33		0.00	Significant
	College	14.00				

Reflected in Table 6 were the results of the Kruskal-Wallis and Mann-Whitney U Tests on the differences in the extent of family engagement in promoting agriculture when grouped according to monthly family income. There was no statistically significant difference in the extent of family engagement in promoting agriculture when grouped according to monthly family income when engagement was taken all together $\chi^2 = 2.45$, $p = 0.29$, with a mean rank for family income of 10,000 and below, of 24.56 for family income of 10,000 - 15,000 was 29.25, and for family income of 21,000 and above was 35.88.

On the other hand, the same result of no significant differences was observed when all activities promoting agriculture were considered individually considering their monthly family income. Their involvement in all activities in promoting agriculture is almost the same. It means that the families of Sitio Dunca-an believe that there is a need to promote agriculture, especially in this time of pandemic where the economy of almost all of the households is affected. Likewise, the Mann-Whitney U test on the extent of family engagement in promoting

agriculture when grouped according to the family size. showed no significant difference in the extent of family engagement in promoting agriculture when grouped according to the family size when the engagement was taken all together U =155.50, p = 0.24, with a mean rank for a small-sized family of 24.79 and medium-size family was 30.95. Likewise, the same result of no significant differences was noted when all activities in promoting agriculture were considered individually, considering that the size of the family is small or medium. Their involvement in all activities in promoting agriculture does not vary. It means that families, whether small or medium-sized, have almost the concerns of promoting and how they will continuously support programs related to the promotion of agriculture. Plus, involving themselves in these activities will help them earn a living. The Kruskal-Wallis Test on the differences in the extent of family engagement in promoting agriculture, and grouped the data according to the educational attainment of the mothers. It revealed that there is a significant difference in the extent of family engagement in promoting agriculture when grouped according to the educational attainment of the mothers. It is evident when the engagement was taken all together (χ^2 = 7.85, p = 0.02), with a mean rank for the mothers whose educational attainment was elementary of 32.60, for the mother who is high school levels and graduates was 22.58, and for the mother who is college levels and graduates was 16.58. Likewise, there was a statistical difference in their engagement in seed growing (nursery) (χ^2 = 6.39, p = 0.04) and goat raising (χ^2 = 12.05, p = 0.00).

These results presented reflected that mothers who are elementary levels and graduates are more engaged than mothers who are high school and college levels and graduates. It is supported by their obtained mean ranks of 32.60, 22.58, and 16.58, respectively. Elementary levels and graduates' mothers are more engaged, maybe because they believe that involving themselves in these activities is very helpful to the family, especially in the pandemic. Besides, they believed that being together in promoting these activities help strengthen family ties and relationship.

On the other hand, no significant differences were observed in promoting mangrove planting, tree planting, vegetable gardening, ornamental gardening, fruit-bearing tree planting, hog raising, free-range chicken raising, and dried fish making (boneless). These results indicate that family engagement in the mentioned activities of promoting agriculture is almost the same. They believed that engaging themselves in these activities was a necessity. Mangrove planting, for instance, mothers believed that engaging in this activity would help their community through economic and safety since participants were living along the coastline area.

According to Camacho, et al. (2020), mangroves primarily provide mankind their basic needs which include food, shelter and clothing. Other essential products medicines, fuelwood, provision of timber, natural dyes, honey, and marine food. They also help regulate floods, erosion, and saltwater intrusion; and protect coastal communities against the tremendous impacts of storms and tsunamis. Likewise, Nature Conservancy (2017) pointed out that coastal development and climate change increase the risks to people and property from flooding across the globe. In addition, a study released by the WAVES Program, led by the World Bank, mangroves benefit the Philippines by reducing damages caused by calamities like flood to 25% every year, especially in this time of the Covid-19 pandemic.

Table 6 also shows the Kruskal-Wallis Test on the differences in the extent of family engagement in promoting agriculture when grouped according to the educational attainment of the fathers. Results revealed that there was a statistically significant difference in the extent of family engagement in promoting agriculture when grouped according to the educational attainment of the father when the engagement was taken all together (χ^2 = 15.33, p = 0.00), with a mean rank for the fathers whose educational attainment were elementary of 32.22, for the mother who is high school level and graduate was 17.22, and for the father who is college level and graduate was 14.00, and in terms of the activities of promoting agriculture except on free-range chicken raising (χ^2 = 2.42, p = 0.30) and dried fish making (boneless) (χ^2 = 4.58, p = 0.10) where a statistically significant differences were observed. The results disclosed that families vary in their responses on their engagement in promoting agriculture. The data reflected that families whose fathers are elementary levels or graduates are more engaged than families whose fathers are high school and college levels and graduates. It can be implied from the respondents' responses that their means of livelihood is one reason why they are less engaging in promoting agriculture. Since they are college graduates, and have works that earn them a living for their family, thus little time is spent in engaging these activities in promoting agriculture.

Differences in the Extent of Family Engagement in Promoting Environmental Protection

Table 7. Results of the Test on the Differences in the Extent of Family Engagement in Promoting Environmental Protection when Grouped According to Profiles

Profile Variables	Categories	Mean Rank	Kruskal-Wallis $\chi 2$	Mann-Whitney U	p	Interpretation
Family Income	10,000 & below	25.57				
	10,000-15,000	28.33	0.20		0.91	Not Significant
	15,001 & above	26.88				
Size of the Family	Small	25.01		164.50	0.34	Not Significant
	Medium	30.05				
Educational Attainment of Mother	Elementary	29.43				
	High School	23.27	1.97		0.37	Not Significant
	College	24.92				
Educational Attainment of Father	Elementary	29.38				
	High School	20.94	4.49		0.11	Not Significant
	College	19.75				

Reflected in Table 7 were the results of the Kruskal-Wallis and Mann-Whitney U tests on the differences in the extent of family engagement in promoting environmental protection when grouped according to monthly family income. Based on the result, there was no statistically significant difference in the extent of family engagement in promoting environmental protection when data were grouped according to monthly family income, and activities were taken all together $\chi^2 = 0.20$, $p = 0.91$. It is proven by a mean rank for family income of 10,000 below was 25.57, for family income of 10,000 - 15,000 was 28.33, and for family income of 21,000 above was 26.88. On the other hand, the same result of no significant differences was observed when all activities promoting environmental protection were considered individually. Families' involvement in all activities in promoting agriculture is almost the same. It means that families, no matter what their social and economic status is, still are very much concerned about their environment and Mother Earth. Especially nowadays where our environment is at stake.

According to Pampel (2014), socioeconomic status (SES) is only modestly connected with environmental concern in low-income countries with poor environmental circumstances. However, in higher-income countries, it is strongly and favorably associated with improved environmental circumstances. SES has a contingent link with environmental concerns; hence the global environmentalism idea is supported by low-income nations. In contrast, higher-income countries accept the post-materialism and affluence ideas.

Table also shows the result of the Mann-Whitney U test on the differences in the extent of family engagement in promoting environmental protection when grouped according to the family size. As shown, there was no statistically significant difference in the extent of family engagement in promoting environmental protection when grouped according to the family size and when activities were taken all together $U = 164.50$, $p = 0.34$, with a mean rank for a small-sized family of 25.01 and medium-sized family was 30.05. Likewise, the same result of no significant difference was noted when all activities in promoting agriculture were considered individually, considering the family size. Their involvement in all activities in promoting environmental protection does not vary. It means that families whether small or medium-sized have almost the concerns of promoting and supporting programs related to environmental protection.

Results revealed through the Kruskal-Wallis test the differences in the extent of family engagement in promoting environmental protection when grouped according to the educational attainment of the mother. It indicates that there was no statistically significant difference in the extent of family engagement in promoting environmental protection when grouped according to the educational attainment of the mothers when activities were taken all together ($\chi^2 = 1.97$, $p = 0.37$), with a mean rank for the mothers whose educational attainment was elementary of 29.43, for the mothers who are high school levels and graduates were 23.27, and for the mothers who are college levels and graduates was 24.92. Likewise, no statistically significant difference was observed when activities were taken individually. This means that mothers, regardless of the status of their education, were still concerned about the environment, and they always wanted to promote environmental protection. They also believed that involving themselves in these activities may help in solving problems related to the environment. Likewise, being together in promoting these activities help strengthen family ties and relationship.

The Kruskal-Wallis Test on the differences in the extent of family engagement in promoting environmental protection; when grouped according to the educational attainment of the father, results showed that there was no statistically significant difference. However, in the extent of family engagement in promoting environmental promotion when grouped according to the educational attainment of the father, when activities were taken all together ($\chi^2 = 4.49$, $p = 0.11$), with a mean rank for the fathers whose educational attainment was elementary of 29.38, for the father who is high school levels and graduates was 20.94, and for the father who is college levels and graduates was 19.75. However, significant differences were observed in terms of coastal clean-up ($\chi^2 = 8.41$, $p = 0.21$) and environmental awareness campaign ($\chi^2 = 11.56$, $p = 0.00$). The results disclosed that families vary in their responses engaged in promoting environmental protection. The data reflected that families whose fathers are elementary levels or graduates are more engaged than families whose fathers are high school and college levels and graduates.

CONCLUSION AND RECOMMENDATION

Majority of the families are having a family income of 10,000 and below and they are small size family where majority of them are high school levels and graduates while majority of the fathers are elementary level and graduates. They are engaging; however, their engagement is not much especially in dried fish making, free range chicken raising, and hog raising. But they do engage more in mangrove planting, tree planting, seed growing, vegetable gardening, ornamental gardening, and fruit bearing tree planting.

Families, no matter how small or big their income is, yet they believed that involving themselves in promoting agriculture is a means to sustain quality life. There are some activities that they are not engaged well. The more the family have members, the more they are engaged. Although, some are slightly engaged in some activities but generally families in both small and medium sized families pushing themselves to engage and involve themselves in promoting agriculture. Some parents are engaged well in promoting agriculture but others are less engaged. Entrepreneurial agricultural activities may be introduced and integrated in the community-sectoral partnership to amplify family engagement in agriculture making it as a lifetime endeavor in attaining quality life and community development towards achieving sustainable development goals.

Families are well-engaged in promoting environmental protection when taken as a whole and in terms of the different activities. No matter what their family income is, families are very much engaged in promoting environmental protection. Small and medium size families are doing their best to promote environmental protection most especially in water conservation. Families are promoting environmental protection; however, their engagement varies from one another. Others are not engaged well in the different activities but others are doing their best to promote environmental protection. Monthly income of the family does not matter on the engagement of the families in promoting agriculture. However, their engagement varies on mangrove and tree planting. The higher the income, the more families are engaged in promoting agriculture. Community-based ecotourism or ecofarming programs, projects, or activities may be considered in the implementation of sectoral partnership as strategic initiatives of providing economic benefits to the community while protecting the environment.

The size of the family does not matter on the engagement of the family in promoting agriculture. No matter how small or large family is their desire of promoting agriculture is always there. The educational attainment of the mother matters the way they engaged themselves in promoting agriculture most especially in seed growing and goat raising. The engagement of the father in promoting agriculture varies as to their educational attainment. Mothers who are elementary level and graduates are more engaged than those who are high school and college levels and graduates. But their engagement in promoting agriculture is almost the same in hog raising, free ranged chicken raising, and dried fish making.

Monthly family income, size of the family, and educational attainment of the mother do not determine the way they engage themselves in promoting environment protection even considering the different activities. Fathers, regardless of their educational attainment do not vary with their engagement of promoting environmental protection. Their engagement is almost the same. However, they engaged differently in the campaign for environmental awareness. Father who are elementary graduates are more engaged than high school and college level and graduates' father. The extent of family engagement in promoting agriculture when taken as a whole is moderate. And in terms of dried fish making, free range chicken raising, and hog raising. On the other hand, families are well-engaged in mangrove planting, tree planting, seed growing, vegetable gardening, ornamental gardening, and fruit bearing tree planting.

Families of Sitio Dunca-an of Brgy. Bulanon is encouraged well to actively participate in any activities that will promote in agriculture, especially those which are significant in today's scenario. Environmental awareness campaigns may be strengthened. A DepEd community collaboration on how to promote agriculture and environmental protection may be provided. The possible partnerships elicited from the responses of the qualitative questions may be a basis for crafting a sectoral partnership plan for sustainability and replicability implications. A similar study may be conducted in other parts of the community to confirm or deny the present findings. A similar study may be conducted utilizing other personal and related variables not presently mentioned in this study.

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