

Sustainability Practices of the Gulayan sa Paaralan Program: A Pathway to Long Term Benefit for Students

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Abstract— This study examines the Gulavan sa Paaralan Program's (GPP) sustainability practices and their effects on students, focusing on the program's long-term advantages in fostering nutritional wellbeing and food security. Based on the idea that school gardens are essential for combating malnutrition and teaching students about agriculture, it aims to evaluate the way GPP is applied in a few national high schools in Loreto, Agusan del Sur. Through surveys, interviews, and focus groups, information was obtained from parents, teachers, GPP coordinators, school administrators, and students using a mixed-method approach. The study looks at nutritional status changes, participant profiles, and perceived benefits of integrating GPP with initiatives like the School-Based Feeding Program. The extent of implementation of the SBFP and GPP has a grand mean of 3.852. The level of improvement in the nutritional status got 3.814 as Grand mean. A total of 3.784 was attributed to the impact of implementation to the academic performance. The current sustainability practices garnered 3.900 while 4.078 for the influence of programs sustainability practices to students' nutritional awareness and habits. There was no discernible variation in the degree of sustainability practices among the three responding groups, according to statistical analysis using ANOVA. Any differences in responses were statistically insignificant, as indicated by the Computed F-values for "Gardening Techniques" (2.04) and "Use of Organic/Chemical Inputs" (0.23), both of which had P-values better than 0.05. The results show that regular GPP implementation promotes household food supply, encourages better eating habits, and increases student involvement in environmental sustainability. Implementation issues include uneven stakeholder participation, a lack of training, and scarce resources. The report affirms the GPP's position as a lifelong benefit to learners by offering recommendations to improve program support mechanisms, advance agricultural literacy, and fortify sustainability measures

Keywords— Sustainability, Gulayan sa Paaralan, School-based Feeding, Food Security.

I. INTRODUCTION

Malnutrition has a significant impact on a child's survival and development, accounting for almost half of mortality in children under five [1]. 26.7% of children in the Philippines between the ages of 5 and 10 are stunted, a condition indicative of chronic undernutrition, according to the Department of Science and Technology's Food and Nutrition Research Institute [2] In the Philippines, the Department of Education launched the Gulayan sa Paaralan Program (GPP) as a strategic intervention to enhance children's nutritional status and promote food security [3]. This initiative promotes the establishment of vegetable gardens in schools to supply fresh produce for school-based food programs and increase students' understanding of agriculture [4]. The School-Plus-Home Gardens Project (S+HGP) demonstrated that combining school gardens with home gardening programs engaged families and communities in sustainable agricultural practices, in addition to enhancing children's eating habits [5]. Additionally, school gardens teach kids environmental responsibility and care through practical experiential learning opportunities [6]. The SBFP has been effective in reducing malnutrition and improving beneficiary participation in the classroom [7]

Gardening is defined as the practice of growing plants for food, education, and mental wellness [8]. Additionally, it is highlighted that the dietary, social, and cognitive advantages of gardening in classrooms, discovering that kids who were exposed to gardens had more positive attitudes regarding nutrition and veggies [9] Healthy eating and food production are connected by the "garden-to-table" approach. Students who took part in garden initiatives were more excited about fruits and vegetables [10]. Likewise, garden-to-cafeteria programs improved students' eating habits and raised their consumption of fruits and vegetables [11]. Additionally, students who participated in school gardens did better in science and environmental education [12]. Similarly, school gardens, particularly in urban and underprivileged areas, encourage experiential learning and a sense of responsibility in young people [13]. When gardening and feeding are combined, fresh veggies are used in meals and students are taught about sustainability. This strategy claims that by coordinating school nutrition and agriculture programs, learning results and economic development can be enhanced. [14] [15]. A study revealed that integrating GPP and SBFP into classroom activities demonstrated significant educational nutritional benefits for students and [16]. Particularly, the SBFP has demonstrated great potential in raising student performance and attendance. Accordingly, feeding programs improve students' cognitive abilities in addition to reducing temporary hunger. It was noted increases in weight and attendance among SBFP recipients in the Philippines. [17] [18].

Nevertheless, there are some shortcomings in the way GPP and SBFP are implemented together for example, a lack of technical assistance and a shortage of land [19]. The lack of a long-term plan and insufficient community involvement pose a threat to sustainability [20]. To guarantee the ongoing



effectiveness of these programs, it was suggested to enhance the collaborations with parents and the local government [21]. These collaborations can provide technical support, funding, and resources necessary for the continuous development of school gardens [22]. School-based nutrition initiatives thrive when they are backed by larger networks in agriculture and health [23]. Regular supervision and parental participation are essential components of successful school feeding initiatives over the long run [24]. The whole school community, including parents, teachers, administrators, and students, must actively participate in the GPP's implementation [25]. Because cooperative efforts result in shared responsibility and knowledge exchange, community involvement guarantees the life and success of school gardens [26]. Additionally, students' comprehension of sustainable agriculture methods and their advantages is improved when environmental education is incorporated into the curriculum [27].

More research in gardening showed that middle school pupils' attitudes toward vegetables were greatly enhanced by school gardening [28]. Nutrition education centered around gardens increases people's inclination toward healthful eating [29]. In the meanwhile, teenage obesity rates and garden participation was linked [30]. The Food and Agriculture Organization emphasized that school gardens can be used as testing grounds for community resilience and nutrition education [31]. Similarly, UNICEF reaffirmed that addressing the underlying causes of hunger is facilitated by incorporating nutrition-sensitive agriculture into classrooms [32]. Research indicated that utilizing garden yields in school feeding programs improved students' Body Mass Index (BMI) and academic outcomes [33]. A study emphasized the importance of nutritional interventions in poverty-stricken areas, noting significant improvements in students' health following the implementation of school-based nutrition programs [34]. Furthermore, it was observed that school feeding initiatives in urban slums led to reductions in anemia and improvements in overall nutritional status [35]. Moreover, a report called for the need for regular training and continuous monitoring to ensure that the program remains effective in the long term. This highlights the importance of integrating GPP into the school curriculum, not just as a supplementary project but as a core component of students' overall education [36].

II. MATERIALS AND METHOD

This study used a quantitative research approach to assess the Gulayan sa Paaralan Program's (GPP) sustainability and efficacy in comparison to the School-Based Feeding Program (SBFP). Across a sample of public secondary schools, the method concentrated on finding quantifiable trends and connections between factors including program execution, resource availability, and student outcomes. The SBFP and GPP recipients were the study's primary emphasis. The technique of stratified sampling was utilized to guarantee equitable representation among different subgroups.

To collect quantitative data, a structured survey questionnaire was created to collect pertinent information about the implementation, sustainability, and perceived results of the GPP and SBFP. The questionnaire was validated by experts to ensure that it was clear, reliable, and aligned with the study's objectives; a pilot test was also carried out before full implementation to improve the instrument based on preliminary feedback; and the survey was administered in coordination with school staff to ensure that respondents were adequately briefed and guided throughout the data-gathering process.

Inferential statistics like the chi-square test and correlation analysis were used to look at links between important variables, while descriptive statistics like frequency, percentage, and mean were used to summarize replies. Based on student experiences and reported results, this statistical analysis sought to produce empirical insights into the programs' efficacy and sustainability.

The researcher secured the required authorizations from the schools' division office and the appropriate school authorities prior to the start of data collecting. All participants gave their informed agreement, and throughout the study, their confidentiality, anonymity, and voluntary involvement were rigorously maintained. Participants were informed that there would be no consequences if they chose to decline or leave the study at any point.

III. RESULTS AND DISCUSSION

The grand mean of 3.852 in Table 1's results indicates that parents, teachers, and students all give the SBFP and GPP's implementation a "High." This finding lends credence to the idea that school stakeholders view these programs as relevant, useful, and successful. Strong adherence to operational rules and regular community interaction were key factors in the effective implementation of SBFP, which is consistent with the good overall evaluations seen in this study [37]. The "Quality and nutritional adequacy of food served under SBFP" metric, which has the highest mean (3.990), highlights that the meals offered satisfy the dietary requirements of students. Students' health and preparedness for class have improved because of the SBFP's nutritious lunches [38].

TABLE 1: The extent of implementation of the School-Based Feeding Program and Gulayan sa Paaralan Program.

| Indicators | | Students | | Teachers | | rents | Crond | Orignall | |
|-----------------------------------------------------------------------------------------|-------|---------------|-------|---------------|-------|---------------|-------|------------|--|
| | | Adj Rating | Mean | Adj Rating | Mean | Adj Rating | mean | Adj rating | |
| Quality and nutritional adequacy of food served under SBFP | 3.96 | High | 4.12 | High | 3.89 | High | 3.990 | High | |
| Integration of fresh produce from GPP into the feeding program | 3.92 | High | 3.85 | High | 3.86 | High | 3.877 | | |
| Participation of school communities (teachers, parents, and students) in GPP activities | 3.93 | High | 3.49 | High | 3.85 | High | 3.757 | High | |
| Sustainability and maintenance of the Gulayan sa Paaralan gardens | 3.81 | High | 3.76 | High | 3.78 | High | 3.783 | High | |
| Overall Mean | 3.905 | High | 3.805 | High | 3.845 | High | 3.852 | High | |

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It was noted that the synergy between GPP and SBFP improves the freshness and nutritional value of school meals while promoting food sustainability, and that GPP is not only a gardening initiative but also a direct support system to school feeding efforts. The integration of fresh produce from the GPP into the SBFP was also rated highly (mean = 3.877). High evaluations (mean = 3.757) were also given to school community participation, highlighting the significance of teamwork in execution. Though a study indicated that teachers support the GPP, they occasionally lack specialized training in agricultural methods, therefore the lower mean from teachers (3.49) may be due to time or competence limits [40]. A grand mean of 3.814 is shown in Table 2, suggesting that nutritional gains are perceived favorably. "Weight-for-age" (mean = 3.860), the highest-rated measure, attests to the direct support of SBFP and GPP for students' physical development. Because they often have access to nutrient-rich meals, SBFP participants acquire a large amount of weight [42].

High ratings were also given to other markers, such as "Height-for-age" (mean = 3.797) and "Body Mass Index" (mean = 3.787), indicating steady nutritional support. Pupils in schools that use GPP report feeling better and growing more. It was determined that regular SBFP involvement considerably improves physical indicators of nutrition. [42] [38]

 TABLE 2: Level of improvement in nutritional status

| Indicators | Students | | Teachers | | Р | arents | Crond mean | Overall Adirating |
|-----------------|----------|------------|----------|------------|-------|------------|------------|-------------------|
| mulcators | Mean | Adj Rating | Mean | Adj Rating | Mean | Adj Rating | Grand mean | Overall Auj raung |
| Weight-for-age | 3.880 | High | 3.840 | High | 3.860 | High | 3.860 | High |
| Height-for-age | 3.830 | High | 3.770 | High | 3.790 | High | 3.797 | High |
| Body Mass Index | 3.820 | High | 3.770 | High | 3.770 | High | 3.787 | High |
| Over-all Mean | 3.843 | High | 3.793 | High | 3.807 | High | 3.814 | High |

| TABLE 3: Im | pact of implement | entation to acade | emic performance. |
|-------------|-------------------|-------------------|-------------------|
|-------------|-------------------|-------------------|-------------------|

| In diastana | Students | | Teachers | | Parents | | Crond maan | Overall Adj rating | |
|-------------------------|----------|---------------------------------------------|----------|------------|------------|------|------------|--------------------|--|
| Indicators | Mean | ean Adj Rating Mean Adj Rating Mean Adj Rat | | Adj Rating | Grand mean | | | | |
| Attendance Rate | 3.810 | High | 3.860 | High | 3.790 | High | 3.820 | High | |
| Academic Grades | 3.790 | High | 3.770 | High | 3.730 | High | 3.763 | High | |
| Classroom Participation | 3.790 | High | 3.760 | High | 3.760 | High | 3.770 | High | |
| Over-all Mean | 3.797 | High | 3.797 | High | 3.760 | High | 3.784 | High | |

| TABLE 4: C | Current | sustaina | bility | y 1 | practices |
|------------|---------|----------|--------|------------|-----------|
|------------|---------|----------|--------|------------|-----------|

| Indiastors | Students | | Teachers | | Parents | | Crand mean | Overall Adirecting | |
|--------------------------------|----------|------------|----------|------------|---------|------------|------------|--------------------|--|
| Indicators | Mean | Adj Rating | Mean | Adj Rating | Mean | Adj Rating | Grand mean | Overall Adj rating | |
| Gardening Techniques | 3.970 | High | 3.910 | High | 3.850 | High | 3.910 | High | |
| Use of Organic/Chemical inputs | 3.930 | High | 3.890 | High | 3.850 | High | 3.890 | High | |
| Over-all Mean | 3.950 | High | 3.900 | High | 3.850 | High | 3.900 | High | |

|--|

| Indicators | Students | | Teachers | | Parents | | Crand mean | Overall Adirecting |
|------------------------------------|----------|------------|----------|------------|---------|------------|------------|--------------------|
| indicators | Mean | Adj Rating | Mean | Adj Rating | Mean | Adj Rating | Grand mean | Overall Adj rating |
| Knowledge of balance diet | 4.070 | High | 4.250 | High | 4.080 | High | 4.133 | High |
| Knowledge of vegetable consumption | 4.000 | High | 4.060 | High | 4.010 | High | 4.023 | High |
| Over-all Mean | 4.035 | High | 4.155 | High | 4.045 | High | 4.078 | High |

Table 3's overall mean of 3.784 attests to the SBFP and GPP's alleged beneficial effects on students' academic achievement. The "Attendance Rate" indicator had the highest rating (mean = 3.820), supporting the studies showing that healthy eating lowers absenteeism, particularly in low-income areas where hunger is a deterrent to attending school [43].

Strong scores were also given to "Classroom Participation" and "Academic Grades" (means = 3.770 and 3.763, respectively). It has been discovered that feeding programs greatly increase academic engagement among undernourished learners, and students in SBFP schools exhibit notable improvements in focus, energy, and grades [44] [45].

Under GPP, sustainability practices received a high score (grand mean = 3.900), demonstrating schools' dedication to utilizing ecologically friendly gardening techniques. The highest ranking went to "Gardening Techniques" (mean = 3.910), demonstrating how well schools employ practices like

crop rotation and composting. Research has shown that using these strategies in schools improves learning and production [46].

The utilization of chemical and organic inputs (mean = 3.890) indicates knowledge of sustainable, healthful farming practices. Using organic methods in school gardens results in more environmentally friendly and kid-friendly methods [47].

Out of all the datasets, Table 5 had the highest grand mean (4.078), especially for "Knowledge of balanced diet" (mean = 4.133). This suggests that both classroom instruction and GPP experiences are helping students understand nutrition better. Children's knowledge of healthy food is much increased when gardening is incorporated into the classroom [48] [49].

This is further supported by "Knowledge of vegetable consumption" (mean = 4.023), which indicates that students are probably altering their eating habits in addition to learning about veggies. By highlighting the importance of domestically



farmed products, GPP encourages long-term dietary modifications [50].

| TABLE 6: Sigi | nificant differer | nce on the lev | el of sustainat | oility practices |
|---------------|-------------------|----------------|-----------------|------------------|
| | | | | |

| Sources of Variation | Computed f | P-value | Decision | Conclusion |
|--------------------------------------|---------------|---------|----------------------------------------|--------------------|
| Gardening techniques | 2.04 | 0.131 | Failed to reject null hypothesis | NOT SIGNIFICANT |
| Use of Organic/Chemical inputs | 0.23 | 0.793 | Failed to reject null hypothesis | NOT SIGNIFICANT |

There was no discernible variation in the degree of sustainability practices among the three responder groups, according to statistical analysis using ANOVA. Any differences in responses were statistically insignificant, as indicated by the Computed F-values for "Gardening Techniques" (2.04) and "Use of Organic/Chemical Inputs" (0.23), both of which had P-values better than 0.05.

This suggests that the GPP's sustainability practices are perceived and experienced similarly by parents, teachers, and students. Since it demonstrates that all sectors are involved, knowledgeable, and equally supportive of the program's activities, this alignment is crucial for program continuation and efficacy.

IV. CONCLUSION

The findings of this study underscore the strong integration and positive impact of the Gulayan sa Paaralan Program (GPP) and the School-Based Feeding Program (SBFP) in selected public high schools in Loreto, Agusan del Sur. Both programs were shown to be well-received and widely implemented, with school-grown produce effectively supplementing SBFP meals, thereby enhancing their nutritional value. The collaborative efforts of students, teachers, and parents in maintaining the gardens highlight the importance of community engagement in sustaining schoolbased agriculture. Despite minor constraints related to labor and funding, the consistent commitment of stakeholders contributes to the ongoing viability of the GPP. Improvements in students' nutritional indicators-including BMI, weight-forage, and height-for-age-affirm the programs' success in addressing malnutrition and promoting health among learners in underserved communities.

Beyond physical health, the programs also fostered notable gains in students' academic performance, attendance, and classroom participation, reinforcing the interconnectedness of nutrition and learning. Moreover, the GPP encouraged the adoption of sustainable gardening techniques and eco-friendly practices, nurturing students' environmental awareness alongside agricultural literacy. The development of healthier eating habits and a deeper understanding of balanced diets among students further emphasize the program's educational value, extending its influence into households and the broader community. The lack of significant variation in perceptions across stakeholder groups suggests a unified and coordinated approach to implementation. In sum, the synergistic integration of the GPP and SBFP serves as a holistic model for promoting health, education, and sustainability in schools, laying a strong foundation for long-term community resilience and student well-being.

Recommendations

The study's conclusions suggest that schools should keep bolstering the Gulayan sa Paaralan Program's implementation by instituting sustainable gardening techniques including crop rotation, composting, and community engagement. For material and technical assistance, school administrators and program coordinators should forge closer ties with agricultural organizations and local government entities. Furthermore, to guarantee a steady supply of wholesome, fresh products for feeding recipients, the integration of the GPP with the SBFP should be strengthened. To determine the impact of the program and pinpoint areas for development, regular monitoring and assessment should also be carried out. Finally, to foster shared accountability and the program's long-term viability, efforts to increase the capacity of educators, learners, and parents must be supported.

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