

Sustainability of Cacao Production Specialization in Agricultural Crop Production at Cristina B. Gonzales Memorial High School

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Date Submitted:
February 1, 2026

Date Accepted:
February 28, 2026

Date Published:
March 3, 2026

DOI:
10.5281/zenodo.18845107

ABSTRACT

This research was conducted to determine implementation, effectiveness and challenges of the chosen focus area in the study location for a possible intervention program. The descriptive-correlational method has been used in this study: A researcher-made questionnaire concerning implementation practices, effectiveness indicators and the seriousness of challenges is completed by the respondents. The results demonstrated that effectiveness among respondents was high and implementation was moderate to good in all areas. However, somewhat major issues remained, especially in relation to resources shortage, stakeholder support and professional

development. The data show there are meaningful links between certain profile characteristics and how effective current practices are. also found clear differences between what works well and the challenges people face. This means that, although current practices generally work, there are still areas that need focused, lasting solutions to fill the gaps and improve overall results.

Keywords: *Curriculum implementation, instructional effectiveness, teacher performance, challenges in implementation, intervention program*

INTRODUCTION

The cacao tree, also referred to as "food of the gods," is a perennial tropical plant of immense global economic value. The beans of this tree are used to produce *tablea*, cocoa powder, butter, and chocolate products for the food, pharmaceutical, and cosmetic sectors. An estimated five million metric tons of cacao is produced annually worldwide, supporting the livelihood of 40-50 million people, with Africa contributing 70% of the production (World Cocoa Foundation, 2021; Swiss Platform for Sustainable Cacao, 2021).

The Philippines, located in the global "Cacao Belt," has favorable cacao cultivation conditions but produces only about 10,000 metric tons per year due to low yields, limited planting materials, pest and disease pressures, and inadequate post-harvest infrastructure (Perez, 2022; PCAARRD, 2021). National

programs such as the Department of Agriculture's High-Value Crops Development Program and the Philippine Cacao Industry Roadmap 2021-2025 seek to improve productivity, value chain development, and global competitiveness (DA-HVCDP, 2021; PCAF, 2021). The Department of Science and Technology's complementary efforts focus on breakthroughs in sustainable production, post-harvest technology, and value addition (DOST,2022).

Local communities in Abra, such as the Sallapadan Cacao Producers Association, have reinvigorated cacao production with DOST, DTI, and local government training, equipment, and processing support (JDP/CAGT-PIA CAR, 2021; CAGT-PIA CAR, 2024). Cacao production is included into agricultural curricula at many educational institutions, including Cristina B. Gonzales Memorial High School, to enhance technical and entrepreneurial abilities. However, there is little data on the long-term viability, effectiveness, and community impact of cacao initiatives in schools.

This study evaluates the sustainability of CBGMHS's cacao production specialization by examining curriculum, institutional capacity, community linkages, and alignment with national and local development strategies, providing evidence to support education-led agricultural interventions in the Philippines.

Objectives of the Study

This research aims to fill this gap by investigating the perceived efficacy and challenges of Grade 7 TLE teachers in delivering the MATATAG Curriculum in the Division of Abra. Through the documentation of the experiences, challenges, and needs of the teachers, this research hopes to provide empirical evidence that can help in the development of programs for teacher training and development. In the end, this research hopes to help in improving the implementation of the curriculum and in empowering teachers to provide quality skills-oriented education for sustainable livelihoods.

METHODOLOGY

Research Design

The research design employed in this study was correlational, which aimed to explore the relationships between the profile of Cristina B. Gonzales Memorial High School (CBGMHS) regarding One-Town-One-Product (OTOP) inclusion in agricultural crop production, the competence of graduates, and challenges in program implementation. The correlational research design was a quantitative method used to identify the nature and strength of relationships between variables without modifying them (Creswell, 2014; Gay, Mills, & Airasian, 2012). This research design was most suitable for identifying relationships and not for establishing causality. Structured questionnaires and surveys were employed to gather data, which were then quantified for analysis using correlation methods.

Participants

The target population was the graduates of Cristina B. Gonzales Memorial High School (CBGMHS) who finished the Cacao Production Specialization offered through the One-Town-One-Product (OTOP) program from 2019 to 2024. The study targeted graduates who were employed in cacao-related fields such as production, processing, research, and agricultural companies. The graduates who were not employed in the cocoa industry or were unemployed at the time of the study were not included in the study. A stratified random sampling technique was employed, where the respondents were stratified according to

the year of graduation and randomly selected from each stratum. The sample size was adequate to provide representation and facilitate analysis of the competency of the graduates, the challenges in the implementation of the program, and the link between the OTOP profile of the school and the graduates.

Research Questionnaire

The OTOP cocoa project of the CBGMHS, graduation competency, and problems in implementation will be assessed using a survey questionnaire developed by the researcher and validated by experts. The questionnaire is composed of four sections: (1) respondent profile, (2) school OTOP profile that encompasses projects, best practices, innovations, and support, (3) graduate competence rated by employers on the operation of the nursery, planting, care, and harvest, and (4) challenges that determine the severity of problems in implementing the program. The questionnaire employs a five-point Likert scale and a checklist.

Data Collection Procedure

A validated survey questionnaire designed by the researcher was employed for data gathering. Before data gathering, permission was sought from the school administration and concerned authorities. The employed alumni of the CBGMHS Cacao Production Specialization (2019-2024) and their employers were encouraged to participate freely. The questionnaires were distributed in hard copy format, with clear instructions. The ethical considerations of informed consent, confidentiality, and anonymity were strictly maintained. The gathered data was reviewed for completeness, coded, and ready for statistical analysis.

Statistical Treatment

The data collected through the survey questionnaire was analyzed using appropriate quantitative statistical analysis. The categorical factors like sources, types, and problems encountered in the OTOP cacao production project were analyzed using frequency distribution. The weighted mean and standard deviation were computed to estimate the degree of graduation competency perceived by employers and the severity of implementation difficulties. Pearson's correlation coefficient was employed to examine the correlation between the competencies of graduates and the OTOP profile of the school. All the analyses were performed using SPSS software to ensure that the findings were accurate and reliable.

RESULTS & DISCUSSION

The profile of Cristina B. Gonzales Memorial High School (CBGMHS) in One-Town-One-Product (OTOP) agricultural crop production showed that all schools (100%) established nurseries, and planting cocoa trees was done in 88.9% of the schools. Post-harvest processing (33.3%) and marketing of products (44.4%) were practiced less, indicating excellent foundation training but limited exposure to value chain and entrepreneurship concepts, as expected from Ariniago et al. (2023) and Dela Cruz et al. (2025). Best practices such as the use of organic fertilizers and direct student participation were fully adopted. However, external partnerships (44.4%), faculty development (44.4%), and industry standardization (66.7%) were not uniform. Innovation adoption was high for improved planting materials (100%) but low for low-cost

processing (55.6%) and technology integration (11.1%). The graduates' performance showed Good to Excellent abilities (4.00-4.44), with financial constraints, post-harvest facility inadequacy, and seasonal weather conditions as major hindrances (Lopez & Santos, 2026). Best practices have a positive relationship with competence ($r = 0.657$).

To address these gaps, the Comprehensive Cacao Production and Postharvest Skills Enhancement Programme (CCPP-SEP) was recommended. This initiative aims to enhance the technical skills of graduates, enhance postharvest management, adopt technology and innovation, ensure continuous faculty development, and enhance school-industry-community relationships. The program involves hands-on training from nursery to harvest, as well as workshops on soil analysis, pest and disease control, postharvest management, value chain management, and monitoring application and processing technology. Continuous monitoring, skills assessment, and feedback mechanisms ensure that the employees are able to meet the expectations of their employers and the industry standards. The application of CCPP-SEP is expected to enhance the skills of the graduates, ensure the sustainability of the OTOP program, and develop the local cacao industry (Arinieo et al., 2023; Dela Cruz et al., 2025; Lopez & Santos, 2026).

Conclusions and Recommendations

The study showed that Cristina B. Gonzales Memorial High School (CBGMHS) is doing well in the basic cacao production processes, such as nursery development and planting, but has limited capabilities in post-harvest processing and marketing. The graduates have shown good to outstanding skills in nursery management, planting, crop management, and harvest/post-harvest processes, but have the most skills in propagation, land preparation, and post-harvest handling. The major constraints were inadequate funding, limited post-harvest facilities, inadequate faculty development, and weather conditions, which hampered program performance. Best practices and innovation adoption enhanced graduate skills, but dependence solely on outside assistance was not enough. To overcome these limitations, the Comprehensive Cacao Production and Postharvest Skills Enhancement Program (CCPP-SEP) is suggested, with emphasis on hands-on training, post-harvest and value chain management, technology adoption, faculty development, enhanced school-industry-community ties, continuous monitoring, and infrastructure development.

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