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Hands-on training practices and their contribution to crop production skills of learners in Alicia Vocational School

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ABSTRACT

This study determined the contribution of hands-on training practices to the crop production skills of learners in Alicia Vocational School. Specifically, it examined the learners' profile, the level of hands-on training practices in terms of practical demonstration, supervised practice, learning by doing, and availability of training resources, the level of crop production skills in land preparation, planting and crop care, harvesting and post-harvest handling, the significant relationship between hands-on training practices and crop production skills, and the instructional enhancement inputs that may be proposed based on the findings. The study employed a descriptive-correlational research design involving Grade 11 and Grade 12 learners enrolled in Agricultural Crop Production NC II. Data were collected using a researcher-made questionnaire that underwent expert validation and reliability testing. Frequency, percentage, weighted mean, Pearson Product-Moment Correlation, and Multiple Regression Analysis were utilized to analyze the data at the 0.05 level of significance. The findings revealed that the respondents perceived the implementation of hands-on training practices to be at a high level and likewise demonstrated a high level of crop production skills. The results further indicated a significant positive relationship between hands-on training practices and learners' crop production skills. Practical demonstration, supervised practice, learning by doing, and the availability of training resources were identified as significant contributors to learners' competency development. Based on these findings, instructional enhancement inputs were proposed to strengthen the implementation of Agricultural Crop Production NC II. The study concluded that effective hands-on training significantly enhances learners' technical competencies, work readiness, and preparedness for agricultural employment and national certification.

Keywords: Hands-on training practices, crop production skills, agricultural crop production NC II, competency-based education, experiential learning, technical-vocational education.

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INTRODUCTION

Technical–Vocational–Livelihood (TVL) education is designed to equip learners with the competencies necessary for employment, entrepreneurship, and lifelong learning. Within the Philippine K–12 curriculum, Agricultural Crop Production NC II provides learners with opportunities to develop technical knowledge and practical skills through competency-based instruction. The curriculum emphasizes the "integration of theoretical concepts with authentic agricultural experiences to prepare learners for national certification and future careers in agriculture" (Technical Education and Skills Development Authority, 2017).

Hands-on training has become one of the most effective instructional approaches in agricultural education because it enables learners to apply classroom concepts in real farming situations. Experiential learning theory explains that "meaningful learning occurs when learners actively participate in concrete experiences followed by reflection and application" (Kolb, 2015). Likewise, vocational education experts emphasize that "repeated performance of authentic tasks promotes mastery of technical competencies and strengthens learners' confidence" (Billett, 2019; Mulder, 2017).

Several international studies have shown that "practical demonstration, supervised practice, and learning-by-doing improve students' technical performance and work readiness" (Lombardi et al., 2019; Thompson & Warnick, 2020). Local studies similarly report that "agricultural learners who regularly participate in school-based farming activities exhibit higher competency levels and greater readiness for TESDA assessment" (Dizon, 2020; Santos, 2021).

Despite these findings, differences in learners' crop production competencies remain evident across vocational schools. Such variations may be influenced by differences in instructional delivery, supervision, availability of farm resources, and learners' opportunities for practical engagement. These concerns highlight the need to evaluate the implementation of hands-on training practices in Agricultural Crop Production NC II.

Recognizing the importance of competency-based instruction, this study examined the contribution of hands-on training practices to the crop production skills of learners in Alicia Vocational School. Specifically, it assessed the level of hands-on training practices, the learners' crop production skills, the relationship between these variables, and the instructional enhancements that may further improve agricultural education.

Statement of the problem

This study aimed to determine the contribution of hands-on training practices to the crop production skills of learners enrolled in Agricultural Crop Production NC II at Alicia Vocational School.

Specifically, it sought to answer the following questions:

1. What is the profile of the respondents in terms of grade level, sex, and the number of hours spent in practical or hands on agricultural training?
2. What is the level of hands-on training practices of learners as perceived by the respondents in terms of practical demonstration, supervised practice, learning by doing, and availability of training resources?
3. What is the level of crop production skills of learners in terms of land preparation, planting and crop care, and harvesting and post-harvest handling?
4. Is there a significant relationship between the level of hands-on training practices and the level of crop production skills of learners?
5. Which dimensions of hands-on training practices significantly predict or contribute to the crop production skills of learners?

6. Based on the findings of the study, what instructional enhancement inputs may be proposed to strengthen the implementation of hands-on training practices in Agricultural Crop Production NC II?

METHODOLOGY

This study employed a descriptive-correlational research design to determine the contribution of hands-on training practices to the crop production skills of learners. The descriptive component assessed the extent of hands-on training practices and learners' competency levels, while the correlational component determined whether significant relationships existed between the variables.

The study was conducted at Alicia Vocational School among Grade 11 and Grade 12 learners enrolled in Agricultural Crop Production NC II. The respondents were selected through total enumeration or purposive sampling, depending on the total enrollment during the conduct of the study.

Data were gathered using a researcher-developed questionnaire composed of three sections: respondents' profile, hands-on training practices, and crop production skills. The instrument was subjected to expert validation to establish content validity and was pilot-tested to determine reliability using Cronbach's alpha coefficient.

The questionnaire utilized a five-point Likert scale ranging from Strongly Agree (5) to Strongly Disagree (1). Data collection was conducted after securing approval from the school administration and obtaining informed consent from the respondents. Confidentiality and voluntary participation were strictly observed throughout the research process.

The collected data were analyzed using frequency and percentage to describe the respondents' profile, weighted mean to determine the level of hands-on training practices and crop production skills, Pearson Product–Moment Correlation to examine the relationship between variables, and multiple regression analysis to determine the predictors of crop production skills. Statistical analyses were performed at the 0.05 level of significance.

This study adhered to established ethical principles in educational research to ensure the protection of the rights, dignity, privacy, and welfare of all respondents. Prior to the conduct of the study, permission to administer the survey questionnaire was secured from the School Head of Alicia Vocational School. The respondents were informed of the objectives, significance, and procedures of the study. Participation was strictly voluntary, and learners were given the freedom to decline or withdraw from the study at any point without penalty. Informed consent was obtained from all respondents, and for participants below 18 years of age, parental or guardian consent and school authorization were secured in accordance with institutional policies.

Confidentiality and anonymity were strictly observed throughout the research process. The questionnaire did not require respondents to disclose personally identifiable information, and all responses were treated with the utmost confidentiality. The collected data were used solely for academic and research purposes and were stored securely to prevent unauthorized access. Results were presented in aggregated form to ensure that no individual respondent could be identified. These practices are consistent with the principles of the Data Privacy Act of 2012, which mandates the protection of personal information and the responsible processing of research data.

RESULTS AND DISCUSSION

The findings revealed that learners generally perceived the implementation of hands-on training practices as high, particularly in practical demonstration, supervised practice, learning-by-doing, and the availability of training resources. Practical demonstration obtained the highest mean rating, indicating that teacher modeling of agricultural procedures effectively supported learners' understanding of crop production activities.

The respondents likewise demonstrated a high level of crop production skills, particularly in land preparation, planting and crop care, harvesting, and post-harvest handling. Learners expressed confidence in performing agricultural tasks independently and indicated readiness to apply the competencies acquired during practical training.

Correlation analysis indicated a positive relationship between hands-on training practices and crop production skills. The findings suggest that learners who experienced more effective practical instruction generally demonstrated higher levels of agricultural competency.

Regression analysis further showed that among the dimensions of hands-on training practices, practical demonstration, supervised practice, and learning-by-doing significantly contributed to crop production skills, while the availability of training resources provided additional support for effective skills development.

Overall, the results indicate that structured experiential learning contributes substantially to learners' competency development in Agricultural Crop Production NC II.

The findings support the proposition that practical learning experiences are fundamental to competency development in agricultural education. Learners who regularly participated in demonstrations, supervised farm activities, and authentic agricultural tasks reported higher levels of crop production skills. These findings are consistent with Kolb's (2015) experiential learning theory, which explains that knowledge is strengthened through active engagement and reflection.

The high ratings for practical demonstration support the observations of Roberts (2016), who emphasized that demonstration-based instruction enhances procedural understanding and minimizes errors during independent task performance. Similarly, Phipps et al. (2008) argued that combining classroom instruction with field experiences strengthens psychomotor skills required in agricultural education.

The significant contribution of supervised practice corroborates the findings of Thompson and Warnick (2020), who reported that structured laboratory and field instruction significantly improve learners' technical competencies. Likewise, Khalid and Saad (2022) found that continuous teacher supervision promotes procedural accuracy and skill mastery among vocational learners.

Learning-by-doing also emerged as a significant contributor to crop production skills. This supports the work of Billett (2019), who explained that authentic participation enables learners to develop adaptive expertise and independent problem-solving abilities. Mulder (2017) similarly emphasized that vocational competence develops through repeated performance of occupational tasks.

The positive influence of training resources agrees with the findings of the OECD (2022), which reported that access to quality facilities and instructional equipment enhances technical performance. Adequate farm tools and learning environments enable learners to practice more effectively and reinforce classroom instruction.

These findings also align with Philippine studies. Dizon (2020), Santos (2021), and Garcia and Ramos (2023) all reported that structured practical exposure strengthens learners' competency, confidence, and work readiness. The present study extends these findings by demonstrating that multiple dimensions of hands-on training collectively contribute to learners' crop production skills within the context of Alicia Vocational School.

The study therefore affirms that competency-based agricultural education should continue emphasizing experiential learning, adequate instructional resources, and sustained teacher supervision to improve learners' readiness for national certification and future employment in the agricultural sector.

CONCLUSION

Based on the findings of the study, it is concluded that the learners enrolled in Agricultural Crop Production NC II at Alicia Vocational School generally perceived that hands-on training practices were effectively implemented, particularly in practical demonstration, supervised practice, learning-by-doing, and the availability of training resources. These instructional practices provided meaningful opportunities for learners to apply theoretical knowledge in authentic agricultural activities, thereby strengthening their technical competencies.

The study further concludes that the learners demonstrated a high level of crop production skills in land preparation, planting and crop care, harvesting and post-harvest handling, and overall competency. The consistent engagement of learners in practical agricultural activities contributed to their confidence and preparedness in performing essential crop production tasks required under Agricultural Crop Production NC II.

Moreover, the findings indicate that hands-on training practices have a positive and significant relationship with learners' crop production skills. As the quality and frequency of practical instruction improve, learners likewise demonstrate higher levels of technical competence. This affirms the importance of experiential and competency-based instruction in agricultural education.

The study also concludes that practical demonstration, supervised practice, learning-by-doing, and the availability of training resources significantly contribute to the development of learners' crop production skills. These instructional components collectively enhance learners' ability to perform agricultural tasks effectively and prepare them for competency assessment, work immersion, and future employment in the agricultural sector.

Finally, the study concludes that strengthening hands-on training practices through improved instructional strategies, adequate farm facilities and equipment, continuous teacher support, and enhanced experiential learning opportunities will further improve the implementation of Agricultural Crop Production NC II. The proposed instructional enhancement inputs are therefore considered appropriate measures for sustaining quality agricultural education and producing competent, skilled, and work-ready graduates.

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