Competencies of The Technical Vocational and Livelihood Agri-Crops Senior High School Graduates in Abra

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ABSTRACT

This study determined the competencies of Technical-Vocational-Livelihood (TVL) Agri-Crops Senior High School graduates in Abra and examined the influence of teacher qualifications, school facilities, agricultural materials, tools and equipment, and teaching practices on graduates' competency levels. Using a descriptive-correlational research design, data were gathered from 204 TVL Agri-Crops graduates and 12 teachers through validated questionnaires and checklists. Descriptive and inferential statistics were used to analyze the data. Results showed that most graduates were competent in the core competencies of performing nursery operations, planting crops, caring for and maintaining crops, and carrying out harvest and post-harvest operations. The majority achieved competency in COC 1, COC 2, and COC 3, while fewer graduates attained competency in COC 4. Teachers generally possessed appropriate qualifications, including postgraduate studies, National Certificates, relevant training, and teaching experience. School facilities and agricultural resources were moderately available and adequate, although deficiencies were noted in laboratories, water pumps, and hand tractors. Among the teacher-related variables, only years of teaching experience significantly influenced graduates' competency. School facilities and the adequacy of agricultural materials, tools, and equipment showed no significant relationship with competency levels, whereas teachers' instructional practices significantly influenced competency, particularly in COC 3 and COC 4. The study recommends strengthening experiential learning opportunities, enhancing teachers' industry exposure, and improving school facilities and equipment further to develop graduates' competencies in agricultural crops production.

Keywords: Technical-Vocational-Livelihood (TVL), Agri-Crops, Competency Assessment, Teaching Practices, Agricultural Education

INTRODUCTION

Agriculture remains a fundamental sector that supports food security, economic growth, and sustainable livelihoods across the world. In many developing countries, the agricultural sector continues to provide employment opportunities and serves as a major source of income for rural communities. However, rapid technological advancements, globalization, climate variability, and increasing industry demands have transformed agricultural production systems, creating a greater need for a competent workforce equipped with practical skills and technical expertise. Consequently, educational institutions are expected to prepare graduates who possess competencies that meet current industry standards and contribute effectively to agricultural development.

To address these workforce demands, many countries have strengthened Technical and Vocational Education and Training (TVET) systems through competency-based education (CBE), which emphasizes the development and assessment of learners' knowledge, technical skills, and workplace attitudes based on clearly defined occupational standards. Unlike traditional knowledge-centered instruction, competency-based education promotes authentic learning experiences where learners demonstrate mastery through actual performance in real or simulated work environments. International studies have shown that competency-based TVET enhances

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graduates' employability, workplace readiness, and adaptability to technological and industrial changes, particularly in agriculture and other skills-based occupations.

In the Philippines, the implementation of the K–12 Basic Education Program institutionalized the Technical-Vocational-Livelihood (TVL) Track to prepare Senior High School learners for employment, entrepreneurship, or further education. Among its specializations, Agricultural Crops Production equips students with competencies in nursery operations, crop establishment, crop maintenance, and harvest and post-harvest operations following the competency standards prescribed by the Technical Education and Skills Development Authority (TESDA). The competency-based curriculum aims to ensure that graduates possess the practical knowledge and technical skills required by the agricultural sector while supporting national goals for rural development and food security.

Despite the implementation of competency-based agricultural education, previous studies have largely focused on curriculum implementation, employability, school readiness, and instructional delivery. Relatively few studies have comprehensively examined the competency status of TVL Agri-Crops graduates while simultaneously investigating the influence of teacher qualifications, school facilities, agricultural materials and equipment, and teachers' instructional practices on competency development. Furthermore, empirical evidence remains limited in the Province of Abra, where agriculture continues to be one of the primary economic activities and where strengthening agricultural human resources remains essential for local development.

This study is anchored on **Kolb's Experiential Learning Theory**, which emphasizes that meaningful learning occurs through a continuous cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. The theory is particularly relevant to competency-based agricultural education because learners develop occupational competence through direct engagement in practical activities, reflection on learning experiences, application of theoretical concepts, and continuous improvement of performance. Accordingly, the competencies assessed in this study—including nursery operations, planting crops, crop maintenance, and harvest and post-harvest operations—represent authentic learning experiences consistent with Kolb's experiential learning cycle.

Evaluating the competencies of TVL Agri-Crops graduates is essential in determining whether competency-based agricultural education effectively prepares learners for employment and lifelong learning. Likewise, examining teacher-related factors, school resources, and instructional practices provides valuable evidence for improving curriculum implementation, instructional quality, and institutional support systems. The findings of this study are expected to contribute to the improvement of agricultural education programs, strengthen competency-based instruction, and provide empirical evidence that may guide educational leaders, policymakers, and future researchers in enhancing the quality of Technical-Vocational-Livelihood education in the Philippines.

Finally, this study determined the competencies of Technical-Vocational-Livelihood Agri-Crops Senior High School graduates in Abra. Specifically, it assessed graduates' competencies in Agricultural Crops Production and examined the relationships among teacher characteristics, school facilities, agricultural learning resources, emerging instructional practices, and graduates' competency levels.

THEORETICAL FRAMEWORK

This study is anchored on Kolb's Experiential Learning Theory (1984)**,** which posits that learning is a continuous process whereby knowledge is created through the transformation of experience. According to Kolb, effective learning occurs through a four-stage experiential learning cycle consisting of Concrete Experience**,** Reflective Observation, Abstract Conceptualization, and Active Experimentation. Rather than viewing learning as the simple acquisition of information, the theory emphasizes that learners develop knowledge and competence through active participation, reflection, conceptual understanding, and practical application.

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Kolb's theory is particularly relevant to Technical and Vocational Education and Training (TVET) because competency-based education requires learners to demonstrate occupational competencies through authentic workplace experiences rather than through theoretical knowledge alone. In agricultural education, learners acquire technical competencies by engaging directly in agricultural activities, reflecting on their experiences, integrating theoretical concepts with practical situations, and continuously improving their performance through repeated practice. Consequently, experiential learning serves as an appropriate theoretical foundation for understanding how competencies in Agricultural Crops Production are developed among Technical-Vocational-Livelihood (TVL) learners.

The four core competencies examined in this study correspond closely with Kolb's experiential learning cycle. Performing Nursery Operations and planting crops provides learners with concrete learning experiences through direct participation in agricultural production activities. As learners observe the outcomes of these activities and evaluate their performance, they engage in Reflective Observation, enabling them to recognize strengths, weaknesses, and opportunities for improvement. Through classroom instruction, demonstrations, and guided discussions, learners develop Abstract Conceptualization, where agricultural principles and technical concepts are integrated with their practical experiences. Finally, learners demonstrate Active Experimentation by applying newly acquired knowledge and skills during crop maintenance, harvesting, and post-harvest operations, thereby strengthening their occupational competence through repeated application in authentic learning environments.

The theory also provides a framework for explaining the institutional and instructional factors examined in this study. Teachers facilitate experiential learning by designing meaningful learning experiences, providing appropriate supervision, and encouraging reflective learning throughout the competency development process. Likewise, school facilities, agricultural materials, tools, and equipment create learning environments that enable students to participate effectively in practical agricultural activities. These institutional resources support learners as they progress through each stage of Kolb's experiential learning cycle, thereby contributing to competency development.

Within this theoretical perspective, teacher qualifications, teaching experience, instructional practices, school facilities, and agricultural learning resources are viewed as enabling conditions that support experiential learning. However, Kolb's theory likewise suggests that competency development depends not only on the availability of resources but also on the quality of learners' engagement throughout the experiential learning process. Consequently, differences in competency levels may arise when opportunities for meaningful practice, reflection, conceptual understanding, or active application are limited despite the presence of adequate instructional resources.

Accordingly, this study applies Kolb's Experiential Learning Theory to explain how competency-based agricultural education contributes to the development of graduates' competencies in Agricultural Crops Production. Specifically, the theory provides a basis for examining whether teacher-related factors, school resources, and instructional practices facilitate experiential learning that ultimately leads to the attainment of the competencies expected of Technical-Vocational-Livelihood Agri-Crops Senior High School graduates in Abra.

CONCEPTUAL FRAMEWORK

This study was guided by Kolb's Experiential Learning Theory (1984), which posits that competency development occurs through a continuous cycle of experience, reflection, conceptualization, and application. Guided by this theoretical perspective, the study assumed that graduates' competencies in Agricultural Crops Production are influenced by both institutional and instructional factors that facilitate experiential learning.

The independent variables of the study include the teachers' profile (highest educational attainment, seminars and trainings attended, National Certificates earned, and years of teaching experience), the availability of school facilities, the adequacy of agricultural materials, tools, and equipment, and the emerging instructional practices of teachers. These variables represent the educational conditions that support students' experiential learning and competency development.

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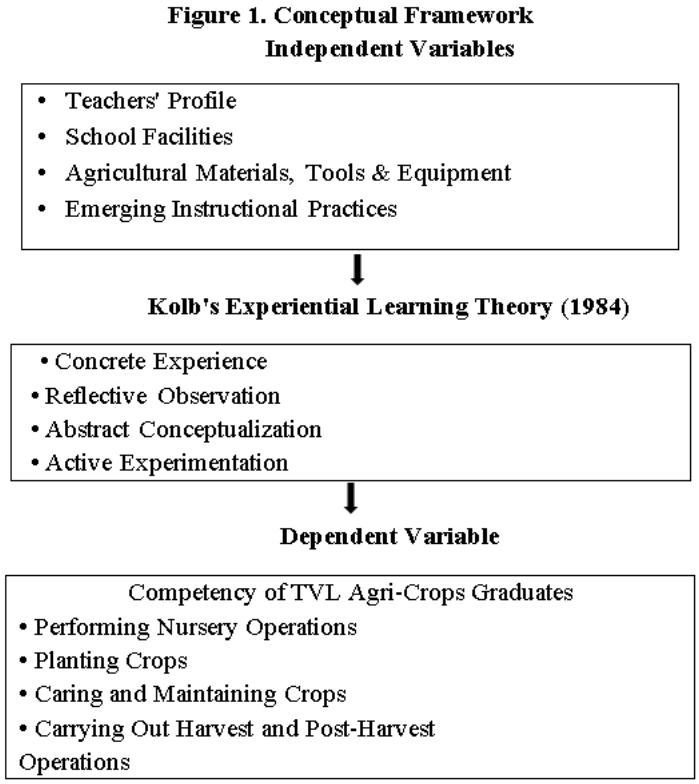
The dependent variable is the competency level of technical-vocational-livelihood agri-crops senior high school graduates, measured across the four core competencies of agricultural crops production, namely: performing nursery operations, planting crops, caring and maintaining crops, and carrying out harvest and post-harvest operations.

The framework assumes that teachers facilitate meaningful learning experiences through effective instructional practices, while school facilities and agricultural resources provide authentic environments where students develop occupational competencies. consistent with kolb's experiential learning theory, learners are expected to achieve higher competency levels when they are provided with sufficient opportunities for concrete experience, reflective learning, conceptual understanding, and active application of agricultural skills.

Figure 1 Illustrates The Conceptual Framework of The Study.



Statement of the Problem

This study determined the competencies of the Technical -Vocational and Livelihood Agri-crops senior high school graduates in Abra.

Specifically, it sought answers to the following questions:

1. What is the status of competency of the TVL Senior High School graduates in the following core competencies:
    a. Performing nursery operations;
    b. Planting crops;
    c. Caring and maintaining of crops; and
    d. Carrying out harvest and post-harvest Operation?
2. What is the profile of the teacher respondents in terms of :
    a. Highest Educational Attainment;
    b. Related Seminars and Trainings Attended;
    c. National Certificate in Agri-crops; and
    d. Number of Years in Teaching Agri-crops?

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3. What is the extent of availability of school plant facilities used in Agricultural Crops Production?
4. What is the extent of adequacy of the agricultural machineries, materials and equipment used in Agricultural Crops Production?
5. What are the emerging practices of the teacher in terms of:
    a. Performing Nursery Operations;
    b. Planting Crops;
    c. Caring and Maintaining Crops; and
    d. Carrying-out Harvest and Post-harvest Operation?
6. Is there a significant relationship between the teachers' profile and the status of competency of the TVL Senior High School graduates in Agricultural Crops Production?
7. Is there a significant relationship between the extent of the availability of school facilities and the status of competencies of the TVL Agri-crops Senior High School graduates in the aforementioned core competencies?
8. Is there a significant relationship between the emerging practices of the teachers and the status of competencies of the TVL Agri-crops Senior High School graduates in the aforementioned core competencies?

Hypotheses

The result of the study revolved with the following hypotheses:

1. There is a significant relationship between the teachers' profile and the status of competency of the TVL Agri-crops Senior High School graduates in Agricultural Crops Production.
2. There is a significant correlation between the level of school facility availability and the TVL Agri-crops Senior High School graduates' competency status in the aforementioned key competencies.
3. There is a significant relationship between the Emerging Practices of the teacher and the status of competencies of the TVL Agri-crops Senior High School graduates in Agricultural Crops Production.

METHODOLOGY

Research Design

This study employed a descriptive-correlational research design. The descriptive method was used to describe the profile of the teacher-respondents in terms of their highest educational attainment, relevant seminars and trainings attended, National Certificates (NC) in Agricultural Crops Production, and years of teaching experience in the Agri-Crops specialization. It also described the extent of availability of school facilities, the adequacy of agricultural materials, tools, and equipment, the emerging instructional practices of teachers, and the competency level of Technical-Vocational-Livelihood (TVL) Agri-Crops Senior High School graduates in the four core competencies of Agricultural Crops Production NC II.

The correlational component of the study was employed to determine the relationships between the teachers' profile, the availability of school facilities, the adequacy of agricultural materials, tools, and equipment, and the emerging instructional practices of teachers with the competency level of TVL Agri-Crops Senior High School graduates. This design was considered appropriate because it allowed the researcher to examine the extent to which these variables were associated without manipulating any of the conditions under investigation.

Population and Locale of the Study

The study was conducted in selected public secondary schools in the Province of Abra offering the Technical-Vocational-Livelihood (TVL) Agri-Crops specialization. The respondents consisted of Technical-Vocational-Livelihood (TVL) Agri-Crops Senior High School graduates and their respective Agri-Crops teachers during School Years 2017–2018 and 2018–2019.

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The graduate respondents comprised a total population of 413 TVL Agri-Crops Senior High School graduates, from which 204 graduates were selected through random sampling. In addition, all twelve (12) Agri-Crops teachers handling the TVL Agri-Crops specialization were included in the study through total enumeration because of their limited number and their direct involvement in the implementation of the program. Thus, the study involved a total of 216 respondents, consisting of 204 graduates and 12 teachers.

Table 1 presents the distribution of the graduate respondents across the participating schools.

School	Total Number of Assessed Graduates	Random Samples
Pulot National High School	20	10
Mataragan National High School	28	14
Dalit National High School	31	15
Pilar Rural National High School	39	19
San Quintin National High School	48	24
Baay National High School	35	17
Cristina B. Gonzales Memorial National High School	76	37
Western Abra National High School	26	13
Tineg National High School	38	18
ASIST Lagangilang Campus	30	15
Langiden National High School	16	8
Alfredo D. Bersamina Memorial High School	26	13
Total	**413**	**204**

Data Gathering Instrument

The primary instrument used in this study was a researcher-developed questionnaire-checklist designed to gather data from the teacher-respondents and to obtain information relevant to the objectives of the study. The instrument consisted of three major parts and was structured to collect data on teachers' professional profile, the availability of school facilities, the adequacy of agricultural materials, tools and equipment, and the emerging instructional practices employed in the implementation of the TVL Agri-Crops program. Competency data for the graduate respondents were obtained from the official competency assessment records maintained by Mt. Carmel Agri-Tourism and Training Center, Inc., a Technical Education and Skills Development Authority (TESDA)-recognized assessment center for Agricultural Crops Production NC II.

Part I gathered information on the profile of the teacher-respondents, including their highest educational attainment, years of teaching experience in Agriculture, attendance in agriculture-related seminars and trainings, and National Certificates earned in Agricultural Crops Production.

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Part II consisted of checklist items that assessed the extent of availability of school facilities and the adequacy of agricultural materials, tools, and equipment used in the implementation of the TVL Agri-Crops program. School facilities were evaluated using a four-point scale ranging from 1 (Not Available) to 4 (Very Available), while agricultural materials, tools, and equipment were rated from 1 (Not Adequate) to 4 (Very Adequate).

Part III measured the emerging instructional practices of teachers in developing students' competencies in Agricultural Crops Production. The indicators were organized according to the four core competencies of Agricultural Crops Production NC II, namely: Perform Nursery Operations, Plant Crops, Care and Maintain Crops, and Carry Out Harvest and Post-Harvest Operations. Teacher-respondents indicated the extent to which these instructional practices were implemented using the response categories Yes, No, and Sometimes.

The competency level of the graduate respondents was determined using the official competency assessment results required for graduation under the Agricultural Crops Production NC II qualification. These records served as the basis for evaluating graduates' competencies in the four core competency areas.

Validity of the Research Instrument

The research instrument underwent content validation prior to its administration. The questionnaire was reviewed by the researcher's adviser and members of the research panel who possessed expertise in educational research and agricultural education. Their comments and recommendations were carefully considered to improve the clarity, relevance, organization, and appropriateness of the questionnaire items in relation to the objectives of the study. Necessary revisions were incorporated before the final administration of the instrument to ensure that it adequately measured the variables under investigation.

Data Gathering Procedure

Prior to the conduct of the study, the researcher secured permission from the Office of the Schools Division Superintendent of Abra through the Education Program Supervisor for Technology and Livelihood Education (TLE) and Edukasyong Pantahanan at Pangkabuhayan (EPP) to administer the questionnaires and collect the necessary data from the selected public secondary schools offering the Technical-Vocational-Livelihood (TVL) Agri-Crops specialization.

Upon approval, the researcher coordinated with the respective school heads and teacher-respondents regarding the administration of the research instrument. The questionnaires were personally distributed to the teacher-respondents, who were given sufficient time to accomplish them. The accomplished questionnaires were subsequently retrieved, checked for completeness, and prepared for data processing.

Permission was likewise obtained from the Mt. Carmel Agri-Tourism and Training Center, Inc., a Technical Education and Skills Development Authority (TESDA)-recognized assessment center, to access the competency assessment results of the TVL Agri-Crops Senior High School graduates for School Years 2017–2018 and 2018–2019. These official assessment records served as the basis for determining the competency level of the graduate respondents.

After the completion of data collection, all responses and competency assessment results were organized, encoded, tabulated, and verified for accuracy. The data were then submitted to the researcher's statistician for appropriate statistical analysis and interpretation.

Statistical Treatment of Data

The data collected in this study were organized, tabulated, analyzed, and interpreted using appropriate descriptive and inferential statistical tools. The following statistical techniques were employed:

Frequency counts and percentages were used to describe the profile of the teacher-respondents in terms of their highest educational attainment, agriculture-related seminars and trainings attended, National Certificates

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earned, and years of teaching experience. These statistics were likewise utilized to describe the extent of availability of school facilities, the adequacy of agricultural materials, tools, and equipment, and the emerging instructional practices of the teachers.

Weighted mean was employed to determine the competency level of the TVL Agri-Crops Senior High School graduates in the four core competencies of Agricultural Crops Production NC II, namely: Perform Nursery Operations, Plant Crops, Care and Maintain Crops, and Carry Out Harvest and Post-Harvest Operations.

Pearson Product-Moment Correlation (Pearson's r) was utilized to determine the significant relationships between the teachers' profile, the availability of school facilities, the adequacy of agricultural materials, tools, and equipment, the emerging instructional practices of teachers, and the competency level of the TVL Agri-Crops Senior High School graduates.

All statistical tests were conducted at the **0.05 level of significance.** The computed probability values (p-values) were compared with the established significance level to determine whether the null hypotheses were accepted or rejected.

RESULT AND DISCUSSION

This chapter presents, analyzes, and interprets data that were gathered in the study. The presentation of the result is done in tabular and textual form.

Problem 1. What is the status of competency of the TVL Senior High School graduates in the following core competencies:

a. Performing Nursery Operations;
b. Planting crops;
c. Caring and Maintaining Crops; and
d. Carrying-out Harvest and Post-harvest Operation?

Table 2 presents the competency status of the TVL Agri-Crops Senior High School graduates in the four core competencies of Agricultural Crops Production NC II. Of the 204 graduates included in the study, 186 (91.18%) were found competent, while only 18 (8.82%) were classified as not yet competent based on the competency assessment conducted by the TESDA-accredited assessment center. Among the graduates who were not yet competent, seven (38.89%) obtained a Certificate of Competency (COC) in Perform Nursery Operations, eight (44.44%) in Plant Crops, eleven (61.11%) in Care and Maintain Crops, and all eighteen (100%) successfully completed Carry Out Harvest and Post-Harvest Operations.

Table 2. Status of Competency of the Technical, Vocational, and Livelihood (TVL) Agri-Crop Senior High School Graduates in Core Competencies

Status of Core Competencies	Frequency	Percentage of Not Yet Competent	Percentage
Competent	186	-	91.18
Not Yet Competent	18	-	8.82
COC 1	7	38.89	-
COC 2	8	44.44	-

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COC 3	11	61.11	-
COC 4	18	100.00	-
Grand Total	**204**		**100.00**

Legend **Core Competencies**

COC 1 Perform nursery operation

COC 2 Plant crops

COC 3 Care and maintain crops

COC 4 Carry-out harvest and post-harvest operation

Table 2 presents the competency status of the TVL Agri-Crops Senior High School graduates in the four core competencies of Agricultural Crops Production NC II. Out of the 204 graduate respondents, 186 (91.18%) were assessed as competent, while 18 (8.82%) were classified as not yet competent based on the competency assessment conducted by a TESDA-accredited assessment center.

Among the 18 graduates who were classified as not yet competent, 7 (38.89%) successfully obtained the Certificate of Competency (COC) 1 in Perform Nursery Operations, 8 (44.44%) obtained COC 2 in Plant Crops, 11 (61.11%) obtained COC 3 in Care and Maintain Crops, and all 18 (100%) obtained COC 4 in Carry Out Harvest and Post-Harvest Operations. These findings indicate that although these graduates were unable to satisfy all the competency requirements for the award of the full Agricultural Crops Production NC II qualification, they demonstrated competence in one or more of the required units of competency.

The high proportion of competent graduates suggests that the TVL Agri-Crops program effectively developed the technical competencies required under the Agricultural Crops Production NC II qualification. Nevertheless, the presence of graduates who obtained only partial Certificates of Competency indicates that some learners encountered difficulties in mastering all four competency areas, particularly Perform Nursery Operations, Plant Crops, and Care and Maintain Crops.

The findings may be explained through Kolb's Experiential Learning Theory (1984), which posits that competency develops through continuous engagement in concrete experiences, reflective observation, abstract conceptualization, and active experimentation. In competency-based agricultural education, repeated participation in practical learning activities enables learners to transform knowledge into occupational skills. The high competency rate observed in this study suggests that experiential learning opportunities provided by the participating schools contributed substantially to the graduates' competency development.

The findings are consistent with those of Ndem et al. (2015), who reported that while agricultural students generally possessed satisfactory theoretical knowledge, they experienced greater difficulty in performing practical agricultural tasks that required repeated field exposure and the operation of agricultural tools and equipment. Similarly, Karbasioun and Mulder (2004) emphasized that competency development in agriculture is strengthened through continuous practical experience, which enhances technical proficiency and agricultural productivity. These studies reinforce the importance of competency-based instruction supported by meaningful experiential learning opportunities.

A noteworthy finding is that all eighteen graduates who were classified as not yet competent successfully obtained COC 4 in Carry Out Harvest and Post-Harvest Operations. This suggests that these graduates had acquired competency in post-harvest activities but had not yet achieved the required standards in one or more of the remaining core competencies necessary for the award of the full National Certificate II qualification. This

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finding highlights the need to strengthen practical instruction and supervised learning experiences in nursery operations, crop establishment, and crop care and maintenance to improve learners' overall competency.

From a practical perspective, the findings indicate that the TVL Agri-Crops program has generally been effective in preparing graduates for competency assessment. However, additional supervised field practice, continuous skills reinforcement, and increased opportunities for hands-on agricultural activities are recommended to help learners attain full competency in all required units of Agricultural Crops Production NC II.

Problem 2. What is the profile of the teacher-respondents in terms of :

a. Highest educational attainment;
b. Related seminars and trainings attended;
c. National Certificate in Agri-crops; and Number of years in teaching Agri-crops?

Table 3. The Profile of the Teacher- Respondents

Profile	Frequency (f)	Percentage (%)
Highest Educational Attainment		
Baccalaureate Degree	4	33.33
With M.A. Units	6	50.00
Master's Degree	2	16.67
Total	**12**	**100.00**
Related Seminars and Trainings Attended		
Local		
16 hours	1	8.33
Division		
24 hours	3	25.00
Regional		
56 hours	1	8.33
40 hours	1	8.33
24 hours	1	8.33
National		
527 hours and Above	2	16.67
272 hours - 526 hours	7	58.33
271 hours and Below	3	25.00

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National Certificate in Agri-crops		
None	3	25.00
NC II	4	33.33
NC III	7	58.33
Number of Years in Teaching Agri-crops		
1 Year	1	8.33
2 Years	4	33.33
3 Years	4	33.33
4 Years and Above	3	25.00
Total	**12**	**100.00**

Table 3 presents the profile of the teacher-respondents in terms of their highest educational attainment, agriculture-related seminars and trainings attended, National Certificates in Agri-Crops, and years of teaching experience in the TVL Agri-Crops specialization.

With **respect to highest educational attainment**, six (50.00%) of the teacher-respondents had earned master's degree units, four (33.33%) held a baccalaureate degree, and two (16.67%) had completed a master's degree. These findings indicate that the majority of the teachers had pursued graduate education, reflecting their commitment to continuous professional development and the enhancement of their pedagogical competence

Regarding **seminars and trainings attended**, all teacher-respondents had participated in professional development activities at the local, division, regional, and national levels. Notably, seven (58.33%) had accumulated 272–526 training hours, while two (16.67%) had completed 527 hours and above of agriculture-related training. This finding suggests that the teacher-respondents actively engaged in continuing professional development to strengthen their technical knowledge and instructional competencies in Agricultural Crops Production.

In terms of **National Certificates**, seven (58.33%) possessed National Certificate III (NC III), four (33.33%) held National Certificate II (NC II), while three (25.00%) had no National Certificate at the time of the study. The relatively high proportion of teachers with National Certificates demonstrates their technical qualifications and compliance with the competency requirements of the Technical Education and Skills Development Authority (TESDA) for technical-vocational instruction.

As regards **teaching experience**, four (33.33%) had been teaching Agri-Crops for two years, another four (33.33%) had three years of teaching experience, three (25.00%) had four years or more, and one (8.33%) had one year of experience. These findings indicate that the majority of the respondents had accumulated sufficient teaching experience to facilitate competency-based agricultural instruction effectively.

The findings support Kolb's Experiential Learning Theory (1984), which emphasizes that effective learning is facilitated by educators who possess both theoretical knowledge and practical experience. Teachers who continually enhance their educational qualifications, participate in professional development programs, earn industry-recognized certifications, and accumulate teaching experience are better positioned to design meaningful experiential learning activities that promote students' competency development. Such qualifications enable teachers to guide learners through the experiential learning cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation.

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The results are consistent with previous studies emphasizing the importance of teacher qualifications in competency-based technical and vocational education. Research has shown that teachers who participate in continuous professional development and acquire industry-recognized certifications are better equipped to deliver practical instruction aligned with workplace standards. Likewise, studies on agricultural education have highlighted that teaching experience and sustained professional learning contribute to improved instructional quality and learner competency development.

From a practical perspective, the findings suggest that the teacher-respondents possessed the minimum professional qualifications necessary to support the implementation of the TVL Agri-Crops curriculum. However, the presence of teachers without National Certificates indicates a continuing need for certification and advanced technical training to strengthen the quality of competency-based instruction further and ensure alignment with current industry standards.

Problem 3. What is the extent of availability of school plant facilities used in Agricultural Crops Production?

Table 4 presents the extent of availability of school plant facilities used in the implementation of the Agricultural Crops Production program. The overall mean of **3.07**, with a descriptive rating of **Moderately Available**, indicates that while the participating schools possessed the basic facilities needed to support agricultural instruction, several important facilities were either limited or unavailable.

Among the facilities assessed, the Comfort Room obtained the highest mean of 4.00, indicating that it was Very Available across the participating schools. Likewise, the Classroom (3.67), Computer Room (3.50), Library Room (3.33), and Tool Room (3.33) were also rated Very Available, suggesting that these learning facilities adequately supported classroom instruction and certain practical learning activities

Table 4. Extent of Availability of school plant facilities used in Agricultural Crops Production

Extent of Availability	Mean	Descriptive Rating (DR)
1. Classroom	3.67	Very Available
2. Library Room	3.33	Very Available
3. Computer Room	3.50	Very Available
4. Assessment Room	1.50	Not Available
5. Laboratory Room	2.17	Fairly Available
6. Tool Room	3.33	Very Available
7. Clinic	3.17	Moderately Available
8. Comfort Room	4.00	Very Available
9. Nursery Area	2.92	Moderately Available
10 Field Plot	3.08	Moderately Available
Mean	3.07	Moderately Available

Statistical Limit	Descriptive Rating (DR)
3.25 – 4.00	Very Available

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2.50 – 3.24	Moderately Available
1.75 – 2.49	Fairly Available
1.00 – 1.74	Not Available

Norm:

On the other hand, the Assessment Room obtained the lowest mean of 1.50, with a descriptive rating of Not Available, while the Laboratory Room received a mean of 2.17, indicating that it was only Fairly Available. The Clinic (3.17), Nursery Area (2.92), and Field Plot (3.08) were rated Moderately Available. These findings suggest that although schools had access to basic instructional facilities, specialized facilities essential for competency-based agricultural training were either insufficient or unavailable in some institutions.

From the perspective of Kolb's Experiential Learning Theory (1984), meaningful learning occurs when learners actively engage in concrete experiences supported by appropriate learning environments. In agricultural education, school facilities such as nurseries, laboratories, field plots, and assessment areas provide authentic settings where students can practice technical skills, reflect on their experiences, and apply theoretical knowledge to real-world agricultural tasks. Consequently, the limited availability of these specialized facilities may reduce opportunities for experiential learning and the development of higher levels of competency.

The findings are consistent with previous studies on agricultural and technical-vocational education, which emphasize that adequate instructional facilities enhance the quality of practical learning experiences and contribute to students' competency development. However, the present findings also indicate that the availability of facilities alone does not necessarily guarantee competency acquisition. Effective instructional strategies, teachers' technical competence, and students' active engagement remain equally important factors in achieving desired learning outcomes. This interpretation is consistent with the principles of competency-based education, which recognize that learner performance is influenced by the interaction of instructional resources, teaching practices, and authentic workplace experiences.

From a practical perspective, the findings underscore the need for schools offering the TVL Agri-Crops program to continuously improve specialized agricultural facilities, particularly assessment rooms, laboratories, nursery areas, and field plots. Strengthening these learning environments would provide students with greater opportunities for hands-on practice, reinforce competency-based instruction, and better prepare graduates for TESDA competency assessment and employment in the agricultural sector.

Table 5 presents the level of adequacy of agricultural materials, tools, and equipment used in the implementation of the Agricultural Crops Production program. The overall mean of 2.53, with a descriptive rating of Moderately Adequate, indicates that the participating schools generally possessed the essential agricultural resources needed to support instruction. However, the availability of several important tools and equipment remained insufficient to fully support competency-based agricultural training.

Table 5. Level of Adequacy of Agricultural Materials, Tools, and Equipment

Agricultural Materials, Tools, and Equipment	Mean	Descriptive Rating (DR)
1. Books in Agriculture	1.92	Fairly Adequate
2. Spade / Shovel	3.00	Moderately Adequate
3. Garden Hoe	2.58	Moderately Adequate
4. Scythe	3.25	Very Adequate
5. Measuring Tools	2.75	Moderately Adequate

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6. Water Pumps	1.50	Not Adequate
7. Hand Tractor	1.17	Not Adequate
8. Plow	1.92	Fairly Adequate
9. Sprayer	2.50	Moderately Adequate
10. Quality Seeds	2.92	Moderately Adequate
11. Growing Media	2.92	Moderately Adequate
12. Containers	2.58	Moderately Adequate
13.Quality Seedlings	2.83	Moderately Adequate
14. Fertilizers	2.83	Moderately Adequate
15. Safety Gears	2.67	Moderately Adequate
16. Baskets	2.17	Fairly Adequate
17. Sprinklers	3.50	Very Adequate
Mean	**2.53**	**Moderately Adequate**

Statistical Limit	**Descriptive Rating (DR)**
3.25 – 4.00	Very Adequate
2.50 – 3.24	Moderately Adequate
1.75 – 2.49	Fairly Adequate
1.00 – 1.74	Not Adequate

Norm:

Among the agricultural materials and equipment assessed, Sprinklers obtained the highest mean of 3.50, followed by the Scythe (3.25), both of which were rated Very Adequate. Several other instructional resources, including the Spade/Shovel (3.00), Quality Seeds (2.92), Growing Media (2.92), Quality Seedlings (2.83), Fertilizers (2.83), Measuring Tools (2.75), Safety Gears (2.67), Garden Hoe (2.58), Containers (2.58), and Sprayer (2.50), were rated Moderately Adequate. These findings suggest that the schools generally had access to the basic materials necessary for the conduct of practical agricultural activities.

Conversely, Water Pumps obtained a mean of 1.50, while the Hand Tractor recorded the lowest mean of 1.17, both interpreted as Not Adequate. Likewise, Books in Agriculture (1.92), Plow (1.92), and Baskets (2.17) were rated Fairly Adequate. The inadequacy of these resources may have limited students' opportunities to develop competencies requiring mechanized farming operations, irrigation management, and large-scale crop production practices.

These findings may be interpreted through Kolb's Experiential Learning Theory (1984), which emphasizes that effective learning occurs through active participation in authentic learning experiences. Agricultural materials, tools, and equipment serve as essential resources that enable learners to translate theoretical knowledge into practical competencies through repeated practice and direct engagement in agricultural activities. Consequently, adequate learning resources enhance experiential learning opportunities and contribute to the development of occupational competence.

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The findings are consistent with studies in technical-vocational and agricultural education which emphasize that the adequacy of instructional materials and equipment plays a significant role in supporting competency-based learning. Adequate learning resources provide students with opportunities to repeatedly practice agricultural tasks under conditions that closely resemble actual workplace environments. However, previous research likewise suggests that learning resources alone do not guarantee competency development. Effective teaching strategies, learner motivation, supervised practical experiences, and competency-based assessment remain equally important in achieving desired learning outcomes.

From a practical standpoint, the findings indicate that schools should prioritize the acquisition of major agricultural equipment, particularly water pumps and hand tractors, to strengthen students' exposure to modern agricultural production practices. Investment in these essential resources would enhance competency-based instruction, provide more authentic field experiences, and better prepare graduates for TESDA competency assessment and employment in the agricultural sector.

Problem 5. What are the emerging practices of the teacher respondents in terms of:

a. Performing Nursery Operations;

b. Planting Crops;

c. Caring and Maintaining Crops; and

d. Carrying out harvest and Post-harvest Operation?

Table 6a. The Emerging Practices of the Teacher Respondents in Performing Nursery Operations and Planting Crops

	Mean	**Descriptive Rating (DR)**
Performing Nursery Operations		
1. Preparing tools and equipment according to work requirement	2.00	Practiced
2. Performing basic pre-operative activities such as checking of tools and equipment	1.92	Practiced
3. Performing repair and maintenance of nursery facilities	1.75	Practiced
4. Practicing safety measure according to OSHS	2.00	Practiced
5.Selecting quality seeds according to prescribed	1.83	Practiced
6.Performing seed treatment for generation purposes	1.58	Practiced
7. Preparing growing media according to mixture	2.00	Practiced
8. Arranging and label pots or seedling trays	1.83	Practiced
9. Setting-up nursery shed	1.50	Practiced
Sub-mean	**1.82**	**Practiced**
Planting Crops		

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1.Preparing tools and equipment for land clearing such as hand tractor, grab hoe, spade, etc.	1.92	Practiced
2. Removing and disposing farm waste	2.00	Practiced
3. Perform digging of holes	1.92	Practiced
4. Transplanting the seedlings based on crop practices	2.00	Practiced
5. Following safety procedures according to OSHS and GAP	2.00	Practiced
Sub-mean	**1.97**	**Practiced**

Statistical Limit	**Descriptive Rating (DR)**
1.34 – 2.00	Practiced
0.67 – 1.33	Seldom Practiced
0.00 – 0.66	Never Practiced

Norm:

Table 6 presents the emerging instructional practices of the teacher-respondents in Performing Nursery Operations and Planting Crops. The results reveal that the teacher-respondents consistently practiced the instructional activities under both competency areas. Performing Nursery Operations obtained a sub-mean of 1.82, while Planting Crops recorded a slightly higher sub-mean of 1.97, both interpreted as Practiced.

Under **Performing Nursery Operations**, the highest mean scores (2.00) were obtained for preparing tools and equipment according to work requirements, practicing safety measures according to Occupational Safety and Health Standards (OSHS), and preparing growing media according to mixture. These findings indicate that teachers consistently emphasized safety, proper preparation of resources, and adherence to standard operating procedures during practical instruction. Meanwhile, performing seed treatment for germination purposes (1.58) and setting up the nursery shed (1.50) obtained comparatively lower mean scores, although both were still interpreted as Practiced. These findings may suggest that certain nursery activities requiring specialized facilities or materials were implemented less frequently than routine classroom-based and field preparation activities.

For **Planting Crops**, all indicators were likewise rated Practiced, with mean scores ranging from 1.92 to 2.00. The highest ratings (2.00) were obtained for removing and disposing of farm waste, transplanting seedlings based on crop practices, and following safety procedures according to OSHS and Good Agricultural Practices (GAP). These findings indicate that teachers consistently integrated proper waste management, safety practices, and standard planting procedures into agricultural instruction, thereby promoting environmentally responsible and industry-aligned farming practices.

The findings are consistent with Kolb's Experiential Learning Theory (1984), which emphasizes that learners develop competencies through direct engagement in authentic learning experiences followed by reflection and application. The consistent implementation of nursery operations and planting activities demonstrates that the teacher-respondents provided students with meaningful opportunities to acquire practical agricultural skills through hands-on learning. Such instructional practices are fundamental to competency-based agricultural education, where learners are expected to demonstrate occupational competence through actual performance rather than theoretical knowledge alone.

The results likewise support previous studies emphasizing that effective agricultural instruction depends not only on teachers' technical expertise but also on their ability to provide learners with authentic practical experiences that mirror workplace conditions. Consistent implementation of nursery management, planting operations, and safety procedures contributes to the development of technical competence, work discipline, and industry readiness among learners. These instructional practices are particularly important in Technical-Vocational-

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Livelihood (TVL) programs, where competency acquisition is primarily demonstrated through practical performance.

From a practical perspective, the findings indicate that the teacher-respondents consistently implemented instructional practices aligned with the competency requirements of Agricultural Crops Production NC II. Nevertheless, greater emphasis may still be given to specialized nursery activities such as seed treatment and nursery shed establishment by providing additional learning resources, facilities, and supervised field experiences. Strengthening these instructional activities may further enhance students' competency development and improve their readiness for TESDA competency assessment and future employment in the agricultural sector.

Table 6b on the next page presents the emerging instructional practices of the teacher-respondents in Caring and Maintaining Crops and Carrying Out Harvest and Post-Harvest Operations. The findings reveal that the teacher-respondents consistently practiced the instructional activities under both competency areas. Caring and Maintaining Crops obtained a sub-mean of 1.85, while Carrying Out Harvest and Post-Harvest Operations recorded a sub-mean of 1.87, resulting in an overall mean of 1.88, which is interpreted as Practiced.

For **Caring and Maintaining Crops,** the highest mean score (1.92) was obtained for implementing suitable pest control strategies based on Good Agricultural Practices (GAP) and applying the rate of fertilizers based on crop requirements, indicating that these practices were consistently emphasized during instruction. Likewise, controlling weed populations (1.92) was regularly implemented, demonstrating teachers' commitment to promoting proper crop management practices. Meanwhile, monitoring or observing pest incidence (1.67) and applying proper irrigation or watering of crops (1.75) obtained relatively lower mean scores, although both were still interpreted as Practiced. These findings suggest that while all essential crop maintenance activities were implemented, some practices requiring continuous field monitoring and resource availability may have been conducted less frequently.

Table 6b. The Emerging Practices of the Teachers in caring for and maintaining crops and carrying out harvest and post-harvest operation

Core Competencies	Mean	Descriptive Rating (DR)
Caring and Maintaining Crops		
1. Monitoring or observation of pest incidence based on prescribed procedure	1.67	Practiced
2. Implementing suitable pest control strategies based on GAP	1.92	Practiced
3. Controlling weed populations	1.92	Practiced
4. Applying the rate of fertilizer based on crop requirement	1.92	Practiced
5. Applying proper irrigation or watering of crops	1.75	Practiced
6. carrying out mulching practices	1.92	Practiced
Sub-mean	**1.85**	Practiced
Carrying-out Harvest and Post-harvest Operation		
1. Identifying crop maturity indicator	1.83	Practiced

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2. Preparing materials, tools, and equipment for harvesting and post-harvesting operations	2.00	Practiced
3. Maintaining records and providing feedback	1.67	Practiced
4. Discussing personal hygiene, food safety, and work sanitation	1.92	Practiced
5. Communicating effectively with farmers, team members, and supervisor	1.92	Practiced
Sub-mean	**1.87**	Practiced
Over-all Mean	**1.88**	Practiced

Statistical Limit	**Descriptive Rating (DR)**
1.34 – 2.00	Practiced
0.67 – 1.33	Seldom Practiced
0.00 – 0.66	Never Practiced

Norm:

With respect to **Carrying Out Harvest and Post-Harvest Operations**, all instructional practices were likewise rated Practiced, with mean scores ranging from 1.83 to 2.00. The highest mean (2.00) was obtained for preparing materials, tools, and equipment for harvesting and post-harvest operations, indicating that teachers consistently emphasized preparedness and proper work organization before conducting harvesting activities. Other practices, including maintaining records and providing feedback (1.67), discussing personal hygiene, food safety, and work sanitation (1.92), and communicating effectively with farmers, team members, and supervisors (1.92), were likewise regularly integrated into instruction.

These practices reflect the teachers' efforts to develop not only students' technical competencies but also their communication, documentation, and workplace readiness skills.

The findings support Kolb's Experiential Learning Theory (1984), which emphasizes that meaningful learning occurs through direct engagement in authentic experiences followed by reflection and application. The consistent implementation of crop management and harvest-related activities provided students with practical learning experiences that enabled them to apply agricultural concepts in real-life situations. Such experiential learning opportunities are fundamental in competency-based technical-vocational education because they facilitate the acquisition of occupational skills required in the agricultural industry.

The results are likewise consistent with previous studies on competency-based agricultural education, which emphasize that effective instructional practices, particularly those involving practical demonstrations, supervised field activities, and adherence to industry standards such as Good Agricultural Practices (GAP) and Occupational Safety and Health Standards (OSHS), contribute significantly to students' competency development. Moreover, integrating workplace communication, documentation, and safety practices into agricultural instruction enhances graduates' preparedness for employment and lifelong learning.

From a practical perspective, the findings indicate that the teacher-respondents consistently implemented instructional practices aligned with the competency requirements of Agricultural Crops Production NC II. However, additional emphasis on continuous crop monitoring, irrigation management, and record-keeping activities may further strengthen students' technical competence and prepare them more effectively for competency assessment and professional agricultural practice.

Problem 6. Is there a significant relationship between the teachers' profile and the status of competency of the TVL Senior High School graduates in Agricultural Crops Production?

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Table 7. Correlation Matrix Showing the Relationship Between the Teachers' Profile and the Status of Competency of the TVL Senior High School Graduates in Agri-crops Production

Profile	Status of Competency				
	Competent	Not Yet Competent			
		COC 1	COC 2	COC 3	COC4
Highest Educational Attainment	0.262	0.221	-0.069	0.097	0.135
Related Seminars and Trainings Attended					
Local	-0.075	-0.148	-0.171	-0.266	-0.251
Division	-0.048	-0.122	-0.327	-0.139	-0.160
Regional	-0.201	-0.114	-0.092	0.113	0.130
National	-0.054	0.088	0.066	-0.012	-0.011
International	-	-	-	-	-
National Certificate	0.248	0.157	0.126	0.251	0.248
Years in Teaching	0.438*	0.589*	0.459*	0.500*	0.575*

Legend:

** - Significant at 0.05 Level

** - Significant at 0.01 Level

Table 7 presents the correlation analysis between the teachers' profile and the competency status of the TVL Agri-Crops Senior High School graduates. The teachers' profile included highest educational attainment, related seminars and trainings attended, National Certificate in Agri-Crops, and years of teaching experience.

The findings reveal that highest educational attainment, related seminars and trainings attended, and National Certificate earned were not significantly related to the competency status of the graduates across all competency areas, as indicated by the computed correlation coefficients, which did not reach the 0.05 level of significance. These results suggest that although these professional qualifications contribute to teachers' individual professional development, they did not independently influence the competency outcomes of the graduates included in this study.

In contrast, years of teaching experience demonstrated a significant positive relationship with the competency status of the graduates. A significant correlation was observed for graduates who were assessed as Competent ($r = 0.438$, $p < .05$), as well as for those who obtained partial competency certification in COC 1 ($r = 0.589$, $p < .01$), COC 2 ($r = 0.459$, $p < .05$), COC 3 ($r = 0.500$, $p < .05$), and COC 4 ($r = 0.575$, $p < .01$). These findings indicate that teachers with longer teaching experience were more likely to facilitate higher levels of student competency across the different competency areas of Agricultural Crops Production NC II.

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These findings support Kolb's Experiential Learning Theory (1984), which emphasizes that effective experiential learning depends not only on instructional resources but also on the ability of teachers to facilitate meaningful learning experiences. Teaching experience enables educators to refine instructional strategies, effectively supervise practical activities, provide timely feedback, and respond appropriately to learners' diverse needs. Consequently, experienced teachers are better equipped to guide students through the experiential learning cycle, thereby enhancing competency development.

The present findings suggest that professional qualifications alone do not automatically translate into improved student competency. Possessing graduate education, attending seminars, or holding National Certificates may strengthen teachers' professional credentials; however, these qualifications must be complemented by sustained teaching practice and effective classroom implementation. This finding extends previous research by highlighting that the application of professional knowledge through accumulated teaching experience may exert a greater influence on students' competency development than qualifications alone.

The results are likewise consistent with studies in technical-vocational education indicating that experienced teachers generally demonstrate greater instructional effectiveness because they have accumulated practical classroom expertise, improved pedagogical decision-making, and enhanced capability in facilitating competency-based learning. Their continued engagement in practical instruction allows them to better integrate technical knowledge with authentic workplace experiences, thereby improving students' occupational competencies.

From a practical perspective, the findings emphasize the importance of retaining experienced TVL teachers while continuously supporting beginning instructors through mentoring programs, classroom coaching, and sustained professional development. Although graduate education, seminars, and industry certifications remain valuable for professional growth, the findings suggest that sustained teaching experience plays a more substantial role in promoting competency development among TVL Agri-Crops learners.

Problem 7. Is there a significant relationship between the extent of the availability of school facilities and the status of competencies of the TVL Agri-crops Senior High School graduates in the aforementioned core competencies?

The table on the next page reveals the relationship between the extent of availability of school facilities and the status of competencies of the Technical, Vocational, and Livelihood Agri-crops senior high school graduates. As a whole, the table shows that a significant relationship exists linking the status of competencies of the TVL Senior High School graduates and the extent of availability of school facilities with 0.904 r-value which is higher than the 0.039 r-prob significant at 0.05 level of significance

Table 8. Correlation Coefficient Showing the Relationship Between the Extent of Availability of School Facilities and the Status of Competencies of the TVL Agri-crops Senior High School Graduates

Status of Competency	r Value	r Prob	Decision
Competent	0.904	0.039 (p< 0.05)	Significant
Not Yet Competent			
COC 1	-0.094	0.770 (p> 0.05)	Not Significant
COC 2	-0.262	0.411 (p> 0.05)	Not Significant
COC 3	-0.119	0.713 (p> 0.05)	Not Significant
COC 4	-0.224	0.484 (p> 0.05)	Not Significant

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Table 8 presents the results of the Pearson Product-Moment Correlation analysis examining the relationship between the extent of availability of school facilities and the competency status of the TVL Agri-Crops Senior High School graduates.

The findings reveal **a** significant positive relationship between **the** overall competency status of the graduates and the extent of availability of school facilities (r = **0.904**, p = **0.039**), indicating that the availability of school facilities contributed significantly to the overall competency of the graduates. This suggests that learning environments equipped with appropriate instructional facilities provide students with greater opportunities to participate in practical agricultural activities, thereby supporting the development of occupational competencies required under the Agricultural Crops Production NC II qualification.

However, when the four individual Certificates of Competency (COCs) were analyzed separately, no significant relationships were found between the availability of school facilities and competency in **COC 1** (r = -0.094, p = 0.770), **COC 2** (r = -0.262, p = 0.411), **COC 3** (r = -0.119, p = 0.713), and **COC 4** (r = -0.224, p = 0.484), as all probability values exceeded the 0.05 level of significance.

The differing results between the overall competency and the individual competency areas suggest that **school** facilities support the competency-based learning environment as a whole**, but** they may not independently determine students' performance in specific competency areas. Competency acquisition in agricultural education is influenced by multiple interacting factors, including teachers' instructional practices, students' engagement in practical activities, supervised field experiences, and the quality of competency-based instruction. Thus, while adequate facilities provide favorable conditions for learning, they must be complemented by effective teaching and active learner participation to produce meaningful competency outcomes.

These findings are consistent with Kolb's Experiential Learning Theory (1984)**,** which emphasizes that learning results from the interaction between learners and authentic experiences rather than from the physical learning environment alone. School facilities create opportunities for experiential learning; however, competency develops only when learners actively participate in meaningful agricultural activities facilitated by competent teachers. Therefore, facilities should be viewed as enabling resources rather than the sole determinants of competency development.

The findings likewise support previous studies in agricultural and technical-vocational education, which suggest that instructional facilities improve the quality of practical instruction but do not automatically guarantee higher competency levels. Students' competency is strengthened when adequate facilities are combined with effective instructional practices, sufficient hands-on experience, and competency-based assessment. This may explain why school facilities demonstrated a significant relationship with the graduates' overall competency status but did not significantly influence each individual competency area when analyzed separately.

From a practical perspective, the findings indicate that schools should continue improving agricultural learning facilities while simultaneously strengthening instructional delivery, supervised practical training, and competency-based assessment. Investment in facilities alone may not be sufficient to improve learner competency unless these resources are effectively utilized to support experiential and competency-based agricultural education.

Table 9. Correlation Coefficient Showing the Relationship Between the Level of Adequacy of Agricultural Materials, Tools, and Equipment and the Status of Competencies of the TVL Agri-crops Senior High School Graduates

Status of Competency	r Value	r Prob	Decision
Competent	0.716	0.050 (p≤ 0.05)	Significant

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Not Yet Competent			
COC 1	0.696	0.050 (p≤ 0.05)	Significant
COC 2	-0.317	0.315 (p> 0.05)	Not Significant
COC 3	0.775	0.050 (p≤ 0.05)	Significant
COC 4	0.686	0.050 (p≤ 0.05)	Significant

Table 9 presents the results of the Pearson Product-Moment Correlation analysis examining the relationship between the level of adequacy of agricultural materials, tools, and equipment and the competency status of the TVL Agri-Crops Senior High School graduates.

The findings reveal a significant positive relationship between the overall competency status of the graduates and the adequacy of agricultural materials, tools, and equipment (r = **0.716**, p = **0.050**). This indicates that the availability of appropriate instructional materials and agricultural equipment contributed to the development of students' competencies in Agricultural Crops Production. Adequate instructional resources provide learners with opportunities to repeatedly practice technical skills under conditions that closely resemble actual agricultural work environments, thereby strengthening competency acquisition.

Further analysis shows that the adequacy of agricultural materials, tools, and equipment was also significantly related to competency in COC 1 – Perform Nursery Operations **(*r* =** 0.696**, *p* =** 0.050**),** COC 3 – Care and Maintain Crops **(*r* =** 0.775**, *p* =** 0.050**),** and COC 4 – Carry Out Harvest and Post-Harvest Operations (r = **0.686**, p = **0.050**). These findings suggest that the availability of appropriate agricultural resources supported students' acquisition of practical competencies requiring direct manipulation of tools, equipment, and crop production materials.

However, no significant relationship was found between the adequacy of agricultural materials, tools, and equipment and competency in COC 2 – Plant Crops (r = −0.317**, *p* =** 0.315). This finding suggests that competency in planting operations may depend not only on the availability of instructional resources but also on other educational factors, such as teachers' instructional practices, students' prior practical experience, supervision during field activities, and repeated opportunities for hands-on learning. Planting techniques often emphasize correct procedures and proper demonstration, which can still be effectively developed even when certain materials or equipment are limited.

These findings are consistent with Kolb's Experiential Learning Theory (1984)**,** which posits that meaningful learning occurs through active participation in authentic experiences. Agricultural materials, tools, and equipment serve as essential learning resources that allow students to apply theoretical concepts in practical situations. However, Kolb also emphasizes that learning outcomes depend on the complete experiential learning cycle, including guidance, reflection, conceptual understanding, and repeated practice. Consequently, the presence of adequate instructional resources alone does not guarantee competency unless these resources are effectively integrated into the teaching-learning process.

The findings are likewise supported by studies in agricultural and technical-vocational education, which have consistently emphasized that adequate instructional materials and equipment enhance the quality of practical instruction and improve students' competency development. Nevertheless, previous research also recognizes that competency acquisition is influenced by multiple factors, including instructional quality, learner engagement, and supervised practical experiences. This may explain why agricultural materials, tools, and equipment significantly influenced most competency areas but did not demonstrate a significant relationship with competency in crop planting.

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From a practical perspective, the findings underscore the importance of continuously improving the availability of agricultural materials, tools, and equipment used in competency-based instruction. Schools should prioritize the procurement and maintenance of essential agricultural resources while ensuring that these materials are effectively utilized through structured practical activities, supervised field exercises, and competency-based assessment. Such initiatives will strengthen students' technical competencies and enhance their readiness for TESDA certification and employment in the agricultural sector.

Problem 8. Is there a significant relationship between the emerging practices of the teachers and the status of competencies of the TVL Agri-crops High School graduates in the aforementioned core competencies?

Table 10 presents the results of the Pearson Product-Moment Correlation analysis examining the relationship between the emerging instructional practices of the teacher-respondents and the competency status of the TVL Agri-Crops Senior High School graduates.

Table 10. Correlation Matrix Showing the Relationship between the Emerging Practices of the Teachers and the Status of Competencies of the TVL Agri-crops Senior High School Graduates

Status of Competency	Emerging Practices				
	Performing Nursery Operations	Planting Crops	Caring and Maintaining Crops	Carrying out Harvest and Post-harvest Operations	As a Whole
Competent	0.246	0.298	-0.072	0.235	0.259
Not Yet Competent					
COC 1	0.094	0.220	0.079	0.278	0.282
COC 2	0.167	0.253	0.244	0.260	0.194
COC 3	0.332	0.395*	0.005	0.432*	0.467*
COC 4	0.223	0.372	0.018	0.492*	0.400*

Legend:

** - Significant at 0.05 Level

** - Significant at 0.01 Level

The findings reveal that the instructional practices related to Performing Nursery Operations, Planting Crops, Caring and Maintaining Crops, and Carrying Out Harvest and Post-Harvest Operations generally showed no significant relationship with the overall competency status of the graduates. Likewise, no significant relationships were observed between most of the instructional practices and the individual Certificates of Competency (COCs), indicating that not all instructional activities independently influenced students' competency outcomes.

However, significant positive relationships were observed in selected competency areas. Planting Crops demonstrated a significant relationship with COC 3 – Care and Maintain Crops ($r = 0.395$, $p < .05$), while Carrying Out Harvest and Post-Harvest Operations showed significant relationships with COC 3 ($r = 0.432$, $p < .05$) and COC 4 – Carry Out Harvest and Post-Harvest Operations ($r = 0.492$, $p < .05$). Furthermore, the overall emerging instructional practices were found to have significant positive relationships with COC 3 ($r = 0.467$, $p < .05$) and COC 4 ($r = 0.400$, $p < .05$).

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These findings suggest that teachers' instructional practices exert a greater influence on competency areas that require continuous demonstration, supervision, and repeated practical application. Competencies related to crop maintenance and harvest operations involve prolonged learner engagement in authentic agricultural activities, allowing teachers to provide immediate feedback, reinforce correct procedures, and facilitate the application of technical knowledge. Such sustained instructional interaction may explain why significant relationships were observed specifically in COC 3 and COC 4.

The findings strongly support Kolb's Experiential Learning Theory (1984), which emphasizes that competency develops through active participation in meaningful experiences supported by reflection, conceptual understanding, and repeated application. Teachers play a central role in facilitating this experiential learning process by designing authentic learning activities, supervising practical exercises, and guiding students throughout the competency-based learning cycle. The significant relationships observed in COC 3 and COC 4 demonstrate that effective instructional practices contribute substantially to students' competency development, particularly in learning tasks requiring sustained practical engagement.

The results are likewise consistent with previous studies on competency-based technical-vocational education, which emphasize that the quality of instructional delivery is a critical determinant of learner competency. Research has shown that teachers who consistently implement practical demonstrations, guided field experiences, workplace simulations, and competency-based assessment strategies promote higher levels of technical competence and occupational readiness among learners. These findings reinforce the importance of effective teaching practices in agricultural education beyond the availability of facilities and instructional resources alone.

An important implication of the findings is that teacher practices appear to have a greater influence on students' competency development than the mere availability of instructional resources. While adequate facilities, materials, and equipment provide the necessary environment for learning, it is the teachers' ability to effectively utilize these resources through structured experiential learning activities that ultimately strengthens competency acquisition. This finding extends the assumptions of Kolb's Experiential Learning Theory by demonstrating that the effectiveness of the learning experience depends not only on the availability of resources but also on the quality of instructional facilitation.

From a practical perspective, the findings highlight the importance of continuously strengthening teachers' instructional competencies through sustained professional development, mentoring, and training in competency-based education. Schools should encourage instructional practices that maximize students' engagement in authentic agricultural tasks, provide regular performance feedback, and integrate workplace standards into classroom and field instruction. Such initiatives are expected to further improve learners' competency development and readiness for TESDA certification and future employment in the agricultural sector.

CONCLUSION

The study concludes that the majority of the TVL Agri-Crops Senior High School graduates successfully attained the required competencies in Agricultural Crops Production NC II, demonstrating the effectiveness of the competency-based technical-vocational education program. However, a small proportion of the graduates obtained only partial Certificates of Competency, indicating the need to strengthen learning experiences in selected competency areas, particularly nursery operations, crop establishment, and crop maintenance.

The teacher-respondents generally possessed appropriate professional qualifications, including graduate education, relevant seminars and trainings, National Certificates, and teaching experience. Nevertheless, among the profile variables examined, only years of teaching experience demonstrated a significant positive relationship with students' competency development, suggesting that sustained instructional experience contributes more directly to competency acquisition than academic qualifications or professional credentials alone.

The participating schools were found to have moderately available school facilities and moderately adequate agricultural materials, tools, and equipment. While these resources generally supported competency-based

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agricultural instruction, the findings indicate that learning resources alone do not fully determine students' competency outcomes. Rather, competency development results from the effective integration of instructional resources with meaningful teaching practices and authentic learning experiences.

The teacher-respondents consistently implemented the instructional practices required under Agricultural Crops Production NC II. Moreover, teachers' emerging instructional practices demonstrated significant relationships with students' competencies in Caring and Maintaining Crops (COC 3) and Carrying Out Harvest and Post-Harvest Operations (COC 4). These findings highlight the critical role of effective instructional facilitation in strengthening students' practical competencies.

Overall, the findings support Kolb's Experiential Learning Theory, which emphasizes that competency develops through meaningful experiential learning facilitated by qualified and experienced teachers within supportive learning environments. The study further demonstrates that competency-based agricultural education is strengthened not only by the availability of instructional resources but, more importantly, by the quality of instructional practices that enable learners to transform practical experiences into occupational competence.

RECOMMENDATION

Based on the findings and conclusions of the study, the following recommendations are proposed:

1. **Schools offering the TVL Agri-Crops specialization** should continue strengthening competency-based agricultural instruction by providing students with increased opportunities for supervised field practice, experiential learning activities, and authentic agricultural experiences that promote mastery of all competency areas.

2. **School administrators** should prioritize the improvement of specialized agricultural facilities, laboratories, assessment areas, nursery facilities, and essential agricultural equipment, particularly water pumps and hand tractors, to further enhance the quality of competency-based instruction.

3. **Teachers** should continue participating in graduate studies, industry-based training, competency upgrading, and professional development programs while consistently integrating learner-centered and experiential instructional strategies into classroom and field instruction. Likewise, mentoring programs may be implemented to support beginning teachers in strengthening their instructional competence.

4. **Technical-Vocational institutions** should strengthen partnerships with TESDA, agricultural industries, and community stakeholders to provide students with greater exposure to authentic workplace environments through field demonstrations, industry immersion, and competency-based learning activities.

5. Although instructional resources remain important, schools should place equal emphasis on **improving the quality of instructional delivery**, recognizing that effective teaching practices significantly contribute to competency development. Continuous monitoring of instructional implementation and learner performance is likewise encouraged.

6. **Future researchers** are encouraged to conduct similar studies involving larger populations, multiple provinces or regions, and additional variables, such as learner motivation, industry immersion, school leadership, and instructional innovation. The use of more advanced statistical techniques, including **multiple regression analysis**, is likewise recommended to further examine the combined influence of teacher, school, and learner-related factors on competency development.

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