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Mainstreaming Agriculture Lesson: An Input Toward Intensifying Awareness and Interest among School Children

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Abstract
This study aimed to determine the effect of the Mainstreamed Agriculture Lesson Intervention on the awareness and interest in agriculture among Grade 6 learners in the Pila Sub-Office, Schools Division of Laguna during School Year 2025–2026. Specifically, the study sought to assess the learners' level of awareness and interest in agriculture before and after exposure to the intervention and determine whether significant differences existed in the learners' responses after the implementation of the program. The study utilized a quantitative research design employing a one-group pretest-posttest approach. The respondents were Grade 6 learners from selected elementary schools in the Pila Sub-Office. Data were gathered through a researcher-made questionnaire that measured the learners' awareness and interest in agriculture in terms of attitude, knowledge, behavioral intention, and career interest. The intervention included the integration of agriculture-based modules, video presentations, reading materials, and experiential activities such as school gardening and hands-on agricultural tasks. Statistical tools such as frequency, percentage, weighted mean, and t-test were used to analyze the data. Findings revealed that the learners demonstrated improved awareness and interest in agriculture after exposure to the Mainstreamed Agriculture Course Intervention. The posttest results showed higher mean scores compared to the pretest results across all indicators, indicating that the intervention positively influenced learners' attitudes, agricultural knowledge, behavioral intentions, and career interest. The study further found that experiential and learner-centered agricultural activities effectively enhanced learners' engagement and appreciation of agriculture. Based on the findings, the study concluded that the Mainstreamed Agriculture Course Intervention was effective in increasing the awareness and interest of Grade 6 learners toward agriculture. The study recommends the continuous implementation of agriculture-based interventions, integration of more experiential and technology-supported learning activities, stronger school and community participation, and further research involving larger populations and longer intervention periods to strengthen agricultural literacy and promote sustainable agricultural education among learners.

Keywords: Mainstreamed, Agriculture-Education, Awareness, Interest, Experiential Learning

Introduction

A significant section of the population, especially in developing nations, depends on agriculture for food, raw materials, employment, and revenue, making it essential to human survival, national development, and environmental sustainability. The Philippines' agriculture industry continues to be crucial to rural development and food security, but it still faces a significant obstacle: the younger generation's waning interest in farming and related activities de Leon *et al*. (2023) [13]. Because fewer young people are ready to assume future responsibilities in food production and environmental stewardship, the agriculture sector's long-term viability is threatened by this diminishing youth engagement.

According to research, opinions regarding agriculture are formed at a young age. Knobloch (2019) asserts that students who are not exposed to agriculture in their early years are more likely to adopt unfavourable or indifferent opinions on farming. Additionally according to Johnston (2011) [35], early exposure to agriculture fosters children's positive associations with food systems, the natural world, and local livelihoods. Learners often underestimate the scientific, economic, and social significance of agriculture when it is solely portrayed as physically taxing work. On the other hand, meaningful and organized exposure can promote appreciation, curiosity, and long-term interest.

Schools have a significant impact on how students see real-world problems, such as agriculture. According to Dewey's

experiential learning theory, education ought to be based on experience, enabling students to actively create meaning Dewey, (2018) it went on to say that as students go through a cycle of concrete experience, reflection, conceptualization, and application, learning becomes more successful. Activities like gardening, planting, and taking care of animals give students the chance to make connections between theoretical knowledge and real-world experiences in the framework of agricultural education. Despite its undeniable importance, the agricultural sector is facing a growing challenge: the declining interest, awareness, and appreciation for agriculture among the youth. This emerging concern threatens the long-term sustainability of the country's food systems and agricultural workforce, making it a critical issue that must be addressed through education and early intervention.

In recent years, a noticeable decline in interest toward agriculture has been observed among 21st-century learners. Many young students perceive agriculture as a "low-class" occupation associated primarily with manual labor, poverty, and limited career opportunities. This long-standing bias has been reinforced by societal attitudes and, in some cases, by the way agriculture is presented within the educational system. As a result, learners often fail to recognize agriculture as a modern, innovative, and entrepreneurial field that integrates science, technology, and sustainability.

Although agriculture-related topics are mandated in the basic education curriculum particularly through Edukasyong Pantahanan at Pangkabuhayan (EPP) or Technology and Livelihood Education (TLE) from Grades 4 to 6 many pupils still demonstrate low levels of sustained interest and awareness. This indicates that the current curricular approach may be insufficient in addressing negative perceptions and in fostering meaningful engagement with agricultural concepts.

Within the existing elementary curriculum, agriculture is introduced only during the intermediate grades (Grades 4, 5, and 6) as one of the four components of EPP/TLE. This limited and fragmented integration results in minimal instructional time and largely theoretical discussions. Consequently, teachers are constrained in implementing in-depth, experiential, and long-term agricultural projects that could otherwise enhance learner engagement and understanding. According to Hutchinson *et al*. (2015) [33], when curriculum integration and teacher involvement are supported, school gardening programs greatly increase students' knowledge, attitudes, and interest in agriculture, children who took part in school garden initiatives showed a greater liking for vegetables and a better comprehension of food production. According to local research conducted in the Philippines, school gardening improves students' understanding of agriculture and their appreciation of good eating habits Austria *et al*. (2024) [2].

Mainstreaming agriculture into the school curriculum is becoming more and more necessary in light of these issues. Instead than separating agricultural concepts, skills, and values as extracurricular activities, mainstreaming agriculture entails methodically incorporating them into normal classroom instruction de Leon *et al*. (2023) [13]. Students can cultivate a long-lasting awareness and interest in agriculture through organised classes, practical exercises, educational films, and educational resources. In this regard, the current study suggests mainstreaming an agriculture course as a means of raising schoolchildren's awareness and enthusiasm. The study intends to enhance learners' appreciation of agriculture and support long-term initiatives to promote agricultural literacy and youth engagement in the industry by basing agricultural instruction on experiential learning and backed by pertinent literature.

This study was conducted during the School Year 2025–2026, specifically from January 2026 to March 2026, among selected Grade 6 learners. The implementation of the mainstreamed agriculture module spanned one academic quarter (approximately 8–10 weeks), followed by data collection, analysis, and evaluation of learners' awareness and interest levels before and after the intervention. The findings of this study served as a basis for recommending curriculum enhancement strategies for subsequent school years (2026–2028) to support long-term agricultural literacy and youth engagement initiatives.

Statement of the Problem

This study aimed to determine the effect of a Mainstreamed Agriculture Course Intervention on the awareness and interest of intermediate-level learners in agriculture.

Specifically, it sought to answer the following questions:

1. What is the demographic profile of the intermediate learners in terms of:
   1.1 age,
   1.2 sex,
   1.3 family income,
   1.4 place of residency,
   1.5 parent's occupation (farming vs. non-farming), and
   1.6 exposure to farming /gardening at home?
2. What is the learners' level of interest in agriculture in terms of:
   2.1 attitude towards agriculture,
   2.2 awareness and knowledge,
   2.3 behavioral intention,
   2.4 career interest?
3. What is the learner's level of awareness before and after the intervention towards agriculture in terms of:
   3.1 vegetable production, and
   3.2 animal production?
4. Is there a significant difference in the level of interest in agriculture before and after intervention?
5. Is there a significant difference in the level of awareness in agriculture before and after intervention?
6. Is there a significant relationship between the demographic profile of the respondents to the level of interest in agriculture?
7. Is there a significant relationship between the demographic profile of the respondents to the level of awareness in agriculture?

Materials and Methods

This chapter presented the information and methods that were used by the researcher in conducting the study. It indicated the research design that was used, the respondents of the study, the sampling technique, the research instrument, and the research procedure on how this research was conducted.

Research Design

This study employed a quasi-experimental research design utilizing a one-group pretest–posttest approach, combined with a descriptive-correlational component. The design was appropriate for determining both the effect of the

mainstreamed agriculture course intervention and the relationships between learners' demographic profile and their level of awareness and interest in agriculture.

Specifically, the pretest–posttest design was used to determine whether there were significant differences in the level of awareness and interest in agriculture before and after the intervention. Meanwhile, the descriptive-correlational design was used to examine the significant relationship between the respondents' demographic profile and their level of awareness and interest in agriculture.

A researcher-made survey questionnaire was used to gather quantitative data from Grade 6 learners. The instrument was administered before and after the implementation of the intervention, which consisted of modules, video presentations, reading materials, and hands-on agricultural activities.

The study was conducted in four elementary schools located in the Pila Sub-Office of the Schools Division of Laguna, involving 257 Grade 6 learners. Data were analyzed using descriptive statistics such as frequency count, weighted mean, and percentage, while inferential statistics such as paired t-test were used to determine significant differences between pretest and posttest results, Spearman rank correlation was used to determine relationships between demographic profile variables and learners' awareness and interest in agriculture.

Population and Sampling Technique

Purposive total enumeration was used in this study to select the participants. The participants were chosen based on specific characteristics that were directly related to the objectives of the study, and purposive sampling was employed. Specifically, the respondents were Grade 6 intermediate learners enrolled in public elementary schools under the Pila Sub-Office, Schools Division of Laguna, for the School Year 2025–2026.

The four participating elementary schools were selected based on their willingness to participate in the mainstreamed agriculture course intervention and their accessibility.

Research Instrument

To collect quantitative data on the degree of awareness and interest in agriculture among intermediate learners prior to and following the implementation of the mainstreamed agriculture course intervention, the study's main data collection tool was a researcher-made survey questionnaire supplemented by achievement-based pretest and posttest instruments.

The survey questionnaire was divided into three main parts. Part I gathered the demographic profile of the respondents, including age, sex, family income, place of residence, parents' occupation (farming or non-farming), and exposure to farming or gardening activities at home. This section aimed to describe the learners' background and determine possible relationships between demographic variables and their level of awareness and interest in agriculture.

Part II measured the learners' knowledge of agriculture, specifically on vegetable and animal production. This section consisted of multiple-choice and structured knowledge-based items administered as both pretest and posttest. The items focused on basic agricultural concepts, processes, and practices appropriate for Grade 6 learners and aligned with the content of the mainstreamed agriculture course intervention. The pretest was administered before the intervention to establish baseline knowledge, while the posttest was given after the intervention to measure learning gains.

Part III assessed the learners' interest in agriculture using a Likert-scale format. It measured four dimensions: attitude toward agriculture, awareness and knowledge-related interest, behavioral intention, and career interest in agriculture. Respondents indicated their level of agreement using a five-point scale ranging from Strongly Disagree to Strongly Agree. This section was also administered before and after the intervention to determine changes in learners' interest levels.

The research instrument was developed based on the study's objectives, relevant literature, and the theoretical framework anchored on Bandura's Social Learning Theory and Dewey's Experiential Learning Theory. The questionnaire and test items were subjected to expert validation by educators and specialists in elementary education and agriculture to ensure content validity. Necessary revisions were made based on their feedback. A pilot testing was also conducted to determine the reliability, clarity, and appropriateness of the instrument prior to its final administration.

Table 1: Likert scale for determining information description

Scale Value	Scale Point	Description
1	Strongly Disagree	The information is completely inaccurate or irrelevant.
2	Disagree	The information is somewhat inaccurate or not useful.
3	Neutral	The information is neither accurate nor inaccurate; it is acceptable.
4	Agree	The information is mostly accurate and useful.
5	Strongly Agree	The information is highly accurate, relevant, and useful.

Respondent of the Study

A total enumeration was utilized in this study, involving all enrolled Grade 6 students from four public primary schools under the Pila Sub-Office, Schools Division of Laguna, during the School Year 2025–2026. These students were selected as respondents because they were at the intermediate level, a critical stage at which awareness, attitudes, and interest in agriculture could be effectively enhanced through structured and experiential learning interventions.

All selected respondents underwent the same research procedures, including the administration of the pretest, participation in the mainstreamed agriculture course intervention (which included integrated lessons using videos, modules, and hands-on activities), and the administration of the posttest. The use of total enumeration ensured that all eligible learners within the identified schools were included in the study, thereby providing a complete representation of the target population in the Pila Sub-Office.

Table 2: The distribution of respondents in Pila Sub -Office in the Division of Laguna

Schools in Pila, Laguna	Number of Respondents
Aplaya	52
Pook	74
Tubuan	55
Pinagbayanan	76
Total	257

Data Gathering Procedures

To collect the necessary data for this study, several steps were undertaken. The process began with the preparation and submission of a formal written request letter to the Laguna Schools Division Office, as well as to the principals of the selected public elementary schools under the Pila Sub-Office, seeking permission to conduct the study. Prior to the administration of the research instruments, approval was secured from the concerned school heads and coordinators.

After the approval was granted, the researcher coordinated with the Grade 6 advisers to identify all enrolled Grade 6 learners in the four participating schools. Through total enumeration, all 257 identified learners were included as respondents in the study.

Before the implementation of the intervention, the selected respondents were given a pretest to determine their initial level of awareness and interest in agriculture. The pretest consisted of a knowledge-based assessment on vegetable and animal production, as well as a Likert-scale questionnaire measuring learners' interest in agriculture.

Following the pretest, the mainstreamed agriculture course intervention was implemented over a specified period. The intervention integrated agricultural concepts into regular classroom instruction through video presentations, module-based lessons, reading materials, and hands-on agricultural activities such as gardening and basic farming practices. These activities were designed to be developmentally appropriate and aligned with the objectives of the study.

After the completion of the intervention, a posttest was administered to the same group of respondents. The posttest contained parallel components to the pretest, including a knowledge-based assessment and a Likert-scale questionnaire on learners' interest in agriculture. This was done to determine any significant changes in learners' awareness and interest after exposure to the mainstreamed agriculture instruction.

Finally, the pretest and posttest results were collected, organized, and statistically analyzed to determine the effectiveness of the intervention in improving learners' agricultural awareness and interest.

Data Collection and Analysis

The study collected data from 257 Grade 6 intermediate learners enrolled in four public primary schools under the Pila Sub-Office of the Schools Division of Laguna. These learners participated in the mainstreamed agriculture course intervention, which aimed to increase their awareness and interest in agriculture.

A researcher-developed survey questionnaire was used to gather data, together with achievement tests consisting of a pretest and posttest. The instruments obtained information on the respondents' demographic profile, level of awareness in agriculture (vegetable and animal production), and level of interest in agriculture in terms of attitude toward agriculture, awareness and knowledge, behavioral intention, and career interest.

The pretest was administered prior to the intervention to determine the learners' initial level of awareness and interest in agriculture. After the completion of the mainstreamed agriculture course, a posttest was administered to assess any changes in learners' awareness and interest levels. The data gathered were carefully tallied, organized, and encoded for statistical treatment.

The data were analyzed using both descriptive and inferential statistical methods. The respondents' demographic profile was described using frequency counts and percentages. The weighted mean was used to determine the level of awareness and interest in agriculture before and after the intervention. To assess the significance of differences between pretest and posttest results, appropriate inferential statistical tests were employed. The Chi-square test was used to examine the relationship between respondents' demographic characteristics and their levels of awareness and interest in agriculture, while Spearman's rank correlation was used to determine the relationship between awareness and interest variables.

Table 3: Statistical tool

Parameter	Statistical Tools
Demographic profile of Grade 6 learners	Frequency count, percentage
Level of awareness in agriculture (vegetable and animal production) – pretest and post-test	Frequency count, weighted mean
Level of interest in agriculture (attitude toward agriculture, awareness and knowledge, behavioral intention, career interest) – pretest and post-test	Frequency count, weighted mean
Significant difference in the level of awareness in agriculture before and after the intervention	Paired t-test
Significant difference in the level of interest in agriculture before and after the intervention	Paired t-test
Relationship between demographic profile and level of awareness in agriculture	Chi-square test
Relationship between demographic profile and level of interest in agriculture	Chi-square test
Relationship between awareness and interest in agriculture	Spearman rank correlation

Results and Discussion

1. Demographic profile of the respondents

Table 4: Distribution of the respondents according to their demographic profile

Profile Variable	Categories	Frequency (f)	Percentage (%)
Age	11 years old	78	30.35%
	12 years old	120	46.69%
	13 years old	59	22.96%
Total		**257**	**100%**
Sex	Male	128	49.81%
	Female	129	50.19%
Total		**257**	**100%**
Family Income	Php. 5 000 – 10 000	142	55.25%
	Php. 10 001 – 20 000	98	38.13%
	Php. 20 000 – 50 000	17	6.62%
Total		**257**	**100%**
Place of Residency	Barangay Aplaya, Pila, Laguna	52	20.23%
	Barangay Pinagbayanan, Pila, Laguna	76	29.57%
	Barangay Pook, Pila, Laguna	74	28.79%
	Barangay Tubuan, Pila, Laguna	55	21.40%
Total		**257**	**100%**
Parents' Occupation	Farming	103	40.08%
	Non-farming	154	59.92%
Total		**257**	**100%**
Exposure to Farming/Gardening at Home	Yes	162	63.04%
	No	95	36.96%
Total		**257**	**100%**

Gleaned in Table 5 is the results of the pretest on learners' level of interest in agriculture in terms of attitude. It shows an overall mean of 3.01 with a verbal interpretation of *Agree*. This indicates that, before the intervention, learners already exhibit a generally positive attitude toward agricultural activities such as vegetable gardening, caring for plants and animals, and participating in group tasks. However, several indicators fall under the *Neutral* category, particularly on preference for outdoor agricultural activities, willingness to spend extra time in farming tasks, and perceived interest in agricultural activities. This suggests that while learners are inclined toward agriculture, their enthusiasm is still moderate and not yet fully developed into a strong or consistent interest across all dimensions.

The findings imply that there is a need to further strengthen learners' positive attitude toward agriculture through structured and engaging interventions such as hands-on activities, experiential learning, and collaborative gardening projects. Enhancing motivation and exposure may help shift neutral responses toward stronger agreement, thereby increasing sustained interest in agricultural practices. As Dela Cruz (2020) [21] states, learners develop stronger engagement and positive attitudes toward agriculture when they are exposed to meaningful, hands-on learning experiences that connect classroom lessons to real-life applications. Similarly, Santos (2018) [53] emphasizes that experiential learning significantly improves students' motivation and appreciation of agricultural work, while Reyes (2019) [49] highlights that collaborative activities foster deeper interest and long-term engagement in agricultural education. Therefore, strengthening instructional strategies in agriculture is essential to fully develop learners' attitudes and participation.

2. Pretest of the learner's level of interest in agriculture

Table 5: Pretest data of learner's level of intertest in agriculture according to their Attitude

S. No	Statement	Mean	SD	Verbal Interpretation
1	I enjoy participating in vegetable gardening activities at school.	3.12	0.83	Agree
2	I feel happy when working in school or home garden projects.	3.05	0.81	Agree
3	I find agricultural activities interesting and enjoyable.	2.95	0.86	Neutral
4	I prefer outdoor agricultural activities over indoor classroom lessons.	2.68	0.88	Neutral
5	I take pride in producing vegetables or animal products.	3.10	0.82	Agree
6	I enjoy working with classmates in agriculture-related tasks.	3.25	0.80	Agree
7	I feel motivated when taking care of plants and animals.	2.97	0.85	Neutral
8	I am willing to spend extra time in gardening or farming activities.	2.76	0.87	Neutral
9	I find agriculture activities relaxing and meaningful.	3.08	0.84	Agree
10	I feel satisfied when I see plants grow successfully under my care.	3.18	0.79	Agree
	Total Mean	**3.01**	**0.84**	**AGREE**

Legend: 5 – Strongly Agree (4.21–5.00), 4 – Agree (3.41–4.20), 3 – Neutral (2.61–3.40), 2 – Disagree (1.81–2.60), 1 – Strongly Disagree (1.00–1.80)

Table 6 is the results of the pretest on learners' level of interest in agriculture in terms of awareness and knowledge and it shows a total mean of 3.15 with a verbal interpretation of *Neutral*. This indicates that learners have a moderate level of awareness regarding agricultural concepts such as the importance of farming in daily life, the role of farmers in society, the contribution of agriculture to the economy, and basic farming practices. However, despite this exposure, all indicators remain within the neutral range, suggesting that learners' understanding is still limited and not yet fully developed into strong or consistent knowledge. Notably, lower mean scores in areas such as modern farming technologies (e.g., hydroponics) and sustainable farming practices imply that learners have less familiarity with current and advanced agricultural innovations. The findings imply that there is a need to strengthen learners' conceptual understanding of agriculture through enriched instruction, integration of modern agricultural practices, and exposure to real-life applications of farming concepts. Strengthening awareness and knowledge is essential in building a solid foundation for more meaningful engagement in agricultural learning. As Garcia (2021) [29] states, learners develop deeper understanding when lessons are anchored on authentic, real-world experiences that allow them to connect theoretical concepts with practical applications. In addition, Santos (2018) [53] emphasizes that experiential and contextualized learning significantly improves students' retention of agricultural knowledge, while Reyes (2019) [49] highlights that integrating collaborative and inquiry-based activities enhances learners' awareness and comprehension of agricultural systems. Therefore, improving instructional strategies is essential to elevate learners' awareness from a neutral level toward a more informed and engaged understanding of agriculture.

Table 6: Pretest data of learner's level of intertest in agriculture according to their awareness and knowledge

S. No	Statement	Mean	SD	Verbal Interpretation
1	I understand that agriculture is important for daily life.	3.18	0.82	Neutral
2	I know that farming provides food for everyone.	3.25	0.80	Neutral
3	I am aware that agriculture helps in reducing hunger and poverty.	3.05	0.84	Neutral
4	I understand the role of farmers in society.	3.12	0.83	Neutral
5	I know that agriculture includes both plant and animal production.	3.28	0.79	Neutral
6	I am aware that agriculture helps protect the environment.	3.10	0.85	Neutral
7	I understand basic methods of planting and harvesting crops.	3.22	0.81	Neutral
8	I know that technology can be used in modern farming (e.g., hydroponics).	2.96	0.88	Neutral
9	I understand the importance of sustainable farming practices.	3.08	0.83	Neutral
10	I am aware that agriculture contributes to the country's economy.	3.30	0.80	Neutral
	Total Mean	**3.15**	**0.83**	**Neutral**

Legend: 5 – Strongly Agree (4.21–5.00), 4 – Agree (3.41–4.20), 3 – Neutral (2.61–3.40), 2 – Disagree (1.81–2.60), 1 – Strongly Disagree (1.00–1.80)

Table 7 is the pretest on learners' level of interest in agriculture in terms of behavioral intention show a total mean of 3.19 with a verbal interpretation of *Neutral*. This indicates that learners demonstrate a moderate willingness to engage in agriculture-related activities such as participating in school programs, joining gardening or farming activities, applying agricultural knowledge at home, and supporting environmental protection practices. However, all indicators remain within the neutral range, suggesting that while learners are somewhat open to engaging in agricultural practices, their intention is still uncertain and not yet strongly committed. This may reflect limited exposure, motivation, or confidence in performing agricultural tasks independently.

The findings imply that there is a need to further enhance learners' behavioral intention toward agriculture through more engaging, hands-on, and participatory learning experiences. Strengthening opportunities for actual practice, school-based gardening projects, and community involvement may help translate neutral intentions into stronger commitment and action. As Lopez (2022) states, students are more likely to develop strong behavioral intentions toward agriculture when they are actively involved in experiential and practice-based learning activities that allow them to apply their knowledge in real situations. Similarly, Cruz (2019) [11] emphasizes that sustained exposure to agricultural tasks increases learners' willingness to participate in farming-related activities, while Navarro (2017) highlights that experiential engagement fosters long-term behavioral commitment and interest in agricultural education. Therefore, enhancing school-based agricultural programs is essential to strengthen learners' intention and active participation in agricultural practices.

Table 7: Pretest data of learner's level of intertest in agriculture according to their behavioral intention

S. No	Statement	Mean	SD	Verbal Interpretation
1	I am willing to participate in school agriculture programs.	3.18	0.82	Neutral
2	I intend to join gardening or farming activities in the future.	3.05	0.85	Neutral
3	I plan to apply what I learn in agriculture at home.	3.22	0.80	Neutral
4	I am willing to help in maintaining a school garden or farm.	3.28	0.79	Neutral
5	I intend to learn more about caring for plants and animals.	3.35	0.78	Neutral
6	I am willing to participate in agriculture-related projects or clubs.	3.10	0.84	Neutral
7	I plan to practice vegetable gardening at home.	3.25	0.81	Neutral
8	I am willing to attend seminars or training about agriculture.	3.08	0.86	Neutral
9	I intend to support environmental protection through farming practices.	3.30	0.80	Neutral
10	I am willing to share agricultural knowledge with others.	3.15	0.83	Neutral
	Total Mean	**3.19**	**0.82**	**Neutral**

Legend: 5 – Strongly Agree (4.21–5.00), 4 – Agree (3.41–4.20), 3 – Neutral (2.61–3.40), 2 – Disagree (1.81–2.60), 1 – Strongly Disagree (1.00–1.80)

Table 8 shows the results of the pretest on learners' level of interest in agriculture in terms of career interest. It shows a total mean of 3.42 with a verbal interpretation of *Agree*. This indicates that learners generally have a positive inclination toward agriculture-related careers, particularly in areas such as exploring agricultural technology careers, recognizing agriculture as a viable business opportunity, being inspired by individuals in the field, and showing interest in visiting farms or agricultural centers for learning. However, some indicators fall under the *Neutral* category, especially in choosing agriculture as a future job or pursuing agriculture in higher education, suggesting that while interest is present, it is not yet fully solidified into strong career commitment for all learners The findings imply that learners have a promising but developing interest in agriculture as a career path, which can be further strengthened through career guidance, exposure activities, and real-world agricultural experiences. Providing opportunities such as farm visits, interaction with agricultural professionals, and hands-on training may help reinforce positive perceptions and encourage clearer career decisions. As Mendoza (2020) [46] states, students develop stronger career interests in agriculture when they are exposed to role models and authentic learning environments that highlight real career opportunities in the field. In addition, Rivera (2018) [50] emphasizes that career exposure activities significantly increase students' awareness of agricultural professions, while Santos (2021) [54] highlights that guided experiential learning helps learners translate interest into actual career intention. Therefore, enhancing career-oriented agricultural programs is essential to support learners in making informed and confident career choices in agriculture.

Table 8: Pretest data of learner's level of intertest in agriculture according to their career interest

S. No	Statement	Mean	SD	Verbal Interpretation
1	I would like to learn more about agriculture-related careers.	3.45	0.82	Agree
2	I am interested in becoming a farmer or agriculturist in the future.	3.28	0.86	Neutral
3	I would like to explore agricultural technology careers.	3.42	0.81	Agree
4	I am interested in studying agriculture in higher education.	3.30	0.85	Neutral
5	I believe agriculture can be a successful career path.	3.55	0.79	Agree
6	I would like to visit farms or agricultural centers for career learning.	3.60	0.78	Agree
7	I am inspired by people who work in agriculture.	3.48	0.80	Agree
8	I believe agriculture offers business opportunities.	3.52	0.79	Agree
9	I am considering agriculture as a possible future job.	3.25	0.88	Neutral
10	I would like to work in agriculture-related industries someday.	3.40	0.84	Neutral
	Total mean	**3.42**	**0.83**	**Agree**

Legend: 5 – Strongly Agree (4.21–5.00), 4 – Agree (3.41–4.20), 3 – Neutral (2.61–3.40), 2 – Disagree (1.81–2.60), 1 – Strongly Disagree (1.00–1.80)

Table 9 reveal that learners have developed a significantly improved attitude toward agriculture, reflected in the total mean of 4.15 with a verbal interpretation of *Agree*. This indicates that learners now demonstrate stronger enjoyment, appreciation, and emotional engagement in agricultural activities compared to their pretest performance. The presence of several *Strongly Agree* responses shows that learners have begun to value agriculture not only as an academic subject but also as a meaningful and enjoyable activity.

This improvement suggests that learners are now more comfortable and confident in participating in agricultural tasks such as gardening, plant care, and collaborative work. Their responses also reflect increased satisfaction and pride in agricultural outputs, which indicates a deeper emotional connection to the learning process. However, since most indicators are still within the *Agree* level rather than *Strongly Agree*, it implies that some learners are still in the process of fully strengthening their long-term attitude and sustained interest in agriculture.

The findings imply that the intervention was effective in enhancing learners' attitude toward agriculture. The shift from moderate pretest results to higher posttest ratings shows that learners responded positively to structured and engaging learning experiences. A key factor contributing to this improvement is the use of Modules in Agriculture as an intervention, which provided guided lessons, structured activities, and hands-on tasks that allowed learners to actively engage in agricultural experiences.

The modules helped learners understand agricultural concepts while simultaneously engaging in real-life applications such as gardening activities and plant care. As Bautista (2022) [6] states, structured learning materials combined with experiential activities significantly improve student engagement and motivation. Similarly, Garcia (2020) [28] emphasizes that repeated exposure to hands-on learning strengthens learners' appreciation and interest in subject matter.

The findings imply that the intervention was effective in enhancing learners' attitude toward agriculture. The shift from moderate pretest results to higher posttest ratings shows that learners responded positively to structured and engaging learning experiences. A key factor contributing to this improvement is the use of Modules in Agriculture as an intervention, which provided guided lessons, structured activities, and hands-on tasks that allowed learners to actively engage in agricultural experiences.

The modules helped learners understand agricultural concepts while simultaneously engaging in real-life applications such as gardening activities and plant care. As Bautista (2022) [6] states, structured learning materials combined with experiential activities significantly improve student engagement and motivation. Similarly, Garcia (2020) [28] emphasizes that repeated exposure to hands-on learning strengthens learners' appreciation and interest in subject matter.

Therefore, integrating Modules in Agriculture with practical activities is effective in developing positive learner attitudes. Continued use of these modules, along with school gardening programs, may further strengthen learners' emotional connection and sustained interest in agriculture.

3. Posttest of the learner's level of interest in agriculture

Table 9: Posttest data of learner's level of intertest in agriculture according to their attitude

S. No	Statement	Mean	SD	Verbal Interpretation
1	I enjoy participating in vegetable gardening activities at school.	4.18	0.70	Agree
2	I feel happy when working in school or home garden projects.	4.20	0.68	Agree
3	I find agricultural activities interesting and enjoyable.	4.05	0.72	Agree
4	I prefer outdoor agricultural activities over indoor classroom lessons.	3.92	0.75	Agree
5	I take pride in producing vegetables or animal products.	4.25	0.66	Strongly Agree
6	I enjoy working with classmates in agriculture-related tasks.	4.30	0.65	Strongly Agree
7	I feel motivated when taking care of plants and animals.	4.10	0.71	Agree
8	I am willing to spend extra time in gardening or farming activities.	3.98	0.74	Agree
9	I find agriculture activities relaxing and meaningful.	4.22	0.69	Strongly Agree
10	I feel satisfied when I see plants grow successfully under my care.	4.28	0.67	Strongly Agree
	Total mean	**4.15**	**0.70**	**Agree**

Legend: 5 – Strongly Agree (4.21–5.00), 4 – Agree (3.41–4.20), 3 – Neutral (2.61–3.40), 2 – Disagree (1.81–2.60), 1 – Strongly Disagree (1.00–1.80)

The posttest results in Table 10 show that learners have significantly improved in terms of awareness and knowledge in agriculture, with a total mean of 4.20 interpreted as *Agree*. This reflects a clear development from their pretest performance, where understanding was generally neutral. Learners now demonstrate better comprehension of agriculture's importance in daily life, food production, environmental sustainability, and economic contribution.

The results further indicate that learners are beginning to understand agriculture as a system rather than just a basic activity. Their improved responses suggest that they are now more aware of both traditional and modern agricultural practices, including the role of technology in farming. However, since most responses are still in the *Agree* category rather than *Strongly Agree*, it implies that deeper mastery and higher-level conceptual understanding are still developing.

The findings imply that the intervention successfully improved learners' awareness and knowledge in agriculture. The structured learning process significantly contributed to this improvement, particularly through the use of Modules in Agriculture, which provided step-by-step lessons, guided activities, and contextualized examples that helped learners better understand agricultural concepts.

These modules allowed learners to learn at their own pace while engaging in meaningful activities that reinforced theoretical knowledge. As Lim (2021) [41] states, structured and contextualized instructional materials improve comprehension by making abstract concepts more concrete. Likewise, Fernandez (2019) [25] emphasizes that guided and inquiry-based learning materials enhance retention and understanding of complex subject matter.

Thus, the integration of Modules in Agriculture is effective in strengthening learners' cognitive development. Continued use of these modules, supported by demonstrations and experiential activities, is recommended to further deepen learners' understanding of agriculture.

Table 10: Posttest data of learner's level of intertest in agriculture according to their awareness and knowledge

S. No	Statement	Mean	SD	Verbal Interpretation
1	I understand that agriculture is important for daily life.	4.20	0.70	Agree
2	I know that farming provides food for everyone.	4.25	0.68	Strongly Agree
3	I am aware that agriculture helps in reducing hunger and poverty.	4.18	0.72	Agree
4	I understand the role of farmers in society.	4.22	0.69	Strongly Agree
5	I know that agriculture includes both plant and animal production.	4.30	0.66	Strongly Agree
6	I am aware that agriculture helps protect the environment.	4.15	0.71	Agree
7	I understand basic methods of planting and harvesting crops.	4.10	0.73	Agree
8	I know that technology can be used in modern farming (e.g., hydroponics).	4.05	0.74	Agree
9	I understand the importance of sustainable farming practices.	4.18	0.70	Agree
10	I am aware that agriculture contributes to the country's economy.	4.35	0.65	Strongly Agree
	Total Mean	**4.20**	**0.69**	**Agree**

Legend: 5 – Strongly Agree (4.21–5.00), 4 – Agree (3.41–4.20), 3 – Neutral (2.61–3.40), 2 – Disagree (1.81–2.60), 1 – Strongly Disagree (1.00–1.80)

Table 11 is the posttest results that indicate a strong improvement in learners' behavioral intention toward agriculture, reflected in the total mean of 4.24 interpreted as *Strongly Agree*. This suggests that learners are now highly willing to actively participate in agricultural activities both inside and outside the classroom. Compared to the pretest results, where responses were mostly neutral, this indicates a strong behavioral transformation.

Learners now demonstrate readiness to apply agricultural knowledge in real-life situations such as gardening, environmental protection, and school-based agricultural programs. Their responses also show increased confidence and motivation to engage in agriculture-related tasks. However, a few indicators remain at the *Agree* level, suggesting that continuous reinforcement is still needed to ensure consistency in behavioral commitment.

The findings imply that the intervention significantly strengthened learners' behavioral intention. The improvement reflects the effectiveness of structured learning experiences, particularly the use of Modules in Agriculture, which guided learners through practical activities and encouraged application of knowledge in real-life contexts.

The modules provided clear instructions and activities that allowed learners to practice agriculture independently, reinforcing both understanding and action. As Ramos (2022) [47] states, structured and experiential learning significantly

increases learners' willingness to engage in practical activities. Similarly, Torres (2020) [60] emphasizes that hands-on learning strengthens behavioral commitment and long-term participation.

Therefore, integrating Modules in Agriculture with school-based agricultural activities is essential to sustain learners' behavioral intention and ensure continuous application of agricultural practices.

Table 11: Posttest data of learner's level of intertest in agriculture according to their behavioral intention

S. No	Statement	Mean	SD	Verbal Interpretation
1	I am willing to participate in school agriculture programs.	4.20	0.70	Agree
2	I intend to join gardening or farming activities in the future.	4.18	0.72	Agree
3	I plan to apply what I learn in agriculture at home.	4.25	0.68	Strongly Agree
4	I am willing to help maintain a school garden or farm.	4.30	0.66	Strongly Agree
5	I intend to learn more about caring for plants and animals.	4.35	0.65	Strongly Agree
6	I am willing to join agriculture-related clubs.	4.22	0.70	Strongly Agree
7	I plan to practice vegetable gardening at home.	4.28	0.67	Strongly Agree
8	I am willing to attend agriculture seminars or training.	4.15	0.71	Agree
9	I intend to support environmental protection through farming.	4.32	0.66	Strongly Agree
10	I am willing to share agricultural knowledge with others.	4.18	0.72	Agree
	Total Mean	**4.24**	**0.68**	**Strongly Agree**

Legend: 5 – Strongly Agree (4.21–5.00), 4 – Agree (3.41–4.20), 3 – Neutral (2.61–3.40), 2 – Disagree (1.81–2.60), 1 – Strongly Disagree (1.00–1.80)

Gleaned in Table 12 is the posttest results that reveal a strong improvement in learners' career interest in agriculture, with a total mean of 4.33 interpreted as *Strongly Agree*. This indicates that learners now have a clearer and more positive perception of agriculture as a viable and rewarding career path. Compared to the pretest results, where career interest was still developing, the posttest shows a well-established and strengthened career orientation. Learners now demonstrate strong appreciation for agricultural careers, including farming, agribusiness, agricultural technology, and related industries. They also show increased motivation to pursue further studies and explore real-world agricultural environments such as farms and agricultural centers. However, a few indicators remain at the *Agree* level, suggesting that final career decision-making is still developing for some learners.

The findings imply that the intervention effectively strengthened learners' career interest in agriculture. The improvement is largely attributed to the use of Modules in Agriculture, which included career-oriented lessons, real-life examples, and guided exploration activities that helped learners understand agriculture as a meaningful career path. few indicators remain at the *Agree* level, suggesting that final career decision-making is still developing for some learners.

The findings imply that the intervention effectively strengthened learners' career interest in agriculture. The improvement is largely attributed to the use of Modules in Agriculture, which included career-oriented lessons, real-life examples, and guided exploration activities that helped learners understand agriculture as a meaningful career path. These modules allowed learners to explore agricultural professions in a structured and guided manner, helping them visualize possible career opportunities. As Valdez (2021) [62] states, structured career exposure activities enhance learners' motivation and clarity in career decision-making. Similarly, Cruz (2019) [11] emphasizes that experiential learning increases confidence in choosing career paths.

Thus, the integration of Modules in Agriculture is highly effective in shaping learners' career aspirations. It is recommended that this be complemented with farm immersion, mentorship programs, and interaction with agricultural professionals to further strengthen career decision-making.

Table 12: Posttest data of learner's level of intertest in agriculture according to their career Interest

S. No	Statement	Mean	SD	Verbal Interpretation
1	I would like to learn more about agriculture-related careers.	4.35	0.68	Strongly Agree
2	I am interested in becoming a farmer or agriculturist in the future.	4.10	0.72	Agree
3	I would like to explore agricultural technology careers.	4.30	0.70	Strongly Agree
4	I am interested in studying agriculture in higher education.	4.25	0.71	Strongly Agree
5	I believe agriculture can be a successful career path.	4.45	0.65	Strongly Agree
6	I would like to visit farms or agricultural centers for career learning.	4.50	0.64	Strongly Agree
7	I am inspired by people who work in agriculture.	4.40	0.66	Strongly Agree
8	I believe agriculture offers business opportunities.	4.48	0.65	Strongly Agree
9	I am considering agriculture as a possible future job.	4.20	0.72	Agree
10	I would like to work in agriculture-related industries someday.	4.30	0.70	Strongly Agree
	Total Mean	**4.33**	**0.68**	**Strongly Agree**

Legend: 5 – Strongly Agree (4.21–5.00), 4 – Agree (3.41–4.20), 3 – Neutral (2.61–3.40), 2 – Disagree (1.81–2.60), 1 – Strongly Disagree (1.00–1.80)

The results of Table 13 show a significant improvement in learners' level of awareness in agriculture in terms of vegetable production. During the pretest, learners obtained a mean score of 8.20 out of 15 (54.67%), interpreted as *Moderate Awareness*, with a standard deviation of 2.15. This indicates that prior to the intervention, learners had limited understanding of vegetable production practices, including planting techniques, crop care, and harvesting processes. Their knowledge was still developing and not yet sufficient for a higher level of agricultural competence.

However, in the posttest, the mean score increased to 12.65 out of 15 (84.33%), interpreted as *Very High Awareness*, with a lower standard deviation of 1.42. This substantial increase reflects that learners have developed a strong and more consistent understanding of vegetable production concepts. The reduction in standard deviation also indicates that learners' knowledge became more uniform, suggesting

that most students benefited equally from the instructional intervention.

The marked improvement from moderate to very high awareness demonstrates that learners were able to significantly enhance their understanding of vegetable production concepts after the intervention. This suggests that the learning process was effective in improving both conceptual knowledge and practical understanding.

The findings imply that the instructional intervention was highly effective in improving learners' awareness of vegetable production. The significant increase from 54.67% to 84.33% suggests that learners were able to acquire and retain agricultural knowledge more effectively when exposed to structured learning experiences. A major contributing factor to this improvement is the use of Modules in Agriculture, which provided step-by-step lessons, guided activities, and practical exercises that allowed learners to learn independently and systematically.

The modules helped learners understand vegetable production through clear explanations and applied tasks such as planting, identifying tools, and managing crops. According to Singh and Malik (2018) [57], modular instruction significantly improves learners' academic achievement because it allows self-paced learning and mastery of competencies. Similarly, Ahmed *et al*. (2019) [3] emphasize that instructional modules enhance conceptual understanding by breaking down complex topics into manageable learning segments. Furthermore, the integration of modules with experiential activities strengthened learners' ability to connect theory with practice. As Kumar and Sharma (2021) [39] explain, contextual and activity-based learning improves retention and understanding in agricultural education. Therefore, the use of Modules in Agriculture played a key role in increasing learners' awareness from moderate to very high levels, making it an effective instructional strategy for vegetable production education.

4. Level of learners' awareness before and after intervention toward agriculture

Table 13: Level of awareness in agriculture in terms of vegetable production (pretest and posttest) (N = 257)

Test	Mean Score (out of 15)	Mean %	SD	Verbal Interpretation
Pretest	8.20	54.67%	2.15	Moderate Awareness
Posttest	12.65	84.33%	1.42	Very High Awareness

Legend: (81–100%) Very High Awareness; (61–80%) High Awareness; (41–60%) Moderate Awareness; (21–40%) Low Awareness; and (0–20%) Very Low Awareness.

The results of Table 14 reveal a significant improvement in learners' level of awareness in agriculture in terms of animal production. In the pretest, learners obtained a mean score of 8.45 out of 15 (56.33%), interpreted as *Moderate Awareness*, with a standard deviation of 2.08. This indicates that before the intervention, learners had limited understanding of animal production concepts such as livestock care, feeding practices, and basic animal husbandry.

In the posttest, the mean score increased to 12.90 out of 15 (86.00%), interpreted as *Very High Awareness*, with a reduced standard deviation of 1.35. This indicates that learners developed a much stronger and more consistent understanding of animal production concepts after the intervention. The increase in mean score reflects improved knowledge acquisition, while the lower standard deviation suggests that learners achieved a more uniform level of understanding across the group.

Overall, the results demonstrate a clear progression from moderate to very high awareness, indicating that learners were able to significantly impro ve their understanding of animal production concepts through the instructional process.

The findings imply that the intervention was effective in enhancing learners' awareness of animal production. The increase in scores suggests that learners benefited from structured and guided learning experiences that helped them understand complex agricultural concepts more effectively. The use of Modules in Agriculture played a central role in this improvement by providing organized lessons, visual examples, and step-by-step activities related to animal production.

Through the modules, learners were able to understand essential concepts such as animal care, feeding management, and livestock maintenance in a more structured and meaningful way. According to Brown and Green (2017) [7], modular learning materials improve student performance by promoting clarity, organization, and independent learning. Likewise, Wilson *et al*. (2020) [64] state that structured instructional modules enhance retention and comprehension, particularly in science-based subjects such as agriculture.

Additionally, experiential integration within the modules allowed learners to connect classroom learning with real-life agricultural practices. As Johnson and Mayer (2022) [34] explain, combining structured instruction with experiential learning improves both cognitive understanding and practical application. Therefore, the use of Modules in Agriculture significantly contributed to the improvement of learners' awareness from moderate to very high levels in animal production.

Table 14: Level of awareness in agriculture in terms of animal production (pretest and posttest) (N = 257)

Test	Mean Score (out of 15)	Mean %	SD	Verbal Interpretation
Pretest	8.45	56.33%	2.08	Moderate Awareness
Posttest	12.90	86.00%	1.35	Very High Awareness

Legend: (81–100%) Very High Awareness; (61–80%) High Awareness; (41–60%) Moderate Awareness; (21–40%) Low Awareness; and (0–20%) Very Low Awareness.

The results presented in Table 15 show a statistically significant difference in the level of interest in agriculture before and after the intervention across all dimensions: attitude, awareness and knowledge, behavioral intention, career interest, and overall interest. The overall mean increased from 3.19 in the pretest to 4.23 in the posttest, with a mean difference of 1.04 and a highly significant t-value of 45.60 ($p = 0.000$). This indicates that learners initially exhibited a moderate level of interest in agriculture, but after the intervention, their responses shifted to a consistently high level of interest across all indicators.

All sub-variables show substantial improvements, particularly in attitude (mean difference = 1.14) and awareness and knowledge (mean difference = 1.05), which suggests that learners experienced both cognitive and affective development. Behavioral intention and career

interest also increased significantly, indicating that learners are not only more knowledgeable and positive toward agriculture but are also more willing to engage in agricultural activities and consider agriculture as a future career path. The consistent increase across all domains reflects a well-rounded development of agricultural interest among learners.

The very low p-value (0.000) across all indicators confirms that the differences between pretest and posttest results are statistically significant. This means that the improvement in learners' interest in agriculture is not due to chance but is a direct effect of the intervention implemented.

The findings imply that the intervention was highly effective in improving learners' overall interest in agriculture. The significant increase across all domains suggests that learners benefited greatly from structured and meaningful learning experiences that enhanced both their understanding and appreciation of agriculture. A key contributing factor to this improvement is the use of Modules in Agriculture as an instructional intervention, which provided guided lessons, structured activities, and contextualized learning tasks that allowed learners to actively engage with agricultural concepts.

The modules enabled learners to learn at their own pace while participating in practical and experiential activities such as gardening tasks, agricultural exercises, and reflective learning. This structured approach helped bridge the gap between theoretical knowledge and real-life application, resulting in improved attitude, awareness, behavioral intention, and career interest.

As Guskey (2016) [30] emphasizes, meaningful instructional interventions lead to improvements in both student achievement and attitude when learning experiences are structured and consistently reinforced. Similarly, Hattie (2018) [32] highlights that visible learning strategies and well-designed instructional materials have a strong impact on student achievement and engagement. In addition, Freeman *et al*. (2014) [27] found that active and student-centered learning approaches significantly improve engagement and long-term retention of concepts.

Therefore, the results suggest that integrating Modules in Agriculture with experiential and activity-based learning is an effective strategy in enhancing learners' interest in agriculture. Continuous implementation of such instructional materials may further strengthen learners' engagement and potentially influence their future academic and career choices in agriculture.

5. Test of Differences

Table 15: Test of difference in the level of interest in agriculture before and after intervention (N = 257)

Level of Interest in Agriculture	Pretest Mean	Posttest Mean	Mean Difference	t-value	p-value	Decision
Attitude	3.01	4.15	1.14	38.50	0.000	Significant
Awareness and Knowledge	3.15	4.20	1.05	42.10	0.000	Significant
Behavioral Intention	3.19	4.24	1.05	40.30	0.000	Significant
Career Interest	3.42	4.33	0.91	31.80	0.000	Significant
Overall Interest	**3.19**	**4.23**	**1.04**	**45.60**	**0.000**	**Significant**

*significant at $p < 0.05$

The results presented in Table 16 show a statistically significant difference in learners' level of awareness in vegetable production agriculture before and after the intervention. The pretest mean score of 8.20 (54.67%) indicates a moderate level of awareness, suggesting that learners initially had limited understanding of vegetable production concepts such as planting, crop care, and harvesting.

In contrast, the posttest mean score increased to 12.65 (84.33%), interpreted as very high awareness, with a lower standard deviation of 1.42. This indicates that learners developed a more accurate and consistent understanding of vegetable production after the intervention. The computed t-value of -24.58 with a p-value of 0.000 shows a highly significant difference; thus, the null hypothesis is rejected, confirming that the improvement is statistically significant.

The findings imply that the intervention was effective in significantly improving learners' awareness in vegetable production agriculture. The substantial increase in posttest scores suggests that learners benefited from structured instruction and guided learning experiences. The use of Modules in Agriculture played a key role in this improvement by providing organized, step-by-step lessons that made complex agricultural concepts easier to understand and apply.

As Mayer (2017) [45] states, well-designed instructional materials improve learning by reducing cognitive load and supporting meaningful understanding. Similarly, Sweller *et al*. (2019) [59] emphasize that structured learning resources enhance knowledge acquisition and retention. Therefore, the use of Modules in Agriculture proved to be an effective strategy in improving learners' agricultural awareness.

Table 16: Test of difference in the level of awareness in vegetable production agriculture before and after intervention

Test	Mean	SD	Mean %	df	t-value	p-value	Decision
Pretest	8.20	2.15	54.67%	**256**	**-24.58**	**0.000**	Significant
Posttest	12.65	1.42	84.33%				

*significant at $p < 0.05$

The results of Table 17 show a statistically significant difference in learners' level of awareness in animal production agriculture before and after the intervention. The pretest mean score of 8.45 (56.33%) with a standard deviation of 2.08 indicates that learners initially had a moderate level of awareness, suggesting limited understanding of animal production concepts such as livestock care, feeding management, and basic animal husbandry practices.

After the intervention, the posttest mean score increased to 12.90 (86.00%) with a lower standard deviation of 1.35, interpreted as very high awareness. This indicates that learners developed a stronger, more accurate, and more consistent understanding of animal production concepts. The reduced variability further implies that most learners achieved similar levels of improvement after the intervention.

The computed t-value of -26.11 with a p-value of 0.000

indicates a highly significant difference between the pretest and posttest results. Since the p-value is less than 0.05, the null hypothesis is rejected, confirming that the improvement is statistically significant and attributable to the intervention.
The findings imply that the intervention was highly effective in improving learners' awareness in animal production agriculture. The substantial increase in posttest scores demonstrates that learners significantly benefited from structured instructional strategies that supported their understanding of animal production concepts.
A major contributing factor to this improvement is the use of Modules in Agriculture, which provided structured lessons, guided activities, and step-by-step explanations that made animal production concepts easier to understand and apply. This allowed learners to systematically grasp topics such as livestock care, feeding practices, and animal management.
As Clark and Mayer (2016) [9] state, well-designed instructional materials enhance learning by improving clarity and reducing cognitive overload. Similarly, Hattie (2018) [32] emphasizes that visible learning strategies and structured instruction significantly improve student achievement. Therefore, the use of Modules in Agriculture was effective in improving learners' awareness in animal production agriculture, as reflected in the significant difference between pretest and posttest results.

Table 17: Test of difference in the level of awareness in animal production agriculture before and after intervention

Test	Mean	SD	Mean %	df	t-value	p-value	Decision
Pretest	8.45	2.08	56.33%	**256**	**-26.11**	**0.000**	Significant
Posttest	12.90	1.35	86.00%				

*significant at $p < 0.05$

The results presented in Table 18 show the relationship between the demographic profile of learners and their level of interest in agriculture. Based on the computed chi-square values, it can be observed that age ($\chi^2 = 12.45$, $p = 0.014$), parents' occupation ($\chi^2 = 4.10$, $p = 0.043$), and exposure to farming or gardening at home ($\chi^2 = 10.75$, $p = 0.001$) have a significant relationship with learners' level of interest in agriculture. This indicates that these variables influence or are associated with how learners develop interest in agricultural activities. On the other hand, sex ($p = 0.312$), family income ($p = 0.064$), and place of residency ($p = 0.369$) were found to have no significant relationship with learners' level of interest in agriculture. This suggests that interest in agriculture is not determined by gender, economic status, or location, but may be more influenced by direct exposure and environmental factors such as family involvement in farming activities.
Overall, the findings indicate that learners' interest in agriculture is shaped more by experiential and contextual factors rather than purely demographic characteristics. Variables related to direct agricultural exposure and family involvement appear to have stronger influence compared to socioeconomic background.
The findings imply that learners' interest in agriculture is significantly influenced by experiential and environmental factors, particularly exposure to farming or gardening activities at home and the occupation of parents. This suggests that learners who grow up in environments where agriculture is practiced are more likely to develop stronger interest in the field. Age was also found to have a significant relationship, indicating that maturity level may influence learners' appreciation and understanding of agricultural concepts.
The non-significant relationship of sex, family income, and place of residency implies that agricultural interest is inclusive and not restricted by gender, economic status, or geographic location. This supports the idea that interest in agriculture can be developed among all learners when appropriate exposure and learning experiences are provided.
The results further imply that schools play a critical role in strengthening learners' interest in agriculture, especially for those who have limited exposure at home. In this context, the Modules in Agriculture used as an intervention become highly important, as they provide structured, guided, and experiential learning opportunities that compensate for lack of home-based agricultural experience. Through these modules, learners are given equal opportunities to engage in agricultural learning regardless of their background.
As Ajzen (2017) [1] explains in the Theory of Planned Behavior, behavioral intention is influenced by attitudes and perceived experiences rather than demographic factors alone. Similarly, Bandura (2018) [5] emphasizes that learning is strongly shaped by environmental exposure and observational experiences. In addition, Kolb (2015) [38] highlights that experiential learning plays a crucial role in developing interest and competence through active engagement.

6. Test of Relationship

Table 18: Test of relationship between the demographic profile and the level of interest in agriculture

Demographic Profile Variable	Chi-square (χ^2)	df	p-value	Decision
Age	12.45	4	0.014	Significant
Sex	1.02	1	0.312	Not Significant
Family Income	8.90	4	0.064	Not Significant
Place of Residency	6.50	6	0.369	Not Significant
Parents' Occupation	4.10	1	0.043	Significant
Exposure to Farming/Gardening at Home	10.75	1	0.001	Significant

*significant at $p < 0.05$

The results of Table 19 show the relationship between the demographic profile of the respondents and their level of awareness in agriculture. The findings reveal that age ($\chi^2 = 9.85$, $p = 0.043$), parents' occupation ($\chi^2 = 4.76$, $p = 0.029$), and exposure to farming or gardening at home ($\chi^2 = 11.62$, $p = 0.001$) have a statistically significant relationship with learners' level of interest in agriculture. This indicates that these factors play an important role in shaping learners' awareness in agricultural activities, particularly in terms of animal and vegetable production.
In contrast, sex ($p = 0.337$), family income ($p = 0.116$), and place of residency ($p = 0.435$) were found to have no significant relationship with learners' level of awareness in agriculture. This suggests that awareness in agriculture is not determined by gender, socioeconomic status, or geographic location, but is more influenced by exposure and lived experiences related to agriculture. The results indicate that learners' awareness in agriculture is more strongly associated with experiential and environmental factors

rather than purely demographic characteristics. Learners who are exposed to farming or gardening activities and those with parents engaged in agricultural work tend to show higher levels of awareness in agriculture.

The findings imply that learners' level of awareness in agriculture is significantly influenced by environmental exposure and family background, particularly exposure to farming or gardening at home and parents' occupation. This indicates that direct involvement or familiarity with agricultural activities plays a crucial role in developing learners'awareness in agriculture. The non-significant relationship of sex, family income, and place of residency implies that agricultural awareness is inclusive and can be developed regardless of gender, economic background, or location. This supports the idea that agriculture can attract diverse learners when proper exposure and learning opportunities are provided.

The findings further imply that schools have a critical role in strengthening learners' awareness in agriculture, especially for those who lack agricultural exposure at home. In this regard, the Modules in Agriculture used as an intervention become highly important because they provide structured, guided, and experiential learning experiences that help develop awareness regardless of learners' background.

As Mendoza (2018) emphasizes, learning is strongly influenced by environmental exposure and observational experiences. Similarly, Kolb (2015) [38] explains that experiential learning enhances interest and understanding through active engagement. In addition, Ajzen (2017) [1] highlights that behavioral intentions and interest are shaped more by attitudes and experiences than demographic factors alone.

Table 19: Test of relationship between the demographic profile and the level of awareness in agriculture

Demographic Profile Variable	Chi-square (χ^2)	df	p-value	Decision
Age	9.85	4	0.043	Significant
Sex	0.92	1	0.337	Not Significant
Family Income	7.40	4	0.116	Not Significant
Place of Residency	5.88	6	0.435	Not Significant
Parents' Occupation	4.76	1	0.029	Significant
Exposure to Farming/Gardening at Home	11.62	1	0.001	Significant

*significant at $p < 0.05$

Conclusion

Based on the findings of the study, the following conclusions were drawn:

There is a significant difference in the level of interest in agriculture before and after the intervention.

There is a significant difference in the level of awareness in agriculture before and after the intervention.

There is significant relationship between the demographic profile of the respondents particularly in age, parent's occupation, and exposure to farming/gardening at home and their level of interest in agriculture.

There is a significant relationship between the demographic profile of the respondents particularly in age, parent's occupation, and exposure to farming/gardening at home and their level of awareness in agriculture.

Recommendations

Based on the findings of the study, the following recommendations are hereby offered to further enhance the implementation of the mainstreamed agriculture course intervention and improve learners' awareness and interest in agriculture.

It is recommended that the mainstreamed agriculture course intervention be continuously implemented and further enhanced in Grade 6 classes to sustain and improve learners' awareness and interest in agriculture.

Teachers are encouraged to integrate more experiential and hands-on activities such as school gardening, livestock simulation tasks, and field-based learning to deepen learners' understanding of agricultural concepts.

School administrators and curriculum planners may consider strengthening the inclusion of agriculture in basic education by providing adequate instructional materials, teacher training, and support for school-based agriculture programs.

Parents and community members are encouraged to actively participate in school agriculture initiatives to further expose learners to real-life agricultural practices and strengthen learning at home.

Future researchers are recommended to conduct similar studies with larger populations, different grade levels, or longer intervention periods to further validate and expand the findings of this study.

It is also recommended that schools integrate the use of digital and technology-based agricultural learning tools such as interactive videos, virtual farm tours, mobile applications, and multimedia presentations to make agricultural education more engaging, innovative, and relevant to 21st-century learners. These technology-supported interventions may further enhance learners' interest, understanding, and appreciation of modern agricultural practices.

References

1. Ajzen I. The theory of planned behavior: Reactions and reflections. Psychology & Health. 2017; 26(9):1113-1127. Doi: https://doi.org/10.1080/08870446.2011.613995
2. Austria MJL, Reyes CP, Dela Cruz RT. School gardening and nutrition awareness among elementary pupils in public schools. Asia Pacific Journal of Multidisciplinary Research. 2024; 12(1):45-56.
3. Ahmed S, Rahman T, Khan M. Modular instruction and its effectiveness in enhancing student learning outcomes. Journal of Educational Development Studies. 2019; 11(2):88-102.
4. Bandura A. Social learning theory. Prentice Hall, 1977.
5. Bandura A. Social learning theory and self-efficacy. Routledge, 2018.
6. Bautista RL. Experiential learning and student engagement in agricultural education. Philippine Journal of Educational Research. 2022; 16(2):45-60.
7. Brown L, Green M. Instructional design and modular learning effectiveness in science education. International Journal of Curriculum Studies. 2017; 9(3):55-70.
8. Christian MS, Evans CEL, Ransley JK, Greenwood DC, Cade JE. Process evaluation of a cluster-randomised controlled trial of a school gardening intervention on children's fruit and vegetable intake. Health Education Research. 2014; 29(2):239-251. Doi:

https://doi.org/10.1093/her/cyt140
9. Clark RC, Mayer RE. E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning (4th ed.). Wiley, 2016.
10. Cosby AG. Agricultural literacy research: A systematic review of the literature from 2000-2020. Journal of Agricultural Education. 2022; 63(1):1-15.
11. Cruz AM. Career exposure and student decision-making in agriculture. Journal of Vocational Studies. 2019; 10(1):33-47.
12. Cruz-Tadeja AC. Implementation of the Gulayan sa Paaralan Program in selected public elementary schools in Metro Manila. Philippine Journal of Education Studies. 2019; 94(2):67-82.
13. De Leon JP, Orcullo DJ, Manalo RM. Youth engagement in agriculture in the Philippines: Trends, challenges, and policy directions (2011-2021). Journal of Rural Development and Agribusiness. 2023; 8(1):23-41.
14. Department of Education. Department Order No. 96, s. 1987: Establishment of the National Agriculture Education System (NAES), 1987.
15. Department of Education. DepEd Memorandum No. 293, s. 2007: Implementation of the Gulayan sa Paaralan Program, 2007.
16. Department of Education. DepEd Memorandum No. 191, s. 2018: Strengthening the implementation of the Gulayan sa Paaralan Program in public elementary and secondary schools nationwide, 2018.
17. Department of Education. Partnership initiatives with SEARCA in strengthening agricultural education under the K-12 curriculum, 2019.
18. Department of Education. Philippine basic education framework, 2022.
19. Department of Education. Enhancing the Gulayan sa Paaralan Program through urban agriculture initiatives: Dasmariñas City Division, 2023.
20. Department of Education. Annual report on school-based agricultural programs and farm school implementation, 2025.
21. Dela Cruz JA. Enhancing student engagement in agricultural education through experiential learning approaches. Philippine Journal of Educational Development. 2020; 12(3):45-59.
22. Dewey J. Experience and education. Macmillan, 1938.
23. Fadlillah M. Development of agriculture-based teaching materials for elementary school students. International Journal of Instruction. 2024; 17(1):289-304. Doi: https://doi.org/10.29333/iji.2024.17116a
24. FAO. The state of the world's agriculture and food systems: Youth in agriculture. Food and Agriculture Organization, 2019. https://www.fao.org
25. Fernandez JP. Inquiry-based learning in agricultural science education. Asian Education Review. 2019; 8(3):70-82.
26. Flores AL, Ilagan MA. Project-based learning in agriculture: Effects of integrating hands-on activities with digital and printed materials. Philippine Journal of Educational Technology. 2023; 9(2):55-68.
27. Freeman S, Eddy SL, McDonough M, Smith MK, Okoroafor N, Jordt H, *et al*. Active learning increases student performance in science, engineering, and mathematics. Proceedings of the National Academy of Sciences. 2014; 111(23):8410-8415. Doi: https://doi.org/10.1073/pnas.1319030111
28. Garcia ML. Motivational strategies in hands-on agricultural learning. Journal of Rural Education. 2020; 12(1):25-40.
29. Garcia ML. Contextualized learning approaches in agricultural education and student comprehension. Philippine Journal of Educational Innovation. 2021; 14(2):55-70.
30. Guskey TR. Professional development and teacher change. Teachers College Press, 2016.
31. Hanbazaza M, Triador L, Ball GDC, Farmer A, Maximova K, Willows ND. The impact of school gardening on knowledge, preferences, and consumption of vegetables and fruit among Indigenous children. Journal of Nutrition Education and Behavior. 2015; 47(1):44-50. Doi: https://doi.org/10.1016/j.jneb.2014.08.002
32. Hattie J. Visible learning: A synthesis of over 800 meta-analyses relating to achievement. Routledge, 2018.
33. Hutchinson J, Christian MS, Cade JE. School gardening programmes: A systematic review of the impact on children's knowledge, attitudes, and behaviours. Health Education Journal. 2015; 74(6):1-15. Doi: https://doi.org/10.1177/0017896914555245
34. Johnson P, Mayer R. Integrating experiential learning with instructional design for deeper understanding. Educational Psychology Review. 2022; 34(1):112-128.
35. Johnston AR. Effects of an interest approach on students' knowledge and attitudes toward agricultural science. Journal of Agricultural Education. 2011; 52(4):1-12. Doi: https://doi.org/10.5032/jae.2011.04001
36. Knobloch NA. Agricultural education: A vehicle for connecting science, mathematics, and environmental studies. Journal of Agricultural Education. 2007; 48(3):1-12. Doi: https://doi.org/10.5032/jae.2007.03001
37. Kolb DA. Experiential learning: Experience as the source of learning and development. Prentice Hall, 1984.
38. Kolb DA. Experiential learning: Experience as the source of learning and development (2nd ed.). Pearson Education, 2015.
39. Kumar V, Sharma R. Contextual learning approaches in agricultural education. Asian Journal of Science Education. 2021; 14(4):201-215.
40. Lee Y, Kim S, Park J, Lee H. Elementary students' awareness and preferences regarding urban agriculture programs in Seoul. Sustainability. 2018; 10(12):1-14. Doi: https://doi.org/10.3390/su10124567
41. Lim ST. Contextualized instruction and conceptual understanding in science education. International Journal of Learning. 2021; 14(2):55-69.
42. Limbag ME. Gulayan sa Bakuran: Promoting home gardening and agricultural awareness among Filipino families. Journal of Community Development Research. 2021; 6(1):77-89.
43. Manalo RF, Javier SM. Effectiveness of pamphlet-based instruction in agriculture and health education in rural schools. Philippine Journal of Educational Research. 2022; 15(2):98-112.
44. Martinez LA. Hands-on learning in school gardening programs and students' understanding of organic farming. Journal of Technical and Livelihood Education. 2021; 5(1):34-48.
45. Mayer RE. Using multimedia for e-learning. Journal of

Educational Psychology. 2017; 109(3):321-333.
46. Mendoza LR. Career awareness and student interest in agricultural professions through experiential exposure. Philippine Journal of Career Development. 2020; 11(2):60-74.
47. Ramos PD. Student participation and behavioral intention in agriculture. Educational Practice Journal. 2022; 11(4):88-102.
48. Reyes JP. Instructional videos as tools for improving procedural learning in science and TLE classes. Asia-Pacific Journal of Education and Learning. 2021; 10(2):61-75.
49. Reyes ML. Collaborative learning strategies and student motivation in agricultural science. Asian Journal of Education and Development. 2019; 8(2):101-112.
50. Rivera JP. Influence of career exposure activities on students' interest in agriculture. Asian Journal of Vocational Education. 2018; 9(1):33-45.
51. Sagario RM, Versano KL. Experiential learning in agricultural crop production and its effects on students' competencies and attitudes. Journal of Agricultural and Technical Education. 2023; 14(1):22-37.
52. Santos EP, Del Rosario RJ. Hands-on learning in technical-vocational education: Implications for skills development. Philippine Journal of TVET Research. 2020; 4(2):15-29.
53. Santos RP. Experiential learning and its impact on student interest in agriculture. Journal of Rural Education Research. 2018; 6(1):33-47.
54. Santos RP. Experiential learning and career decision-making in agricultural education. International Journal of Educational Research and Practice. 2021; 13(3):95-108.
55. Schunk DH, DiBenedetto MK. Motivation and social cognitive theory. Contemporary Educational Psychology. 2020; 60:101832. Doi: https://doi.org/10.1016/j.cedpsych.2019.101832
56. SEARCA. School-plus-home gardens cum biodiversity enhancement enterprise (SHGBEE) project terminal report. Southeast Asian Regional Center for Graduate Study and Research in Agriculture, 2020.
57. Singh A, Malik R. Effect of modular teaching on academic achievement. International Journal of Instructional Technology. 2018; 7(1):33-45.
58. Snodgrass DR. School gardening as a strategy for agricultural education and livelihood development in rural Uganda. Journal of International Agricultural Education. 2012; 19(2):25-38.
59. Sweller J, Van Merriënboer JJG, Paas F. Cognitive architecture and instructional design. Educational Psychology Review. 2019; 31(2):261-292.
60. Torres JA. Experiential learning and behavioral engagement in secondary education. Journal of Curriculum Studies. 2020; 9(2):41-58.
61. UNESCO. Education for people and planet: Creating sustainable futures for all. United Nations Educational, Scientific and Cultural Organization, 2016. https://unesdoc.unesco.org/
62. Valdez KR. Career guidance and agricultural education outcomes. Philippine Journal of Career Development. 2021; 13(3):60-75.
63. Vygotsky LS. Mind in society: The development of higher psychological processes. Harvard University Press, 1978.
64. Wilson J, Carter D, Lee S. Structured learning modules and student comprehension in applied sciences. Journal of Applied Educational Research. 2020; 12(2):60-74.