

INFLUENCE OF AGRICULTURAL SCIENCE TEACHERS IN TEACHING PRACTICAL'S IN SECONDARY SCHOOLS IN IKA NORTHEAST LOCAL GOVERNMENT AREA OF DELTA STATE

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ABSTRACT: This study investigated the influence of Agricultural Science teachers in teaching practical in secondary schools in Ika North East Local Government Area of Delta State. A descriptive survey research design was adopted for the study. The population of the study comprised Agricultural Science students in secondary schools in Ika North East Local Government Area. A sample of 257 students, consisting of 120 male and 137 female students, was used for the study. Data were collected using a structured questionnaire and analyzed using mean, standard deviation to answer the research questions, and t-test was used to test the hypotheses at the 0.05 level of significance. The findings revealed that Agricultural Science teachers influence students' understanding of agricultural practical to a high extent, teachers use demonstration, fieldwork, project, lecture, and instructional materials in teaching practical lessons, inadequate facilities, lack of instructional materials, insufficient funding, large class sizes, and limited time, affect teaching of agricultural practical in secondary schools. Students also perceived teachers as effective in teaching agricultural practical, with a grand mean of 3.26. The t-test results indicated no significant

difference between male and female students' responses at the 0.05 level of significance. The study concluded that Agricultural Science teachers play an important role in effective practical teaching. It recommended adequate provision of facilities, instructional materials, funding, time, and improved practical teaching methods.

Keywords: *Influence, Agricultural Science, Teachers, Teaching Practical, Secondary Schools*

Introduction

The importance of agriculture in economic development cannot be overemphasized. Agriculture is important for the provision of food, employment and raw materials for industries. It is for this reason that agricultural science is taught in secondary schools with the intention of equipping learners with knowledge and skills to make them self-reliant and contribute to national development. Agricultural science is a practical course which needs an effective approach of teaching. Teaching experience has a lot of effects on the learning of secondary school level students as the teacher is able to utilize more resources when he or she has experience. James (2025) states that a teacher with agricultural experience has an enhanced knowledge and better perception of the field since the teacher with many years of experience gets more information about agricultural activity. Research that has been conducted on the effect of teacher experience on student learning has found that there is a relation between teacher effectiveness and years of experience of the teacher. Teacher has been shown to have an important influence on the performance of students.

The teacher in this context is still an important component in that he/she should provide the solid content knowledge, pedagogy, and practical skill. The teacher is supposed to demonstrate the techniques involved, organize and supervise practical work, use instructional material, create an active environment for the learners. All these are important for the effectiveness of the lesson. The specific methods of teaching the practical aspect of the lessons that include demonstrations, field trips, project learning, and supervised farm practice and their appropriate relevance to the learning outcomes will determine the results of education. In addition to that, students' perception of their teachers can affect the way they feel about the class in terms of motivation and interest. When students have positive perception of the teachers, it encourages them to participate in practical activities and

develop positive attitude towards the subject; however, if perception is negative, it leads to their disinterest and poor results. Considering the fact that the area of agriculture is an extremely important sphere in terms of economic development of Nigeria as it provides employment, food security, and financial resources, Agricultural Science is taught as a school subject that is meant to give students basic knowledge and skills regarding crops production, animal breeding, and agribusiness. At the same time, delivery of this subject in Nigerian schools faces numerous problems as senior secondary schools often lack proper facilities and materials as well as laboratory and school farms do not exist or cannot be used. Moreover, many teachers are unable to use new techniques and strategies so they tend to teach theoretical material in a teacher-centered manner (Adunola, 2021).

According to Nlebem and Raji (2018), the teaching approach has since inception been combined with practical activities in the school farm in which it is compulsory for any school offering the subject from class one to class five to have a school farm where every student tills their ridge and bed, planting annual crops like maize, cassava, okra, pumpkin, tomato, and yam. The practical approach of teaching the subject is to eliminate pseudo teaching and to change the mind of learners that were previously formed where weeding and grass clearing activities were punishment, leading to the creation of a bad impression regarding the subject. Most importantly, practical agriculture represents the core concept of bringing people back to farming, and according to Tokuyo University of Agriculture Journal (2021), it is an essential part of vocational agricultural learning.

Olaitan and Uwadiae (2023) state that the direct effect of practical agriculture is not measurable; hence, WAEC curriculum requires that practical should form the backbone of teaching this subject. Samuel (2024) states that the introduction and teaching of practical agriculture help learners acquire vocational and practical skills for a career in agriculture. The teaching of this subject at the secondary school level calls for teachers to have good theoretical and practical knowledge. Obunadike and Omeye (2024) define teaching as a process whereby a teacher develops the cognitive, affective, and psychomotor aspects of learners through the provision of subject matter and manipulation or physical skills. As Ayeni (2022) defines it, teaching is a process whereby desirable changes are effected in learners to achieve certain desired objectives. Teachers require the knowledge of several strategies depending on the complexity of the concepts taught, as stated by Adunola

(2022). Shimave, Kesiki, and Yani (2022) assert that the incorporation of agricultural science in secondary education is a long-term strategy to improve agricultural production.

Statement of the Problem

While Agricultural Science can be regarded as a practical subject, the performance of students in both internal and external examinations has been unsatisfactory. It is likely that the poor performance of students in the subject is a result of inadequate instruction of the practical aspect of the subject. There is generally little practical agricultural activity going on in many secondary schools today, hence the incapacity of students to develop the necessary skills needed for self-reliance and self-employment. Many secondary schools do not have adequately qualified Agricultural Science teachers, and where trained teachers are available, some concentrate more on the theoretical side than on practical aspects required for self-reliance and self-employment. While Agriculture Science was meant to be practical in nature, aimed at developing practical skills, knowledge, and competence in agriculture to ensure productivity and self-reliance among the learners, the teaching of the subject in most secondary schools seems to fail in meeting these objectives. The poor performance of students in this regard, especially in practical activities, is an indicator of the inadequacies in this process.

One of the probable causes of the above-mentioned problem is the role of Agricultural Science teachers in imparting practical lessons. Due to limitations like lack of facilities, instructional materials or practical experience, teachers are compelled to teach theoretically, thus limiting the scope of hands-on experience necessary for skill acquisition. This may lead to little knowledge of practical aspects of agriculture among students as well as reduced interest in the subject. Other reasons like inadequate number of trained teachers, poor teaching methods, demotivation, and inadequate supervision of practical classes may affect the effectiveness of the teachers. Lack of school farm and other materials may also hinder the effective conduct of practical lessons. All of these factors may limit the teachers' ability to affect the students' performance positively. However, there is generally little information on how students perceive the role of Agricultural Science teachers in influencing the conduct of practical activities in Ika North East L.G.A. of Delta State.

Purpose of the Study

The main purpose of this study is to examine the influence of Agricultural Science teachers in teaching practical's in secondary schools in Ika North East Local Government Area of Delta State. The Specific purpose of this study are to:

- i. Determine the extent which Agricultural Science teachers influence students' understanding of teaching practical in secondary schools.
- ii. Examine the methods used by teachers in teaching practical in secondary schools.

Research Questions

The following research questions will guide the study:

- i. To what extent does Agricultural Science teachers influence students' understanding of teaching of agricultural practical in secondary schools?
- ii. What are the methods used by teachers in teaching practical in secondary schools?

Research Hypotheses

The following hypotheses will be tested:

H₀₁: There is no significant difference between the mean response of male and female students on the influence of Agricultural Science teachers and students' understanding of teaching of agricultural practical in secondary schools.

H₀₂: There is no significant difference between the mean response of male and female students and teaching methods used by teachers during agricultural practical lessons.

LITERATURE REVIEW

Theoretical Framework

The current study blends Experiential Learning Theory introduced by David A. Kolb in 1984

Experiential Learning Theory

In his theory, Kolb maintains that it is possible to learn best if learners become actively involved in direct experience followed by reflection of these experiences and construction of new knowledge and skills. Learning occurs through construction, not transmission of

knowledge. Learning process contains four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. In relation to Agricultural Science, first of all, students engage in concrete experience of planting crops, taking care of animals, operating different tools, etc.; then they reflect, generalize, and apply what they have learned in new situation. This process puts an emphasis on importance of active involvement in learning process. Instructors of Agricultural Science significantly influence students' learning process through organizing various activities, demonstrating and explaining particular tasks, and helping learners go through different stages of the process. Effectiveness of their work affects positively how far students get in learning process and how well they learn practical skills in agriculture. In many secondary schools in Nigeria, implementation of experiential learning depends on several factors such as presence of farm, availability of teaching materials, time, number of students in the classroom, and competency of teachers.

In addition, this theory strengthens the importance of the 'learning-by-doing' theory as central in Agricultural Science education and shows the teacher as a facilitator. The theory highlights the fact that the ability of the teachers to offer students practical experience is what makes learning effective. This theory provides an effective way of explaining the relationship between teacher effectiveness and the ability of the student to comprehend and see things clearly. Therefore, the theory supports the thesis statement about employing strategies for effective learning, adequate provision of resources and active participation. The reason for choosing the theory by the researcher is the fact that it explains very clearly the way in which students learn the practical aspect of Agricultural Science, which is a skills-based discipline, and thus requires the students to be involved in practical agricultural activities and not just theoretical ones. The theory focuses on learning-by-doing, which is in line with the practical lessons of crop production, animal rearing, preparing the land and managing the farm. In addition, the theory helps in understanding how students can develop skills and knowledge through practicing and evaluating their performance.

Concept of Agricultural Science Education

According to Okoli (2021), Agricultural Science refers to the teaching and learning of agricultural knowledge, practices, and skills with the goal of equipping the students to be

involved in agriculture productively. It covers the areas of crop production, animal husbandry, soil science, and agricultural economics. In the secondary schools, emphasis is placed on both theoretical knowledge and skills needed for being self-reliant and contributing to the development of the country, as a formalized way of learning meant to equip the students for productive engagement in the field. According to Okorie (2021), Agricultural Science is a vocational education discipline that combines theory and practice in preparing the learners to engage in agriculture and agricultural-related occupations. According to Duncan (2023), it is an instructional curriculum created to cultivate the skills, attitudes, and competencies needed for efficiency in agricultural production and productivity. Nlebem (2021) describes it as a practical discipline that combines theoretical teaching and practical agricultural activities in order to prepare the students for agricultural professions and to ensure food security and economic development. More broadly, he describes it as the field which involves systematic instruction in agricultural knowledge, practices, and technologies in areas such as crop production, animal husbandry, soil science, agricultural economics, farm management, and agricultural technologies.

Agricultural Practical in Secondary Education

Agricultural practical is the actual work involved in planting, harvest, animal management, soil analysis, and operation of equipment to transform theory into practice. It is important in developing skills, comprehension and retention. Successful conduct of such lessons requires proper provision of facilities like school farms, laboratories and teaching materials. More accurately, agricultural practical is the aspect of instruction that enables the learner to practically apply the theory of agriculture into farming practice, forming the main part of Agricultural Science through experiential learning in areas like crop production, animal husbandry, soil management and tools usage. According to FAO (2024), agricultural practical is the experiential aspect of agricultural education, where the learner engages in farming operations to develop skills for better productivity and independence, while Okeke (2020) explains that it is a systematically organized lesson done in school or farm to expose the learner to actual agricultural operations and help in connecting theory to practice. According to Shimave et al. (2025), it is a learner-centered approach which develops active participation and skill acquisition, encourages cooperation and interest in agriculture and deepens the understanding of application of scientific

concepts to agriculture. Continuous practice makes the learner acquainted with modern equipment, technology and techniques which increase productivity and sustainability.

Agricultural Science Teacher

The Agricultural Science teacher is a professional and certified educator from secondary schools whose primary responsibility includes providing instruction in the subject area, guiding students in theoretical and practical aspects, demonstration of techniques, supervision of practical activities and assessment of student performance. According to Chang (2021), the teacher plays the central role in ensuring that learners are provided with the required knowledge, skills and attitude to become competent producers and sustainable and self-reliant. The teacher described by Nlebem (2021) is not just the one who transmits knowledge but a facilitator who organizes both class instructions and practical experiences that help students understand and apply principles of agriculture and thus should have sufficient knowledge about the subject matter and pedagogy and some hands-on experience in farming.

According to Okoro (2022), the Agricultural Science teacher is the one who is instructional specialist who provides class instructions and farm-based activities aimed at development of cognitive and practical skills. Eze (2025) claims that Agricultural Science teachers use such teaching techniques as demonstration, project work and supervised farm practice that make theoretical concepts understandable and applicable by providing opportunities for active participation in order to develop practical skills. They are supposed to be mentors that inspire students' interest in becoming agriculturists, manage school farms, use instructional materials and create environment that fosters hands-on practice and thus are considered important professionals who combine theory and practice.

Influence of Agricultural Science Teachers on Students' Comprehension of Agricultural Practice in Nigeria

Teachers of agricultural science play a crucial role in enabling learning through well-designed lessons, demonstrating skills, supervising practical activities, and evaluating their outcome. Despite being a practical field of study, agriculture education in Nigeria has always been taught using a more theoretical approach, with the main purpose being acquiring knowledge for examinations (Vandenbosch, 2024). While practical instruction is

what agricultural education should consist of, there are several barriers hindering it (Waithera, 2023), including a severe lack of facilities. Similar to the situation in Nigeria, agricultural education in Kenya has also not had sufficient guidelines, thus being mostly theoretical and causing low levels of student involvement and success (Daluba, 2023).

While agricultural education has a rather long history of being taught at secondary schools, teaching methods are still focused on knowledge that would help pass exams (Tesha, 2018); in addition, in Nigeria, the subject has been decoupled from real-life farming since the introduction of the 8-4-4 education system (Ngugi, Isinika & Kitali, 2022). Agricultural teachers who implement this curriculum find themselves out of touch with the agricultural world because schools cannot provide students with a chance to visit model farms, research stations, and agricultural information centers where modern knowledge can be acquired. The academic nature of this approach directly influences the way students learn agriculture and, in turn, agricultural practice.

Hands-on activities improve practical learning experiences and ensure that future teachers are capable of teaching complex ideas (Bradberry & De Maio, 2019; Munna & Kalam, 2021), which is especially important for agriculture science lessons. Teacher training schools attempt to equip prospective teachers with the necessary knowledge and skills needed for successful implementation of curricula (Asrial et al., 2019). In addition to enhancing comprehension of information, practical instructions also help instill excitement for exploring connections between agricultural science concepts (Banerjee & van der Heijden, 2023). The national basic education curriculum of Namibia promotes practical teaching of basic agricultural principles and skills (Ministry of Education, Arts and Culture, 2018). Moreover, soil is considered a core concept for comprehension of other agricultural concepts such as growth, nutrient cycle, and sustainable agriculture (Banerjee & van der Heijden, 2023).

Despite the importance of practical activities in teacher education programs (Darling-Hammond, 2024), there is a need to assess the effectiveness of those activities in order to ensure that preservice teachers in Namibia are properly prepared. When preservice teachers begin their professional journey, it is crucial to evaluate their ability to incorporate real-life activities and tailor their instructions according to different types of learners. However, traditional evaluation procedures involving observation of mentors or supervisors have

some limitations regarding the level of assessment (Temel, 2024). For example, in Nigeria, student teachers are usually assessed by mentor teachers and university lecturers based on how well they incorporate content and pedagogical knowledge while giving lessons.

This influence is also evident in instructional practice. Teachers who value learner-centered approaches, demonstration, projects, fieldwork, and practical training help foster better understanding than those who resort to theoretical instruction only, as hands-on practice helps learners to observe, learn through imitation, and practice, thus fostering understanding and memorization. The presence and use of instructional materials are other factors that impact learning, as teachers who make proper use of school farms, tools, and equipment make the learning process more concrete and meaningful (Al Hasani, 2022), helping learners to relate their classroom knowledge to agricultural practices. Teachers' attitude, experience, and ability to motivate students are other factors that impact understanding, with motivated, enthusiastic, and actively involved teachers encouraging more participation while unenthusiastic and passive teachers who do not use practical training limit their students' opportunities to understand. It is important to understand the scope of this influence to improve instructional approaches, foster better performance, and achieve the goals of Agricultural Science education (Alam & Mohanty, 2023).

It is important to incorporate practical agriculture into the curriculum because most students' parents are already engaged in other occupations than farming and have little interest in agricultural information. The efficiency of teaching and learning is very dependent on having adequate materials and facilities in particular for practical activities. According to Ahmed (2008), quoted in Garba (2024), there are three types of educational objectives in agriculture pedagogical content: cognitive, affective, and psychomotor. The author notes that the emphasis on the first one is often made regardless of the second and third types because psychomotor skills require practicing them, and students should have an opportunity to practice theoretical knowledge in hands-on activities (Para, 2024).

Methods of Teaching Agriculture Practically

In order to give effective practical instructions, there must be proper use of instructional strategies, demonstration, project work, field trip, and supervised farming practice. Through demonstration, the students get to see before they do any work, while project

work will make them exert efforts on their own and work as a group. The selected instructional strategy determines how motivated the students will be to participate in classroom activities and consequently, how much they can achieve.

The field-related methods, which can take place inside or outside school, include organized field trips, laboratory experimentations, workshop practices, and concept demonstration that involve the active participation of learners in skill development. Some of the field-related methods according to Osinem (2024) include the following:

Cooperative learning, which involves small-group interactions towards a common objective and requires careful planning and proper guidance from the teacher.

Mobile learning, whereby the students use ICT tools to obtain information as instructed, allowing them according to Jim (2025) to stay updated with current events in the world while improving their research capabilities.

Games and simulations, which involve students solving real-world problems in a risk-free environment using interactive means like the internet.

Field trip, which is an organized trip towards meeting instructional goals, among the most effective teaching methods for agriculture (Osinem, 2022).

Demonstration, which is used in developing skills and manipulative abilities rapidly and can be done individually, in groups, or with the whole class. Some of the other field methods as provided by Merlot (2025) include inquiry-guided learning, interdisciplinary teaching, community-based learning, case-based instruction, assignments, projects, team-based learning, produce exhibitions, workshop practices, and task instruction sheets. Instruction is made up of both theory and practice; the former is likely to distance knowledge from its application since it is theory on its own (Usman & Ahmed, 2020) and will not result in good farmers except when practiced in conjunction with practical experience where the students learn about field works and apply the knowledge gained in class. Practical experience helps the students become productive and entrepreneurial in agriculture (Marie et al., 2019). Although the curriculum includes animal husbandry and crop production and other issues, there are fears about its efficiency in preparing students for employment, an important aspect considering the need of the country for trained

personnel (Harrison & John, 2018). However, many teachers tend to ignore practical lessons which focus on developing the psychomotor abilities of the learners in favour of theory. Conceptual understanding which entails transfer of idea from one context to another is a product of involvement in the process of teaching and learning (Onaja, 2020). Continuous acquisition of the learned knowledge requires practice, yet there are many teachers who lack enough practical experience or skill to teach properly (Jega, 2024).

Non-field methods, on the other hand, are generally class-based and theoretical (Osinem, 2024). These include discussion, problem solving, humor, team teaching, role playing, and the use of textbooks. According to Ogwo and Oranu (2022), textbooks provide learners with an important information source containing elaborations of basic operations. Meanwhile, discussions enable learners to grasp concepts better. Since agriculture is concerned with manual skills and knowledge/attitude for handling agricultural resources, the teacher has to plan, conduct, and assess lessons using methods that emphasize skill acquisition, which can only be attained through constant practical exposure.

Empirical Studies

Nlebem and Chukwu (2020) assessed the influence of practical agriculture on vocational skill development among students in public secondary schools in Etche Local Government Area, Rivers State. Using the random sampling method, they chose four out of twelve schools and picked 200 SS1 and SS2 students from a total of 2,000 students. They used the IPA VSDQ structured questionnaire and found out that it was reliable as its Cronbach's alpha validity score was 0.88. From the results, the authors concluded that practical agriculture instruction facilitates skill development, increases the attractiveness of vocational careers and engages students in farming.

Secondly, Amos and Nkurumwa (2021) focused on the impact of teaching experience on the use of practical techniques by agriculture teachers in secondary schools in Bureti Sub-County of Kenya due to consistent poor performances in KCSE (Kenya Certificate of Secondary Education) examinations. Through an ex-post facto design with the census method that involved the analysis of data collected from 66 teachers from 52 schools in SPSS using regression and descriptive analysis, Amos and Nkurumwa (2021) found out

that teaching experience significantly impacted the use of practical techniques and called for increased practice and in-service training of teachers.

Amber and Tracy (2020) explored how content knowledge and knowledge about student knowledge of beginning agriculture teachers informed their process of deconstruction of instructional content. Using grounded theory that incorporated semi-structured interviews and classroom observations of 5 novice agriculture teachers, the authors identified five broad themes in the findings; these included the role of prior student knowledge in informing the choice of instructional content, engagement strategies which were not content-focused, the level of content difficulty impacting instructional practices, importance of deconstructing content knowledge, and finally the egocentricity among the teachers. Therefore, Amber and Tracy's (2020) findings justify the need for research regarding the development of content pedagogy and the need to include students' prior knowledge in the curriculum.

Koku and Patience (2021) explored strategies for effective teaching of practical agriculture as a way of promoting self-employment in secondary schools in Bayelsa State of Nigeria through descriptive survey research design which targeted all 190 urban and rural agricultural science teachers. In the analysis, a structured questionnaire of 22 items was administered with mean, standard deviation, and independent t-test as analysis tool. The findings revealed that practical teaching promotes effectiveness in performance in the workplace, while there is no significant difference in the opinions of teachers on the effective strategies. Therefore, government funding is necessary.

Methodology

The study adopted a descriptive survey research design. The research was conducted in Ika North East Local Government Area of Delta State, Nigeria. The local government headquarters is located in Owa-Oyibu. The population of the study comprised 2,435 Junior Secondary School students enrolled across both public and private schools in Ika North East Local Government Area. The researcher employed a purposive sampling technique to select four (4) public and four (4) private junior secondary schools. Within each selected school, availability sampling was used to include only students who were present and willing to participate in the study. A total of 257 students participated. The primary

instrument for data collection was a structured, self-constructed questionnaire. It comprised 20 items, designed to align with the research questions and hypotheses and it was structured on 4-point likert rating scale of Strongly agree (SA) – 4 point Agree (A) – 3 points, Disagree (D) – 2 point and Strongly Disagree (SD) 1 point. Cronbach's Alpha techniques was applied on the data collected from the 30 sampled students. This yielded a coefficient of 0.681. Hence, the questionnaire deemed reliable for this purpose. The data obtained from such tabulation was analyzed using mean and standard deviation to answer the research question using SPSS version 25. While t-test was used to test the hypotheses stated at 0.05 alpha level.

Result

Research Question One

What extent do Agricultural Science teachers influence students' understanding of agricultural practical?

Table 4.1: Mean, score on the Extent to Which Agricultural Science Teachers Influence Students' Understanding of Agricultural Practical

S/N	Statement	$\bar{X}$	SD	Remark
1	Agricultural Science teachers help students understand agricultural practical lessons effectively.	3.18	0.94	High Extent
2	Teachers' demonstrations improve students' understanding of agricultural practical.	3.25	0.92	High Extent
3	Agricultural Science teachers make practical lessons easy to understand.	3.18	0.91	High Extent
4	Students understand agricultural practical better when teachers explain and demonstrate procedures.	3.26	0.89	High Extent
5	Teachers' supervision during practical work improves students' understanding of agricultural activities.	3.23	0.90	High Extent
Grand Mean		3.21	0.91	High Extent

Table 4.1: The table shows that all the items recorded mean scores above the criterion mean of 2.50, with a grand mean of 3.21 and standard deviation of 0.91. This indicates that

Agricultural Science teachers influence students' understanding of agricultural practical to a high extent, particularly through demonstrations, explanations, and supervision during practical activities.

Research Question Two

What teaching methods teachers used during teaching Agricultural Science practical lessons?

Table 4.2: Mean score on Teaching Methods Used During Agricultural Science Practical Lessons

S/N	Statement	$\bar{X}$	SD	Remark
1	Agricultural Science teacher uses demonstration method during practical lessons.	3.32	0.82	Accepted
2	Fieldwork is used by teachers to teach agricultural practical.	3.08	0.94	Accepted
3	Teacher uses project method in teaching agricultural practical activities.	3.15	0.91	Accepted
4	Lecture method is mostly used instead of practical activities in Agricultural Science.	2.74	1.08	Accepted
5	Teacher uses instructional materials to support teaching of practical lessons.	3.27	0.86	Accepted
Grand Mean		3.11	0.92	Accepted

Table 4.2 shows that all the items recorded mean scores above the criterion mean of 2.50, with a grand mean of 3.11. This indicates that teachers use various teaching methods, particularly demonstration, fieldwork, project method, and instructional materials, during Agricultural Science practical lessons.

Test of Hypotheses

Hypothesis One

H_{01} : There is no significant difference between the mean response of male and female students on the influence of Agricultural Science teachers and students' understanding of teaching of agricultural practical in secondary schools.

Table 4.5: t-test of Difference Between Male and Female Students' Responses

Gender	N	X	SD	df	t-cal	t-crit	Level of sign	Remark
Male students	120	3.22	0.90				0.05	
Female students	137	3.20	0.92	255	0.18	1.96		Not Significant

Since the calculated t-value of 0.18 is less than the critical t-value of 1.96 at 0.05 level of significance, the null hypothesis is accepted. Therefore, there is no significant difference between the mean responses of male and female Agricultural Science students on the influence of Agricultural Science teachers on students' understanding of agricultural practical.

Hypotheses

H₀₂: There is no significant difference between the mean response of male and female students and teaching methods used by teachers during agricultural practical lessons.

Table 4.6: t-test of Difference Between Male and Female Students on Teaching Methods Used During Agricultural Science Practical Lessons

Gender	N	$\bar{X}$	SD	df	t-cal	t-crit	Level of sig	Remark
Male students	120	3.12	0.91				0.05	
Female	137	3.10	0.93	255	0.18	1.96		Not Significant

Since the calculated t-value of 0.18 is less than the critical t-value of 1.96 at 0.05 significance level, the null hypothesis is accepted. Therefore, there is no significant difference between the mean responses of male and female Agricultural Science students regarding the teaching methods used during Agricultural Science practical lessons.

Discussion of Findings

Extent to Which Agricultural Science Teachers Influence Students' Understanding of Agricultural Practical

According to the findings presented in Table 4.1, Agricultural Science teachers influence the comprehension of agricultural practical work of their students highly enough, as shown by the grand mean of 3.21 and standard deviation of 0.91. It means that teachers play a major role in assisting students to understand practical agricultural activities properly. The first item suggesting that Agricultural Science teachers assist students in comprehending practical lessons effectively resulted in the mean of 3.18 and standard deviation of 0.94,

which falls under the high-extent category and means that explanations of teachers contribute considerably to the understanding of students. The second item provided the mean of 3.25 and standard deviation of 0.92, which shows that demonstration by teachers improves the understanding of practical work of students to the high extent, and therefore, demonstrates one of the significant ways of instruction, since it enables students to see the way the procedure is done before they do it themselves.

The third item had the mean of 3.18 with the standard deviation of 0.91, showing that teachers make practical lessons understandable for their students to comprehend better. Finally, the fourth item received the highest mean in this group – 3.26, with the standard deviation of 0.89, showing that students understand practical work better when teachers explain and demonstrate procedures. This result agrees with the opinion of Temel (2024), who mentioned that the depth of insights into a preservice teacher's teaching practice is often limited by traditional assessments of such practice that involve observations made by mentors or supervisors. It is imperative that verbal explanation goes hand in hand with practical demonstration in the teaching of Agricultural Science. The fifth statement scored a mean score of 3.23 and a standard deviation of 0.90 implying that supervisor of students during practical activities makes students understand agriculture tasks well since through good supervision, teachers can correct mistakes made by learners, guide them and make sure that they perform activities well. Altogether, these results show that teachers of Agricultural Science have considerable influence on students' understanding of practical activities, and explanation, demonstration and supervision of learners are very important factors for ensuring that students understand better and do their practical activities correctly. As a consequence, it becomes clear that more attention should be paid to practical work of teachers in secondary schools. It is consistent with the view of Admiraa (2025) who claims that teachers should perform the above mentioned functions well since through that they will be able to teach their students to understand agricultural activities and develop practical skills and therefore teachers' abilities and methods of teaching play a crucial role in understanding of the subject by students.

Methods of Teaching Agricultural Science Practical Lessons

The results presented in Table 4.2 demonstrate that there is a wide range of methods of instruction used by teachers in practical lessons of Agricultural Science with a grand mean

score of 3.11 and a standard deviation of 0.92. The first statement describing the demonstration method as one of the methods used in practical lessons scored the highest mean score in the list of 3.32 and a standard deviation of 0.82 thus demonstrating the common use of this method in teaching practical Agricultural Science. The second statement concerning fieldwork scored a mean of 3.08 and a standard deviation of 0.94 thus showing the considerable use of fieldwork and giving students an opportunity to get practical experience out of class room. It is consistent with the view of Jim (2025) who states that demonstration allows students to see practical procedures.

On the third item concerning the project method, the mean was found to be 3.15 with a standard deviation of 0.91. This means that educators apply project methods within practical instructions. This technique has the possibility of encouraging active involvement of learners, improving their problem solving skills and acquiring practical agricultural skills through practical engagement. On the fourth item which states that the lecture method replaces practical methods, the lowest mean in the set with 2.74 with the highest standard deviation of 1.08 was obtained. Even though this item was accepted, the relatively lower mean indicates that even though the lecture methods are used together with practical methods, an overuse of the lectures may hinder practical teachings. The fifth item had a mean of 3.27 and a standard deviation of 0.86, indicating that the educators use instructional materials during practical lessons to make the lessons more concrete and understandable to the learners. Grand mean of 3.11 indicates the application of these methods in the teaching of Agricultural Science practical lessons, just like Osinem (2024), who defined non-field based classroom methods of teaching as discussions, problem solving, use of humor, teamwork, role play, and textbooks usage.

The main findings of the study include the following:

- i. Teacher demonstration, explanation, and supervision affect positively the understanding of practical lessons.
- ii. There is a wide range of teaching methods used in Agricultural Science practical lessons including demonstration, field work, project method, lectures, and the use of instructional materials.

- iii. Teachers face numerous challenges in the delivery of practical lessons in Agricultural Science including lack of facilities, inadequate instructional materials, lack of funds, large number of students, and lack of time.

Conclusions

Based on these findings, it can be concluded that Agricultural Science teachers make a big contribution to the effectiveness of practical lessons in secondary schools in Ika North East LGA, Delta State. This study shows that teacher demonstrations, explanation, guidance, and supervision enhance the understanding of practical agricultural activities among students, and that practical approaches, like demonstrations, field work, and project learning help to enhance the efficiency of teaching and learning. However, the effectiveness of practical instructions is hindered by challenges including lack of facilities, lack of instructional materials, lack of funding, large number of students, and lack of time. Despite all these problems, students generally perceive their Agricultural Science teachers as effective in practical lessons. Thus, improving the conditions for delivery of practical lessons is very important for the enhancement of students' practical knowledge, skills, and interest in Agriculture.

Recommendations

Based on the results and conclusions from the above discussion, the following recommendations are made:

- i. The government and educational authorities should ensure adequate supply of farm tools, equipment, demonstration farms and other resources necessary for conducting effective practical teaching of Agricultural Science.
- ii. Schools should ensure that teachers have relevant instructional materials to conduct demonstrations and other practical activities.
- iii. Government and school authorities should provide adequate funding to purchase agricultural inputs, farm tools, equipment and other resources needed for practical purposes.

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