

Assessment of Agricultural Facilities and Practical Farming Activities in Public Secondary Schools in Owerri Zone, Imo State Nigeria

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ABSTRACT

This study assessed agricultural facilities and practical farming activities in public secondary schools in Owerri Zone, Imo State, Nigeria. The study specifically examined the existing agricultural facilities and practical farming activities in the schools. A multi-stage sampling procedure was used to select 13 public secondary schools, from which 65 students and 13 Agricultural Science teachers, giving a total of 78 respondents, were selected. Data were collected through a structured instrument and analyzed using descriptive statistics, including frequency and percentage. The findings revealed that crop farming was the predominant agricultural activity, while livestock farming was limited and no school practiced mixed farming. Farm tools and equipment were available in all the schools, but irrigation and storage facilities were absent. Practical farming activities were conducted only on a termly basis. Government support was limited according to students, while teachers reported government agency support; however, no support was received from NGOs. The hypothesis tested using t-statistics showed, there is no statistically significant difference between the estimated mean farm sizes reported by students and teachers leading to the acceptance of the hypothesis. The study recommends improved agricultural facilities, diversified school farming, and stronger institutional partnerships.

Keywords: Public secondary schools, Agricultural facilities, Practical farming activities, Owerri Zone, Imo State.

INTRODUCTION

Agriculture remains a critical sector in Nigeria because of its contributions to food production, employment generation, income creation, poverty reduction, and rural development. Despite the country's considerable agricultural potential, Nigeria continues to experience challenges associated with food insecurity, unemployment, low agricultural productivity, and inadequate development of human capacity for modern agricultural production. These challenges have increased the need to strengthen agricultural education and expose young people to practical farming skills that can prepare them to participate meaningfully in the agricultural sector. Secondary schools particularly public secondary schools occupy an important position in this regard because they provide an avenue through which young people can acquire agricultural knowledge, practical skills, entrepreneurial competencies, and positive attitudes towards farming and related agribusiness activities. Public Secondary Schools are government-owned and government-funded secondary schools that provide post-primary education to students in Imo State.

Agricultural education at the secondary school level is expected to go beyond classroom instruction to include practical experiences that enable students to apply theoretical knowledge to real-life agricultural situations. Practical farming activities such as crop production, livestock production, poultry keeping, fish farming, horticulture, soil management, compost preparation, farm maintenance, and the use of basic agricultural tools can help students develop relevant skills and understand the processes involved in food production. When properly implemented, school-based agricultural activities can serve as learning laboratories where students

acquire practical competencies while also contributing, on a modest scale, to food production within their schools and communities. Osagiede (2024) argues that agricultural education has an important relationship with food security because it can provide learners with the knowledge, skills, attitudes, and innovative capacities needed to improve agricultural productivity and promote sustainable food systems.

Agricultural Facilities are Physical structures, tools, equipment, and other resources available in schools to support the teaching and learning of Agricultural Science through practical activities. Agricultural facilities are essential for the effective teaching and learning of practical agriculture in secondary schools. Such facilities may include school farms, demonstration plots, gardens, livestock units, poultry houses, fish ponds, irrigation facilities, farm tools and equipment, storage structures, greenhouses, nurseries, and other instructional resources. The availability and adequacy of these facilities can determine the extent to which students participate in practical farming activities. Where appropriate facilities are available and functional, students are more likely to acquire hands-on experience and develop the technical skills required for agricultural production. Conversely, the absence, inadequacy, or poor condition of agricultural facilities may restrict agricultural instruction to theoretical classroom teaching, thereby creating a gap between what students learn and what they are able to practice.

Practical Farming Activities are hands-on agricultural tasks carried out by students and teachers, including crop cultivation, livestock rearing, poultry production, fish farming, nursery practices, gardening, and other farm-related activities. Practical agricultural education is particularly important in the context of Nigeria's changing food and economic environment. The country faces increasing pressure to improve domestic food production while addressing unemployment and creating productive opportunities for its growing youth population. Schools can contribute to this effort by providing students with early exposure to agriculture as both a productive activity and a potential career pathway. According to Osagiede (2024), strengthening agricultural education through practical training, experiential learning, innovation, entrepreneurship, and appropriate institutional support can contribute to sustainable agricultural development and food security in Nigeria. Similarly, recent research on sustainable agricultural education in Nigeria has emphasized the need to incorporate practical and sustainable strategies into agricultural education to improve learners' competencies and support food security objectives (Azuaga. & Mba, 2024).

The importance of practical agricultural activities is also supported by evidence from Imo State. Mazza (2024), in a study of factors influencing the teaching of practical agriculture in secondary schools in Imo State, reported that although some instructional materials were available, they were not adequate for effective practical agricultural training. The study also identified challenges including the distant location of school farms from school premises, inadequate funding, and curriculum-related limitations that affect practical agricultural training. These findings suggest that the effectiveness of agricultural education cannot be determined solely by the presence of Agricultural Science in the school curriculum. Rather, attention must also be given to the availability, accessibility, functionality, and adequacy of agricultural facilities and the extent to which students are actually engaged in practical farming activities.

In addition, practical activities provide opportunities for students to develop skills that may not be adequately acquired through conventional classroom instruction. A study conducted in Imo State by Acholonu and Okere (2025) found that agricultural science practical activities can be relevant to students' development of observing and measuring skills, highlighting the educational value of direct engagement with practical agricultural tasks. This suggests that practical farming experiences can complement theoretical knowledge by enabling students to observe agricultural processes, handle tools and materials, solve practical problems, and develop confidence in carrying out basic farming operations.

Statement of the Problem

Despite the recognized importance of agricultural education in developing practical skills and supporting food security, there appears to be a gap between the intended objectives of agricultural science education and the actual availability of facilities and opportunities for practical farming in many public secondary schools. Agricultural Science is taught as part of the school curriculum, yet students may have limited opportunities to participate regularly in actual farming activities. In some schools, agricultural facilities may be inadequate,

poorly maintained, underutilized, or completely unavailable. Where school farms exist, they may not be sufficiently equipped with essential tools, inputs, livestock units, storage facilities, water supply, or other resources required to support effective practical learning.

The situation is particularly concerning because public secondary schools serve a large proportion of Nigerian students who could benefit from practical agricultural education. If students are taught agricultural concepts without adequate opportunities to practise them, they may graduate with limited practical competencies and insufficient confidence to engage in farming or agricultural enterprises. The findings of Mazza (2024) regarding inadequate instructional materials, insufficient funding, and challenges associated with the location of school farms demonstrate that practical agricultural education in Imo State faces important structural and institutional constraints.

Furthermore, inadequate practical exposure may weaken the potential contribution of schools to food production, youth agricultural empowerment, and the development of future agricultural entrepreneurs. At a time when Nigeria requires increased food production and greater youth participation in agriculture, the inability of schools to provide meaningful practical farming experiences represents an important educational and developmental concern. Recent scholarship has emphasized the role of agricultural education in promoting food security, sustainable agricultural practices, and practical competencies among young people (Osagiede, 2024).

It is therefore necessary to assess the actual condition and availability of agricultural facilities and determine the extent to which practical farming activities are carried out in public secondary schools. In the context of Owerri Zone, Imo State, there is a need for empirical evidence on whether schools possess adequate facilities for practical agriculture, the types of facilities available and the specific farming activities undertaken by students. Such assessment is important for identifying existing gaps and providing evidence-based recommendations for improving agricultural education. The present study, therefore, focuses on the assessment of agricultural facilities and practical farming activities in public secondary schools in Owerri Zone, Imo State, Nigeria. The study is expected to provide useful information to education administrators, school principals, Agricultural Science teachers, policymakers, and other stakeholders on how agricultural facilities and practical farming programmes can be strengthened to improve students' practical competencies, encourage youth participation in agriculture, and contribute to sustainable food production and food security. Strengthening agricultural facilities and practical farming activities in public secondary schools can provide a foundation for transforming agricultural education from predominantly theoretical instruction into experiential learning. Such transformation can help students connect classroom knowledge with real agricultural practices, develop useful production and entrepreneurial skills, appreciate the importance of agriculture, and potentially view farming as a viable livelihood and business opportunity. Therefore, an assessment of the current state of agricultural facilities and practical farming activities in public secondary schools in Owerri Zone is timely and necessary for understanding the extent to which schools are fulfilling their potential as centres for agricultural skills development and future food-system sustainability.

Objectives of the Study

The study assessed the agricultural facilities and practical farming activities in public secondary schools in Owerri zone, Imo State Nigeria

The specific objective of the study:

- i. examined the existing agricultural facilities and practical farming activities in public secondary schools,

Research Questions

- i. What are the existing agricultural facilities and practical farming activities in public secondary schools?

Hypothesis

H₀: There is no significant difference between the mean farm sizes reported by teachers and students.

REVIEW OF RELATED LITERATURE

In this section, related literature was reviewed under the following headlines:

Conceptual Framework

Theoretical Framework

Empirical Framework

Conceptual Framework

Concept of Public Schools

According to Ogunode, Ahmed, Gregory and Abubakar, (2020), public schools are educational institutions that are funded and operated by government authorities. They are designed to provide free or low-cost education to students, ensuring equitable access to learning opportunities regardless of socioeconomic status. Public schools play a critical role in the educational landscape, shaping the intellectual, social, and emotional development of students. Public schools serve several fundamental purposes in society through the following:

Educational Achievement: They provide foundational knowledge and skills in various subjects, preparing students for higher education and the workforce.

Socialization: Public schools foster social development by promoting interaction among students from diverse backgrounds, teaching social norms, values, and citizenship.

Equity and Access: They strive to offer equal educational opportunities to all students, addressing disparities and promoting inclusiveness.

Community Development: Public schools often serve as community hubs, offering resources and programs that benefit the local community beyond just education.

Theoretical Framework

Theoretical Perspectives on Public School

Human Capital Theory: This theory posits that education is an investment in human capital, enhancing individuals' skills and productivity, which in turn benefits the economy. According to Matache (2023), attention is paid to the importance of institutions in a society, given that in order to invest in human capital, individuals need an institutional legal framework that is as efficient and accessible as possible. In order to decide whether or not to invest in their own education, individuals need as many sources of information as possible about the opportunities in the labor market after completing their studies. In this way, they can calculate, more or less formally, whether the investment of going to college is profitable and thus lose the income they would have generated if they had accessed the job market immediately after finishing high school.

Constructivist Theory: This theory emphasizes the importance of active learning and the construction of knowledge through experiences and interactions within the school environment. The term constructivism drew upon the adoption of a notion of coming to knowledge as a process of constructing internal mental representations of the world. Viewed from this perspective, learning is a process of knowledge construction, that depends upon both the 'tools' (such as available cognitive operations) and 'materials' (aspects of existing thinking that can provide the basis for making sense of new information) that the learner can access. It should be noted that the meaning of the term knowledge when referring to knowledge construction is somewhat different to traditional philosophical notions of knowledge as justified true belief: constructivist researchers are

interested in the mental constructions that comprise what people “believe to be the case or simply consider as a viable possibility”. The Piagetian model suggested that the general cognitive operations (i.e., the ‘tools’) available to a learner at a particular stage of cognitive development were limited - although one Piaget-inspired research programme investigated how to ‘accelerate’ progress through the stages - and many researchers in science education thought that a more productive focus for research was to investigate the resources learners had available for science learning in terms of their existing ideas (i.e., the ‘materials’) prior to teaching (Taber, 2019).

Empirical Framework

Empirical studies have demonstrated the importance of adequate facilities and practical experiences in agricultural education. Mazza (2024) found that agricultural science teachers in Imo State faced inadequate instructional materials, insufficient funding, and difficulties related to school-farm accessibility, which affected practical agricultural training. Similarly, Mukhtar *et al.* (2026) reported that inadequate resources and other constraints hinder effective teaching and learning of practical agriculture in Nigerian secondary schools. These findings support the need to assess the availability and utilization of agricultural facilities and practical farming activities in public secondary schools. The present study extends existing evidence by focusing specifically on public secondary schools in Owerri Zone, Imo State.

RESEARCH METHODOLOGY

This chapter describes the research methodology employed for the study on assessment of agricultural facilities and practical farming activities in public secondary schools in Owerri zone, Imo State Nigeria. It x-rays the techniques involved in the collection, analyzing and interpretation of data collected for the study.

Study Area

The study area is Owerri zone. Owerri Zone is one of the three major senatorial zones in Imo State, southeastern Nigeria, alongside Orlu and Okigwe Zones. It is situated around Owerri, the capital of Imo State, and comprises nine Local Government Areas. The zone is characterized by a tropical climate, fertile soils, and significant agricultural activities, including crop production, livestock farming, and horticulture. The area is therefore suitable for agricultural education and practical farming activities in secondary schools (Time and Date, 2026; Geo Countries, 2026).

Sample Selection

In this study, multi-stage sampling method was employed in selecting the respondents. The first stage was the purposive selection of Owerri Agricultural Zone in Imo State. The purposive selection was based on the fact that the Agricultural Zone has public secondary schools with school farms. The second stage involved a random selection of 13 public secondary schools (out of 134 public secondary schools in Owerri zone) which is 10 percent of the number of public secondary schools in the zone. The third and final stage involved the random selection of 5 students from each of the 13 public secondary schools in Imo State making it a total of 65 students and random selection of one (1) agricultural science teacher from each public secondary school making a total of 13 agricultural science teachers making a total of 78 respondents.

Method of Data Analyses

Data was analyzed using descriptive statistics such as frequency and percentages

The objective of the study was achieved using descriptive statistics.

Test of Hypothesis

The hypothesis was tested using t-test at 5% level of significance.

RESULTS AND DISCUSSION OF FINDINGS

Agricultural Facilities and Practical Farming Activities in Public Secondary Schools in Owerri Zone.

Table 1.1: Agricultural facilities and practical farming activities in public secondary schools in Owerri zone

Variable Type of Farm (Students)	Frequency	Percentage	Variable Type of Farm (Teachers)	Frequency	Percentage
Crop Farm	50	76.9	Crop Farm	11	84.6
Livestock Farm	15	23.1	Livestock Farm	2	15.4
Mixed Farming	0	0	Mixed Farming	0	0
Total	65	100	Total	13	100
Farm Size (ha)	Frequency	Percentage	Farm Size (ha)	Frequency	Percentage
0.1-0.5	31	47.7	0.1-0.5	9	69.2
0.6-1.0	23	35.4	0.6-1.0	4	30.8
1.1-1.5	11	16.9	1.1-1.5	0	0
Total	65	100	Total	13	100
Farm Facilities Available	Frequency	Percentage	Farm Facilities Available	Frequency	Percentage
Farm tools/ Equipment	65	100	Farm tools/ Equipment	13	100
Irrigation	0	0	Irrigation	0	0
Storage Facilities	0	0	Storage Facilities	0	0
Total	65	100	Total	13	100
Practical Sessions	Frequency	Percentage	Practical Sessions	Frequency	Percentage
Weekly	0	0	Weekly	0	0
Monthly	0	0	Monthly	0	0
Termly	65	100	Termly	13	100
Total	65	100	Total	13	100
Support & Partnerships	Frequency	Percentage	Support & Partnerships	Frequency	Percentage
Government Agencies	YES:4	6.2	Government Agencies	YES: 13	100
	NO: 61	93.8		NO: 0	0
Total	65	100	Total	13	100
NGO's	YES: 0	0	NGO's	YES: 0	0
	NO: 65	100		NO: 13	100
Total	65	100	Total	13	100

Table 1.1 shows that crop farming is the predominant practical agricultural activity in public secondary schools in Owerri Zone, with most students and teachers reporting that their schools operate crop farms. Few schools engage in livestock farming, while none practiced mixed farming, limiting students' exposure to diverse agricultural enterprises. According to the Food and Agriculture Organization of the United Nations (FAO, 2024), integrating crop and livestock farming enhances agricultural productivity, sustainability, and food security. Most school farms are small (0.1–0.5 hectares), restricting practical learning and food production. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2024) emphasized that adequate farmland and regular practical training are essential for effective agricultural education. Although basic farm tools are available, schools lack irrigation and storage facilities, which the World Bank (2024) identified as critical for improving agricultural productivity and reducing post-harvest losses. Government support was limited, while NGOs provided no assistance. The International Fund for Agricultural Development (IFAD, 2023) stressed that stronger institutional partnerships are necessary to improve agricultural education and food security.

Test of Hypothesis

Respondents	N	Mean farm size	SD
Students	65	0.646	0.374
Teachers	13	0.454	0.24
Total	78	0.614	0.36

Students reported a higher estimated mean farm size (**0.646 ha**) than teachers (**0.454 ha**).

Independent –Sample t-test

The independent –sample t-test gives:

Comparison	Mean Difference (ha)	t	df	p-value	Decision
Students vs. Teachers	0.192	1.776	76	0.08	Not Significant

At the 0.05 significance level, the result is not significant because: $p=0.080>0.05$

Thus, there is no statistically significant difference between the estimated mean farm sizes reported by students and teachers. The results show that students reported a slightly larger mean school-farm size ($M = 0.646$ ha, $SD = 0.374$) than teachers ($M = 0.454$ ha, $SD = 0.240$). However, the independent-samples t-test showed that this difference was not statistically significant, $t(76) = 1.776$, $p = 0.080$. Therefore, the null hypothesis was accepted. This suggests that teachers and students do not differ significantly in their reports of school-farm size in public secondary schools in Owerri Zone.

The findings support both Human Capital Theory and Constructivist Theory. The availability of basic farm tools provides resources through which students can develop practical agricultural skills, consistent with Human Capital Theory's emphasis on education as an investment in productive capabilities. However, the absence of irrigation and storage facilities, small farm sizes, and termly practical sessions challenge the expectation of adequate experiential learning emphasized by Constructivist Theory. The findings extend these frameworks by showing that effective agricultural skill development depends not only on access to schooling but also on adequate facilities, regular practical exposure, and institutional support.

Conceptual Model: Agricultural Facilities, Practical Activities, Student Engagement and Learning Outcomes

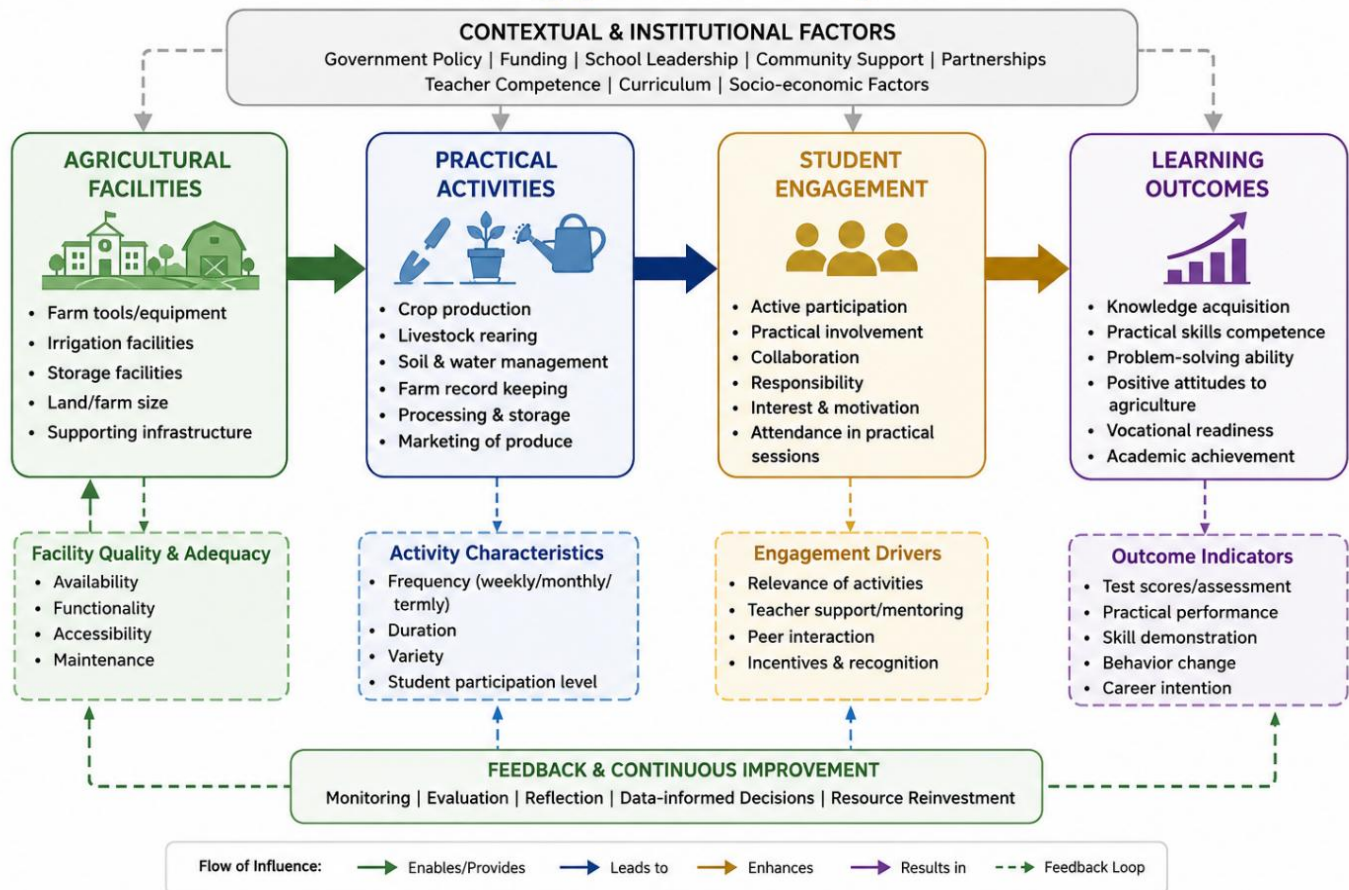


Fig 1: Conceptual Model: Agricultural Facilities, Practical Activities, Student Engagement and Learning Outcomes.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study concludes that public secondary schools in Owerri Zone predominantly engage in crop farming, with limited livestock production and no mixed farming. Although basic farm tools are available, the absence of irrigation and storage facilities, small farm sizes, infrequent practical sessions, and limited institutional support constrain effective practical agricultural education and students' exposure to diverse farming activities.

Recommendations

- Government:** The Imo State Government should prioritize increased funding for agricultural facilities in public secondary schools, particularly irrigation systems, storage facilities, farm inputs and improved equipment. This is necessary because the study found that although farm tools were available, irrigation and storage facilities were absent in the sampled schools. Government should also establish a monitoring mechanism to ensure that allocated resources are effectively utilized.
- Education Authorities:** Education authorities should prioritize the integration of regular practical agricultural sessions into school programmes and strengthen supervision of Agricultural Science teaching. They should provide teachers with appropriate training, practical teaching materials and guidance on managing school farms. This would address the current situation where practical activities occur only termly and improve students' exposure to hands-on agricultural learning.
- Schools:** School administrators and Agricultural Science teachers should prioritize the effective utilization and expansion of existing school farms. Schools should diversify activities beyond crop

production by introducing livestock and, where feasible, mixed farming. They should also increase students' participation in farm planning, production, record keeping and marketing, while maintaining available tools and ensuring that practical activities are conducted more regularly.

4. **NGOs:** NGOs and development partners should prioritize technical, material and financial support for school agricultural programmes. They should assist schools with farm inputs, irrigation, storage facilities, training and demonstration projects. NGOs should also develop partnerships involving schools, local farmers and agricultural organizations to provide mentorship and practical exposure, since the study found that none of the sampled schools reported receiving NGO support.

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