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ASSESSMENT OF FACILITY AVAILABILITY AND INSTRUCTIONAL COMPLIANCE WITH NCCE MINIMUM STANDARDS IN AGRICULTURAL SCIENCE EDUCATION PROGRAMMES IN COLLEGES OF EDUCATION IN SOUTH-WEST NIGERIA

Akinwande, Samson Akanmu Ph.D
Department of Curriculum and Instructions, Federal College of Education, Okene, Kogi State
akinwande_samson@yahoo.com

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ABSTRACT

This study assessed the availability of facilities and instructional compliance with the National Commission for Colleges of Education (NCCE) Minimum Standards in Agricultural Science Education programmes in public Colleges of Education in South-West Nigeria. Agriculture remains a strategic sector for addressing unemployment, poverty, and food insecurity in Nigeria, while the Nigeria Certificate in Education (NCE) Agricultural Science Education programme is expected to produce competent teachers for Basic and Secondary schools. Guided by the Context, Input, Process, and Product (CIPP) evaluation model, the study evaluated the adequacy of curriculum resources and instructional delivery processes. A descriptive survey design was adopted. Data were collected from 84 lecturers and 13 technologists using the Checklist on Availability and Adequacy of Facilities in Agricultural Science Education and the Lecturers' Questionnaire on Instructional Delivery Process. The questionnaire for lecturers yielded a reliability coefficient of 0.89, while the checklist for technologists was adapted from Stufflebeam (2007) with minimal modifications; therefore, no further reliability testing was conducted. Data were analysed using percentages, mean, and standard deviation. Findings revealed that 62.1% of the facilities required for effective curriculum implementation were unavailable, and 72.72% of the available facilities were inadequate. The lecture method remained the predominant instructional strategy despite the NCCE's emphasis on learner-centred approaches. The study concluded that the Input component of the CIPP model was grossly deficient, while the Process component demonstrated only partial compliance with prescribed instructional standards. The study recommended improved facility provision, enhanced resource mobilization, and continuous professional development for lecturers to strengthen curriculum implementation.

Keywords: Quality assurance, Agricultural science education, facility provision, instructional delivery, Colleges of education.

Introduction

Agriculture is viewed as a vital means through which poverty and unemployment can be addressed, and one of the long-term strategies conceived so far to improve participation in Agriculture is through education and training. Agricultural Science Education differs from many other teacher education programmes because of its strong emphasis on experiential learning and practical skill acquisition. Effective implementation of the curriculum requires access to specialized facilities, including laboratories, school farms, livestock units, agricultural workshops, farm machinery sheds, greenhouses, information and communication technology (ICT) facilities, and adequately stocked libraries. These resources provide opportunities for pre-service teachers to translate theoretical concepts into practical experiences and develop competencies necessary for teaching agriculture effectively. According to Aina and Adesoji (2022), the availability and adequacy of instructional facilities significantly influence students' practical performance, skill development, and overall academic achievement in agricultural education programmes. Beyond the availability of facilities, the issue of compliance with regulatory standards remains a critical dimension of quality assurance. Compliance reflects the degree to which institutions adhere to prescribed requirements regarding infrastructure, curriculum implementation, instructional resources, and institutional management. Studies have shown that variations in compliance levels among tertiary institutions often result in disparities in programme quality and graduate outcomes (Ogunode & Musa, 2023; Nwosu & Nwachukwu, 2024).

The Nigeria Certificate in Education (NCE) Agricultural Science education programme plays a crucial role in preparing competent teachers for Basic and Secondary school Agricultural Science education. Evaluating this programme using CIPP (Context, Input, Process, and Product) evaluation model as a theoretical framework helps to assess its effectiveness in achieving its objectives (Stufflebeam, 2007). Stufflebeam in his CIPP model defined Input evaluation as a process of providing information regarding how to employ resources to achieve programme objectives. Consequently, it involves ascertaining the nature, quality and quantity of available instructional resources (materials and human). Input evaluation helps to regulate decisions making process and the availability and adequacy of it, is essential for the success of any curriculum. Availability of resources for NCE Agricultural Science Education is crucial for the effective teaching and learning of Agricultural Science. Resources include teaching laboratories, demonstration farms, ICT tools, agricultural equipment, and qualified lecturers. Studies by Adebayo and Yusuf (2022) indicate that many Colleges of Education lack well-equipped laboratories and functional demonstration farms, which are essential for hands-on training. Furthermore, ICT facilities for digital learning and online resources are not adequately available, limiting access to modern agricultural knowledge.

Furthermore, adequacy of resources for NCE Agricultural Science Education go beyond availability, the adequacy of resources determines the effectiveness of skill acquisition among students. Research by Eze and Nwachukwu (2021) found that while some institutions have basic agricultural tools and equipment, they are often outdated or insufficient to cater to the growing student population. The student-to-resource ratio remains a challenge, with limited access to essential mechanized farming tools, irrigation systems, and livestock units for practical training. Similarly, the inadequacy of qualified agricultural educators further affects the quality of instruction (Umar & Adamu, 2022). Adewale and Yusuf (2023); Ololube et al. (2024) opined that many teacher education institutions in Nigeria continue to face challenges related to inadequate laboratories, obsolete instructional equipment, overcrowded classrooms, and insufficient funding for facility maintenance and development, these deficiencies have raised concerns about the extent

to which Colleges of Education can effectively implement curriculum requirements and meet national quality expectations.

The evaluation process of the Agricultural Science curriculum is critical to fostering practical knowledge and skills in agriculture among students. However, numerous challenges hinder effective delivery process, especially in various educational settings. A prominent issue is the lack of adequate resources, including modern equipment, tools, and materials necessary for practical agricultural education. Studies have consistently shown that the absence of these resources leads to a theoretical rather than practical approach to teaching, which defeats the purpose of the curriculum (Obi, 2023). Another significant challenge is the inadequacy of trained and qualified teachers. Research has showed that, many schools suffer from a shortage of educators who possess the necessary expertise in agricultural science, which directly impacts the quality of instruction (Nwafor & Eze, 2022). Agwu (2022) found that policy shifts often lead to a lack of alignment between curriculum objectives and the actual content delivered in classrooms, which undermines the curriculum's effectiveness.

Akinwande (2026) referred to process evaluation as an attempt to pinpoint the effects of the curriculum on the learners. The researcher explained further that, process evaluation involves the teacher interaction with the students during teaching activities and ability of the teacher to engage the students to come up with responses that will assist in achieving the intended objectives. Process evaluation focuses on assessing the instructional delivery process, instructional practices, and administrative procedures used in curriculum delivery. It examines how well the programme is executed and identifies areas for improvement to enhance programme effectiveness and efficiency (Ojedele, 2021). Given the above, the researcher decided to assess the facility availability and instructional compliance with NCCE Minimum Standards in Agricultural Science education programmes in Colleges of Education in South-West Nigeria. By applying the CIPP evaluation model, this study aims to evaluate the curriculum resource effectiveness in achieving its intended objectives, identify areas for improvement and provide insights for enhancing the quality of graduates and contributing to Nigeria's agricultural development.

Statement of the Problem

The Agricultural Science Education Curriculum for the Nigeria Certificate in Education (NCE) in South West, Nigeria, seemed to have been facing significant challenges that hinder its effectiveness in achieving its intended objectives. Despite its importance in addressing critical national issues such as manpower development in agriculture, youth unemployment, food insecurity, and promoting interest in agricultural careers, the curriculum appeared to have failed to deliver desired results. It was observed that the existing curriculum resources (inputs) and instructional delivery (process) seemed not to have been adequately evaluated to identify areas for improvement and past researches had not significantly addressed the underlying reasons for the curriculum inability to achieve its goals, leaving a significant knowledge gap. The persistent shortcomings of the curriculum have far-reaching implications for Nigeria's Agricultural sector, including inadequate manpower, low productivity, and food insecurity.

Purpose of the Study

The main purpose of this study was to assess the facility availability and instructional compliance with NCCE Minimum Standards in Agricultural Science education programmes in Colleges of Education in South-West Nigeria. Specifically, the study intended to:

1. find out the availability of required facilities for implementation of the NCE Agricultural Science Education Curriculum,

2. find out the adequacy of required facilities for implementation of the NCE Agricultural Science Education Curriculum,
3. determine the extent of compliance with the instructional delivery process as prescribed by 2020 NCCE Minimum Standard for NCE Agricultural Science Education Curriculum

Research Questions

The following research questions were raised to guide the study:

1. To what extent are the facilities prescribed by the NCCE available for the implementation of the NCE Agricultural Science Education Curriculum?
2. To what extent are the facilities prescribed by the NCCE adequate for the implementation of the NCE Agricultural Science Education Curriculum?
3. To what extent do Colleges of Education in South-West Nigeria comply with the instructional delivery processes prescribed in the 2020 NCCE Minimum Standards for the NCE Agricultural Science Education Curriculum?

Methodology

This study adopted a descriptive survey research design**.** The population for the study consisted of 84 lecturers and 13 technologists in the departments of Agricultural Science education in public Colleges of Education in South-West Nigeria. Since the population was relatively small, the entire population was used for the study. The respondents were selected because of their strategic roles in the implementation of the NCE Agricultural Science Education Curriculum and the utilization of resources required to achieve the National Commission for Colleges of Education (NCCE) Minimum Standards. Two research instruments were used to collect data from the lecturers and technologists in the Agricultural Science Education Departments. These instruments were the Checklist on the Availability and Adequacy of Facilities**,** adapted from Stufflebeam (2007), and the Lecturers' Questionnaire on Instructional Delivery Process (LQIDP).

The instruments were subjected to face and content validation by experts in Curriculum Evaluation, Agricultural Education, and Measurement and Evaluation. To ascertain the reliability of the lecturers' questionnaire, the test–retest method was employed. The questionnaire was administered twice to lecturers in public Colleges of Education in Kogi State, with an interval of three weeks between the two administrations. The responses obtained were analysed using the Pearson Product Moment Correlation (PPMC), which yielded a reliability coefficient of 0.89, indicating that the instrument was reliable for the study. The checklist used for the technologists was a standardized instrument adapted from Stufflebeam (2007) with minimal modifications; therefore, no further reliability testing was conducted.

The checklist consisted of 66 items adapted from the Stufflebeam Checklist (2007) and aligned with the 2020 NCCE Minimum Standards. It was used to obtain information from technologists on the availability and adequacy of facilities required for the implementation of the Agricultural Science Education programme in their respective colleges. The lecturers' questionnaire contained items designed to elicit information on the level of compliance with the instructional delivery processes prescribed in the 2020 NCCE Minimum Standards for the NCE Agricultural Science Education Curriculum. Responses were rated on a four-point scale and interpreted using the following benchmark: 3.10–4.00 = Very Large Extent (VLE); 2.10–3.09 = Large Extent (LE); 1.10–2.09 = Small Extent (SE); and 0.10–1.09 = Very Small Extent (VSE). The data collected were coded, sorted, and analysed using descriptive statistics, specifically frequency counts, percentages, means, and standard deviations, to answer the research questions.

Results

Research Question 1: To what extent are the facilities prescribed by the NCCE available for the implementation of the NCE Agricultural Science Education Curriculum?

To answer this question, responses from technologists who completed the Checklist were collated and analyzed. A total of 66 facility items were selected from the 2020 NCCE Minimum Standard as the essential facilities required for implementing the NCE Agricultural Science Education Curriculum. Percentage analysis was used to classify the facilities into four categories: Not Available (0 – 39%), Rarely Available (40 – 49%l), Moderately Available (50 – 69%) and Highly Available (70 – 100%). Summary of the results is presented in table 1.

Table 1: Availability of Facilities Recommended by NCCE for implementation of the NCE Agricultural Science Education Curriculum in Colleges of Education in South West, Nigeria

S/N	Facilities	Number Required Per College	Number Available in Seven Colleges	% Available	Remark
1	Class room block	1	7	100.00	H. A
2	Laboratories for crop &soil, and livestock studies	2	8	57.14	M. A
3	Standard school farm complex	1	7	100.00	H. A
4	Staff offices complex	1	7	100.00	H. A
5	Departmental library with current books	1	3	42.85	R. A
	Crop farm				
6	Arable farm containing different arable crops	1hect	7hects	100.00	H. A
7	Horticultural garden	1hect	3hects	42.85	R. A
8	Orchard containing assorted fruit tress	1hect	2hects	28.57	N. A
9	Permanent crop plantation	1hect	4hects	57.15	M. A
	Animal Unit				
10	Poultry	500	1,375	39.29	N. A
11	Ruminants and Non-Ruminants	20	65	46.43	R. A
	Nursery Tools				
12	Seed sowers	5	10	28.57	N. A
13	Plant lifters	5	15	42.85	R.A
14	Root pruner	5	14	40.00	R.A
15	Green house	1	00	00.00	N.A
16	Rotary Planters	5	7	20.00	N. A
17	Water pumping machine	5	6	17.14	N.A
18	Sprayers	5	26	74.28	H. A
19	Motorized sprayer	1	1	14.29	N.A
20	Motorized chain saw	1	2	28.57	N. A

S/N	Facilities	Number Required Per College	Number Available in Seven Colleges	% Available	Remark
	Survey Equipment				
21	Prismatic Compass	4	7	25.00	N. A
22	Ranging poles	8	34	60.71	M. A
23	Measuring chain (Gunter's Surveyor)	2	4	28.57	N. A
24	Theodolite	1	1	14.29	N. A
25	Rain gauge	2	7	50.00	M. A
26	Maximum and Minimum thermometer	4	13	46.43	R. A
27	Stereoscope	4	5	17.86	N.A
28	Pantograph	10	9	12.86	N. A
	Farm Machinery				
29	Functional tractor	1	7	100.00	H. A
30	Disc harrow	1	7	100.00	H. A
31	Disc plough	1	7	100.00	H. A
32	Disc ridger	7	6	85.71	H. A
33	4-wheeled trailer	7	4	57.14	M. A
34	Complete tool boxes	2	3	21.43	N. A
35	Tractor mounted sprayer	1	00	00.00	N. A
36	Fertilizer spreader	1	1	14.28	N.A
37	Seed drill	2	3	21.43	N.A
38	Tractor pulley	1	2	28.57	N.A
39	Weighing scales	2	14	100.00	H. A
40	Cereal thresher	1	2	28.57	N. A
41	Inter-row weeders	2	3	21.42	N.A
42	Incubator and hatchery	3	00	00.00	N.A
43	Eggs Candles	4	4	14.28	N.A
44	De-beaker	1	6	85.71	H.A
45	Egg handler	1	2	28.57	N.A
46	Vaccinator	1	6	85.71	H.A

***Benchmark*:** Not Available (N.A) (0 – 39%), Rarely Available (R.A) (40 – 49%l), Moderately Available (M.A) (50 – 69%) and Highly Available (H.A) (70 – 100%)

NOTE: Number required per college multiply by seven (7) because 7 Colleges of Education involved in the study.

S/N	Facilities	Number Required Per College	Number Available in Seven Colleges	%Available	Remark
	Food processing equipment				
47	Garri making machine	1	3	42.85	R.A
48	Cassava pelleting machine	1	1	14.28	N.A
49	Milling machine	1	2	28.57	N.A
50	Oil screw press	1	2	28.57	N.A
51	Feed mill	1	00	00.00	N.A
52	Rice huller	1	00	00.00	N.A
	Animal Equipment				
53	Honey extractor	4	5	17.86	N.A
54	Post mortem kit	4	4	14.28	N.A
55	Surgical kit	4	4	14.28	N.A
56	Cattle hoof trimming set	4	1	03.57	N.A
57	Castrators	5	9	25.71	N.A
58	Sterilizer	5	3	08.57	N.A
59	Candler	4	3	10.71	N.A
60	Canopy brooder	5	2	05.71	N.A
61	Livestock skeleton	10	00	00.00	N.A
	Supporting staff				
62	Technologists	2	13	92.86	H.A
63	Technicians	4	8	28.57	N.A
64	Artisans	4	8	28.57	N.A
65	Labor hands	8	5	08.71	N.A
66	Messengers.	2	3	21.43	N.A

***Benchmark*:** Not Available (N.A) (0 – 39%), Rarely Available (R.A) (40 – 49%l), Moderately Available (M.A) (50 – 69%) and Highly Available (H.A) (70 – 100%)

NOTE: Number required per college multiply by seven (7) because 7 Colleges of Education involved in the study.

Table 1 presents 66 facility items selected from the 2020 NCCE Minimum Standard as the essential facilities required for implementing the NCE Agricultural Science Education Curriculum. The analysis, based on data provided by technologists from Colleges of Education in South West Nigeria, revealed the following: Thirteen (13) facilities (19.7%) were rated as Highly Available (H.A), five (5) facilities (7.6%) were classified as Moderately Available (M.A), seven (7) facilities (10.6%) were Rarely Available (R.A) and forty-one (41) facilities (62.1%) were classified as Not Available (N.A). The high percentage (62.1%) of unavailable essential facilities suggests a major gap in infrastructure required for effective curriculum implementation. The implication of this result shows that, the essential facilities for implementation of Agricultural Science education curriculum are Not Available to a large extent. This shortfall in facilities may hinder practical-based learning in Agricultural Science Education.

Research Question 2: To what extent are the facilities prescribed by the NCCE adequate for the implementation of the NCE Agricultural Science Education Curriculum?

To answer this research question, data obtained from the Checklist responses of technologists on the Availability and Adequacy of Facilities in Colleges of Education were analysed. A total of 66 facility items were selected from the 2020 NCCE Minimum Standard as the essential resources required for implementing the curriculum. The adequacy of these facilities was assessed using percentage analysis, categorizing them into two levels: Not Adequate (0 - 49%) and Adequate (50 - 100%). The summary of the findings is presented in Table 2

Table 2: Adequacy of Facilities as Recommended by NCCE for Implementation of the NCE Agricultural Science Education Curriculum in Colleges of Education

S/N	Facilities	Number Required Per College	Number Available in Seven Colleges	% Adequate	Remark
1	Class room block	1	7	100.00	Adequate
2	Laboratories for crop &soil, and livestock studies	2	8	57.14	Adequate
3	Standard school farm complex	1	7	100.00	Adequate
4	Staff offices complex	1	7	100.00	Adequate
5	Departmental library with current books	1	3	42.85	Not Adequate
	Crop farm				
6	Arable farm containing different arable crops	1hect	7hects	100.00	Adequate
7	Horticultural garden	1hect	3hects	42.85	Not Adequate
8	Orchard containing assorted fruit tress	1hect	2hects	28.57	Not Adequate
9	Permanent crop plantation	1hect	4hects	57.15	Adequate
	Animal Unit				
10	Poultry	500	1,375	39.29	Not Adequate
11	Ruminants and Non-Ruminants	20	65	46.43	Not Adequate
	Nursery Tools				
12	Seed sowers	5	10	28.57	Not Adequate
13	Plant lifters	5	15	42.85	Not Adequate
14	Root pruner	5	14	40.00	Not Adequate
15	Green house	1	00	00.00	Not Adequate
16	Rotary Planters	5	7	20.00	Not Adequate
17	Water pumping machine	5	6	17.14	Not Adequate
18	Sprayers	5	26	74.28	Adequate
19	Motorized sprayer	1	1	14.29	Not Adequate
20	Motorized chain saw	1	2	28.57	Not Adequate

Benchmark: Not Adequate (0 - 49%) and Adequate (50 - 100%)

NOTE: Number required per college multiply by seven (7) because 7 Colleges of Education involved in the study.

S/N	Facilities	Number Required Per College	Number Available in Seven Colleges	% Adequate	Remark
	Survey Equipment				
21	Prismatic Compass	4	7	25.00	Not Adequate
22	Ranging poles	8	34	60.71	Adequate
23	Measuring chain (Gunter's Surveyor)	2	4	28.57	Not Adequate
24	Theodolite	1	1	14.29	Not Adequate
25	Rain gauge	2	7	50.00	Adequate
26	Maximum and Minimum thermometer	4	13	46.43	Not Adequate
27	Stereoscope	4	5	17.86	Not Adequate
28	Pantograph	10	9	12.86	Not Adequate
	Farm Machinery				
29	Functional tractor	1	7	100.00	Adequate
30	Disc harrow	1	7	100.00	Adequate
31	Disc plough	1	7	100.00	Adequate
32	Disc ridger	1	6	85.71	Adequate
33	4-wheeled trailer	1	4	57.14	Adequate
34	Complete tool boxes	2	3	21.43	Not Adequate
35	Tractor mounted sprayer	1	00	00.00	Not Adequate
36	Fertilizer spreader	1	1	14.28	Not Adequate
37	Seed drill	2	3	21.43	Not Adequate
38	Tractor pulley	1	2	28.57	Not Adequate
39	Weighing scales	2	14	100.00	Adequate
40	Cereal thresher	1	2	28.57	Not Adequate
41	Inter-row weeders	2	3	21.42	Not Adequate
42	Incubator and hatchery	3	00	00.00	Not Adequate
43	Eggs Candles	4	4	14.28	Not Adequate
44	De-beaker	1	6	85.71	Adequate
45	Egg handler	1	2	28.57	Not Adequate
46	Vaccinator	1	6	85.71	Adequate

Benchmark: Not Adequate (0 - 49%) and Adequate (50 - 100%)

NOTE: Number required per College multiply by seven (7) because 7 Colleges of Education involved in the study.

S/N	Facilities	Number Required Per College	Number Available in Seven Colleges	% Adequate	Remark
	Food processing equipment				
47	Garri making machine	1	3	42.85	Not Adequate
48	Cassava pelleting machine	1	1	14.28	Not Adequate
49	Milling machine	1	2	28.57	Not Adequate
50	Oil screw press	1	2	28.57	Not Adequate
51	Feed mill	1	00	00.00	Not Adequate
52	Rice huller	1	00	00.00	Not Adequate
	Animal Equipment				
53	Honey extractor	4	5	17.86	Not Adequate
54	Post mortem kit	4	4	14.28	Not Adequate
55	Surgical kit	4	4	14.28	Not Adequate
56	Cattle hoof trimming set	4	1	03.57	Not Adequate
57	Castrators	5	9	25.71	Not Adequate
58	Sterilizer	5	3	08.57	Not Adequate
59	Candler	4	3	10.71	Not Adequate
60	Canopy brooder	5	2	05.71	Not Adequate
61	Livestock skeleton	10	00	00.00	Not Adequate
	Supporting staff				
62	Technologists	2	13	92.86	Adequate
63	Technicians	4	8	28.57	Not Adequate
64	Artisans	4	8	28.57	Not Adequate
65	Labor hands	8	5	08.71	Not Adequate
66	Messengers.	2	3	21.43	Not Adequate

Benchmark: Not Adequate (0 - 49%) and Adequate (50 - 100%)

NOTE: Number required per college multiply by seven (7) because 7 Colleges of Education involved in the study.

Table 2 presents an evaluation of the adequacy of 66 facility items outlined by the NCCE 2020 Minimum Standard as essential resources for effectively implementing the NCE Agricultural Science Education Curriculum in Colleges of Education across South West Nigeria. The findings indicated that only eighteen (18) facilities, representing 27.28%, were rated Adequate, while a significant forty-eight (48) facilities, accounting for 72.72%, were classified as Not Adequate, based on the established percentage benchmark. The findings highlighted a critical gap in the adequacy of essential facilities required for delivering both theoretical and practical components of Agricultural Science education, with 72.72%, of facilities classified as Not Adequate shows that, the facilities for proper implementation of NCE Agricultural Science education curriculum was to a Very Large Extent not adequate for the curriculum to achieve its objectives.

Research Question 3: To what extent do the Colleges of Education in South West, Nigeria comply with the instructional delivery process prescribed by NCCE 2020 minimum standard for NCE Agricultural Science education curriculum?

To provide answers to research question, data were obtained through a structured questionnaire administered to lecturers of Agricultural Science Education in Colleges of Education across South West Nigeria. The instrument assessed the level of compliance with the instructional

delivery process prescribed by the National Commission for Colleges of Education (NCCE) in its 2020 Minimum Standard for the NCE Agricultural Science Education Curriculum.

Table 3: Mean Ratings of Compliance with NCCE-Prescribed Instructional Delivery Strategies in Agricultural Science Education

Instructional Delivery Strategies	N	Mean	S.D	Decision
a. Problem-based learning method	84	2.62	0.675	**LE**
b. Excursions and field trips	84	2.45	0.884	**LE**
c. Tutorials	83	2.22	0.856	**LE**
d. Group discussion	84	2.77	0.567	**LE**
e. Play Method	83	1.94	0.755	**SE**
f. Blended learning strategies	84	2.11	0.822	**LE**
g. Inquiry method	83	2.51	0.592	**LE**
h. Discovery method	83	2.71	0.574	**LE**
i. Lecture method	84	3.40	0.838	**VLE**
j. Group project method	83	2.86	0.521	**LE**
Average Weighted Score		**2.56**		**LE**

Benchmark: 3.10–4.00 = Very Large Extent (VLE); 2.10–3.09 = Large Extent (LE); 1.10–2.09 = Small Extent (SE); and 0.10–1.09 = Very Small Extent (VSE)

Table 3 shows the mean ratings of lecturers on the extent to which Colleges of Education in South-West Nigeria comply with the instructional delivery strategies prescribed in the 2020 NCCE Minimum Standards for the NCE Agricultural Science education curriculum. The average weighted mean of 2.56 indicates that compliance with the prescribed instructional delivery processes is to a large extent. The lecture method recorded the highest mean score (M = 3.40, SD = 0.838), indicating a very large extent of compliance, suggesting that it remains the predominant teaching strategy. In contrast, group project **(**M = 2.86**),** group discussion **(**M = 2.77**),** discovery **(**M = 2.71**),** problem-based learning **(**M = 2.62**),** inquiry **(**M = 2.51**),** excursions and field trips **(**M = 2.45**),** tutorials **(**M = 2.22), and blended learning **(**M = 2.11) were all implemented to a large extent, while the play method **(**M = 1.94, SD = 0.755) was implemented to a small extent. Overall, the findings indicate that lecturers rely heavily on the lecture method, with limited compliance in the use of other learner-centred and innovative instructional strategies prescribed by the NCCE Minimum Standards.

Discussion

The findings revealed that most of the facilities prescribed in the 2020 NCCE Minimum Standards were both unavailable (62.1%) and inadequate (72.72%), indicating serious deficiencies in the instructional resources required for effective implementation of the NCE Agricultural Science Education Curriculum. This shortfall is likely to undermine practical teaching, competency development, and the quality of Agricultural Science teacher preparation. The findings agree with Onu et al. (2020) and Ekele et al. (2020), who reported that inadequate institutional resources and instructional facilities constrained effective implementation of Agricultural Education programmes in Nigerian Colleges of Education. Furthermore, research by Oketoobo and Monday (2023) reported that, inadequate instructional facilities was a major challenge facing Agricultural Science and teacher education programmes in Nigeria. They also found that, inadequate teaching and learning facilities significantly constrained effective implementation of agricultural education curricula in tertiary institutions. The outcomes also support the Input component of the CIPP evaluation model, which posits that adequate and functional instructional resources are fundamental to successful curriculum implementation.

Therefore, the observed deficiencies may hinder the attainment of the objectives of the 2020 NCCE Agricultural Science education curriculum.

Consequently, the study found that Colleges of Education in South-West Nigeria complied with the instructional delivery strategies prescribed in the 2020 NCCE Minimum Standards to a large extent. Based on the result, it suggests that lecturers continue to rely predominantly on conventional teaching methods despite the NCCE's emphasis on interactive, competency-based instructional approaches required for effective Agricultural Science teacher preparation. This is consistent with Nwosu and Ugwoke (2021), who reported that teacher educators in Nigerian Colleges of Education predominantly employed lecture-based instruction, with limited use of innovative and student-centred pedagogies because of inadequate instructional resources and insufficient professional development. Olayemi and Adesina (2021) also agreed that enduring reliance on teacher-centred instruction reflects broader trends in Nigerian teacher education where familiar, didactic teaching styles often overshadow more interactive and constructivist methods. They further, observed that many agricultural education programmes still rely heavily on traditional teaching methods with limited practical exposure. The finding supports the Process component of the CIPP Evaluation Model, which emphasizes that the effectiveness of any curriculum depends on faithful implementation of prescribed instructional practices. The observed low compliance with learner-centred strategies indicates that the curriculum is not being delivered as intended by the 2020 NCCE Minimum Standards. Consequently, students may have limited opportunities to develop critical thinking, problem-solving, collaborative learning, and practical competencies that are essential for effective Agricultural Science teaching.

Conclusion

This study assessed the availability and adequacy of facilities, as well as compliance with the instructional delivery processes prescribed in the 2020 NCCE Minimum Standards for implementing the NCE Agricultural Science education curriculum in public Colleges of Education in South-West Nigeria. The findings revealed substantial deficiencies in both the availability and adequacy of essential facilities and a generally low level of compliance with the prescribed learner-centred instructional delivery strategies. These shortcomings suggest that the curriculum is not being implemented under conditions envisaged by the NCCE Minimum Standards, with potential implications for the quality of Agricultural Science teacher preparation and graduates' acquisition of practical competencies.

The study was restricted to public Colleges of Education in South-West Nigeria and relied on self-reported data from lecturers and technologists, which may not fully capture actual classroom practices or conditions in other geopolitical zones. The findings have important policy implications for the National Commission for Colleges of Education (NCCE), institutional administrators, and government agencies. There is an urgent need to strengthen investment in instructional facilities, provide regular maintenance of existing resources, and enhance lecturers' capacity through continuous professional development on learner-centred and technology-supported pedagogies. Periodic monitoring of compliance with the NCCE Minimum Standards should also be intensified to improve curriculum implementation and quality assurance.

Theoretically, the study extends the application of the Context, Input. Process, Product (CIPP) Evaluation Model by providing empirical evidence that both the Input (availability and adequacy of facilities) and Process (instructional delivery) components are critical determinants of effective curriculum implementation in Agricultural Science teacher education. The findings concluded that deficiencies in educational inputs and instructional processes adversely affect curriculum quality and expected learning outcomes.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. The National Commission for Colleges of Education (NCCE), Federal and State Governments, and College Managements should priorities the provision of essential instructional facilities prescribed in the 2020 NCCE Minimum Standards.
2. Colleges of Education should establish sustainable funding and maintenance mechanisms to ensure that existing facilities remain functional, adequate, and accessible for both theoretical instruction and practical training, thereby improving the quality of Agricultural Science teacher education.
3. College managements should organise regular professional development programmes for lecturers on learner-centred, competency-based, and technology-supported instructional strategies.
4. The NCCE should strengthen its quality assurance and accreditation processes by conducting periodic monitoring and compliance audits of Colleges of Education to ensure that institutions consistently meet the prescribed standards for facility provision and instructional delivery.

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