

## **TEACHERS' PERCEPTIONS ON THE NATURE AND CONSTRAINTS OF TEACHING AGRICULTURAL SCIENCE IN RIVERS STATE SECONDARY SCHOOLS.**

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### **Abstract**

This study assessed teachers' perceptions on the nature and constraints of teaching Agricultural Science in Rivers State secondary schools. The research design adopted for this study was descriptive survey design. Four research questions were raised for the study. The population of the study comprised of 1,678 Agricultural Science teachers in Rivers state secondary schools. 420 Agricultural Science teachers were purposively selected as the sample size. The instruments used for data collection was questionnaire. The reliability coefficient of 0.86 was obtained for the instrument. Findings indicate that teachers possess the requisite academic qualifications for the teaching of Agricultural Science in Rivers State secondary schools. The study identified inadequate time allocation to Agricultural Science lessons and lack of recommended instructional resources as major constraints to effective teaching of Agricultural Science. Result further revealed that school location is not a constraint to Agricultural Science teachers with respect to service delivery. It was recommended among others that for effective teaching and learning of Agricultural Science, the Government through appropriate legislation should reintroduce and enforce the use of functional school farm as a mandatory instructional facility for teaching and learning of Agricultural Science in secondary schools.

**Key words:** Nature, Constraints, Agricultural Science, Teaching

### **Introduction**

The role of Agricultural science is fundamental to human and economic growth of any nation in the world. Agriculture do not only provides fiber and raw materials for the industries but also income, employment and shelter for rural dwellers. Apart from these roles, food remains the basic need of man that cannot be compromised. Agriculture contributes 90% of the total food requirement of the people of Nigeria (Ndem & Akubua, 2016). The scope of Agricultural science is not limited to the provision of food and raw materials but also include Agro-Consultation and businesses such as marketing and distribution of farm inputs and products, provision of services such as crop protection, preservation and storage, soil analysis, water conservation, farm machinery maintenance, research and development in Agriculture.

Teaching of Agriculture in Nigeria existed before the introduction of western education by the European Missionaries. Fafunwa (1988) reported that the teaching of practical Agriculture was as important as the African traditional education system before colonial intervention. He explained that Agriculture was taught through the attachment of learners to understudy a master farmer. This teaching approach was both functional and practical leading to skill acquisition, self-reliance, sound work ethics, social responsibility and moral values. In this system of teaching serious attention was paid on providing the students all they needed to know about the chosen occupation through apprenticeship. Even at the introduction of formal education by the Missionaries, children were still expected to work at their parent's farms after school hours in order to acquire informal practical and occupational skills in Agriculture. Currently in Nigeria, Agricultural Science is a pre vocational and vocational elective subject in the secondary schools' curriculum. Agricultural science at this

level is structured to provide students with real life experience and vocational training in farm practice.

The objectives of agricultural science at secondary school level are to:

- stimulate and sustain students interest in agriculture
- inculcate in students farming skills
- enable students acquire basic knowledge and practical skills in agriculture
- enable students integrate knowledge with skills in agriculture
- prepare students for future studies in agriculture
- prepare and expose students to occupations and opportunities in the field of agriculture
- produce prospective future farmers (Federal Republic of Nigeria, 2011)

In order to achieve these objectives, the Agricultural Science curriculum at the secondary school level consist of major concepts in agriculture in the area of Production, Protection and Economics. Related topics are organized into nine themes namely: Basic concepts, Agricultural Ecology, Crop Production, Crop Protection, Animal Production, Forestry, Ornamental plants, Agricultural Engineering/Mechanization, Agricultural Economics and Agricultural Extension (Nigerian Educational Research and Development Council NERDC, 2017).

In order to offer students the opportunity of learning by doing, where they could relate classroom instruction to practical experience in the field, the Federal Republic of Nigeria (2013) through NERDC recommended that schools offering agricultural science at secondary school level should provide each student with basic school farm resources, adequate equipment, farm space, farm structures and other requisite farm input (Agro-chemicals, livestock feeds etc). The curriculum further stated that evaluation of students at the final examination in Agricultural science must be theory and practical based. This is to prepare the students for further studies in Agriculture as well as equip them with adequate skills for the world of work. The Federal Government of Nigeria through its curriculum development agencies and experts in Agricultural Science Education has realized the need to encourage students and provide them with adequate skills and knowledge to explore their talents and rich agricultural resources in Nigeria. This is evident through the inclusion of animal husbandry and fishery among the 34 Trade/Entrepreneurship subjects in the 2013 basic and secondary schools curriculum reform. Mayo, (2012) argued that as laudable as the objectives of Agricultural Education in Nigeria are, it may be impossible to achieve them due to poor delivery process of the program and inappropriate methods of evaluation of practical Agriculture. Effective teaching and learning of Agricultural science with respect to the teacher, the content and instructional procedure is therefore imperative for achieving the objectives of Agricultural science program in schools.

Teachers have been identified as the core agents of Agricultural Science curriculum implementation at all levels of education and the ability of students to acquire the desired entrepreneurial experiences in Agriculture depends to a larger extent on the effectiveness and quality of the teacher in the presentation of the learning experiences. Effective teachers must have basic command of the subject matter. They must keep abreast of their field and be able to communicate their knowledge effectively to others at the level of comprehension. They must have acquaintance with psychological principles and be able to make practical use of them in teaching. The effective teacher is presently defined by those behavior patterns that promote desirable student performance, such as good grades scores, better attitudes towards school, and improved thinking skills (Safia 2005).

Despite the efforts of Agricultural Science educators and researchers to improve the teaching and learning of Agriculture and the need to provide students with adequate knowledge and skills required for the world of work Agriculture, enrolment and participation of students in Agricultural Science at secondary school and tertiary institution levels has not been encouraging. There has been an increasing concern about the deteriorating quality of teaching and learning of Agricultural Science in Nigeria secondary schools, resulting to poor performance and lack of interest of students to enroll in Agricultural science.

In accordance with the above mentioned problems, the purpose of this study is to assess teachers' perceptions on the nature and constraints of teaching Agricultural Science in Rivers State secondary schools. Specifically, the objectives of the study are to:

- (1) asses the level of qualities possessed by Agricultural Science teachers in Rivers State secondary schools.
- (2) investigate the extent instructional strategies designed for the teaching of Agricultural Science in secondary schools in Rivers State are used.
- (3) ascertain the availability status of instructional resources required for teaching Agricultural Science in Rivers State secondary schools.
- (4) find out the constraints to effective teaching of Agricultural Science in Rivers State secondary schools?

In line with the purpose of the study, the following research questions were raised:

- 1 What level qualities are possessed by Agricultural Science teachers in Rivers State secondary schools?
- 2 What is the extent of use of the instructional strategies designed for teaching of Agricultural science in Rivers State secondary schools?
- 3 What is the availability status of instructional resources required for the teaching of Agricultural Science in Rivers State secondary schools?
- 4 What are the constraints to effective teaching of Agricultural Science in Rivers State secondary schools?

## **Method**

The study was carried out in Rivers State, Nigeria. A descriptive survey design was adopted for the study. The population of the study comprised of all categories of Agricultural Science teachers in all public junior and senior secondary schools in Rivers State, Nigeria. There were 1,678 Agricultural science teachers in the 559 public secondary schools in Rivers State (Rivers State Ministry of Education, 2018; Rivers State ICT Department, 2018). The sample size for the study constituted 420 Agricultural Science teachers purposively selected from the public junior and senior secondary schools in seventeen Local Government Areas in Rivers State. Data collecting instrument adopted for the study was a questionnaire captioned Agricultural Science Teachers' Perception Questionnaire (ASTPQ). The ASTPQ was divided into two sections. Section A was used for demographic data of respondents which comprised their age, gender, educational qualification and teaching experience. Section B was made up of four clusters, A, B, C and D made up of 63 item statements structured to elicit response from the respondents. The questionnaire was administered by the researcher and three assistants to the respondents and on the spot collection was adopted, which ensured the achievement of 100% retrieval. The face and content validity of the instrument were evaluated by three experts in science and Agricultural Science Education. Pearson's Product Moment Correlation Co-efficient was used to calculate the reliability of the instrument and 0.86 was obtained as the Correlation coefficient. Research questions were descriptively analyzed using

percentages, mean and standard deviation. The study adopted modified 4-points Likert scale of agreement. Criterion value for decision taking was mean of 2.5, therefore, any calculated mean greater than or equal to 2.50 ( $X \geq$ ) was accepted as adequate while calculated mean less than 2.50 ( $X <$ ) was rejected.

## Results

**Research Question 1:** What level qualities are possessed by Agricultural Science teachers in Rivers State secondary schools?

**Table 1: Mean rating of perceived level of qualities possessed by Agricultural Science teachers in secondary schools in Rivers State.**

S/N	Item statements	n	X	SD	Remark
1.	Possesses the requisite academic qualifications	420	3.18	1.37	High level
2.	Have adequate knowledge of Agricultural Science	420	3.31	1.34	High level
3.	Possesses pedagogical content knowledge	420	2.47	1.57	Low level
4.	Engage in continuous professional training	420	1.65	0.74	Low level
5.	Plan lessons effectively	420	3.75	1.22	High level
6.	Good communication skill	420	3.25	1.80	High level
7.	Manage time effectively	420	1.91	1.03	Low level
8.	Understand individual differences of the learners	420	3.92	1.49	High level
9.	Adopt a combination of teaching strategies	420	1.68	0.82	Low level
10.	Recognizes students as active participants	420	3.51	1.45	High level
11.	Advise, counsels and encourages students	420	3.94	1.44	High level
<b>Total</b>		<b>2.96</b>	<b>1.30</b>		<b>High level</b>

Source: Researcher's field survey, 2022

From table 1, analyzed data shows that Agricultural Science teachers possess high teacher quality in 7 items of the 11 qualities identified for effective teaching of Agricultural Science. However, higher needs were observed in items 3, 4, 7 and 9. Result further indicates that Agricultural Science teachers possess the requisite academic qualifications.

**Research Question 2:** What is the extent of use of the instructional strategies designed for teaching of Agricultural science in Rivers State secondary schools?

**Table 2: Mean of respondents rating on the extent of use of instructional strategies designed for teaching of Agricultural Science curriculum in secondary schools (N=420)**

S/N	Items	X	SD	Remark
1.	Use of guided discovery method (Learning by doing)	1.59	0.62	Low extent
2.	Use of demonstration method	1.72	0.74	Low extent
3.	Discussion method	3.69	1.92	High extent
4.	Use of skill-oriented assignment and projects	1.65	0.74	Low extent

**Table 2 Contd.**

S/N	Items	X	SD	Remark
5.	A combination of different methods	1.57	0.25	Low extent
6.	Field trip and excursion	2.47	1.57	Low extent
7.	Use of successful graduates/non-graduate farmers as resource persons	1.91	1.03	Low extent
8.	Use of master tradesmen (farmers) as resource persons	1.37	0.51	Low extent
9.	Use of team-teaching strategy	1.68	0.82	Low extent
10.	Use of school farm for practical	1.45	0.58	Low extent
11.	Use of Agricultural science laboratory	2.47	0.17	Low extent
	<b>Total</b>	<b>1.95</b>	<b>0.67</b>	<b>Low extent</b>

**Source: Researcher's field survey, 2022**

From table 2, 10 of 11 items of instructional strategies suggested for effective teaching of Agricultural Science got mean responses ranging from 1.37 to 2.47 below the 2.50 mean decision point, indicating that they are either rarely or never adopted by teachers for teaching of Agricultural science in secondary schools. However item 3 (discussion method), got a mean response of 3.69 above the decision point. This shows that discussion method is the most commonly used instructional strategy for teaching of Agricultural Science in Rivers State secondary schools.

**Question 3:**

What is the availability status of instructional resources required for teaching of Agricultural Science in Rivers State secondary schools?

**Table 3: showing the availability of Agricultural Science instructional resources in secondary schools.**

S/N	Basic School Farm Resources	AF	ANF	NA	S/N	Farm Equipment /Machinery	AF	ANF	NA
1	Farm Space	-	0.65	9.35	10	Hoe	49	21.58	29.5
2	One ruminant animal	-	-	100	11	Cutlasses	100	-	
3	One non-ruminant animal	-	-	100	12	Garden trowel/fork	30.22	-	69.78
4	Fish pond	-	-	100	13	Spades/shovels	36	19	45.32
5	Apiary	-	-	100	14	Survey Equipment	12.58	-	95
6	Orchards	-	-	100	15	Tractors	-	0.72	99.25
7	Vegetable garden	2.45	13	53	16	Planters			100
	<b>Agro - chemicals</b>				17	Harvesters			100
8	Herbicides	-	-	100	18	Harrows/Ridgers			100
9	Insecticides	-	-	100	19	Sprayers			100

**Table 3 Contd.**

S/N	Farm Equipment /Machinery	AF	ANF	NA	S/N	Farm Structures	AF	ANF	NA
20	Threshers	-	0.72	99.28	26	Pens	-	-	100
21	Dryers			100	27	Barns	-	-	100
22	Grinders			100	28	Agricultural Laboratory	20.14	54	26
23	Mixers			100	<b>Instructional Media</b>				
24	Silos			100	29	Television and Video Recording	36.69	-	63.31
<b>Farm Structures</b>					30	Pictures, Charts and Graphs	91.37	-	8.63
25	Poultry Houses	-	5.56	97.12	31	Chalk board	100	-	-
<b>Total</b>							<b>16.02%</b>	<b>3.13%</b>	<b>77.28%</b>

**Source:** Researcher’s field survey, 2022

Total percentage (%) mean: AF =**16.02%**, ANF=**3.13%**, NA= **76.53%** (Percentage in parenthesis)

The analysis of data obtained from the availability status of Agricultural Science instructional resources in sample schools was presented in table 3. The total means percentage for Available and Functional (AF), Available but not Functional (ANF), Not Available (NA) for the sample schools are AF= 16.74%, ANF= 6.73% and NA=76.53%. Farm space has a percentage rating of 90.65% in the sample schools surveyed. Results from the table show that major farm resources such as poultry farm, farm animals, orchards, and apiary and farm machinery are not available in the sample schools. Chalk board recorded (100%) as the only available and functional instructional resource.

**Research question 4:** What are the constraints to effective teaching of Agricultural Science in Rivers State secondary schools?

**Table 4: Mean responses on the constraints to effective teaching of Agricultural Science. (N=420)**

S/N	Items	X	SD	Remark
1.	Basic school farm resources	1.59	0.62	Constraint
2.	Appropriate teaching methods	1.72	0.74	Constraint
3.	School location	3.69	1.92	Not constraint
4.	Pedagogical content knowledge	1.65	0.74	Constraint
5.	Teacher motivation	1.57	0.25	Constraint
6.	Students’ attitude to Agriculture	1.47	1.57	Constraint
7.	Drudgery and value system.	1.91	1.03	Constraint
8.	Adequate time allocation to Agricultural science lessons	1.37	0.51	Constraint
9.	Regular in-service training of teachers	1.68	0.82	Constraint
10.	Administrative support	1.45	0.58	Constraint
<b>Total</b>		<b>1.95</b>	<b>0.67</b>	<b>Constraints</b>

**Source:** Researcher’s field survey, 2022



Data in table 4 shows that 9 items out of the 10 suggested items are perceived as constraints to effective teaching of Agricultural Science. However, school location (item 3) is not a perceived constraint.

### **Conclusion**

The study investigated teachers' perceptions on the nature and constraints of teaching Agricultural Science in secondary schools which include the availability instructional resources, teachers' qualities, instructional strategies and the constraints. Results of the study revealed that Agricultural science teachers possess the requisite academic qualifications as well as the knowledge of teaching Agricultural science. Further findings however, indicate some perceived constraints as lack of basic school farm resources, farm machinery and farm structures; inadequate time allocation to Agricultural science lessons and inability of teachers to use the required instructional strategies. These by extension, imply that teaching and learning of Agricultural science in secondary schools did not comply with acquisition of practical and occupational skills in Agriculture. This is contrary to the recommendations of the Agricultural Science curriculum.

### **Recommendations**

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

1. Teachers training institutions should be staffed with well trained and competent instructors in vocational education which include Agricultural Science education.
2. A variety of experiential and innovative teaching strategies where learning- by- doing is encouraged should be adopted in the teaching of Agricultural Science in secondary schools.
3. Government through appropriate legislation should reintroduce and enforce the use of functional school farm as a mandatory instructional facility for teaching and learning of Agricultural science at both the junior and senior secondary school levels.
4. For teachers adopt a variety of teaching techniques that will enhance acquisition of practical skills in Agriculture by students, a manageable time should be allocated to both theory and practical Agricultural Science lessons.

### **References**

- Agbulu, O.N. (2004). Teaching of Vocational Agriculture in Schools. Course Module, National Open University of Nigeria.
- Dike, V.E. (2009). Addressing youth unemployment in Nigeria: A call for action not rhetoric. *Journal of Sustainable Development in Africa*, 11(3), 129-151.
- Enebeli, E. & Arokoyu, A.A. (2020) Implementation of Agricultural Science curriculum for entrepreneurial skills development in Rivers State secondary schools. *Journal of Educational Review*, 13(1), 43-54.
- Fafunwa, B.A.(1988) Professionalism in teaching in Education today. *A Quarterly Journal of the Federal Ministry of Education*, 1(3)
- Federal Republic of Nigeria (2011). National Curriculum for Agricultural Science for Secondary Schools. NERDC, Lagos.
- Federal Republic of Nigeria (2013). National Policy on Education, Lagos: NERDC.

- Itodo, A.S (2012). Agrophilia: The Poetic Farmer. Stimulating youth interest in Agriculture. Retrieved from <https://poeticfarmer.wordpress.com/>
- Mayo, E. (2012) Methodology for effective teaching of Agricultural Science in secondary schools in Nigeria. Retrieved October 28, 2012 from [eagleislandtecct.blog8pot.com/2012....](http://eagleislandtecct.blog8pot.com/2012...)
- Ndem, J.U. & Akubue, B.N. (2016). Status of Teaching Pre-Vocational Subjects in the Junior Secondary School Level (Agricultural Science and Home Economics). *Journal of Education and Practice*, 7(4), 103-109.
- NERDC, (2017). *Senior Secondary School Curriculum. Agricultural Science for Senior Secondary Schools.*
- Rivers State Information and Communication Technology (ICT) Department, (2018). *Teachers' electronic biometric data.*
- Rivers State Ministry of Education, (2018). Public junior and senior secondary school lists. Educational Management and Information System, (EMIS).
- Safia, B. (2005). Evaluative study of competencies of secondary school teachers in Punjab. University of Arid Agriculture, Institute of Education and Research. <http://.hec.gov.pk/506/377htmb1.htm>.