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Implementation of Curriculum Recommendations by Agricultural Science Teachers in Secondary Schools in Northern Cross River State, Nigeria

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Abstract: *The study was designed to assess the implementation of secondary school curriculum recommendations by Agricultural Science teachers in Northern Cross River State and provide implication of the findings on national development and global relevance. The study was guided by five specific purposes and it adopted a survey research design. A structured questionnaire containing 56 items was administered on a sample of twenty- five (25) most senior Agricultural Science Teachers drawn from twenty-five sampled secondary schools using a combination of multistage cluster, purposive and simple random sampling techniques. Data generated was analyzed using simple percentage and mean to answer research questions. The result of the study showed that, all the six instructional facilities are provided for the whole class; four out of fifteen instructional facilities are provided to students at moderate extent; only five out of thirteen crops are moderately produced in secondary schools in the study area and that six out of eight animals are not produced at all in the study area. The study concluded that Curriculum recommendations on the manner in which instructional facilities should be provided for students to undertake Agricultural science practical is not followed by agricultural science teachers in the study area. Among the implications of the findings of this study was that majority of secondary school students in the study area will not be interested in offering agricultural science since curriculum recommendations are not adhered to by agricultural science teachers to make teaching learning process interesting, meaningful and practically oriented.*

Keywords: Implementation, Secondary School, Agricultural Science, Curriculum

Introduction

Curriculum is one of the concepts in education that is highly fundamental and as well pivotal in any teaching learning process. Perhaps, it is because of its fundamental and pivotal roles that many people, including elites call it different names. Little wonder Eneogwe (1996) reports that when curriculum as an area of study is mentioned, many people stare. That some out rightly enquire, “What is that” while others could simply say oh education, subtly blaming the speaker for using the word when it would have been more reasonable to use the word education. The author added that at some times, curriculum was used to refer to school timetable, syllabus, scheme of work and many other concepts even when they are not synonymous.

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According to Olaitan (2003), there are some meanings attached to curriculum, which do not actually mean curriculum. The author cited Bishop who listed things, which do not mean curriculum, though often mistaken for it to include syllabus; list of subjects; course of study; topics; content; organization of teaching and learning; timetable; textbooks; and organized school objectives. The author concluded that these items are ingredients of a curriculum, but do not mean the same as curriculum.

Historically, this misconception has certainly compounded the search for a consensus definition of the concept curriculum. Notwithstanding, Kerr as cited in Egbule (2002) defines curriculum as "all learning experiences which are planned and guided by the school, whether they are carried on by groups or individually inside the school". Eneogwe (1996), cited Okafor's definition of curriculum as 'all the experiences which are provided to the students under the direction of the school and that these experiences may not be attained within the school environment but must be a product of planning and purposive direction, which should have a built-in flexibility'. The author further captures curriculum aptly as "all the consciously planned programmes of and for the school for the education of the child. That it includes all the programmes of the school-programme of studies, activities and guidance, as well as the programs for the school. The author concluded that these programmes include various government policies, aims, goals, objectives, policies of implementation and personnel; sessional and termly calendars, facilities and services (medical, library, utilities etc) and all that the government and their employees in the area of education plan and execute in the effort to get the learners educated. Similarly, Olaitan and Ali (1997) observe that curriculum appears to involve an array of activities, which culminate into a written guide for teachers in the classroom for use in the education of the learners to become effective members of society. Presumably, it is in line with the definition of curriculum by Eneogwe as well as Olaitan and Ali as cited above that the National Examination Council (NECO) (n.d) states that Agricultural science syllabus for senior secondary school has been designed to reflect the fact that agricultural science is an applied science and a vocational subject with emphasis on the acquisition of knowledge and skills associated with the contents. As a guide, the author added that schools offering agricultural science must have school farm where crops are grown with at least one species of farm animal from each of the following two groups: (a) pigs, rabbits and poultry (b) goats, sheep and cattle and where feasible, fishpond. Relatedly, the Nigerian Educational Research and Development Council (NERDC) (2008) explains that curriculum represents the total experiences to which all learners must be exposed; the contents, performance objectives, activities for both teachers and learners, teaching and learning materials and evaluation guide are provided. The author sums it up that teachers are encouraged to enrich the contents with relevant materials and information from their immediate environment.

Importantly, the broad goals of secondary education in Nigeria are to prepare the individual for useful living within the society and for higher education. In specific terms, secondary education is designed and implemented to inter-alia provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development. (FRN, 2012). Little wonder, NERDC (2008) explains that agricultural science curriculum for senior secondary schools is periodically reviewed with curricula material and learning approaches added as a result of the increasing need for functional knowledge and skills for productive life and constantly emerging local, national and global issues. Premised on the foregoing, it would not be out of place for one to conclude that proper implementation of the revised agricultural science curriculum for senior secondary schools is a sine-qua non for local and national development, which is a precursor for global relevance and recognition. This conclusion is anchored on the

specific objectives of senior secondary agricultural education which according to NERDC (2008) are to stimulate and sustain students' interest in agriculture, impact functional knowledge and practical skills in agriculture to students, prepare students for further studies in agriculture, and to prepare students for occupation in agriculture. For adequate exposure to various aspects and systems of agriculture and most importantly the development of functional, productive and life - long skills by students, the author (NERDC) recommends that schools offering agricultural science at senior secondary school level should among other things provide instructional facilities for effective teaching and learning of agricultural science. These instructional facilities are adequate equipment, farm space, farm structure and other requisite farm inputs (Agro-chemical, livestock feeds etc.) for each students, rear at least one type of ruminant and one non-ruminant farm animal, establish fishpond, establish apiary and establish orchards (pineapple, guava, citrus etc.).

Similarly, NECO (n.d) recommends that the study of agricultural science in senior secondary schools should be supplemented by visit to well-established government and private experimental and commercial farms, agricultural research institutes and other institutions related to agriculture if the main objectives of senior secondary school agricultural science must be achieved. Little wonder Okorie (2001) reports that learning -by-doing is emphasized in the curriculum so that the students should be able to produce food and other agricultural products for themselves and their countries. With these entire well -articulated objectives of senior secondary school agricultural science programme and the periodically reviewed agricultural science curriculum for senior secondary school with its beautiful and skill-oriented recommendations, it is worrisome and heart stopping to note that there is drastic reduction in the population of students offering agricultural science at both secondary and tertiary levels. Equally disturbing is the high percentage of agricultural graduates who are unemployed and are seeking white-collar jobs and the abysmal performance of the remaining few students offering agricultural science. Ugwu (2005) confirmed this worrisome situation with the report that agricultural science programs in our school have continued to produce a growing mass of unskilled, unproductive and disillusioned youths who flock in the cities for white-collar jobs only to join the ranks of the unemployed. Similarly, Adewoye as cited in Okoli (2009) noted with grief that agriculture has remained unattractive to young people in Nigeria. Okoli further reported that most Nigerian youth in our tertiary institutions have negative attitude toward practical agriculture. The author sums it up that many youths are losing interest in the study of agriculture.

Researchers may have investigated the causes of this worrisome situation but the manner and extent in which instructional facilities are provided for students to undertake Agricultural science practicals in secondary schools in Northern Cross River state is yet to be researched into. It was against this background that this study titled "implementation of Curriculum Recommendations by Agricultural Science Teachers in Secondary Schools Northern Cross River State, Nigeria" was designed and carried out.

Purpose of the Study

The main purpose of the study was to assess the implementation of secondary school curriculum recommendations by Agricultural Science Teachers in secondary schools in Northern Cross River State and provide implication of the findings on national development and global relevance. Specifically, the study was designed to determine:

1. the characteristics of sampled schools where implementation of curriculum recommendations by agricultural science teachers were assessed;

2. the demographic attributes of Agricultural Science teachers in sampled schools where implementation of curriculum recommendations were assessed;
3. the manner in which instructional facilities are provided for students to undertake agricultural science practicals.
4. the extent to which instructional facilities are provided for students to undertake agricultural science practical and
5. the extent to which some animals and crops are produced as aspects of agricultural science practicals.

Methodology

The study adopted a survey research design and was carried out in Northern Cross River State. Northern Cross River State, otherwise known as Northern senatorial district is made up of five local government areas namely Bekwarra, Obanlikwu, Obudu, Ogoja and Yala. The area of the study shares a common boundary in the north with Konshisha, Vandikya and Kwande Local Government Areas of Benue state; in the south with Ikom and Boki Local Government Areas in Cross River State; in the east with Ebonyi State; and in the west with republic of Cameroun. Northern senatorial district has its headquarters in Ogoja and it hosts two hundred and nineteen secondary schools as well as four hundred and thirty-two primary schools. It also has two campuses of Cross River State University of science and technology (CRUTECH) in Abakpa in Ogoja and Okuku in Yala L.G. As. respectively. The area also has a federal college of education in Obudu and two schools of nursing in Ogoja and Obudu. The population of the study consisted of all Agricultural Science Teachers in all the secondary schools in the study area. A combination of multistage cluster; purposive and simple random sampling techniques were used for this study. According to Gall, Gall and Borg (2007), multistage cluster sampling involves first selecting a cluster and then selecting individuals within the cluster. Nworgu (2006) noted that in purposive sampling, specific elements, which satisfy some predetermined criteria, are selected. Thus, multistage cluster sampling technique was used to select one LGA (Yala) out of the five LGAs that constitute the study area. In addition, purposive sampling technique was adopted to ensure that out of five secondary schools sampled from each of the five sub-educational zones in the selected cluster; at least one private or public secondary school was included in the sample. The sub-educational zones in the study area are Okuku, Okpoma, Gabo/ Yache, Yahe/Mfuma/Ntrigom and Wanakom/Igede. Finally, a sample of twenty-five (25) most senior Agricultural Science Teachers was selected from twenty-five sampled secondary schools (That is, one most senior Agricultural Science teacher from each sampled school) in the selected cluster (Yala LGA) using simple random sampling technique.

A structured questionnaire containing 56 items which was validated by two lecturers in department of Agricultural Education and one lecturer in measurement and evaluation, all in Joseph Sarwuan Tarka University Makurdi, Benue State was administered on the sampled respondents by the researchers. Simple percentage and mean were used to answer research questions. The response option with the highest percentage was considered as accepted or agreed upon by respondents while real limit of numbers was used to take decision on items where arithmetical mean was considered appropriate in answering the research questions.

Results

The data collected for the study were analyzed such that the research questions earlier stated were answered and the following results were obtained.

Research question 1: What are the characteristics of sampled secondary schools where implementation of curriculum recommendations in agricultural science were assessed?

Table 1:

Percentage distribution of characteristics of sampled secondary schools were implementation of curriculum recommendations in agricultural science was assessed.

School establishment date					
1970 -1979	1980-1989	1990-1999	2000-2009	2010-2019	
8%	20%	36%	24%	12%	
Ownership of school					
Private		Public			
48%		52%			
Location of school					
Rural		Urban			
48%		52%			
Educational system					
Co-education schools		Single sex schools			
92%		8%			
Number of agricultural science teachers in a school					
One	Two	Three	Four	Five	Six
20%	16%	36%	12%	8%	8%

Data in table 1 showed that 36% of sampled schools were established between 1990 and1999 while only 8% of sampled schools were established between 1970 and 1979. The table also showed that 52% of sampled schools are publicly owned (owned by the government) and located in urban area. The table also revealed that 92% of sampled school operates co-educational system and only 8% of sampled schools are single sex schools. Lastly, the table also revealed that 36% of sample schools have three agricultural science teachers each.

Research Question 2: What are the demographic attributes of agricultural science teachers in sampled schools where implementation of curriculum recommendations in agricultural science were assessed?

Table 2:

Percentage distributed of demographic attributes of agricultural science teachers in sampled schools where implementation of curriculum recommendations in agricultural science was assessed.

Gender of Agricultural science teacher					
Male		Female			
68%		32%			
Agricultural science teacher' Highest Qualification					
NCE	HND	PGDE	BSC ED	MED	
32%	8%	8%	36%	16%	
Agricultural science teacher' area of specialization					
Agric	Agric.	Soil science	Agronomy	Adult and	Crop

Education	Mechanization			community Development	production
76%	4%	8%	4%	4%	4%

Years of teaching experience				
1-5 years	6-10 years	11-15 years	16- 20 years	Above 20 years
28%	20%	24%	24%	4%

In service training	
Yes	No
48%	52%
Workshop Attendance	
– Yes	No
76%	24%

Number of workshops attended								
Once	Twice	thrice	Four times	Five times	Six times	Seven times	Eight times	Nine times
8%	20%	20%	12%	8%	00%	00%	4%	4%

Conference Attendance	
Yes	No
20%	80%
Conference Sponsorship	
Yes	No
16%	4%

Data in table 2 showed that: 68% of agricultural science teachers sampled are male; 36% have B.Sc. Ed; 76% specialized in agricultural education; 28% have between 1--5 years of teaching experience; 52% have not benefited from in-service training; 76% have attended work workshops; 20% have attended work workshops twice and thrice respectively; 80% have not attended conferences, and 16% got sponsorship for the conferences they attended.

Research question 3: What is the manner in which instructional facilities are provided for students to undertake agricultural science practicals?

Table 3:

Percentage distribution of the manner in which instructional facilities are provided for students to undertake agricultural science practicals.

S/No.	Item Statements	For the whole class	For each student	For group of students	For the whole agric. students in a school
1.	Equipment	52%	4%	36%	8%
2.	Farm space	36%	32%	16%	16%
3.	Farm structure	48%	00%	12%	40%
4.	Fertilizers	36%	28%	12%	24%
5.	Animal or livestock feeds	32%	8%	32%	28%
6.	Agro-chemical	36%	16%	28%	20%

Data in table 3 showed that respondents agreed that all the six instructional facilities are provided for the whole class as all the six items have their highest percentages for the whole class. In other words, 52% of the respondents provide equipment for the whole class. Also 48% and 36% of the respondents provide farm structure and fertilizers for the whole class respectively while 32% and 36% of them provide animal or livestock feeds and agro-chemicals for the whole class respectively.

Research question 4: What is the extent to which instructional facilities are provided for students to undertake agricultural science practicals?

Table 4:

Mean ratings of responses on the extent to which instructional facilities are provided for students to undertake agricultural science practicals.

S/No.	Item Statements	$\bar{X}$	Rmks
1.	Adequate equipment to conduct soil science practical	2.60	M.E
2.	Adequate equipment for crop production practical	2.80	ME
3.	Adequate equipment for animal rearing activities	2.04	LE
4.	Adequate equipment for animal protection activities	2.00	LE
5.	Adequate farm space for crop production practical	2.84	ME
6.	Adequate farm structure for crop processing practical	2.04	LE
7.	Adequate farm structure for crop preservation practical	2.04	LE
8.	Adequate equipment for crop processing practical	2.00	LE
9.	Adequate equipment for crop preservation practical	2.16	LE
10.	Adequate fertilizer for crop production practical	2.76	ME
11.	Adequate pesticide for crop protection practical	2.44	LE
12.	Adequate farm structure for animal production practical	1.88	LE
13.	Adequate farm structure for animal protection practical	1.84	LE
14.	Adequate farm structure for animal processing practical	1.88	LE
15.	Adequate feeds for animal production practical	1.84	LE

$\bar{X}$= *Mean*

Data in table 4 showed that respondents agreed that four instructional facilities were provided for students to undertake agricultural science practicals at moderate extent. Items expressing the said four instructional facilities recorded their mean values ranging from 2.50 to 3.49. The table also showed that eleven instructional facilities were provided to students at low extent as items expressing such facilities have their mean values ranging from 1.50 to 2.49 on a four-point scale.

Research Question 5: At what extent are some crops and animals produced as aspect of agricultural science practical?

Table 5:

Mean ratings of responses on the extent to which some crops and animals are produced as aspect of agricultural science practicals.

S/No.	Items Statement	$\bar{X}$	Rmks	S/No	Items Statement	$\bar{X}$	Rmks
1.	Poultry	1.56	LE	12	Cassava	2.92	ME
2.	Sheep	1.40	NAA	13	Yam	3.24	ME
3.	Rabbits	1.40	NAA	14	Rice	2.16	LE
4.	Pigs	1.28	NAA	15	Groundnut	2.84	ME
5.	Goats	1.56	LE	16	Oil palm	1.92	LE
6.	Cattle	1.28	NAA	17	Cowpea	1.96	LE
7.	Pineapple	1.68	LE	18	Vegetables	2.80	ME
8.	Fish	1.40	NAA	19	Banana	1.68	LE

9.	Guava	1.88	LE	20	Plantain	1.88	LE
10.	Bee (honey)	1.20	NAA	21	Maize	2.80	ME
11.	Citrus	1.88	LE				

Data in table 5 showed that respondents agreed that five crops were produced as aspects of practical agricultural science in secondary schools in the study area to a moderate extent. Items indicating the five crops have their mean values ranging from 2.50 to 3.49 on a four-point scale. The table also indicated that eight crops and two animals were produced at low extent (with their mean values ranging from 1.50 to 2.49) while six animals were not produced at all in secondary schools in the study area (with their mean values ranging from 0.50 to 1.49).

Discussion of Findings

The findings as shown in table 1 revealed that 64% of sampled schools have between three to six Agricultural Science Teachers. This finding is contrary to the position of Tety (2016) who reported that there is an endemic lack of adequate instructional resources in schools in most African countries especially in the rural areas. Thus, it would not be out of place for one to assume that agricultural sciences teachers are adequate in secondary schools in the study area. Findings as presented in table 2 revealed among other things that 52% of the sampled respondents have above ten years of teaching experience. This finding will be of immense value if the position of Sturman cited in Podolsky, Kini and Hammond (2019) is considered worthwhile. Sturman reports a relatively strong relationship between teaching experience and teacher's effectiveness in raising students' achievement. Premised on the foregoing, one can rightly assume that agricultural science teachers in the study area are effective in raising students' achievement given that more than half of the sampled respondents have more than ten years of teaching experience.

Findings as shown in table 3 showed that respondents agreed that all the six instructional facilities are provided for the whole class. This finding is contrary to NERDC (2008) recommendations that for adequate exposure to various aspects of agriculture and for the development of functional, productive and life-long skills by students, instructional facilities should be provided for each student to undertake practical agricultural science. Findings on table 4 indicated that respondents agreed that out of fifteen instructional facilities, only four are provided to students to a moderate extent. The other eleven are provided at low extent. These findings are in conformity with the findings of Kabugi as cited in Aholi, Konyango and Kibelt (2018) that agricultural tools, laboratories and classes were inadequate. The authors added that inadequacy of teaching and learning resources in secondary schools in Kakuyuni division in Kenya poses a challenge to teaching and learning of agriculture. Worst still is the revelation by Temu and Kitalyi (2002) that teachers are poorly equipped to deal with some of the challenges that the system poses such as unavailability of didactic materials. According to Konyango (2010), lack of textbooks . . . are among the factors that impede the teaching and learning of agricultural science. Little Wonder SSekamwa (2009) posits that lack of funds and inadequate funds to run practical education have reduced the effectiveness of undertaking practical education in subjects like agriculture.

Findings on table 5 showed that out of thirteen crops, only five are moderately produced in secondary schools in the study area. In addition, that six out of eight animals are not produced at all in the study area. These findings are in line with the report of Kabugi as cited in Aholi ,Konyango and Kibelt (2018) that school farms, including livestock units were not available in most of the schools and as such some topics such as farm power and machineries were difficult

to the learners. Little wonder Kindane and worth (2013) concluded that the teaching and learning of agricultural science was greatly impeded by lack of fields for practical experience.

Conclusion

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

1. Secondary school agricultural science teachers in the study Area do not follow curriculum recommendations on the manner in which instructional facilities should be provided for students to undertake agricultural science practicals.
2. Instructional facilities are provided at a low extent for students to undertake agricultural science practicals in secondary schools in Yala Local Government Area.
3. More than half of the crops and animals are either produced at low -extent or not produced at all in secondary schools in Yala Local Government Area.

Implication of the findings on national development and global relevance

The findings of the study have the following implications.

1. Majority of secondary school students in the study area will not be interested in offering agricultural science since curriculum recommendations are not adhered to by agricultural science teachers to make teaching learning process interesting, meaningful and practically oriented.
2. Agricultural science students in the study area will not be exposed to all aspects and systems of agriculture and as a result will lack the functional knowledge and practical skills that they are expected to acquire since teachers do not apply curriculum recommendations in the process of instruction.
3. Majority of secondary school leavers or graduates will not be interested in studying agriculture and agriculture related disciplines at the tertiary levels owing to the manner in which agricultural science is taught at the secondary school level.
4. Secondary school graduates will not be fit for and aspire for occupations in agricultures due to lack of functional, productive and life-long skills in agricultural production.
5. The level of poverty, unemployment and crimes will soar higher in the country as the majority of school leavers will lack what it takes to be gainfully employed in agricultural sector.
6. Agricultural graduates from Nigeria will not compete favorably with their global counterparts if the teaching and learning of agriculture in secondary in the country is handled the way and manner it is done in the study Area.
7. The quest for food security, industrialization (trigged by increased in production of agricultural raw materials) and rural development will remain unattainable owing to the reduced participation of youth in agricultural production.

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