CAPACITY BUILDING NEEDS OF AGRICULTURAL SCIENCE TEACHERS IN UTILIZING TEACHING APPROACHES FOR ENHANCED SKILL DEVELOPMENT OF STUDENTS FOR SELF-RELIANCE IN ANAMBRA STATE, NIGERIA.

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Abstract

The study was designed to assess capacity building needs of agricultural science teachers in utilizing teaching approaches for enhanced skill development of students for self-reliance in Anambra state, Nigeria. Three specific purposes and three research questions guided. The study adopted survey research design and was carried out in Anambra state. The population for the study was 430 senior secondary school teachers. Non-proportionate stratified random sampling technique was used to select 50 agricultural science teachers from each of the zones which equated to a sampling size of 300 (123 males and 177 females). Structured questionnaire was employed as instrument for data collection. The instrument was face validated by five experts. Cronbach Alpha reliability coefficient of 0.82 was obtained for the instrument. Data was collected by the researcher with the help of six research assistants. Data were analyzed using mean and standard deviation for answering the research questions. Based on the data analyzed, the study identified four teaching methods utilized by agricultural science teachers in secondary schools, five teaching techniques utilized by agricultural science teachers in secondary schools and four evaluation methods utilized by agricultural science teachers. The study therefore recommended among others that; School authorities in collaboration with the state government should organize workshop/seminars for the training/retraining of agricultural science teachers in senior secondary schools on the teaching methods that are practical oriented and the government should provide funds for the purchase of teaching aids like ICT as well as employment of technical personnel to educate the teachers on its usage.

***Key Words**: Teaching approaches, capacity building, teaching methods, teaching techniques, evaluation methods, self-reliance.*

Introduction

Agriculture is an applied science that deals with the production of plants and animals useful to man as well as the processing and marketing of plants and animal products. According to Ndem and Akabue (2016), agriculture is the act of processing, preservation, storage, marketing and distribution of agricultural products until it gets to the final consumers. Agricultural science is important for numerous reasons among which is the provision of food, raw materials, shelter, rural development, employment, foreign exchange to the nation as well as income to the farmers and his family. Due to the great importance of agricultural science, it is one of the subjects taught in senior secondary schools.

Senior secondary school (SSS) is the level of education after completion of Junior Secondary School (JSS). One of the aims of Senior Secondary Schools is self reliance of students after graduation. Self-reliance is the ability of an individual or group to do or decide things on their own rather than depending on other people or group for help. According to Eschenroeder (2017), self-reliance involves living a life in which an individual makes decisions and has opinions with primary respect to the individual's experience of the world. In ensuring that agricultural science helps to achieve self-reliance

of senior secondary school students, the Federal Republic of Nigeria (FRN) (2013) stated that the aims of agricultural science were for self-sustenance of students and sustainability in the environment, enhance students interest to progressively advance in farming, to advance food production through improvement of agricultural production techniques in students, to provide occupational entry level skills in agriculture to interested students, to prepare students adequately for producing and marketing farm commodities efficiently and to acquire basic knowledge and practical skills required for future studies in agriculture. Despite the laudable aims of agricultural science at the senior secondary school, there is still high level of unemployed agricultural science graduates indicating that these aims are not being achieved.

The achievement of the objectives of a curriculum is usually in the hands of the classroom teacher among other factors. According to Aneke (2015), the objectives of the agricultural science curriculum as stipulated by FRN (2013) could be achieved if the students are taught by competent teachers of agriculture. A teacher is an individual who imparts knowledge to students. According to Olaitan, Asogwa and Umeh (2009), a teacher of agriculture is someone who has undergone a teacher preparatory programme in the area of agriculture and is charged with the responsibility of managing the learning behaviour of the students. In the opinion of Aneke (2012), an agricultural science teacher is somebody who teaches especially as a professional in the area of agriculture. Hence, an agricultural science teacher contextually refers to an individual pedagogically and technically trained to impart knowledge, skills and attitudes to students in institutions. Being a teacher is a responsibility, and the teacher of agriculture is a pivotal figure in implementing any agricultural programme at any level of education, more especially at the secondary school level where the students are youths with innovative and zealous interests (Aneke, 2015). According to Owodunni (2010), although the duty of learning to an extent rests with the students, whether the student learns or not depends on the teachers' effectiveness in utilizing various teaching approaches in teaching. Teaching approaches encompasses the teaching methods, techniques and evaluation methods adopted by agricultural science teachers (Adunola, 2011).

Teaching method refers to the style of instructional delivery adopted by a teacher. According to Obi (2016), teaching method is any teaching maneuver that can be used to facilitate students learning and satisfaction. This involves the way teachers organize and use various techniques, teaching tools and teaching material to attain teaching objectives. Teaching methods are the professional techniques teachers use in their instructional exercised to enable learners acquire relevant knowledge and skills (Edube & Odiegwu cited in Ogwu & Ezema, 2015).According to Shofoyeke (2014), teaching methods can be defined as practical application of teaching principles based on the nature of the learners, the nature of the subject and their learning needs. Hence, teaching method refers to the techniques and strategies adopted by the agricultural science teacher in imparting knowledge, skills and attitudes to agricultural science students.

There are many teaching methods utilized in teaching agricultural science students. According to Obi (2016), teaching methods include: discussion method, questioning method, role playing method, stimulation method, demonstration method and discovery method. Similar to this, Omoro and Nato (2014) identified

various teaching methods to include: lecture method, discussion method, demonstration method and field trip. Teaching methods were categorized by Osinem (2008) into field related and non-field related teaching methods. Field-related teaching includes teaching carried out within or outside the school setting. It may be organized trip or visit to a place of interest, experiment, in the laboratory, workshop, demonstration of concepts or any other outdoor teaching. In this method of teaching learners are actively involved, hence skill acquisition is emphasized. The non-field teaching methods are mainly those instructions given to the students, which involve more of theories. Non-field teaching methods as classroom based strategies of teaching such as discussion and problem solving. There seems to be no perfect teaching method. For a particular teaching method to be appropriate, it has to be applied in relation to the learners' characteristics, the content to be taught, the objectives which the teacher plans to achieve, the available time, the pupils' age and individual learner differences (Osinem, 2008). Hence, teaching method greatly influences the practical acquisition of skills for self-reliance at the senior secondary school level. Apart from teaching methods, teaching techniques also constitutes teaching approach.

Teaching technique refers to the method a teacher applies while teaching in the class. According to Adunola (2011), teaching technique refers to the skills a teacher has acquired in the instruction process through experience. In line with this, Ayeni (2011) refers to teaching techniques as the methods a teacher employs while teaching in the class. According to Aneke (2015), teaching technique in agriculture refers to any strategy that agricultural science teachers utilize to accomplish an immediate objective. Hence, teaching techniques are the different teaching practices observed in the classroom. Teaching techniques include questioning, explanation, use of social media and note giving, among others. Agricultural science teachers require capacity building in these areas.

Capacity building enables teachers to be competent in the use of teaching techniques and approaches. According to Shapovalenko (2010), capacity building is the is the process of equipping individuals with the understanding, skills and access to information, knowledge and training that enable him to perform better. Capacity building focuses on a series of actions directed at helping individuals in the development process to increase knowledge, skills and understanding they possess and to develop the attitude needed to bring about desired developmental change in them. Consequently, the capacity building needs of teachers refer to areas teachers are lacking in competencies needed to equip learners with knowledge, skill and attitudes. In ascertaining the capacity building needs of teachers, evaluation of teachers is necessary.

Evaluation is necessary in the learning process if a teacher wants to be sure that learning objectives have been achieved by the learner. According to Olajide, Odoma, Okechukwu, Iyare, and Okhaimoh (2015), evaluation is the process of collecting, analyzing and interpreting information about teaching and learning in order to make informed decision that enhances student achievement and success of academic programmes. According to Aneke (2015), evaluation of agricultural science students is needed to ascertain areas of strengths and weaknesses of the students which can help the teacher decide areas to reteach so as to ensure that educational objectives are achieved. Teachers of agriculture utilize various methods

of evaluation such as projects, tests, focus group etc. Evaluation methods, teaching methods and teaching techniques which are collectively called teaching approaches adopted by the teacher influences skill development among secondary school students

Skill development is the ability to acquire competencies in carrying out specific activities. Skill is the ability to do something while skill acquisition is the ability to learn or acquire skills (Speelman, 2015). Although no teaching approach can be considered the best, various authors have suggested certain approaches that favour practical agriculture. In line with this, Okoli(2011) posited that although no teaching method is the best, skill development in students necessitates the demonstration method of teaching for enhanced skill development. Furthermore, Esomonu (2012) found that field trip is a relevant tool for enhancing skill acquisition of agricultural science students. Puyate (2011) posited that utilization of ICT is a necessary technique for inculcating practical skills in students. Furthermore, Elobuike (2010) posited that questioning is an important technique needed in ascertaining areas students are deficient. To enhance skill development, Aneke (2014) posited that teachers should utilize continues assessment in evaluating so as to evaluate both the theoretical and practical aspect of agriculture. However, high rate of unemployment among agricultural science graduates indicates that the teaching approaches utilize by the teacher might not be suited to the characteristics of the learner which requires building the capacity of teachers.

In Anambra state, there are over 432,000 unemployed youths out of a youth population of 927, 500 (Ezie, 2016 as cited in Ejiofor, Nwakile & Ali, 2017). Among these unemployed youths are senior secondary school graduates of agricultural science in senior secondary schools. Due to the large number of unemployed youths, there has been an increase in crimes rates among the youths. The issue of lack of self-sustenance among secondary school graduates goes against the aim of agricultural science in senior secondary schools as stipulated by FRN (2013). It is common in the area to find teachers using only lecture method of teaching throughout the term which does not favour skill development among senior secondary school graduates. In line with this, Olaitan in Okoli (2011) posited that poor teaching approaches adopted by the teacher might hinder skill development among secondary schools. Having established from literature that there is high rate on unemployment among senior secondary school agricultural science graduate, it became important to assess the capacity building needs of agricultural science teachers in utilizing teaching approaches for enhanced skill development of students for self-reliance in Anambra state, Nigeria. This would be beneficial to the students as it would lead to them being properly trained in skill development which would lead to self-reliance.

Purpose of the Study

The general purpose of the study was to assess the capacity building needs of agricultural science teachers in utilizing teaching approaches for enhanced skill development of students for self-reliance in Anambra state, Nigeria. Specifically, the study sought to assess the;

1. Identify teaching approaches required by teachers of agricultural science in senior secondary schools in Anambra State
2. Determine capacity building needs of teachers in teaching approaches in Anambra state.

3. Problems militating against the adoption of teaching approaches in senior secondary schools in Anambra State
4. Measures for enhancing the adoption of teaching approaches in in senior secondary schools in Anambra State

Research Questions

1. What are the teaching approaches required by teachers of agricultural science in senior secondary schools in Anambra State?
2. What are the capacity building needs of teachers in teaching approaches in Anambra state?
3. What are the Problems militating against the adoption of teaching approaches in senior secondary schools in Anambra State?
4. What are the measures for enhancing the adoption of teaching approaches in senior secondary schools in Anambra State?

Methodology

The study adopted a survey research design and was carried out in Anambra State. Anambra State has six Education zones namely; Onitsha, Aguata, Nnewi, Otuocha, Ogidi and Awka. Choice of Anambra state was because many students offer agricultural science and there were many professional agricultural science teachers in the area. The population for the study was 430 senior secondary school agricultural science teachers in the state. The sample for the study was 300 made of 123 males and 177 females. Non-proportionate stratified random sampling technique was used to select 50 agricultural science teachers from each of the zones which equated to a sampling size of 300.

The instrument for data collection was a structured questionnaire developed by the researcher from literature. The questionnaire was divided into four sections. Section A sought information on the teaching approaches required by teachers. Section B sought information on the capacity building needs of teachers in the teaching approaches. Section C sought information on the problems militating against adoption of appropriate techniques by teachers. Section D sought information on measures for enhancing adoption of appropriate approaches by teachers of agriculture. The instrument was face validated by five experts all from Department of Agricultural Education, University of Nigeria, Nsukka. The scale for the questionnaire was: Strongly Agree (SA)-4, Agree (A)-3, Disagree (D)-2 and Strongly Disagree (SD)-1. Their suggestions helped to improve on the final copy of the questionnaire used for the study. The internal consistency of the instrument was determined using Cronbach Alpha reliability coefficient. A reliability coefficient index of 0.82 was obtained.

The instrument was administered on the respondents by the researcher with the help of six assistants picked from each zone. Out of 300 copies of questionnaire that were distributed, 281 were properly filled and retrieved which translates to a return rate of 93.7%. The data collected was analyzed using mean to answer the research questions. Mean cut off points was applied in data analysis thus; any item with mean of 2.50 or above was regarded as Agree (A) while items that had mean values less than 2.50 were regarded as Disagree (D).

Results

Research Question 1: What are the teaching approaches required by teachers of agricultural science in senior secondary schools in Anambra State?

Table 1: Mean and Standard Deviations of Respondents on the Approaches Required by Agricultural Science Teachers

N = 281

S/N	ITEMS	$\overline{X}$	SD	REMARKS
1	Laboratory teaching method	2.61	0.65	A
2	Demonstration method	2.72	0.65	A
3	Problem solving method	1.54	0.84	D
4	Project method	2.32	0.95	D
5	Lecture method	3.52	0.56	A
6	Role play method	2.92	0.93	A
7	Field investigation method	3.20	0.79	A
8	Inquiry method	2.52	0.92	A
9	Field trips	1.90	0.73	A
10	Discussion method	2.53	0.88	A

Key: N= Population, $\overline{X}$ = Mean, SD = Standard Deviation, U= Utilized, NU= Not Utilized

Findings from Table 1 revealed that eight out of the ten items had mean values ranged 2.52 – 3.52. These were all above 2.50 which indicate that the teaching approaches are required by agricultural science teachers. The remaining two items had mean values ranged 1.54 – 2.32. These were both than 2.50 which fall in the category of Disagree indicating that agricultural science teachers do not require such approaches.

Research Question 2: What are the capacity building needs of teachers in utilizing teaching approaches in Anambra state?

Data for answering research question one are presented in Table 2

Table 2: Mean and Standard Deviations of the Respondents on the Capacity Building Needs of Teachers in Utilizing Teaching Approaches in Anambra State

N = 281

S/N	ITEMS	$\overline{X}$	SD	REMARKS
1	Becoming competent in basic skills	1.80	0.56	D
2	Expanding teacher's instructional flexibility	3.02	0.98	A
3	Use of ICT	3.10	0.66	A
4	Use of class discussion	2.51	0.87	A
5	Explanation	1.96	0.89	D
6	Giving assignment	1.60	1.02	D
7	Utilizing Farm practical	3.35	0.45	A
8	On farm demonstrations	3.10	0.82	A
9	Use of realia as teaching aid	2.90	0.84	A
10	Use of social media	2.72	0.72	A

Findings from Table 2 revealed that seven out of the ten items had mean values ranged 2.51 – 3.10. These were all above 2.50 which indicate that the items were the capacity building needs of teachers in utilizing teaching approaches in Anambra state. The remaining three items had mean values ranged 1.60 – 21.96. These were all less than 2.50 which fall in the category of

Disagree indicating that the items were not the capacity building needs of teachers in utilizing teaching approaches in Anambra state.

Research Question 3: What are the problems militating against the adoption of teaching approaches in senior secondary schools in Anambra State?

Table 3: Mean and Standard Deviations of the Respondents on the Problems Militating Against the Adoption of Teaching Approaches

N = 281

S/N	ITEMS	$\overline{X}$	SD	REMARKS
1	Inadequate ICT facilities for teaching students	2.54	0.74	A
2	Lack of training of teachers on the use of ICT for instruction	3.54	0.77	A
3	Inadequate modern farm facilities	2.60	0.52	A
4	Employment of teachers who do not have the technical abilities to teach agriculture	2.70	0.65	A
5	Failure of Government to release funds for training teachers	2.62	0.83	A
6	Lack of effective monitoring of teaching and learning	3.40	0.59	A
7	Corruption as a result of siphoning resources meant for teachers to other areas	3.02	0.63	A
8	Lack of training of teachers on emerging issues	3.32	0.70	A

Findings from Table 3 revealed that all eight items had mean values ranged 2.54 – 3.50. These were all above 2.50 which indicate that the items were the Problems militating against the adoption of teaching approaches in senior secondary schools in Anambra State

Research Question 4: What are the measures for enhancing the adoption of teaching approaches in senior secondary schools in Anambra State?

Table 4: Mean and Standard Deviations of the Respondents on the Measures for Enhancing the Adoption of Teaching Approaches in Senior Secondary Schools

N = 281

S/N	ITEMS	$\overline{X}$	SD	REMARKS
1	Adequate funding of secondary schools	2.64	0.74	A
2	Quality infrastructure should be provided	3.00	0.77	A
3	Compulsory ICT training for staff	2.80	0.52	A
4	Rigorous screening for the appointment of teachers to ensure merit	2.90	0.65	A
5	Modern farm facilities should be provided	3.52	0.83	A
6	Training of teachers on emerging issues	3.20	0.59	A
7	A committee for the monitoring of teaching/learning process should be instituted	3.10	0.63	A

Findings from Table 4 revealed that all seven items had mean values ranged 2.64 – 3.52. These were all above 2.50 which indicate that the items were the measures for enhancing the adoption of

teaching approaches in senior secondary schools in Anambra State.

Discussion of the Findings

The findings of the study on the teaching approaches required by teachers of agricultural science in senior secondary schools in Anambra State revealed that the teaching approaches required by secondary school teachers in Anambra include; Laboratory teaching method, demonstration method, project method, lecture method, role play method inquiry method, field investigation method, inquiry method, field trips and discussion method. The findings agree with Okoli (2011) who posited that demonstration method is necessary teaching approach that teachers should have for acquisition of skills among students. The findings also agree with Esomonu (2012) who found that field trip is a relevant tool for enhancing skill acquisition of agricultural science students. Hence, it is deduced that the teaching approaches listed are required by agricultural science teachers for skill development of students.

The findings of the study on the capacity building needs of teachers in utilizing teaching approaches in Anambra state revealed that the capacity building needs of teachers in utilizing teaching approaches in Anambra state include; expanding teacher's instructional flexibility, use of ICT, use of class discussion, utilizing Farm practical, on farm demonstrations, use of realia as teaching aid and use of social media. The findings are in line with Puyate (2011) who posited that utilization of ICT is a necessary capacity need of teachers for inculcating practical skills in students.

The findings of the study on problems militating against the adoption of teaching approaches in senior secondary schools in Anambra State revealed that the problems include; Inadequate ICT facilities for teaching students, lack of training of teachers on the use of ICT for instruction, inadequate modern farm facilities, employment of teachers who do not have the technical abilities to teach agriculture, failure of Government to release funds for training teachers, lack of effective monitoring of teaching and learning, corruption as a result of siphoning resources meant for teachers to other areas and lack of training of teachers on emerging issues. The findings are in line with Obi (2016) who found out that the factors militating against the adoption of teaching approaches includes employment of teachers who do not have the technical abilities to teach agriculture and failure of Government to release funds for training teachers. The findings are also in line with Ndem and Akabue (2016) who found out that a major problem militating against the adoption of teaching processes is, inadequate modern farm facilities.

The findings of the study on the measures for enhancing the adoption of teaching approaches in senior secondary schools in Anambra State revealed that the measures include; Adequate funding of secondary schools, quality infrastructure should be provided, compulsory ICT training for staff, rigorous screening for the appointment of teachers to ensure merit, modern farm facilities should be provided, training of teachers on emerging issues and a committee for the monitoring of teaching/learning process should be instituted. The findings are in line with Ogwu and Ezema (2015) who found that measures for enhancing adoption of teaching approaches include; rigorous screening for the appointment of teachers to ensure merit, modern farm facilities should be provided and training of teachers on emerging issues. It can therefore be deduced that the identified measures are ways of

enhancing the adoption of teaching approaches in senior secondary schools in Anambra State

Conclusion

From the findings of the study, it can be concluded that there are numerous teaching approaches required by agricultural science teachers, agricultural science teachers require capacity building in certain areas to utilize these teaching approaches and certain factors hinder the utilization of innovative teaching approaches. Hence, this led to low acquisition of skills which consequently led to inability of agricultural science students to be self-sustainable after graduation. Hence, certain measures can be adopted to enhance the utilization of teaching approaches. To ensure these measures are adhered to, the following recommendations were made;

Recommendations

1. School authorities in collaboration with the state government should organize workshop/seminars for the training/retraining of agricultural science teachers in senior secondary schools on the teaching approaches that are practical oriented.
2. The government should provide funds for the purchase of teaching aids like ICT as well as employment of technical personnel to educate the teachers on its usage.
3. Curriculum planners like NERDC should ensure that the methods of evaluation approved for agricultural students should be theoretical and practical oriented.

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