



Competency Needs of Agricultural Science Teachers toward Conducting Practical Lessons in Senior Secondary Schools in Bauchi Local Government of Bauchi State

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ABSTRACT

The main objective of this study is to determine the competency needs of Agricultural Science Teachers toward conducting practical lessons in Senior Secondary Schools in Bauchi local government of Bauchi State. Three objectives were prepared to guide the study. The study employed descriptive research design. The area of the study is Bauchi Local Government of Bauchi State, Nigeria. The population of the study was made up of 120 Agricultural Science Teachers from 45 Senior Secondary Schools in the study area. The sample size was determined using Krejcie and Morgan table of sample size determination, where 92 respondents were selected. The instrument for data collection was a structured questionnaire termed as CNAST. The collection of data for this study was achieved using a set of well-structured questionnaires to be administered by the researchers. The data collected were analyzed using descriptive statistics which comprised of percentages, mean and standard deviation and t-test would be used to test the null hypotheses at 0.05 level of significance.

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INTRODUCTION

Agriculture is the mainstay of the economic growth and development of many developing countries including Nigeria. Agriculture is the main source of livelihood to many people in Nigeria, source of national income, provides of fodder for domestic animals, helps to reduce countries unfavorable balance of payments as well as saving foreign exchange, contributes to marketable surplus, source of raw materials to major industries and contributes to economic development (Aneke, 2015). Therefore, there is need to improve Agricultural Science Teachers' competency with the critical necessary

skills and knowledge on Agricultural practices in order to facilitate the critical role Agriculture plays in nation building and development. Conducting practicals in Agricultural Science relies on a unique bundle of knowledge, skills and abilities of Agricultural Science Teachers Amuriyaga, Hudu and Abujaja (2018).

Agricultural Science is a practically oriented subject that can only be effective if practical activities are involved. According to Olajide, Odoma, Okechukwu, Iyare and Okhaimoh (2015) practical Agriculture remains a vital component of the study of Agricultural Science. The

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practical aspect of Agricultural Science constitutes the basis of teaching the subject. This is stressed by Dauda (2016) who stated that practical Agriculture facilitates the process of acquisition of the conceptual knowledge and practical skills that prepares students for a career in agricultural sector. When students partake in practical activities they show enthusiasm and zeal in carrying out the practical work Dauda (2016). It is generally agreed that practical work facilitates the process of acquisition of basic knowledge and practical skills that prepares students for occupation in Agriculture (John, 2016).

Effective and efficient teaching of Agricultural Science depends on competent Teachers. Rush (2017) stated that competency is a measurable or observable knowledge, skills, abilities and behaviors which an individual needs for successful job performance. Job related competency is an important issue in the teaching and learning process, because it helps in assessing the quality and capability of teachers. Competency is essential for carrying out personal and professional activities successfully. Aliyu (2015) observed that Agricultural Science Teachers lacked adequate personal and professional competency in practical lessons. Similarly, examination of competency needs of Agricultural Science Teachers towards conducting practicals in Agricultural Science is an important way for improving instructional delivery and promoting students'

academic achievement (Onanuga, 2018). Hence the need to investigate the competency needs of Agricultural Science Teachers towards conducting practicals in Agricultural Science in Senior Secondary Schools in Bauchi State Nigeria.

Statement of the problem

The problem of incompetency among secondary schools graduates of Agricultural Science in manipulative skills is becoming a source of concern to the achievement of cardinal objectives of Agricultural Science. There is a wide margin of what the Senior Secondary Schools produce as graduates and manipulative skills expected for establishing small farms (Martins, 2017). For a nation like Nigeria to achieve a technologically driven economy or compete with other developing nations in an era of rapid economic and technological change, development of practical lessons in Agricultural Science should be a priority (Ibrahim, 2015). However, going by the available literatures the researcher did not lay his hand on any research that was conducted on the competency needs of Agricultural Science Teachers toward conducting practical lesson in Senior Secondary Schools in Bauchi State of Nigeria. This prompted the researcher to investigate the competency needs of Agricultural Science teachers toward conducting practical lesson in Senior Secondary Schools in Bauchi local government of Bauchi State.

Objectives of the study

The main purpose of this study is to investigate the competency needs of Agricultural Science Teachers towards conducting practical lessons in Senior Secondary Schools in Bauchi local

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government of Bauchi State. Specifically, the study intends to achieve the following specific objectives:

- I. Determine the professional competency needs of Agricultural Science Teachers in Senior Secondary Schools in Bauchi local government of Bauchi State
- II. Identify the teaching methods used by Agricultural Science Teachers in conducting practical lessons in Agricultural Science Teachers in Senior Secondary Schools in Bauchi local government of Bauchi State
- III. Examine the influence of practical teaching approach on enhancing the performance of Agricultural Science Teachers in Senior Secondary Schools in Bauchi local government of Bauchi State.

LITERATURE REVIEW

Concept of Competency

Different authors have presented different views on the meaning of competency. Competency is defined as skills, knowledge, attitudes and abilities that distinguish high performance (Nnodim & Johnwest, 2016). That is to say competency refers to skills or knowledge that leads to superior performance. Competencies are formed through an individual/organization's knowledge, skills and abilities and provide a framework for distinguishing between poor performances through to

exceptional performance (Nnodim & Johnwest, 2016). Although the concept of competence has a long history in education and training, there is no universal consensus on the definitions. In general, the understanding of "competence" is shifting however from a narrow focus on what a person can do towards a more holistic focus on the possession and development of a complex combination of integrated skills, knowledge, attitudes and values displayed in the context of job performance (Nnodim & Johnwest, 2016).

Competency improvement needs in conducting Agricultural practicals

Effective teaching of Agricultural Science as a vocational subject demands professional ability to skillfully manipulate facilities, implements and tools. To accelerate students' learning, teachers must show competence in a wide-range of activities such as handling, preparing, processing, identifying, and performing various operations in Agricultural crop and Animal productions (Alexander, 2018). Practical skills in Agricultural Science can effectively be imparted to students by competent teachers. Rush (2017) stated that teachers' competence has positive effect on effective teaching of Agricultural practical lessons which in turn improves the students' achievements in academic activities. Students taught by competent teachers, tend to display a high level of expertise which they acquired from their competent teachers (Rush, 2017).

Professional competency needed by Agricultural Science Teachers

The development of the professional competency of Agricultural Science teachers begins during schooling and develops during

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service and throughout the professional trajectory. As reported by Abubakar (2016) the term professional competency refers to the capabilities of the teacher to display technical knowledge and skills in the area of specialization.

Professional competency needs are those characteristics or qualities required by Agricultural Science teachers so as to effectively teach in the areas of Agriculture. For example, there are particular skills in Agriculture which are vital in teaching the course as a profession and which lead Agricultural Science teachers to be considered professionals. It is this professional knowledge that will be applied during students' training which resulted in their basic professional competency. And it is this basic professional identity that will be put to the test in the work contexts, at the beginning and throughout the professional career (Abubakar, 2019). Also Joseph, Ernest and Benjamin (2015) stated that, Agricultural Science teachers are the single most important factor on student achievement, hence teacher Agricultural Science subject needs to provide learning experiences for students to teach pertinent knowledge and skills of Agriculture.

Highly professional and competent Agricultural Science teachers are imperative to the success of any nation. Unfortunately, not all Agricultural Science teachers are ready to assume the responsibilities of professional work roles (Joseph *et al.*, 2015). According to Abubakar (2016) professionally competent Agricultural Science teachers were those who were fully certified, had earned a Bachelor's degree, and competent in teaching knowledge and skills to the students. Agricultural Science teachers must also meet three minimal requirements to be professionally competent to

teach; teachers must be knowledgeable in the field of Agriculture; he/she must be competent and knows the various teaching methodologies (Abubakar, 2016). Therefore, Agricultural Science teachers must possess strong content knowledge in the field of Agriculture. Agricultural Science teacher needs to possess content knowledge in Agricultural Business, Marketing and Communication, Animal Science, Plant and Soil Science, Agricultural Power, Technology and Natural resources.

Effective pedagogy by Agricultural Science teachers is affected by some factors which become a militating factor against the effort of the teachers to become professional. Today's Agricultural Science teachers experience difficulties in imparting necessary skills to the students especially due to the lack of mastery of the subject matter, unavailability of facilities, large class size etc. (Camilus & Ajigo, 2016). It is important to ensure that Agricultural Science teachers have sound subject matter mastery, adequate facilities and manageable class size for effective instruction. John (2016) noted that Agricultural Science teachers' preparation programs (i.e. NCE programmes) should ensure that their graduates are exposed to a high level of technical knowledge and skills in Agricultural productions and strive to increase students' confidence to teach Agricultural Science.

Teaching Methods used by Agricultural Science Teachers in Conducting Practical Lessons in Agricultural Science in Senior Secondary Schools in Bauchi State

Agricultural Science as a vocational course depends on a number of factors for effective

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teaching of practical skills to take place. These factors include; competence of the teachers, teaching methodology, availability of facilities, qualified teachers etc. The method of teaching employed by Agricultural Science teachers has a great influence on the level of knowledge and competence of the students. Halima (2015) stated that the performance of students depends to a great extent on the method used by the teachers in the execution of instructional activity. For proper training of students in Agricultural Science, it is necessary to select a method of teaching that is very effective. This is in line with Johnson (2016) who stated that the most suitable methods for teaching practical oriented subject like Agricultural Science are demonstration and discussion methods. It is therefore crucial to any lecturer that wants the students to learn and become competent to use appropriate methods in teaching the subject. Teaching method was defined by Martin (2017) as a plan of action designed to achieve learning programme designed for a learner. It could be a master plan or program procedure scheduled to achieve a particular objective.

Teaching methods were classified by Osinem (2018) into Field Related and Non-Field Related teaching methods. Field-related teaching refers to teaching carried out within or outside the school setting. It may be an organized trip or visit to a place of interest, experiment in the laboratory or workshop, demonstration teaching method, guided inquiry learning, students' assignments, project teaching method, team-based learning, exhibition or any other outdoor teaching (Osinem, 2018). In field related method of teaching, learners are actively

involved hence skill acquisition is emphasized. The non-field teaching methods are mainly those instructions giving to the students which involve more of theories. Osinem (2018) described the non-field teaching methods as classroom based strategies of teaching. Some of these methods include lecture, discussion, problem solving, team based teaching, role play, problem solving and so on.

Lecture teaching method

The teaching methods used by the teachers have a great impact on skill acquisition and competence of the students. One of the commonly used methods of teaching practical by Agricultural science teachers is lecture method. Lecture method according to Olajide et al. (2015) is a method of teaching whereby the teacher informs the students his planned information while the students listen and take note. Although lecture method is used by the teachers to teach different topics in Agricultural Science teachers, the method is considered by some scholars to be inappropriate for teaching practicals. Johnson (2016) stated that lecture method could be informative, boring and overwhelming depending on the compelling nature of the message and the presenter's style and clarity of message. In a lecture method the students remain passive while the lecturer dominates the teaching process. This is further opined by Johnson (2016) who said that the lecture method usually was one-way communication and allowed for little or none audience participation. Teachers commonly use lecture as a result of the advantages it has over other methods of teaching. As highlighted by Olajide et al. (2015) the advantages of lecture method include; lecture presents large amount of

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information within a limited time; it can be presented to a large audience; it can be specifically organized to meet the needs of particular audience.

Demonstration teaching method

Demonstration teaching method basically refers to one of the type of teaching method in which the teacher is the main actor while the learners watch attentively with the intention to carry out the activity later. In demonstration method the teacher systematically do whatever the learners are expected to do at the end of the lesson by showing them how to do it and explaining the procedures involve in undertaking the task. According to Aneke (2015) demonstration method refers to a display or an exhibition usually done by the teacher while the students observe carefully with enthusiasm. The activity is done with explanations by the teacher while the students watch. Also, demonstration method according to Aneke (2015) is an attention inducer and a powerful motivator in lesson delivery by the Agricultural Science teachers as it allows the teacher to use activities that ordinarily will be too difficult for the students to handle or carryout themselves without the teachers' involvement e.g. use of Knapsack sprayer, restraining animals etc.

Project teaching method

Practical lesson in Agricultural Science can be very effective when students are allowed to fully participate in learning process through brainstorming ideas, sharing opinions and discussion. Project teaching method is based on the assumption that learning by doing, discussing in groups, and revisiting ideas and experiences are superior ways of gaining a better

understanding of one's environment (Amuriyaga *et al.*, 2018). This is because project teaching method allows for sound interaction between the students and the teachers as well as hands-on experience of the facilities to be studied. Dauda, (2016) described project teaching method as "a learning approach based on students working for a period of time in order to intensively investigate the real-world issues or problems in an interdisciplinary approach so as to produce something concrete through individual efforts or group work". In project teaching method, projects represent the central learning strategy that helps students learn about concepts.

Discovery teaching method

The discovery teaching method is one of the methods used in teaching practical Agricultural lessons. The discovery method according to Aneke (2015) is defined as a process through which students find out facts of knowledge as a result of investigation. Students learn both how to carry out activities as well as gain knowledge by actual participation in doing things. Discovery method can be used when science lessons including Agricultural Science are moderately structured so that the teacher can give some kind of guidance if the need arises (Aneke, 2015). In discovery method a pre-activity discussion may precede the actual discovery so as to help the students to understand the expected outcome of the activities.

Guided inquiry teaching method

Among the suitable methods used in teaching practical Agriculture is guided inquiry method of teaching. According to Carol (2017) guided inquiry is a planned, targeted,

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supervised intervention process of learning through which the students are allowed to learn new experience by the teachers' guide. Guided Inquiry enables students to understand how to learn by becoming aware of their learning process. Students learn the underlying concepts of locating, evaluating and using information that are transferable to a wide range of situations of information seeking and use. The fundamental concept of evaluating information is to select what is most useful for accomplishing the task at hand (Carol, 2017). Guided Inquiry introduces students to criteria to apply for selecting useful sources to help them make intelligent choices. With guidance, students are able to concentrate on constructing new knowledge and learning useful strategies in each stage of the inquiry process.

Problem-solving approach

Among the suitable methods employed by vocational teachers such as Agricultural Science is allowing the students to find solution to a prevailing problem known as Problem-Solving Approach. Johnson (2016) defines problem-solving approach as a process whereby facts, concepts and units of information do not themselves constitute the content to be taught but are the vehicles by which positive values and ideas are developed. Problem-solving approach usually leads to the development of skills for agricultural productivity. Johnson (2016) further stated that through this method, students can solve their problems of everyday leaving efficiently and effectively. In order to be successful problem solving approach the goals to be achieved must be clearly identified. Likewise stimulating environment for students' motivation must be ensured.

Influence of Practical Teaching Approach on Enhancing the Performance of Agricultural Science Teachers

Practical work component of an academic subject is an important aspect that separates science from many other learning areas. Studies by Rachael (2016) reveal that the use of practical work creates a vibrant learning environment for teaching and learning of science which could improve learners' results. According to Rachael (2016) many teachers view practical work as central to the appeal and effectiveness of science education and many refer to the old adage by Confucius, namely "I hear and I forget, I see and I remember, I do and I understand". In contrast Amuriyaga *et al.* (2018) explained that doing practical work does not always lead to progression in learning science. Practical work does not always produce the results or the phenomena desired by the teacher. This situation has the potential to either confuse or disengage students as they may begin to think either that the theory is incorrect or that the practical investigation is providing them with incorrect or contradictory results to those predicted by the scientific theory. This scenario shapes the adage, "I do and I am even more confused" (Amuriyaga *et al.*, 2018).

Although practical Agriculture plays important roles in giving the students the opportunity to have sound knowledge in handling tools and equipment however some teachers underestimated these roles, According to Jjemba (2016) the role of practical work is underestimated especially by the teachers from previously disadvantaged schools and primary schools. This becomes evident during workshops for science teachers. They complain about having

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too much paperwork and that practical work will be too time-consuming. Jjemba (2016) showed that teachers can impart valuable skills through demonstration. This shows that the learners will want to imitate the teacher after seeing him or her performing practical work. Many empiricists believe that true knowledge is achieved by senses. Considering some of the definitions of practical work one would know that learners will interact with the apparatus using senses and since all human senses are connected to the brain, it makes it easier for learners to remember what they did. In his study Jjemba (2016) reported that learners will employ their senses to determine how machines are operated, how implements are coupled, how weeds are controlled etc. Through practical work knowledge can be embedded in all the senses involved during the lesson. Practical work should also help in bringing concepts' definitions like what is called operational definitions as opposed to constitutive definitions.

METHODOLOGY

The study was conducted using descriptive survey design to investigate the competency needs of Agricultural Science teachers in conducting practical lessons in Senior Secondary Schools in Bauchi State. The design is considered most appropriate as it obtained information on the competency needs of Agricultural Science teachers from few teachers (sample) considered to be the representative of the whole population and drew general conclusion from the facts discovered. The study area is Bauchi Local Government Area of Bauchi State in North-eastern Nigeria. The population of the study comprised of 120 Agricultural Science teachers from 45

Senior Secondary Schools in the area. A reasonable sample size of 92 respondents was selected out of the entire population of 120 Agricultural Science teachers using the table of sample size determination of a known population adopted from Krejcie and Morgan (1970) at (95% confidence level) as presented in the appendices. Proportionate and random sampling techniques were used for selecting the respondents from the 14 Senior Secondary Schools involved in the study. The instrument used for data collection was a structured questionnaire titled "Competency Needs of Agricultural Science Teachers towards Conducting Practical Lessons in Agricultural Science (CNAST)". The instrument was developed by the researchers and is divided into two types using 4-points rating scale of Highly Needed (HN) 4 points, Moderately Needed (MN) 3 points, Fairly Needed (FN) 2 points and Not Needed (NN) 1 point for objective 1 and another 4 points Likert Scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1) for objectives 2 and 3. The questionnaire contains thirty items aimed at determining the competency needs of Agricultural Science Teachers towards conducting practical lessons as shown in the appendices. The instrument was face validated by three experts. The experts validated the instrument in terms of relevance to the topic, ambiguity of statements, clarity of language and adequacy of the items in addressing the research questions bearing in mind the purpose of the study. Finally, all corrections and observations were made. The instrument was tested on respondents with similar characteristics outside the population. Fifteen respondents were used as sample for the pilot study. The instrument was administered to them

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with the help of two research assistants and later the instrument was collected and analyzed using Cronbach's Alpha method to determine the internal consistency of the instrument. Reliability Coefficient Alpha value of 0.85 was obtained.

The researchers with the help of trained research assistants from the Senior Secondary Schools administered 92 instruments to the respondents; two days were given to the respondents to respond to the items. Thereafter the researchers collected the responded questionnaires from the respondents.

Data collected for the study were coded and analyzed in line with the research questions using descriptive statistics which comprises of mean, standard deviation and rank order were used to analyze the research questions. For decision making 2.50 was used as the criterion mean. Any item that attained a response mean score of 2.50 and above were highly needed or strongly agreed otherwise it will be rated with other ratings. This was done with the aid of a computer using Statistical Package for Social Sciences (IBM SPSS) Version 23.

RESULTS

Research Question 1:

What are the Professional Competency Needs of Agricultural Science Teachers in Senior Secondary Schools in Bauchi Local Government of Bauchi State?

Table 1: Professional Competency Needs of Agricultural Education Teachers Toward Conducting Practical in Senior Secondary Schools of Bauchi Local Government Area of Bauchi State

S/No	Item	Mean	Ranking	Remark
1.	Knowledge of Technical aspects of Agricultural Science	3.93	1	HN
2.	Ability to enumerate problems of Agriculture and their possible solutions	3.90	2	HN
3.	Being able to identify agro-climatology instruments and state a number of climatic factors	3.83	3	HN
4.	Ability to describe some fishing equipment, functions and maintenance	3.78	4	HN
5.	Being able to prepare land for nursery practices	3.70	5	HN
6.	Ability to explain genetic and environmental factors affecting crop production	3.67	6	HN
7.	Ability to identify agronomic classification of crops	3.65	7	HN
8.	Being able to describe the anatomy and physiology of farm animals	3.40	8	HN
9.	Being able to identify various diseases and pests of livestock and their control	3.39	9	HN
10.	Ability to identify diseases and pests of crop plants and their control	3.38	10	MN

Source: Field Survey, 2022

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Results from Table 1 showed the mean response and rank order of the Professional Competency Needs of Agricultural Science Teachers in Senior Secondary Schools in Bauchi Local Government. The Table revealed that all the items had their mean scores ranging from 3.93 to 3.48 and were ranked in descending order. Furthermore, the table revealed that items 1 - 9 were Highly Needed (HN) while item 10 was Moderately Needed (MN) and all the items were above the cut-off point of mean 2.50 indicating

that all the items were agreed by the respondents as professional competency needs of Agricultural Science teachers in senior secondary schools in Bauchi Local Government of Bauchi State.

Research Question 2:

What are the teaching methods used by Agricultural Science Teachers in Teaching Agricultural Science Subject in Senior Secondary Schools in Bauchi Local Government of Bauchi State?

Table 2: Mean and Standard Deviation of Teaching Methods used by Agricultural Science Teachers in Senior Secondary Schools in Bauchi Local Government of Bauchi State

S/No.	Statement	Mean	Std. Dev.	Remark
1.	Demonstration teaching method is used in teaching Agricultural Science practicals	3.84	0.830	Agreed
2.	Project teaching method is frequently used by Agricultural Science teachers in teaching Agricultural Science practicals	3.68	0.78	Agreed
3.	Agricultural Science teachers use Field trip teaching method in teaching appropriate Agricultural Science practicals	2.88	0.100	Agreed
4.	Lecture method is frequently used by Agricultural Science teachers to facilitate the teaching of Agricultural Science practicals	2.56	1.060	Disagreed
5.	Computer Aided Instructions (CAI) are commonly used by Agricultural Science teachers to deliver Agricultural Science practicals	1.80	1.050	Disagreed
6.	Discovery teaching method is used by Agricultural Science teachers to teach Agricultural Science practicals	1.38	1.111	Disagreed
7.	Discussion teaching method is frequently used by Agricultural Science teachers in teaching Agricultural Science practicals	3.42	0.538	Agreed
8.	Agricultural Science teachers use flipped classroom teaching method	1.37	0.463	

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	for teaching Agricultural Science practicals			Disagreed
9.	Agricultural Science teachers use virtual e-learning teaching method for delivering Agricultural Science practicals	1.18	1.010	Disagreed
10.	Game-based Learning is commonly used by Agricultural Science teachers to deliver Agricultural Science practicals	1.10	1.000	Disagreed

Source: Field Survey, 2022

Table 2 showed the mean scores and standard deviation of the teaching methods used by Agricultural Science Teachers in Teaching Agricultural Science Practicals in Senior Secondary Schools in Bauchi Local Government of Bauchi State, Nigeria. The result revealed that, items 1, 2, 3 and 7 were agreed by the respondents with a mean score of 3.84, 3.68, 2.88 and 3.42 respectively. However, items 4, 5, 6, 8, 9 and 10 with mean scores of 2.56, 1.80, 1.38, 1.37, 1.18 and 1.10 were disagreed with by the respondents as the

teaching methods used by Agricultural Science teachers in teaching in Agricultural Science practical in Senior Secondary Schools in Bauchi local government of Bauchi State.

Research Question 3

What are the influences of Agricultural Science teachers' Practical Teaching Approach on Enhancing the Performance of Students in Senior Secondary Schools in Bauchi Local Government of Bauchi State?

Table 3: Mean and Standard Deviation of Influences of Agricultural Science teachers' Practical Teaching Approach on Enhancing the Performance of Senior Secondary School in Bauchi Local Government of Bauchi State

S/No.	Statement	Mean	Std. Dev.	Remark
1.	Suitable Practical Teaching Approach creates a vibrant learning environment for teaching and learning in Agricultural Science	3.69	0.533	Agreed
2.	Practical Teaching Approach enables teachers and students to interact with instructional materials in Agricultural Science	3.64	0.520	Agreed
3.	By using Effective Practical Teaching Approach knowledge can be embedded in all the senses involved during the practical lessons	3.62	0.518	Agreed
4.	Effective Practical Teaching Approach helps in bringing simplified teaching and learning process in Agricultural Science	3.60	0.510	Agreed

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5.	Appropriate Practical Teaching Approach helps in arousing and maintaining teachers attitude towards teaching in Agricultural Science	3.54	0.480	Agreed
6.	Efficient Practical Teaching Approach develops creative thought and problem-solving skills in Agricultural Science	3.52	0.478	Agreed
7.	Suitable Practical Teaching Approach helps in developing intellectual ability in Agricultural Science	3.42	0.438	Agreed
8.	Good Practical Teaching Approach helps in fostering knowledge, enhance student intellectual and aesthetic understanding in Agricultural Science	3.38	0.413	Agreed
9.	Effective Practical Teaching Approach helps learners to appreciate the role of Agricultural Science	3.36	0.393	Agreed
10.	Effectual Practical Teaching Approach influences student performance and attainment positively in Agricultural Science	3.34	0.390	Agreed

Source: Field Survey, 2022

Results in Table 3 showed the mean response and standard deviation of the influences of Agricultural Science teachers' Practical Teaching Approach on enhancing the performance of Senior Secondary Schools Students in Bauchi Local Government of Bauchi State. The table revealed that all the items had their mean scores ranged from 3.69 to 3.34 and were above the cut-off point of mean 2.50 indicating that all the items were agreed by the respondents to be the influence of Practical Teaching Approach of the teachers on enhancing the students' performance of Senior Secondary Schools Students in Bauchi Local Government of Bauchi State.

FINDINGS OF THE STUDY

- i. Knowledge of Technical aspects of Agricultural Education was the highest professional competency needs of Agricultural Science teachers in senior secondary schools in Bauchi Local Government Area, Bauchi state.
- ii. Demonstration teaching method was the highest ranked teaching method used by Agricultural Science teachers for teaching practicals in senior secondary schools of Bauchi local government area Bauchi state.
- iii. Appropriate practical teaching approach base on the topic to be taught helps to create a vibrant learning environment for teaching/learning which enhances students intellectual and aesthetic

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understanding in Agricultural Science practicals had the highest mean score in the result.

DISCUSSION OF FINDINGS

The result of the study showed that knowledge of technical aspect of Agricultural Science was ranked as the highest Professional Competency Need of Agricultural Science teachers in Senior Secondary Schools of Bauchi local government area, Bauchi state. This is an indication that knowledge of technical aspect of Agricultural Science is among the competences required for a good and professional teacher. This finding is supported by John (2016) who reported that Agricultural Science teachers' preparatory programs should ensure its graduates are exposed to a high level of technical skill and professional knowledge in Agricultural productions such as handling animals, use of machineries and equipment, identification of diseased crops etc and strive to increase students' confidence to teach Agricultural Science. Highly competent and qualified Agricultural Science teachers who have in-depth knowledge of Agriculture are imperative to the success of any nation.

The finding of the study also revealed that the most widely used teaching method for Agricultural Practical in senior secondary schools in Bauchi local government in Bauchi state is demonstration teaching method. Dauda (2016) opined that demonstration method was a good method for introducing new skills, showing the appropriate ways of doing things and allows for good interaction between students and materials in class,

The findings from the study also showed that suitable teaching

approach creates a vibrant teaching environment for teaching and learning in Agricultural Science practicals. According to Junior (2018), Agricultural Science teachers are critical to learning, and how they create and foster exciting learning environments that promote creative thinking and problem-solving skills in students is of vital importance. Therefore, Agricultural Science teachers must be able to create conducive learning environment and tolerate new ideas and differences of opinion.

RECOMMENDATIONS

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

- i. The federal and state ministries of education should ensure that Agricultural Science teachers with adequate knowledge of technical/professional competency were employed to teach in senior secondary schools.
- ii. There is need for the development of professional competency by the federal and state ministries of education through conferences/workshops among Agricultural Science teachers for conducting effective practicals in Agricultural Science
- iii. Problem-Based-Learning strategy should be used frequently due to its high impact in facilitating effective practicals by Agricultural Science teachers in Senior Secondary Schools.

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