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INFLUENCE OF INSTRUCTIONAL MATERIALS ON THE TEACHING AND LEARNING OF AGRICULTURAL SCIENCE IN SECONDARY SCHOOLS OF JALINGO LOCAL GOVERNMENT AREA, TARABA STATE

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Abstract

The study determined the availability of instructional materials for the teaching and learning of agricultural science, utilization of the instructional material by the teachers and Determine whether the teachers" improvise instructional materials in teaching and learning of agricultural science in senior secondary schools in Jalingo. This study made use of Survey Research Design. Thirty (34) Government secondary schools were used. It had the population of 76 agricultural science teachers. 76 agricultural science teachers were used because the focus was only on the agricultural science teachers. The instrument used for collection of data was a questionnaire designed by the researcher for the teachers of agricultural science. The instrument used in this study was vetted by the supervisors and experts in the field of

Introduction

Students learn effectively when the teacher uses the appropriate instructional materials needed. The relevance of instructional materials to the objective of the lesson and the ease of use of the instructional materials are serious considerations in instructional materials utilization to better the learner's performance. The performance of the students in agricultural science and practical agriculture in secondary schools is not

measurement and evaluation in the Faculty of Education to determine the face and content validity of the instrument. The analysis produced the following findings that Agricultural Science teachers in the study area are using instructional materials like upright related school books, pictures, models, drawings, specimens, diagrams in the teaching and learning of agricultural science to influence the academic performance of students in senior secondary schools in Jalingo Local Government Area. Also the teachers in the study area do improvise instructional materials that encourage the use of instructional materials to effectively communicate promote and acquire longer retention of knowledge in the study area, that teachers improvise instructional materials and improvisation of instructional materials have positive impact on students' academic performance. Recommendations were made in line with the findings, which include, School Management should endeavor to make provision for instructional materials that will enhance teaching and learning in their schools, Government should increase the budgetary allocation to schools so as to enhance their running cost and to enable them to establish school farms that will help in the practical application of Agricultural Science knowledge. And Teacher's should not only rely on government to provide the instructional material but let them improvise from the materials they have at hand in other to enhance the academic performance of student in Jalingo. Teaching of agricultural science will not be completed if the instructional materials needed to facilitate learning are not sourced for, and properly utilized for each agricultural science topic designed to be taught and construct others using available local materials.

Keywords: *instructional materials, teaching, learning, agricultural science and secondary schools.*

encouraging (Ikot, 2008). Ikot observed that the poor performance of students in agricultural examinations may not be unconnected with non-utilization of suitable instructional materials. Many teachers go to classes to teach agricultural science and practical agriculture as liberal arts without any material to assist them or the learners. Learning is facilitated when the learners make use of at least three of the sense organs namely: seeing, hearing and touching. Literature in methodology of teaching or

pedagogy and instructional communication have explained and illustrated the effectiveness of instructional materials as a tool for improving students' performance in the learning of difficult concepts (Ibe-Bassey, 1991; Etim, 1998; Ikot, 2008).

In spite of the role of instructional materials in facilitating learning, students have failed to acquire the needed knowledge and skills in Agricultural Science. Therefore the teaching of Agricultural Science in Nigerian secondary schools needs to be properly handled. Agriculture contributes to the nation's economic development, hence, the need to be taught thoroughly if it is to meet the educational and economic development. More so that Agricultural Science is one of the subjects in Junior and Senior Secondary Schools; and as a vocational subject, it cannot be taught effectively without the use of appropriate instructional materials (Ajayi, 1988). The curriculum content of the senior secondary school levels consists of three major concepts of production, protection and economics. Learning by doing was emphasized in the curriculum so that the students should be able to produce food and other agricultural products for themselves and their community. Series of activities were suggested in the curriculum to ensure the development of psychomotor skills in agricultural science by the students. The programme further recommended that: each student be guaranteed adequate equipment, farm space, farm structures and regular supply of fertilizers and animal feeds. In addition to having a farm, each school should keep at least two farm animals. Student's achievement should be continuously assessed through various forms of tests and during field and laboratory practicals and individual assessment should be carried out for activities in crop production while group assessment be restricted to performance in animal production activities. Hence for effective and positive production in any establishment, there must be enough working tools to be used by the personnel (Oyedun, 2000). The teacher alone cannot provide all the needed condition for an effective teaching and learning process, other supporting materials should be provided. The students learn better when most of the senses are appealed to the instruction and use of instructional materials in agriculture science. Education has added a new dimension in the positive promotion of the teaching and learning process. It provides the much needed sensory experiences by the learners for an effective and meaningful behavioural change. Instructional materials are meant to improve the quality of education

for effective academic performance of agricultural science students in schools. The performance of the students on the intended learning outcome provide the validation – loop on the success of the interaction and instruction (Bakare, 1986). Teachers normally dodge the use of instructional materials in most of their teaching topics, while they try to do all they could during their practical teaching in their course of study; even though some of these materials are not usually available in the schools for teachers' use. Also, in the Senior Secondary Certificate Examination, agricultural science practicals use a lot of specimens. Such includes soil samples, insect pests, seed samples, bone meal, fish meal, survey equipment's, simple farm tools, farm machinery and implements, termitarium, fruits, sprayer, fertilizer, herbicides, cage, tilapia fish, watering can, feeding trough, hides and skin, weed specimens, hook and line among others. But most of these materials are only made available for students' use for the purpose of examination. These specimens are those that have not been seen or used before by the students. "In most of the secondary schools, instructional materials are not judiciously used as it ought to be if only available. Many teachers teach in abstract without using the required materials" (Ibrahim, 2000). In making use of any instructional materials, such materials must be previewed that is, having full knowledge of the material; prepare the environment where it will be used; prepare audience by means of making sure that the materials to be used will attract attention, arouse, motivate and provide the rationale that could be used in the beginning, middle or at the end. The effectiveness of utilizing appropriate instructional materials in teaching and learning of agricultural science is not void of quality instructor. In order to give quality education to the younger generation, there is need for employment of more competent, experienced and qualified agricultural science teachers. The need to ascertain the appropriate instructional materials, by which students can be made to comprehend the extent of the subject easily and intelligibly, is the focus of this work. There is need for the introduction and use of instructional materials and equipment's for use in both the classrooms and school farms. The broad aim of any good training materials are to induce and support the learning process that leads to improvement on-the-job performance through affecting changes in the knowledge, attitudes, skills and practices of the learners Umaru, Kolo Ibrahim (2011). With the above details, it is worth examining the influence of instructional materials in the teaching and learning of

Agricultural Science in our Secondary Schools for better performance of students in their examination and chosen career in the field of agriculture. If instructional materials are used in Secondary Schools, it would help improving the teaching and learning and hence the academic performance of students in Agricultural Science effectively.

Statement of the Problem

It has been observed that government have very lukewarm attitudes or sometimes have zero tolerance over the provision of the needed instructional materials required for effective teaching and learning of agricultural science in secondary schools. This attitude tend to retard genuine efforts of some teachers of agricultural science in the secondary schools. Observation has been made by the researcher for a number of years in some secondary schools and had visited a number of secondary schools as a resource person. Through these experiences, the researcher observed that the schools have limited access to instructional material while others do not have. And also even the instructional materials are there, most teachers in secondary schools in the State do not fully make use of them in the teaching of agricultural science to their students. This negligence from both the government and the teachers has affected the successful academic performance of students in agricultural science in secondary schools in Jalingo L.G. A, Taraba State. The question is, do instructional materials available? If available, do the teachers uses or improvise them to enhance the teaching and learning of agricultural science in secondary school in Jalingo? Hence, the topic influence of instructional material in the teaching and learning of agricultural science in Jalingo Taraba State has come into view to answer the question above.

Research Questions

During the research the following question will be asked.

i. Are instructional materials for the teaching of agricultural science available in the secondary school?
ii. Are the teachers making use of the instructional material?
iii. Do teachers improvise instructional materials in teaching of agricultural science in senior secondary schools in jalingo?

Methodology

This chapter presents the general method and procedure the researcher intends to adopt under the following sub-headings: Design of the study, Area of the study, Source of data, Population of the study, Sample and Sampling Technique, Instrument for data collection, Validation of the instrument, Reliability of the instrument, Method of data analysis.

Population of study

The population for the study consists of all agricultural teachers in both junior and senior secondary school offering agricultural science in the study area. There are thirty four 34 government secondary schools in Jalingo local government. With 11,765 student. And with a total number of teaching staff 822 and out of it 76 was agricultural teachers in senior section (Taraba State Teaching Service Board 2020)

Sample and Sampling Techniques

The sample consists 76 respondents which comprises all Agricultural science teachers the thirty four secondary school. All the Government Secondary Schools were sampled because the population is not large.

Source of Data Collection

The researcher used a self-constructed questionnaire and interview to source data and the researcher uses seventy six (76) respondents from the thirty four secondary schools in Jalingo. And 15 item-self constructed questionnaire titled the influence of instructional materials on the teaching and learning of Agricultural Science in secondary schools of Jalingo local government area Which adapted four point scale were used.

Data Analyses

The instrument were collected from the respondents personally by the researchers. The researchers administered the questionnaire personally to the respondents and on the spot collection was made. This method enabled the researcher to obtain at least 100% return of the filled questionnaires; it also helped the researcher to offer assistance to the respondents when needed. The Research questions were answered using mean and standard deviation for four (4) points scale responses.

RESULT AND DISCUSSION

Personal Data of the Respondents

The personal data of the respondents were analyzed and the result presented in table1

Table 1: Distribution of Respondents based on their Personal Data (n = 76).

Variables	Frequency	Percentage
Sex		
Male	50	66.00
Female	26	34.00
Years of Teaching Experience		
1 – 5	10	13.00
6 – 10	40	53.00
11 – 15	16	21.00
16 and above	10	13.00
Educational Qualification		
NCE	40	33.00
B.A/B.SC. ED	12	16.00
B. Agric	14	18.00
M.SC/MSC. ED	5	7.00
HND/PGDE	5	7.00

Source: Field Survey, 2020

The result in table 1 shows the bio data of the respondents in the study area. The result reveals that 66% of the respondents were male while 26% were female. This implies that male teachers dominated the study area. The result in table 1 similarly reveals that 13% of the respondents has the teaching experience of 1 – 5 years, 53% of the teachers had experience of 6 – 10 years. Also, 21% had teaching experience of 11 – 15 years and lastly 13% had teaching experience of 16 years and above. This implies that the study area is dominated by teachers whose teaching experience are between 1 – 10 years and also 21% of the teachers have teaching experience of 11 – 15 and lastly 13% are for those that have teaching experience of 1 – 5 and 16 and above years respectively. Lastly the result in table 1 further reveal that 53% of the

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PUBLICATIONS AND RESEARCH INTERNATIONAL
IJCER ISSBN: 1969-1889
Vol. 11, NO. 8]

respondents have educational qualification of NCE, 16% had B.A/B.SC. ED, 18% had B. Agric while M.SC/M.SC. ED, HND/PGDE constituted 7% respectively and non had P.hD educational qualification. This implies that the study is dominated by NCE teachers followed by B. Agric teachers while very minimum number of teachers have M.SC/M.SC.ED and HND/PGDE and thus positively help to trained teachers from educational background.

Results on instructional materials available for use to influence the academic performance of Agricultural Science students in secondary schools in Jalingo.

Table 2: The Result of 4 Point Scale on Instructional Materials Available (n = 76)

S/N	Item	Total Score	Mean	Remarks
1.	Upright related schoolbooks are available in our schools to influence the academic performance of agricultural science students in secondary schools in Jalingo Taraba state.	233	3.1	Agreed
2.	Pictures, models, drawings and specimens are available to influence students' academic performance in agricultural science.	235	3.1	Agreed
3.	We have good practical school farms in the school.	150	2.0	DisAgreed
4.	Most of the instructional materials in the secondary schools in Jalingo are locally made.	220	2.9	Agreed
5.	Teachers uses suitable diagrams for the immediate illustration of Agricultural Science lesson in our school.	225	3.0	Agreed

Source: Field Survey, 2020.

The result in table 2 shows the instructional materials available for use to influence the academic performance in Agricultural Science. The result of the

4 point scale reveals that the respondents agreed that upright related school books are available in our school to influence the academic performance of Agricultural Science students in secondary school ($\bar{x}$ = 3.1). Also, the result in table 1 reveal that the respondents agreed that pictures, model, drawings and specimens are available to influence students' academic performance in Agricultural Science ($\bar{x}$ = 3.0). The result further reveals that the respondents disagreed that they have good practical school farms in the school ($\bar{x}$ = 2.0). In the same vein, table 1 indicated that the respondents agreed that most of the instructional materials in secondary schools in Jalingo are locally made ($\bar{x}$ = 2.9) and also the findings in table 1 reveals that the respondents agreed that teachers uses suitable diagrams for the immediate illustration of Agricultural Science lesson in their school ($\bar{x}$ = 3.0).

Analysis on the teachers using Instructional Materials in Teaching Agricultural Science in Senior Secondary Schools in Jalingo

Table 3: four Point Scale Results on Teachers Using Instructional Materials in Teaching Agricultural Science in Secondary Schools in Jalingo, Taraba State.

S/N	Item	Total Score	Mean	Remarks
1.	There is adequate provision of teaching aids by my school management.	140	1.8	Disagreed
2.	Agricultural science teachers in our school can only use locally made instructional materials in teaching agricultural science.	230	3.0	Agreed
3.	Improvisation of instructional materials makes the lesson in Agricultural Science attractive, thereby capturing students' attention and motivating them to learn.	135	3.1	Agreed
4.	Teachers uses appropriate charts and diagrams for the immediate	233	3.1	Agreed

	illustration of Agricultural Science lesson.			
5.	Improvisation of instructional materials in economics gives teacher the pride of using their talents.	232	3.1	Agreed
6.	The use of instructional materials by teacher helps communicate information effectively, promote the acquisition and longer retention of knowledge.	240	3.2	Agreed

Source: Field Survey, 2020

The results in table 3 above shows that the teachers using instructional materials in teaching Agricultural Science in Jalingo secondary schools. The result reveals that the respondents disagreed that there is adequate provision of teaching aids in their school management ($\bar{x}$ = 1.8). Also results in table 3 reveals that the respondents agreed that Agricultural Science teachers in their schools can only use locally made instructional materials in teaching Agricultural Science ($\bar{x}$ = 3.0). Similarly, the results in table 3 shows that the respondents agreed that improvisation of instructional materials makes the lesson in Agricultural Science attractive thereby capturing students attention and motivating them to learn ($\bar{x}$ = 3.1). In the same vein, the result in table 3 reveals that teachers use appropriate charts and diagrams for the immediate illustration of Agricultural Science lesson ($\bar{x}$ = 3.1). Furthermore, the results in table 3 shows that the improvisation of instructional materials in Agricultural Science gives teachers the pride of using their talents ($\bar{x}$ = 3.1). Finally, results in table 3 indicated that the respondents agreed that the use of instructional materials by the teachers helps to communicate effectively, promote the acquisition and longer retention of knowledge ($\bar{x}$ = 3.2).

Analysis of the impact of teacher's improvisation of instructional materials in teaching Agricultural Science in Jalingo Local Government Area.

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S/N	Item	Total Score	Mean	Remarks
1.	Improvisation of instructional materials in agricultural science allows teachers to reproduce his potentials in concrete form and increase their knowledge of the subject matter	230	3.0	Agreed
2.	Improvisation of instructional materials encourages students and teachers to be more creative, innovative and original.	235	3.1	Agreed
3.	Improvisation would promote local sourcing of instructional materials thus encouraging and sustaining creativity and innovativeness among teachers and learners.	240	3.2	Agreed
4.	Improvisation of materials helps bridge gaps in course appraisals of contents, enrich existing curriculum and replace teacher-centred instruction.	240	3.2	Agreed

Source: Field Survey, 2020.

The result in table 4 shows that the impact of teachers improvisation of instructional materials in teaching of Agricultural Science in Jalingo Secondary Schools. The result reveals that the respondents agreed that there is impacts of teachers improvisation of instructional materials in teaching Agricultural Science in Jalingo secondary schools ($\bar{x}$ = 3.0). Also, result in table 4 reveals that the respondents agreed that improvisation of instructional materials encourage students and learners to be more creative, innovative and original ($\bar{x}$ = 3.1). Similarly, the result in table 4 reveals that the respondents agreed that improvisation will promote local sourcing of instructional materials thus encouraging and sustaining creativity and innovativeness among teachers and learners ($\bar{x}$ = 3.2). Finally, the result in

table 4 shows that the respondents agreed that improvisation of instructional materials helps bridge gaps in appraisals of content, enrich existing curriculum and replace teacher centered instruction ($\bar{x}$ = 3.2).

Discussion of Findings

The research work was specifically designed to determine the influence of instructional materials on the teaching and learning of agricultural students in secondary schools in jalingo local government area Taraba State. In order to achieve this purpose, three specific objectives, three research questions were raised. Simple percentage, and mean were used in analyzing the personal data of respondents and answering the research questions.

The first objective was to determine whether the instructional materials for the teaching and learning of agricultural science are available to influence students' academic performance in agricultural science in secondary schools in Jalingo State. Data collected were analyzed and rated. It was observed that Agricultural Science teachers in the study area are using instructional materials like upright related school books, pictures, models, drawings, specimens, diagrams to influence the academic performance of students in Agricultural Science in secondary schools in Jalingo Local Government Area of Taraba State and this might enhance the academic performance of these students in public examinations like NECO, WAEC etc. This results agreed with the findings of Umaru and Ibrahim (2011) who reported in their studies on influence of instructional materials on the academic performance that it has positively influence on the academic performance of students. Also this study is in line with Yusuf (2003), who shows that availability and utilization of learning resources has a significant effect on the academic performance of students in Agricultural Science.

The second objective of the study was to determine whether the teachers are making use of the instructional material in the teaching and learning of agricultural science to influence students' academic performance. It was found out based on the analysis of the data collected from the respondents that the teachers in the study area do use instructional materials which effectively communicate, promote and acquire longer retention of knowledge. This result is in line with the findings of Oshadumi, (2003) who showed that about 70% of the respondents made use of the instructional

materials effectively which had positive impact on the students' academic achievement in agricultural science. The result is also in line with Foin (2001), which shows that there is a significant difference in the mean achievement scores of students when taught with the use of locally made instruction

The third objective was to Determine whether the teachers‟ improvise instructional materials in teaching and learning of agricultural science in senior secondary schools in Jalingo. Data collected to achieve this objective were presented in Table 4.3 in which the result showed that teachers do improvise instructional materials in study area and this improvisation of instructional materials have positive impact on students' academic performance this findings is in line with the findings of Balarabe and Mannir (2003), who revealed that teachers‟ improvisation of teaching resources has a significant impact on students‟ academic performance. Also this result is in line with the findings of Uyagu (2009) who revealed that students performed better when appropriate and improvised materials were made available and utilized in teaching science and teachers possessing good qualifications enhanced students' performance in science.

Conclusion

Based on the findings of this study, it can be concluded that instructional materials are used to influence academic performance of Agricultural Science secondary school students in Jalingo and are positively affecting students' academic performance in the study area. Also, there is no adequate provision of instructional materials by the school management and also no school farm that will serve as demonstration farms.

Recommendations

Based on the major findings of this study, the following recommendations were made;

1. The school management should endeavor to make provision for instructional materials that will enhance teaching and learning in their schools.
2. Government should increase the budgetary allocation to schools so as to enhance their running cost and to enable them to establish school farms that will help in the practical application of Agricultural Science knowledge.

3. Teacher's should not only rely on government to provide the instructional material but let them improvise from the materials they have at hand in other to enhance the academic performance of student in Jalingo.

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