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INFLUENCE OF COMPUTER INSTRUCTION AS A TOOL FOR TEACHING AND LEARNING OF AGRICULTURAL SCIENCE IN SECONDARY SCHOOLS IN JALINGO LGA, TARABA STATE

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ABSTRACT

Developing countries have a responsibility not merely to provide computers for schools, but also to foster a habit of infusing a variety of ways in which computers can be integrated in teaching-learning among the end users of these tools. Two purposes and two research questions guided the study, the study was a descriptive

INTRODUCTION

The past two decades have witnessed a systematic shift in the way the computers have been used as a tool in the teaching-learning process. Hence, the trend appears to be towards the creation of courses specifically aimed at computer literacy, as well as towards integrating computer technology in other content areas across the curriculum. Further, computer technology has increasingly been applied towards non-instructional (record keeping, grade averaging, communication, etc.) and pre-instructional (developing materials, researching instructional content, etc.) uses. This great change has brought forth a fresh perspective in

design research, there was no sampling because the population was not large, the questionnaire was validated by two experts hence, the coefficient yielded 0.80 and the decision rule was 2.50. Earlier researches lacked a systematic study of the manner and the extent of computer-use by teachers. The current study examined a comprehensive investigation of 76 Agricultural School teachers" use of computer as a tool for teaching and learning agricultural science in secondary schools in Jalingo LGA. Towards this end, questionnaire was constructed that listed essential dimensions for teachers" use of computers and availability. its Results revealed that teachers of agricultural science in the study area are not using computers as a tool for instruction for teaching of agricultural science, though improvised computer were used and enhance academic progression, is still. far from been original. Some recommendations were made that can improve the availability and utilization of computer in the study area.

Keywords; *Computer, Instruction, Tool, Learning and Agricultural science*

the use of computers in the teaching-learning process (Jyoti, 2013).

Computer instruction is a purposeful direction of the learning process, principles, planning and management that give the students/learners the actual experiences which include; basic principles of free enterprise, identifying small business ideals, professional business writing skills and practice in budgeting, forecasting investment analysis and decision making These attributes, if guided properly, can lead to improving agricultural science in secondary schools in Nigeria thereby reducing the rate of poverty, unemployment, joblessness and social crimes. Joyce et al. (2003) in Melaiye (2018)

Instruction is defined as the selection of information, activities, methods, and media to help students meet predetermined learning goals (Melaiye, 2018). Computer is defined as a programmable, multiuse machine that accepts data – raw facts and figures – and processes, or manipulates, it into information we can use (Abdullahi, 2014). Instructional computing is the use

of computer in the design, development, delivery and evaluation of instruction. Adeyemi (2000) viewed Computer is the focal point of Information and Communication Technology because it refers to the range of tools and techniques that are computer-based. Information and Communication Technology is now seen as a natural part of good learning and teaching. The challenge is to use it effectively to maximize learning to enhance and enrich teaching (Adeyemi, 2000). The development in computer technology has made it not an equipment to be used in industry alone but it is also integrated into teaching and learning to make learning concrete, real, immediate and permanent. Granted that the purpose of instruction is to get learners take appropriate actions that will result in learning that could be tested, the feature of computer which is to speed up problem solving and increase productivity could be harnessed in education

Computer as a tool can be used for teaching and learning in various ways. Computer is a multi-tool for teaching and learning, Useful in teaching many subjects. Computer as a tool has high record-keeping ability because of its high storage capacity. Instructional computing can be used to; enhance the quality of instruction, reduce time required to complete a task, combine media for presentation, store and quickly access huge amount of information, communicate with others at both near and distant locations and function as instructional expert

The power of computer within education is ascribable to its versatility as a production and a presentation tool. It is different from other forms of media because of its multiuse purpose. It could be used to present a story and at the same time monitor the internet to look for information. Classroom teachers should harness these potentials and adapt it for learning. According to Akande and Azike (2006), instructional computing for teachers and learners can be used to enhance the quality of instructional materials using the electronic capabilities of the computer, reduce the time required to design, produce, and reproduce instructional materials, increase the overall effectiveness of instructional materials through enhanced presentations, combine graphics, video, audio, and textual form of media

into single, integrated instructional presentations, store and quickly access huge amounts of information and data, among others.

One of the key indices of a sustainable economy is the ability of a nation to provide gainful employment for its citizens so as to contribute to nation building. The productive strength of a nation is enhanced through agricultural programmes provided in the National Policy on Education; hence, agricultural science is one of such programmes.

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 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 concept (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 (Ibrahim, 2000). 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.

Egbule (2002), agricultural science education can contribute towards the realization of the above objectives through improved computer instruction by; providing young people with knowledge, skills and creative abilities with which they can translate research findings into field trials, and commercialization, preparing students for lifelong learning in agriculture and related subjects as well as enable them have an understanding of the problems and opportunities in their communities and to improve and develop problems-solving attitudes and safety practices in students and other agricultural practitioners.

Alade (2000) described learning as "persisting change in human performance potential (brought) about as a result of learner's interaction with the environment." Alade (2000) stressed that "learning occurs when experience causes a relatively permanent change in an individual's knowledge or behavior." The central point of these definitions is 'change'. To learn is to change or having the innate ability to change from one level of ability to a permanent one. Learning is measured by the amount of change that occurs within an individual level of knowledge, performance or behavior (Foin, 2001). Changes that qualify as learning are changes that are brought about by experience and not ones caused by maturation like growing taller (Foin, 2001). Learning is an essential concept in Information and Communication Technology (ICT) because ICT is designed to make learning faster, immediate, and less strenuous. It is designed to bring about a permanent change in the learner Uyagu, (2005).

Despite the initiatives, mandates, recommendations by different government organizations, policies, and the ever-increasing use of technology worldwide, it has been observed that computers are not being used effectively by the teachers in teaching various subjects like Agric

science, Home economics, Business studies, etc. The literature suggests that: (1) Only a few teachers routinely use computers for instructional purposes in different subjects like science, mathematics, languages, commerce, social-sciences, etc.; (2) When computers are used, they are generally used for low-level tasks such as presentations, drill, and word processing, by the elementary, secondary and senior-secondary students; (3) Computers are not sufficiently integrated across the curriculum. Computers are not being used sufficiently and properly by the school teachers hence, the need to determine the influence of computer as tool for teaching and learning of agricultural science in Jalingo Local Government Area.

Statement of the Problem

It has been observed that government have very lukewarm attitudes over the provision of the needed instructional materials such as computer required for effective teaching and learning of agricultural science in secondary schools. This attitude tends to retard genuine efforts of some teachers of agricultural science. Observation has been made by the researchers 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 researchers observed that the schools have limited access to computer while others do not have. And also even if the computer is 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 the utilization of computer in teaching agricultural science in secondary schools in Jalingo L.G. A, Taraba State. The question is, do instructional materials as computer 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 researchers intend to determine the influence of computer instruction as a tool for teaching and learning of agricultural science in Jalingo Taraba State.

Objectives of the Study

The objective of the study was to determine the influence of computer instruction as a tool for teaching and learning of agricultural science in Jalingo in some selected secondary schools in Jalingo Local Government Area. Specifically, the study sought to:

1. Determine whether computer instruction as a tool for teaching and learning of agricultural science are available.
2. Determine whether the teachers are making use of computer for instruction.

Research Questions

1. Is computer instruction as a tool for teaching and learning of agricultural science are available in secondary schools?
2. Are the teachers making use of the computer as an instruction?

Significance of the Study, the study will be beneficial to the following**;**

The students - Findings from this study will help the students to knows the effectiveness of being taught with computer rather than theoretical

The teachers: - this study will motivate agricultural science teachers to develop interest towards utilizing suitable teaching materials that will be a possible means towards reducing failure in the teaching of agricultural science.

The government: - The study will also help the government to understand the need to provide computer for teaching and learning of agricultural science in the secondary schools. And when published the generality of Nigerian students we see the reasons for using computer as a tool for teaching and learning.

Scope and limitation of the Study

The study is limited to Influence of instructional material on the teaching and learning of Agricultural Science in some selected secondary schools in Jalingo Local Government Area, Taraba State Nigeria. The study is restricted to Jalingo local government because of the rate of kidnapping and

headsmen crisis in the other parts of the local government area hence, the work is restricted to Jalingo Local Government.

METHOLOGY

Descriptive survey design was used for this work. It is considered appropriately to this study because it is fact finding in nature, and it entails the systematic collection and presentation of data to identify the type of instructional materials such as computer used in teaching and learning of Agricultural science in Jalingo Local Government area of Taraba state

The study was conducted in all the (34) Government secondary schools located in Jalingo Local Government Area which is found in Taraba state. Jalingo, town, capital of Taraba state, eastern Nigeria. It became a state capital in 1991 after Gongola state was divided into Adamawa and Taraba states. Jalingo lies in the savanna-covered foothills of the Shebshi Mountains about 25 miles (40 km) southeast of the Benue River. It is a market town, has a government dairy farm, and is connected by road with Yola and Wukari. Pop. (2016 EST.) Local government area, 187,500. It has a total number of thirty-four (34) Government owned secondary schools. All the 34 schools in Jalingo L.G.A was used. The researcher used Jalingo as the study area because it is safe and it is free from the crisis the other part of the state is facing.

The researcher used a self-constructed questionnaire to source data and the researchers uses seventy-six (76) respondents from the thirty-four secondary schools in Jalingo.

A 15 questionnaire items titled influence of computer as a tool for teaching and learning of Agricultural Science in secondary schools in Jalingo Local Government area

The population for the study consists of all the 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 students. And with a total number of teaching staff of 822, out of which 76 were agricultural teachers in the Junior and senior section (Taraba State Teaching Service Board 2020

The sample consists of 76 respondents which comprises all Agricultural science teachers in 34 secondary school. All the Government Secondary Schools were sampled because the population is not large.
The questionnaire was validated by 2 experts from College of agriculture, Jalingo, their observations were used as correction.

Reliability of the Instrument

The data collected from trial testing was used to calculate the reliability coefficient using split-half method. Also, Pearson Product Moment Correlation Coefficient (r) was adopted to determine the reliability coefficient of the instrument that yielded 0.80
The instrument was administered and collected from the respondents personally by the researchers. Hence, 100% return rate was possible The Research questions were answered using mean and standard deviation, four (4) points Likert scale responses, with values of 4, 3, 2 and 1 for Agreed (A) Strongly Agree (SA), Disagreed (DA), Strongly Disagree (SD) respectively were assigned to responses from which a mid-point mean value was calculated.

Formular

$\sum$ = Sum of, X = Nominal Value, N= Total Number of Respondents

Formula for Standard Deviation

$$\frac{\sum FX}{N}$$

$\sum$ =sum of, *F* = frequency, *X*= Nominal value, *N* = Total number of respondents

The numeric values assigned to a different scaling items used as follows:
$\overline{SA}$=4, A, 3, D 2, S 1, X =4+3+2+1=10/4 = 2.5

The decision rule was based on the values of the calculated mean of the response options numerical values. Therefore, any item of mean score which is 2.5 and above were agreed by the researcher as positive influencing

the questionnaire items, while any point that is below 2.5 were disagreed by the researcher as negative.

RESULTS; Data collected were analyzed and the results presented. The presentation is based on the research questions

Table ;1 Results on availability of computer as a tool for instruction for use to influence the academic performance of Agricultural Science students in secondary schools in Jalingo. (n = 76)

S/N	Item	Total Score	Mean	Remarks
1.	Computer are not 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 no computer for practical in my school.	150	2.0	Agreed
4.	Computers are impoverished in the secondary schools in Jalingo	220	2.9	Agreed
5.	Teachers do not use computer for the immediate illustration of Agricultural Science lesson in our school.	225	3.0	Agreed

Source: Field Survey, 2022.

The result in table 1.1 shows that there was no computer available for use to influence the academic performance in Agricultural Science. The result

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reveals that the respondents agreed that computer are not available in their schools to influence the academic performance of Agricultural Science students in secondary school ($\bar{x}$ = 3.1).

Also, the result in table 1.1 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 also agreed that they have no computer for practical in their school ($\bar{x}$ = 2.0). In the same vein, table 1.1 indicated that the respondents agreed that their computers are improvised ($\bar{x}$ = 2.9) and also the findings in table 1.1 reveals that the respondents agreed that teachers do not use computer for the immediate illustration of Agricultural Science lesson in their school ($\bar{x}$ = 3.0

Table 2.1. Results on Teachers Using computer as a tool for instruction in Teaching Agricultural Science in Secondary Schools in Jalingo, Taraba State.n-76

S/N	Item	Total Score	Mean	Remarks
1.	There is adequate provision of computer as s teaching aids by my school management.	140	1.8	Disagreed
2.	Agricultural science teachers in our school can only use improvised computer in teaching agricultural science.	230	3.0	Agreed
3.	Improvisation of computer 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 computer in agric..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, 2022.

The results in table 2.1. above shows that the teachers are not using computer in teaching Agricultural Science in Jalingo secondary schools. The result reveals that the respondents disagreed that there is adequate provision of computer as teaching aids in their school management ($\bar{x}$ = 1.8). Also results in table 2.1 reveals that the respondents agreed that Agricultural Science teachers in their schools can only use the improvised computer in teaching Agricultural Science ($\bar{x}$ = 3.0). Similarly, the results in table 2.1 shows that the respondents agreed that improvisation of computer 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 2.1 reveals that teachers do not use appropriate charts and diagrams for the immediate illustration of Agricultural Science lesson ($\bar{x}$ = 3.1). furthermore, the results in table 2.1 shows that the improvisation of computer in Agricultural Science gives teachers the pride of using their talents ($\bar{x}$ = 3.1). Finally, results in table 2.1 indicated that the respondents agreed that the use of computer by the teachers helps to communicate effectively, promote the acquisition and longer retention of knowledge ($\bar{x}$ = 3.2).

Discussion of Findings

The research work was specifically designed to determine the influence of computer as a tool for teaching and learning agricultural students in secondary schools in jalingo local government area Taraba State. In order to achieve this purpose, two specific objectives and two research questions were raised.

The first objective was to determine whether the computer 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 improvised instructional materials 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. 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 finding supports the claim of Abdullahi (2014), which says that, when teaching facilities are available and used appropriately the students would acquire skills that are vital to them. 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 objectives of the study were to determine whether the teachers are making use of computer 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 not use computer 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 do not made use of computer effectively

which had negative 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

Recommendations

Due to dearth in research related to the manner and extent of computer use by teachers, there is a need for designing a comprehensive framework for defining and understanding the use of computers by teachers. This instrument should prescribe essential dimensions of computer use with regard to the extent of ways in which computers can be used in teaching-learning process. Importantly, such an instrument should be readily adaptable to specific national contexts. Once such an instrument is formulated, it could prove to be an indispensable tool in designing measures for professional development of teachers for improving educational quality. The school management should endeavor to make provision for computer that will enhance teaching and learning in their schools.

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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