

ASSESSMENT OF ICT USAGE ON TEACHING AND LEARNING OF AGRICULTURAL SCIENCE IN SOME SENIOR SECONDARY SCHOOLS IN ZARIA LOCAL GOVERNMENT AREA, KADUNA STATE

I.Y. Makama;* M. Malami, S.D. Imam & A.G. Abdullahi

Department of Agricultural Extension and Rural Development
Faculty of Agriculture, Ahmadu Bello University, Zaria

Abstract

The study assessed the ICT usage on Teaching and Learning of Agricultural Science in some selected Senior Secondary Schools in Zaria Local Government Area, Kaduna State. Two research questions guided the study. Descriptive survey design was employed in this study. The total population of the schools was 375. The sample size was five teachers and one hundred and twenty-five students making the total sample 130 respondents drawn from 4 senior secondary schools. The instrument for data collection was structure questionnaire. The researcher ensured the content validity of the instruments by seeking assistance from the experts in the research in the Department of Agricultural Extension, Faculty of Agriculture, Ahmadu Bello University, Zaria. To test the reliability of the data, the same questionnaires were taken to other three selected schools, outside the research area. The students and teachers filled the questionnaires and the results were compared to ensure that the results were replicable if applied elsewhere. Descriptive statistics was used to analyze the collected data. The result showed that the cumulative mean was 2.75 with standard deviation of 1.66, which is greater than the decision mean of 2.50 implying that the respondents' responses on availability of ICT as facilities was positive. Majority of the respondents agreed to the statement that absence of Computers and other ICT instruments create obstacle to Agricultural Science students and teachers on the use of ICT facilities in secondary school with the results showing the highest mean of 3.16 and standard deviation of 1.78 while details show that majority (83.1%) agreed with the statement and some (16.9%) of the respondents disagreed. The study concluded that Agricultural Science Students cover more topics on studying with ICT, and understood better as well as widen their scope of Agricultural concepts learning with ICT. It was recommended that Agricultural science students should desist from using their available time, for unimportant discussion and charting online but direct their time and resources towards learning the subject online to enhance their study habits and consequently improve their academic performance.

Keywords: Utilization, ICT facilities, teaching, learning, Agricultural science

Introduction

Information and communication technology (ICT) is an important tool that enhances students' academic performance and productivity. It is a needed condition for the development of digital proficiency required in today's Agricultural Science projects. However, ICT has become an integral part of education and its impact on teaching and learning of Agricultural Science in secondary schools. The use of Information and Communication Technology (ICT) has resulted to progress in the area of information dissemination. It has become an effective and influential instrument for providing educational opportunities; but it is difficult to envision future learning situations that are not bolstered by information and communication technology in secondary schools. Agricultural Science is a process by which knowledge, skills and attitude in Agriculture are imparted to student at any level. It gives the learner a sound academic knowledge, skills and ample opportunity to apply these knowledge, skills and attitude for individual growth and societal development. It is an education employed in training the learner in basic art of farming combined with the science of teaching Agriculture. Agricultural Science is seen as an applied science and a subject with emphasis on the acquisition of knowledge and skills associated with the content in Agriculture. The learning process has been purely on

reliance on printed bulky books which most students read at the libraries mostly in the 19th and 20th centuries.

The 21st century has been described as information age and the wind of information revolution is blowing in all human disciplines including education sector through which education information could be disseminated and retrieved using Information Communication Technology tools and gadgets (Oyebolu and Olusiji, 2013). Rasaki (2013) defined information as a message (utterance or expression) or collection of messages that consists of an ordered sequence of symbols meaningful to the receiver, which can be recorded or transmitted through communication. Communication is the activity of conveying meaningful information, while technology is the use of computer and software to manage information. Principally, information and communication technology has become an integral part of education and its impact on teaching and learning cannot be overemphasized. The use of Information and Communications Technology (ICT) has resulted to progress in the area of communication dissemination, and transfer of information. It is an effective and influential instrument for providing educational opportunities and knowledge production. Hence, it is difficult to envision future learning situations that are not bolstered by information and communication technology in secondary schools especially agricultural science (Kayode, 2016).

Agricultural Science is one of the core vocational subjects taught in both junior and senior Primary Schools in Zaria Local Government Area. Ekeyi (2013) specified that, Agricultural Science is taught in primary schools in order to create and sustain students interest in Agriculture, and serve as a foundation for future advancement in the study of Agricultural Science. The teaching of Agricultural Science in secondary schools in Zaria Local Government Area needs to be properly handled for greater societal contributions. Agriculture contributes to the nation's economic development; hence, the need to be taught thoroughly to meet the educational and economic development. More so, Agricultural Science being one of the subjects in Junior and Senior Secondary Schools needs to be taught effectively with the use of appropriate instructional materials (Ajayi, 2016). The importance of studying Agricultural Science at Junior Secondary School level in Nigeria is to increase Agricultural productivity all over the nation through training of the students from junior secondary school to higher level to inculcate in the youth a desire and interest to pick up vocational Agriculture in future. The importance of Agricultural Science has led to making it a core subject for all students in junior secondary schools in Nigeria. Teaching and learning Agricultural Science in junior secondary school in Zaria Local Government Area have effectively being faced with many problems, especially in the area of availability, poor facilities, lack of interest among students in the subject, farm for practical and laboratory in the school, and lack of qualified teachers in the field (Balogun, 2010). At the Senior Secondary School, computer education is made pre-vocational elective and is a vocational elective at the Senior Secondary School (Adomi & Kpangban, 2010). Considering the rapid growth of ICT in the world of which quite a significant percentage of teachers still show a lackadaisical attitude towards the use of these important facilities (Banks, 2016).

Statement of the Problem

Teaching and learning remain central in students' academic achievement. ICT has provided a wide range of opportunities for educational foundations to complement the teaching and learning process. The use of ICTs has positively affected teaching and learning of Agriculture Science in many parts of the country. This is because it can enrich and deepen skills in student's knowledge. Different researches were conducted on secondary schools' students' ICT usage both within and outside Nigeria, especially in Mathematics, Chemistry, Physics and many other subjects. However, no study conducted to determine the availability of the ICT for teaching and learning of agricultural science and constraints inhibiting the use of ICT in Zaria LGA. In view of this, there is need to examine the availability, accessibility and user-ability of ICT resources among students in teaching and learning Agricultural Science in Secondary School in Zaria LGA. Based on this, the researcher deems it essential to conduct a research on

Utilization of ICT Facilities on Teaching and Learning of Agricultural science in some Senior Secondary School in Zaria Local Government Area, Kaduna State.

Objectives of the Study

1. determine the availability of ICT facilities for teaching and learning of Agricultural science in Senior Secondary Schools in Zaria Local Government Area; and
2. find out the constraints inhibiting the use of ICT in teaching Agricultural Science in the study area.

Research Questions

1. What is the availability of ICT facilities for teaching and learning of Agricultural science in Senior Secondary Schools in Zaria Local Government Area?
2. What are the constraints inhibiting the use of ICT in teaching Agricultural Science in secondary schools in Zaria Local Government Area, Kaduna State?

Methods

The design for this study is a descriptive survey design. Simple random sampling technique was used to select the schools for the study; four (4) Senior Secondary Schools out of 22 Secondary School in Zaria Local Government were randomly selected. The total population of the schools was 375. The sample size of the study consists of five teachers and one hundred and twenty-five students making the total sample 130 respondents. A total number of 130 questionnaires were printed and 124 were properly filled and returned. Frequencies, percentages and mean were used to analyze the collected data.

Data Collection

Questionnaire was administered to the sampled Secondary Schools in Zaria Local Government Area in order to get their responses.

The data obtained are represented are analyzed. From the 130 copies of questionnaire distributed to the respondents, five (5) teachers and one hundred and nineteen (119) students making one hundred and twenty-four 124 were properly filled and returned. Six (6) copies of questionnaire were not properly filled hence, rendered invalid.

Validity and Reliability of the Research

The researcher ensured the content validity of the instruments by seeking assistance from the experts in the research in the Department of Agricultural Extension, Faculty of Agriculture, Ahmadu Bello University, Zaria. To test the reliability and validity of the data, the same questionnaires were taken to other three selected schools, outside the research area. The students and teachers filled the questionnaires and the results were compared to ensure that the results were replicable if applied elsewhere. This was in order to ensure that there is consistency with the results if a similar methodology is used elsewhere. The three schools were; Government Day Secondary School Sabongari, Islamic Trust of Nigeria and ABU Staff School.

Data Analysis

The data collected as a result of the two (2) research questions raised were analyzed using mean scores and standard deviation to analyze the data. The data collected were mean and standard deviation was used to answer research questions.

Results and Discussion

Research Question One: What is the availability of ICT facilities for teaching and learning of Agricultural science in Senior Secondary Schools in Zaria Local Government Area?

Table 1: Mean scores and standard deviation of respondents on the availability of ICT facilities for teaching and learning Agricultural Science

S/N	Items	SA (4)	A (3)	D (2)	SD (1)	$\bar{X}$	Std Dev	Remark
1.	Accessing the website in classroom	21	23	53	27	2.31	1.52	Disagreed

	activities gives Agricultural Science students and teachers sense of belonging in class lessons.	(84)	(69)	(106)	(27)				
2.	Availability of ICT facilities help Agricultural Science students and teachers in learning in Senior Secondary School	32 (128)	17 (51)	49 (98)	26 (26)	2.44	1.56	Disagreed	
3.	Availability of computer and internet in school helps the Agricultural Science students and teachers to develop better ability in learning Agricultural Science	58 (232)	31 (93)	19 (38)	16 (16)	3.06	1.75	Agreed	
4.	Availability of ICT facilities support the teaching and learning Agricultural Science in Senior Secondary School	49 (196)	37 (111)	29 (58)	09 (9)	3.02	1.74	Agreed	
5.	Available facilities in school has improved the ways of learning among Agricultural Science students and teachers in Senior Secondary School	43 (172)	51 (153)	19 (38)	11 (11)	3.02	1.74	Agreed	
	Cumulative					2.75	1.66	Agreed	

Decision Rule: Mean ≥ 2.50 = Agreed; Mean ≤ 2.50 = Disagreed

The result in Table 4 shows the respondents' opinions on the availability of ICT facilities for teaching and learning Agricultural Science by students in Zaria Local Government Area. The table shows that majority of the respondents were of the opinion that availability of computer and internet in school helps the Agricultural Science students and teachers to develop better ability in teaching and learning Agricultural Science as this statement attracted the highest mean response of 3.06 and standard deviation of 1.75. Further details on this statement shows that majority (71.8%) of the respondents agreed while some (28.2%) disagreed. This implies that the number of teachers got opportunity to give students assignment and students were able covered more topics online who were quite high to those that were not vast to using internet facilities. The result also indicated that, the least number of respondents were of the opinion that Accessing the website in classroom activities gives Agriculture Science students and teacher's sense of belonging in class lessons as this statement attracted the lowest mean response of 2.31 and standard deviation of 1.52. This means that responses to this item were not positive with details showing that few (35.5%) respondents agreed with the statement while majority (64.5%) of the respondents disagreed. The result implies that accessing the website in classroom activities gives students sense of belonging in class lessons; it has not resulted in increasing their reading hours/time of some of the students and teachers. These findings is in line with the assertion of Adamu (2010), in his work titled Availability of Information and Communication Technology Tools in Education. The finding however disagreed with the conclusion of Egunjobi (2015) who posited that ICT as a tool to promote learning is not generally well embedded in teachers and students practice. Teachers and students are not required to not only show good ICT skills, but also to be able to include ICT in their teaching to enhance learning. The overall results of the responses in the Table 4 shows that the cumulative mean was 2.75 with standard deviation of 1.66, which is greater than the decision mean of 2.50 implying that the respondents' responses on availability of ICT as facilities was positive.

Research Question Two: What are the constraints inhibiting the use of ICT in teaching Agricultural Science in secondary schools in Zaria Local Government Area, Kaduna State?

Table 2: Mean scores and standard deviation of Respondents on the constraints inhibiting the use of ICT in teaching Agricultural Science in secondary schools

S/N	ITEMS	SA (4)	A (3)	D (2)	SD (1)	$\bar{X}$	Std Dev	Remarks
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6.	The problem of ICT tools has debarred Agricultural Science teachers and students for teaching and learning in Senior Secondary School.	25 (100)	60 (180)	17 (34)	12 (12)	2.63	1.62	Agreed
7.	Lack of adequate ICT facilities in school has causes great obstacle to students and teachers of Agricultural Science in Senior Secondary School.	32 (128)	51 (153)	25 (50)	16 (16)	2.80	1.67	Agreed
8.	Epileptic ICT facilities in Senior Secondary School has creates problem to Agricultural Science students and teachers on the use of ICT in schools.	37 (148)	49 (147)	21 (42)	17 (17)	2.86	1.69	Agreed
9.	Absence of Computers and other ICT instruments create obstacle to Agricultural Science students and teachers on the use of ICT facilities in secondary school.	42 (168)	61 (163)	18 (36)	03 (03)	3.16	1.78	Agreed
10.	Epileptic Power supply in most secondary school has made the use of ICT difficult to Agriculture Science students learning in school.	39 (156)	53 (159)	19 (38)	13 (13)	2.95	1.92	Agreed
Cumulative						2.91	1.70	Agreed

Decision Rule: Mean ≥ 2.50 = Agreed; Mean ≤ 2.50 = Disagreed

The result on Table 2 shows the respondents' opinions on some of constraint of ICT use for teaching and learning Agricultural Science by secondary school students in Zaria Local Government Area. Majority of the respondents agreed to the statement that absence of Computers and other ICT instruments create obstacle to Agricultural Science students and teachers on the use of ICT facilities in secondary school with the results showing the highest mean of 3.16 and standard deviation of 1.78 while details show that majority (83.1%) agreed with the statement and some (16.9%) of the respondents disagreed. The least response on the Table was on the statement that the problem of ICT tools has debarred Agriculture Science teachers and students for teaching and learning in Senior Secondary School. The result of this shows the mean score of 2.63 and standard deviation of 1.62 with details of the majority (68.5%) agreed with the statement while some (31.5%) of the respondents disagreed with the assertion. The overall responses of the respondents on some of constraint of ICT use by secondary school teachers and students in the study area shows that cumulative mean was 2.91 and standard deviation was 1.70, which was greater than the mean of 2.50. These responses implied that greater number of respondents agreed that there are some constraints of ICT facilities use by secondary school teachers and students in the study area. This in turn can affect the students' performance hence, may not be able to compete with other students in some secondary schools.

Conclusion

From the analysis and findings of the research, the research discovered mix responses and results hence, it could be concluded that Agricultural Science Students cover more topics on studying with ICT, they understood better and widen their scope of Agriculture concepts learning with ICT. However, despite ICT usage in learning concepts the students studying hours did not improve. Agricultural science students as well have several personal issues that needed timely attention on daily basis hence the justification of their inability to surf internet for several hours thereby inhibiting their study and academic performance. More so, it was also found out that learning with ICT allows the students to make reference to more online authors than textbook authors as they retain more knowledge through ICT than textbooks in the library which are mostly outdated. In addition, it could also be concluded that

this finding negates popular believe and assertion that majority of students in the 21st century mainly use ICT to read and retain only to complete assignment, project works, pass test and examination and thereafter forget about what they have learnt as they progress to another academic level. Information and Communication Technology (ICT) has gained credence as a means for effective study of Agriculture and many other subjects. The benefits of ICT in our school system include promotion of learners' empowerment and enhancement of learning performances

Recommendations

Since the student agreed that availability of computer and internet in school helps the Agricultural Science students and teachers to develop better ability in learning Agricultural Science, more related equipment be provided by the government at various level to encourage the students in their learning process.

Since ICT usage motivates students, Agricultural Science teachers should introduce the students to other ICT platforms to gather and process information such as encyclopedia, data bases, spread sheets, multi-media, e-mail etc., that are capable of making them to learn more and improve their academic performance in their field of study.

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