TEACHERS' PERCEPTION AND ADMINISTRATOR'S SUPPORTS ON ICT INTEGRATION IN THE TEACHING OF BIOLOGY IN NIGERIA

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Introduction

Many African countries continue to use teaching methods that are over four decades old, teaching is teacher-centered, and typically encourages passive learning styles (Hardman et al., 2008). The traditional approach to teaching, as ancient as formal teaching itself, involves the directed flow of information from the teacher as sage to the student as a receptacle. The government of Nigeria recognises the importance of ICT in teaching and learning. This is evident particularly in its effort to address the issue of ICT integration in classroom teaching and learning. In 2007, the Nigeria government, through the Ministry of Information and Communication adopted the National Information and Communications

Abstract

In recent past, there was a paradigm shift from traditionally oriented teaching approach to a more dynamic method which embraced the use of ICT. The aim of this paper is to establish the attitude of biology teachers towards the integration of ICT in the process of teaching and learning and to investigate the administration's support towards ICT integration in the teaching of biology. The study adopted descriptive research design and the respondents included 36 biology teachers and 34 school heads of institutions. The study outcomes indicate that 69.4 % of the schools head teachers agreed to prioritization of integrations of ICT in learning. The findings also show that majority38.9% of the biology teachers confirmed that the school administration support in purchasing and

*r*epairing of ICT facilities in ensuring integrations of information and communication technology is fair.

Keywords: *Teachers' Perception, Administration' Support, ICT Integration, Biology*

Technology (ICT) Policy. Other than the government, other indigenous and non-indigenous non-governmental organisations have also made great effort in promoting ICT integration in teaching and learning. Despite several efforts, studies on teachers' integration of ICT in teaching science related subjects in Nigeria revealed that majority of the teachers do not integrate computers in their general teaching and learning processes. Sa'idu (2000), as cited by Shehu (2002) points out that few teachers used computers based technologies for instructional purposes and observed that computers are not being integrated into most instructional curricula. The traditional teaching methods used by most of the teachers continue to face a global resistance due to changing level of technology. This is because the changing level of technology has made learners more inquisitive, critical, and informed. This, in turn, puts pressure on the education sector to embrace modern technology in its various undertakings.

The use of computer technology can improve the quality of instruction by assisting teachers in the complex task of managing and supporting instructional programs in schools. When teacher effectively integrates the computer into classroom teaching and learning, the speed of the management of student's data, search for information and presentation of learning materials is greatly increased. Concurrent studies have demonstrated that the effective utilisation of ICT depends largely on the attitudes of teachers who ultimately decide the way in which it is implemented in the classroom (Ertmer et al., 1999, Mumtaz 2000). This is because, teachers' attitudes strongly affect the acceptance and implementation of ICT integration program. Moreover, Dawson and Rakes (2003), agreed that leadership plays a major role in ICT implementation at schools, especially in its integration into the curriculum.

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Objectives of the Study

i. To establish the attitude of Biology teachers towards the integration of ICT in the process of teaching and learning.

ii. To investigate the administration's support towards ICT integration in the teaching of biology.

Methodology

Descriptive survey design was adopted. The design was used to collect data from members of a population to determine the current status of that population on one or more variable. The study was carried out in Bauchi State, Nigeria. The location was chosen because it has several schools that have been targeted to benefit from ICT as compared to other states. The target population was 363 public secondary schools from the three zones of Bauchi state. 133 secondary schools from Southern Zone, 110 from Central zone and 120 from Northern zone). The researcher used 10% formula of Mugenda and Mugenda, (2003) to select the respondents. In this regard, 34 schools, 36 biology teachers, 68 students and 34 principles were selected as respondents. The instruments used in the study were biology teachers' questionnaire, biology students' questionnaire, lesson observation schedules and resource check lists. The researcher also visited the science departments and the ICT rooms/computer rooms, and other room used to store ICT facilities to observe and record the ICT resources available. Additionally, interview schedule was conducted with principals of the selected schools and taped recorded by the researcher. Moreover, the researcher went ahead to observe the lesson and asses the level of integration of ICT in teaching of biology by the teachers. This process was conducted in three months.

Analysis and Discussions

The analysis is centered on the two objectives of the study. These are to establish the attitude of Biology teachers towards the integration of ICT in the process of teaching and learning and to investigate the administration's support towards ICT integration in the teaching of Biology.

Attitude of Biology Teachers towards the Integration of ICT in the Process of Teaching and Learning

The findings below is presented in response to the first objective which is aimed at establishing the attitude of biology teachers towards the integrations of information and communication technology in the process of teaching and learning.

Prioritizing ICT Integration

The findings in the table1 show the results on head teacher agreement on prioritization of information and communication technology in their teaching and learning process.

Table 1: Prioritization of ICT Integrations

Responses	Frequency	Percentage
Yes	25	69.4%
No	11	30.6%
Total	36	100%

The study outcomes as shown in the table 1 indicate that 69.4 % of the schools head teachers agreed to prioritization of integrations of ICT integrations in learning where as 30.6 % were not standing for that.

ICT impacts in learning

The findings in the table below shows the teachers response on various statements on the impacts of information technology integrations in learning, the researcher used a likert scale key 1-5(1-Strongly agreed, 2-Agree, 3-Neutral, 4- Disagree and lastly 5-Strongly disagreed) the results of the analysis were as presented.

Table 2: ICT Integrations Impacts in Learning

Statements	SA		A		N		D	
	F	%	F	%	F	%	F	%
a) Use of ICT in teaching can help improve learners' performance.	19	52.8	9	25	8	22.2	0	0
b) ICT can make difficult concepts be understandable by the learners.	13	36.1	23	63.9	0	0	0	0

	26	72.2	7	19.4	3	8.3	0	0
c) ICT has the ability to improve my quality of classroom teaching.	26	72.2	7	19.4	3	8.3	0	0
d) It is easy to integrate ICT in the classroom teaching.	0	0	15	41.7	4	11.1	17	47.2
e) Teachers should frequently attend ICT integrated into service courses	21	58.3	15	41.7	0	0	0	0
f) ICT integration training should be included in the teacher training institutions.	29	80.8	7	19.2	0	0	0	0

The study found out that majority 52.8 %(19) of the respondents strongly agreed that use of ICT in teaching can help improve learners' performance. They were seconded by 25% (9) of the respondents who agreed, however 22.2 % (8) were neutral to the statement. Also the study found out that majority 63.9 % (23) of the respondents indicated that they agreed that ICT can make difficult concepts be understandable by the learners, and were seconded by 36.1 %(13) who strongly agreed to that. Also respondents indicated that ICT has the ability to improve their quality of classroom teaching this was strongly agreed upon by 72.2 %(26) and were seconded by 19.4 %(7) whereas 8.3 %(3) were neutral to that. The study found out that majority 47.2 %(17) of the respondents disagreed to the statement "It is easy to integrate ICT in the classroom teaching." However, 41.7 %(15) of the respondents agreed to that and only 11.1 %(4) were neutral to that. The analysis also showed that majority 58.3 %(21) of the respondents indicated that strongly agreed that Teachers should frequently attend ICT integrated in-service courses and were seconded by 41.7 %(15) who agreed. Lastly,

80.8(29) of the respondents indicated that they strongly agreed to ICT integration training to be included in the teacher training institutions and were seconded by 19.2 %(7) who agreed.

Administration's Support Towards ICT Integration in the Teaching of Biology

This is the second objective of the study which is aimed at establishing the administration's supports towards Information and communication technology integrations in the teaching of biology. The findings were achieved and discussed in the sub-topics which include ICT impact in learning, prioritization of purchased of ICT resources and considering ICT integration as a requirement.

Table 3: School Administration Support

Types of Support	Excellent		Good		Fair		Poor	
	F	%	F	%	F	%	F	%
a) **Purchasing and repairing of ICT facilities.**	0	0	9	25	14	38.9	13	36.1
b) **Motivating teachers towards integrating ICT in teaching and learning.**	2	5.6	20	55.6	14	38.8	0	0
c) **Sponsoring most teachers for ICT integration in-service courses.**	0	0	27	75%	9	25%	0	0

For any research to succeed in an institution mostly schools, the administration plays a very significant role in foreseeing that. The study findings in the table indicate that majority38.9% of biology teachers confirmed that the school administration support in purchasing and repairing of ICT facilities to ensuring integrations of information and communication technology were fair and were seconded by 25% who showed that the

support were good. On the other hand, 36.1 % of the respondents showed that the support were poor. The study established that majority 55.6 % of the respondents indicated that the administration did good in Motivating teachers towards integrating ICT in teaching and learning and were seconded by 38.8%(14) who showed that they did fair and lastly 5.6%(2) showed that the administration did excellent .Lastly, majority 75%(27) showed that the administration support were good in Sponsoring most teachers for ICT integration in-service courses and were seconded by 25%(9) of the respondents who showed that the support were fair.

Prioritization of Purchase of ICT Resources

The findings in the table 4 shows the head teacher feedback when they were asked to indicate whether ICT resource should be put into purchase priority of their schools

Table 4: Prioritization of purchase of ICT resources

Responses	Frequency	Percentage
Yes	25	69.4%
No	11	30.6%
Total	36	100%

The study findings in the table 4 indicated that majority 69.4 % of the respondents agreed to prioritization of purchase of ICT resources in their schools where as 30.6 % did not agreed to that.

Considering ICT Integrations as Requirement

The findings in the table show the head teacher's feedback on considering information and communication technology as a requirement in their school.

Table 5: Considering ICT integrations as a requirement

Responses	Frequency	Percentage
Yes	22	61.1%
No	14	38.9%
Total	36	100%

The findings in the table 5 show majority 61.1 % of the head teachers agreed to consider ICT integrations as a requirement in their schools teaching and learning but only 38.9 % did not applaud to that.

Conclusion

In fact, many tools such as a computer, a handheld device, a portable keyboard and a network that can help a teacher in administrative tasks is one of the more convincing arguments to make to inexperienced teachers so they will accept training eagerly. This should be carefully considered during teacher-training planning because before pedagogical use in the classroom, many teachers may prefer to become familiarized first with the technology outside the classroom. This can often be facilitated greatly by starting out with software applications or simple devices such as portable keyboards or handhelds that can be of immediate use. It is relatively easy to learn how to use these machines to store text in a portable keyboard, to construct spreadsheets, or to make use of word processing to record students' marks and records. Although, some research studies have shown that ICT has a huge impact on the ways in which principals work (Yuen, Law & Wong, 2003; Schiller, 2003), the ICT research literature has largely ignored the role of principals as technology leaders (Schiller, 2003). This gap in the research literature is rather strange because many research studies related to school improvement, school effectiveness, and change showed that school principals play an important role in creating successful changes in schools (Schiller, 2003). According to Schiller (2003), school leaders are key factors in ICT implementation in schools. They have to shoulder the heavy responsibility for creating changes in schools through the use of ICT and facilitating the process of making complicated decisions to integrate it in schools (Schiller, 2003). Although the role of the principal in supporting technology integration is very important, there are a few researches conducted on the role of the principal in ICT implementation. Also, little is known about the use of ICT by principals and the factors that are related to their level of computer use. Principals should be encouraged to use ICT equipment for the effective management of their schools. This could be done through improved usage of computers and other ICT materials supply to their schools for the storage and retrieval of data on staff and students as well as for data analysis. To effectively infuse into the schools' culture, and to be considered relevant by teachers and school administrators, a comprehensive ICT policy should be part of an effort towards improving the equity and quality of an educational system. Also, educational initiatives ought to be coordinated through all administrative and operational levels in order to effectively send coherent messages to teachers,

parents and administrators. Teachers and administrators must have clear and positive incentives for participating in ICT in-service.

Recommendation

- To effectively infuse into the schools' culture, and to be considered relevant by teachers and school administrators, a comprehensive ICT policy should be part of an effort towards improving the equity and quality of an educational system.
- Educational initiatives ought to be coordinated through all administrative and operational levels in order to effectively send coherent messages to teachers, parents and administrators.
- Teachers and administrators must have clear and positive incentives for participating in ICT in-service.

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