

# TEACHERS' AWARENESS AND UTILIZATION OF ONLINE INSTRUCTIONAL RESOURCES IN TEACHING BIOLOGY FOR INSTITUTIONAL QUALITY AND IMPROVEMENT IN OSUN STATE

---

<sup>1</sup>YOADE, F. B. & <sup>2</sup>OBE, O. A.

Adeyemi college of Education, Ondo

[yoadenifemi@gmail.com](mailto:yoadenifemi@gmail.com) & [obeoyedunni@gmail.com](mailto:obeoyedunni@gmail.com)

---

## Abstract

*The study examined Biology teachers' awareness and utilization of online instructional resources for teaching biology in the senior secondary school in Osun State. It also assessed the extent of teachers' use of online instructional resources in Biology classrooms. These were with a view to determine biology teachers' knowledge of online instructional materials that are available for teaching in the classroom. The study adopted the descriptive survey research. The population for the study comprised Biology teachers in Osun State. The study sample consisted of 108 Biology teachers selected using multistage sampling technique. One research instrument was used to collect data for the study. This is a questionnaire titled 'Teachers' Awareness of Online Resources (TAOIR) for teaching Biology. Data collected were analyzed using frequency counts and percentages. The result showed that most Biology teachers were not aware of online instructional resources for teaching. The results also showed that majority of the teachers have not used online resources for teaching in the classroom.*

**Key words:** Information and Communication Technology (ICT), Internet, Online resources

## Introduction

The purpose of education is not only to make students literate but also to improve their knowledge, self-sufficiency and their ability to think rationally. In any society, education is a tool for growth and progress because it not only imparts knowledge, skill and right type of values, but, also builds human capital which breeds, drives and sets technological innovation and economic growth. Many advances in science and technology have helped nations to promote efficiency, self-reliance and the overall well-being of humanity through invention/innovation in telecommunication, transportation, health, agriculture etc.

In Nigeria, the National Policy on Education (NPE, 2004) clearly spells out the objectives of science teaching from pre-primary to tertiary level. Specifically, at the secondary level, it entails equipping students to live effectively in our modern age of Science and Technology. Science is a process that helps in the development of the society. The global change in science curriculum arising from knowledge explosion and new wave in science and technology development demands for qualitative science teaching.

Biology is defined as the basic science that deals with the study of living things, it attempts to understand the teeming diversity of life on earth, a diversity of level we are all part of (Odubunmi, 2005). Life is not a simple concept, which may be one of the reasons why the teaching of biology is important (Odubunmi, 2005). There are two major branches of biology namely; Zoology (the study of animals) and Botany (the study of plants) and sub-divisions such as ecology, physiology, histology, mycology, entomology, virology, anatomy, etc. The

teaching of biology is very important because the knowledge of biology helps in improving the quality of life, as it helps to solve many societal problems relating to health, poverty, food shortage, crop production and environmental conservation. The learning of biology in real life context is necessary for personal development and also, the development of scientific and technological world.

Instructional resources are both human and non-human resources and facilities that can be used to promote, encourage and enhance teaching and learning activities. They are any collection of materials including animate and inanimate objects and human and non-human resources that a teacher may use in teaching and learning situations to help achieve desired learning objectives. Instructional materials are the tools used in educational lessons, which include active learning and assessment. The use of instructional resources enables teachers to convey their messages to the learners in the most economical, convenient, efficient and practical ways. The presentation of teaching materials by means of instructional resources helps student to process and develop information, to take an active part in the learning process and to develop their problem solving skills.

Online instructional resources are resources obtained from the internet. The internet is a heterogeneous channel with vast resources. It refers to a connection of a very large number of computers using communication networks, such as telephone lines to exchange information worldwide. According to Aina (2013), Internet allows access to information anywhere in the world; promote unrestricted networking; and offers citizens the means to organize themselves. The use of Information and Communication Technology (ICT) deals with the handling and processing of information, using all kinds of electronic devices (NCET, 1998). These electronic systems can be used for broadcasting, telecommunications and all forms of computer-mediated communications. Information and Communication technology centered education on the use of computers, on-line self-learning packages, interactive CDS, satellites, radio, optical fiber technologies, tele presence systems and all types of Information Technology (IT) hardware and software (Akindolu, 2002; Adebayo, 2002)

There are series of online instructional resources that can be accessed by teachers to teach and explain Biological concepts visually as they occur naturally. Teachers now have a range of tools available on the internet to help make teaching and learning fun. The information can be downloaded and stored on electronic devices which can be used by the teacher at any time. Today, several exciting websites are available online to support biology teaching in the classroom. Some of the selected favourite sites that can be visited and downloaded for classroom Biology teaching as obtained from Madison county Schools.

Therefore, for the teachers to use these online instructional resources awareness is very important in order to access digital contents using computers and internet. The question this study intends to provide answer to is “are Biology teachers in secondary school in Osun State, aware of these online instructional resources?”

The specific objectives of the study are to:

- 1) Investigate Biology teachers' awareness of the Online instructional resources for teaching Biology in the public secondary schools in osun state;
- 2) assess the extent of Biology teachers' use of online instructional resources in the Biology classrooms;

- 3) examine the challenges faced by Biology teachers in using Online Instructional resources for teaching in Osun state public secondary schools

### **Research Questions**

The study was guided by the following research questions

- a) Are Biology teachers aware of the online instructional resources for teaching Biology in public secondary schools in osun state?
- b) What is the extent of teachers' use of online instructional resources in the Biology classroom in Osun state?
- c) What are the challenges faced by Biology teachers in using online instructional resources for teaching Biology in osun state secondary schools

### **Methodology**

The study adopted the survey research design. The design involved the selection of a sample of respondents from a population and questionnaire was administered to them. The population for the study comprised all Biology teachers in the public senior secondary schools in Osun state. The sample consisted of 108 Biology teachers selected using multistage sampling technique .from the three senatorial districts of the state , three local Government Area each were selected from the senatorial districts using simple random sampling technique, from each local government area, six secondary schools were selected using simple random sampling technique and from each school two Biology teachers were purposively selected making a total of 108 Biology teachers.

One research instrument was used to collect data for the study. This is a questionnaire titled "Teachers Awareness of Online Instructional Resources (TAOIR) for teaching Biology. The questionnaire consisted of four sections. The first section dealt with the demographic variables of the respondents which include sex, qualification, years of teaching experience and level of computer literacy. Section B contained 1 item which sought for the teachers; awareness of online instructional resources for teaching science; while section C contained 5 items that sought for the extent of teachers' use of online learning resources in teaching Biology and Section D with 10 items was on the challenges faced by the teachers on the use of online resources for teaching. The questionnaire was validated by giving it to the experts in test and measurement in faculty of Education, Obafemi Awolowo University, Ile-Ife based on their suggestions the instrument was further revised. The reliability of the questionnaire was determined using Split-half method and a reliability coefficient of 0.71 was established. The researcher with the assistance of one research assistant visited the schools and sought the cooperation of the Biology teachers in responding to the items in the questionnaire. The questionnaire were administered to the respondents and collected back after ensuring that all items have been responded to. The data collected were analyzed using frequency counts and percentages.

## Results

**Research Question One:** *Are Biology teachers aware of the online instructional resources for teaching Biology in public secondary schools?*

In order to answer this question, the first section administered to Biology teachers were analysed using frequency counts and percentages. The result is presented in table 1;

**Table 1:** Awareness of Online Instructional Resources for Biology Teaching in Osun state secondary schools

ITEMS	YES		NO	
	Frequency	(%)	Frequency	(%)
Are you aware of Online Instructional Resources for teaching Biology?	20	(18.51)	88	(81.48)

Based on the responses obtained from table1, only 18.51% of Biology teachers are aware of online Instructional resources for teaching and learning while 81.48% of the respondents claimed that they were not aware.

**Research Question Two:** *To what extent do Biology teachers in the public schools in Osun state utilize online instructional resources in the Biology classroom?*

To answer this question the responses of Biology teachers on the use of ICT resources in the classroom were analyzed using frequency counts and percentages. The result is as shown in table

**Table 2:** Biology Teachers use of ICT/instructional resources in the classroom

S/N	ITEMS	Often		Seldom		Never	
		frequency	(%)	Frequency	(%)	Frequency	(%)
1	Visit web pages on instructional resources	0	0.0	06	5.55	102	94.4
2	Download teaching resources from websites	0	0.0	04	3.70	104	96.29
3	Bring web resources to the classroom	0	0.0	04	3.70	104	96.29
4	Use of online Instructional Resources for teaching Biology	0	0.0	04	3.70	104	96.29
5	Use of ICT facilities in the Biology classroom	0	0.0	06	5.55	102	94.44

Result displayed in table 2 showed that majority of the Biology teachers (94.4%) have never visited any website on instructional resources and have never downloaded any online

instructional resources for teaching Biology. Likewise, most (96.29%) of the teacher have not used online instructional resources for teaching in the classroom. Result also showed that many of the Biology teachers (94.44%) do not make use of ICT facilities in the schools.

**Research Question Three:** *What are the challenges faced by Biology teachers in using online instructional resources for teaching Biology in the classroom?*

To answer this question, the responses obtained on the challenges faced by Biology teachers in secondary school in Osun state on the use of online instructional resources were analyzed. The result is presented below;

**Table 3:** Challenges faced by Biology Teacher in Using Online Instructional Resources for Teaching Biology

S/N	Items	Yes (%)	No (%)
1	Non availability of ICT resources	104(96.29%)	4 (3.70%)
2	Inability of teachers to use the resources	12 (11.11%)	96 (88.88%)
3	Non availability of internet facility in the school	108 (100%)	0 (0.0%)
4	Large population of students	4 (3.7%)	104 (96.29%)
5	Poor knowledge of teachers about the websites on instructional resources	90 (83.33%)	18 (16.66%)
6	Non availability of fund to purchase ICT resources	102 (94.44%)	6 (5.55%)
7	Lack of seminar to inform teachers on the Online instructional resources	90 (83.33%)	18 (16.66%)
8	Poor electricity supply	86(79.62%)	22(20.37%)
9	Poor knowledge of Biology teachers on the use of ICT for teaching	98(90.74%)	10 (9.25%)
10	No ICT laboratory in the school	108 (100%)	0(0.0%)

The result presented in the table 3 showed that most secondary schools in Osun State do not have internet facilities. All the respondents (100%) agreed that they have no internet facilities in their schools. The result also revealed that teachers (83.33%) had poor knowledge of the websites on instructional resources for teaching Biology. Also the teachers agreed that there were non-availability of fund to purchase ICT resources in the public senior secondary schools. Furthermore, result also showed that there was lack of seminar (83.33%) to inform teachers on the availability of online instructional resources in teaching and learning Biology. The result also indicated that many Biology teachers (90.74%) had poor knowledge of the use of ICT facilities for teaching. Finally, the result also showed that (100%) of the respondents maintained that there was no computer laboratory in their schools.

## **Discussion of Findings**

From the results and the analyses of the study, it was found that most Biology teachers were not aware of online instructional resources for teaching. It was also revealed that most schools have no internet facilities and that teachers had poor knowledge of the websites on instructional resources for teaching biology. Finally all the respondents maintained that there was no computer laboratory in their schools. The result is in line with the findings of Morrisa (2011) in his study on the use of ICT facilities in teaching and found out that the teachers have difficulty in the use of ICT facilities in teaching and this is associated with non-availability of ICT facilities in the school. This study is also in agreement with the study by Njelita and Emendu (2015). They reported that ICT materials were not adequately supplied in schools and some of the ones supplied were not functional. Also the findings of Olaobaju (2017), showed that though teachers are knowledgeable in the use of ICT facilities, but the facilities are not available for teaching chemistry in high school in osun state. Also Onasanya et.al (2011) in their study, teachers' awareness and extent of utilization of ICT, the result revealed that the level of computer literacy of the science teachers is low.

## **Conclusion**

The study concludes that Biology teachers in public secondary schools in OsunState are not really aware of online Instructional resources and therefore are not put in use by them in the classroom. Series of factors contributed to this, ranging from non- availability of internet facilities in schools, non-availability of ICT resources in school to lack of training workshop for the teachers on the use of online instructional resources for classroom teaching. This has hindered the Biology teachers in using online instructional resources to teach in the classroom

## **Recommendations**

The following recommendations are provided based on the result obtained:

1. The Government should endeavor to provide ICT facilities for Biology teaching in public secondary school
2. The Government should provide internet facilities in schools to enable teachers access the internet and search for online resources for use in the classroom
3. Government should organize regular workshop and seminar for Biology teachers as well as school administrators to enable them see the importance of ICT and how it can be used to support learning
4. Curriculum planners should also embrace integration of ICT in the curriculum for easy application of ICT in teaching and learning.



## References

- Akindolu, L.R., 2002. Information and communication technology (ICT) centered education: A necessity for national development. *Nig. J. Comput. Literacy*, 3: 10-18.
- Aina, J.K. (2013). Effective Teaching and Learning in Science Education through Information and communication technology (ICT). *Journal of Research and Method in Education*, 2(5). 43-47
- Federal Ministry of Education (2004). National policy on Education. Lagos: NERDC press
- Morrison, S. (2011). A study on the use of ICT in teaching secondary schools in Kuwait. *An unpublished Ph.D thesis of Cardiff Metropolitan University*
- NCET, 1998. Approaches to the IT capacity (Key stages 1 and 2). Coventry, National Council For Educational Technology
- Njelita, C.B. & Emedu, N.B. (2015). Availability and usage of ICT Resources for Chemistry Curriculum Delivery in Schools. *The International Journal of Engineering and Science (IJES)*, 4(6), 26-30
- Olaobaju, A.S. (2017). An investigation into teachers' knowledge and use of information and Communication technology in teaching chemistry in public high schools in Osun state *Unpublished Master Thesis of Faculty of Education, Obafemi Awolowo University, Ile-Ife*
- Odubunmi E.O. (2005). "practical approach to the teaching and learning of genetic concepts", Paper presented at *The Biology panel Workshop of STAN*, Benue State University, Markudi
- Onasanya, S.A; Shehu, R.A; Ogunlade, O.O & Adefuye, A.L. (2011). Teachers' awareness and extent of Utilization of information and communication technologies for effective science and Health Education in Nigeria. *Singapore Journal of Scientific Research Vol1(1):49-58*