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Teachers' Awareness and Use of Online Instructional Resources in Teaching Basic Science for Sustainable Development in Osun State, Nigeria

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Abstract
The study focussed on Basic science teachers 'awareness of online instructional resources for teaching basic science in the middle schools in Osun state, Nigeria. It investigated the extent of teachers' awareness and use of Online instructional resources in the Basic science classrooms and examined the challenges they faced in using Online instructional resources for teaching in Osun State public middle schools. These were with a view to determine science teachers' knowledge of online instructional materials that are available for teaching in the science classroom in Osun state public schools. The study adopted the descriptive survey research. The population for the study comprised of Basic science teachers in Osun State public middle schools. The study sample consisted of 72Basic science teachers selected randomly from public middle schools in Osun State. One research instrument was used to collect data for the study. This is a questionnaire titled "Teachers Awareness of Online Instructional Resources Questionnaire" (TAOIRQ) for teaching Basic science. The study lasted for six weeks. Data collected were analysed using frequency counts and percentages. The results showed that most(86.12 %) of Basic science teachers were not aware of online instructional resources for teaching. Result also revealed that majority of the Basic science teachers (93.06%) in the middle schools in Osun state have never visited any web- site on teaching resources. Also, most (97.22%) of the teachers have not used Online/Internet Instructional Resources for teaching in the classroom Result further revealed that most middle schools have no internet facilities. All the respondents (100%) agreed that they have no internet facilities in their schools. It was also revealed that most of the teachers (83.33%) had poor knowledge of the websites on Instructional resources for teaching basic science and that there was lack of seminar/workshop (83.33%) to inform teachers on the availability of online instructional resources in teaching and learning. Finally, all the respondents maintained that there was no Computer laboratory in their schools. The study concluded that Basic science teachers in Osun state middle school are not aware of online instructional resources and they have not been making use of them in the classrooms. Major challenge on this is unavailability of internet connections in the schools.

Keywords: information and communication technology, internet, on-line resources, e-learning, availability

INTRODUCTION

Instructional resources or materials refer to the human and non- human resources and facilities that can be used to ease, encourage, improve and promote teaching and learning activities. They are whatever materials are used in the process of instruction. They are broad range of resources which can be used to facilitate effective instruction. They indicate a systematic way of designing, carrying out and employing the total process of learning and communication and employing human and non-human resources to bring out a more meaningful and effective instruction (Monsuru, 2015).

Instructional resources has also been defined as aids designed to supplement written and oral communications encountered in the interactive negotiation of knowledge, attitudes and ideas. Such aids are also used to emphasize, clarify and analyse concepts during instruction (Adesina, Salami, Awopetu and Ojediran, 2010). Instructional materials are the tools used in educational lessons, which includes active learning and assessment. Basically any resource a teacher uses to help his students is an instructional material.

The use of instructional resources enables teachers to convey their messages to the learners in the most economical, convenient, simple and practical means. Classroom teachers need instructional resources because; they help to capture and hold learners' attention and help them to retain important information; they illustrate, emphasize and clarify points; they reinforce teachers' words and learning experiences; they provide realistic demonstrations of applied skills and attitudes; they can multiply and widen the channels of communications between teachers and learners and they provide the learners with multi-sensory stimulation (Adesina et. al. 2010).
We are living in a constantly evolving digital world. Information and Communication Technology (ICT) has become a global phenomenon of great importance and concern in all aspects of human endeavour, spanning across education, governance,

labour, business, marketplace, agriculture, commerce, e.t.c. It has an impact on nearly every aspect of our life from working to socialising, learning to playing. The digital age has transformed the way young people communicate, network, see help, access information and learn. Many countries of the world now regard the mastering of the basic skills and concepts of ICT as an inevitable part of the core of Education as it has become one of the fundamental building blocks of modern society. To this end various new models of education are evolving in response to the new opportunities that are becoming available by integrating ICT and in particular Web-based technologies into the teaching and learning environment (Abimbade, 2006). He described Information and Communication Technologies as essential tools in any educational system. They have the potentials of being used to meet the learning needs of individual student, promote equality of educational opportunities; offer high quality learning materials; increase self-efficacy and independence of learning among students, and improve teachers' professional development.

Online Instructional resources are instructional resources obtained from the web or from the internet. The internet is a collection, retrieval, use and storage and communicating information through the use of computers and micro -electronic system. It refers toa connection of a very large number of computers using communication networks, such as telephone lines to exchange information worldwide. The use of Internet includes the use of technology in schools to improve learning and to facilitate educational development, establishment of networks and/or the installation of equipment. It also implies a process of appropriate, regular and regulated use of interactive technology with incurred beneficial changes in school practices and students' learning outcome (Onwu and Ngamo,2005). According to Aina (2013), Internet allows access to information anywhere in the world; promote unrestricted networking; fosters communities empowerment and spread of knowledge; and it offers citizens the means to organize themselves and produce cultural codes to represent themselves. It is widely recognised that learners are motivated and purposefully engaged in the learning process when concepts and skills are underpinned with technology and sound pedagogy. Mar-ikemenjima (2005) says Information and Communication Technology (ICT) enhances administrative functions of teaching and learning, which in turn has a direct impact on pedagogy. With the rapid growth of the internet, many educational institutions began the use of internet as a new medium to assist their teaching, research and other activities. Using the internet in teaching and research makes communication between the teachers and students more convenient and interesting. Because of the attractive nature of the internet, some secondary school teachers have begun to inject online resources to their teaching to make it more interactive and interesting.

There are series of online instructional resources that can be accessed by teachers to teach and explain scientific concepts visually as they occur naturally. Teachers now have a range of tools available on the internet to help make science a fun. The information can be downloaded and stored on electronic devices such as flash drives, compact discs e.t.c which can be used by the teacher at any time. Technological advances including JAVA/IP network applications, rich streaming media, high-bandwith access and advanced website design now characterised e-learning.

Teachers can explore the internet to obtain information which will broaden their knowledge and assist their teaching. They can make use of flash drive to store information and use them later. Teachers can also make use of the internet when preparing lesson so that they will be able to be in touch with what their counterparts all over the world are doing and also be able to have first-hand information on current trends and best practices in their profession. Teachers can also download experiments on-line and use them to teach their students to improve their understanding of scientific concepts. Teachers can record their teachings and demonstrations of experiments on video for the students either before the normal class teaching to serve as advance organizers or even after the class teaching to serve as effective tool for remembering concepts taught in the classroom.

According to Ololube, Ubogu and Ossai (2007), the introduction of ICT usage, integration and diffusion has initiated a new age in educational methodologies, thus it has radically changed the traditional method of information delivery and usage patterns in the domain as well as offering contemporary learning experience for both teachers and students. However, the effective integration of online instructional resources into the classroom depends to a large extent on teachers' ability and familiarity with these websites.

Awareness is knowledge about something that exists or understanding of a situation or subject at the present time based on information or experience. It is knowledge or perception of a situation, fact, consciousness, recognition, realization grasp and acknowledgement concern about and well-informed interest or familiarity in a particular situation or development. Teachers, disposition to the use of internet resources for teaching can be explained in terms of awareness and attitudes of teachers on these internet facilities for teaching.

Today, several fantastic websites are available online to support Basic science teaching. Here are some selected favourites that can be visited and downloaded for classroom science teaching. The information was obtained from Madison County Schools

abcteach

The abcteach site provides members with unlimited access to over 40,000 cross-curricular materials, interactive activities, clip-art, and abc tools custom worksheet generators.

Site: http://www.abcteach.com

ARKive

ARKive is a sperb electronic archive of photos, sounds and moving images of endangered species and Habitats. The pictures and video clips are handy for illustrating lessons.

Site: http://www.sceicemuseum.org

ASK Numbers

Online conversion calculator to convert between various units of measurements. Includes conversion charts, tables and converters

Site: http://www.askmunbers.com

Chem4kids

Chem4kids is a site that teaches the basics of chemistry to everyone. Tutorials on matter, atoms, elements, the periodic table, reactions and biochemistry

Site: http://www.chem4kids.com

CoolMath

This website offers a collection of fun games that are safe to be used in the classroom environment and covers not only maths subjects but geography, science and reading as well as it is a site that can make maths more interesting to students.

Site: http://www.coolmath4teachers.com

Edmodo

Edmodo is the coolest virtual collaboration hub that actually makes social media useful for educational purposes. This website is a great way of providing customised classroom that make the teaching process much more advanced.

Site: http://www.edmodo.com

EDSITEment

EDSITEment offers a treasure trove for teachers, students and parents searching for high quality materials on the internet in the subject areas of language, literature, arts, social studies and culture.

Site: http://edsitement.neh.gov

Exploratirium

Exploratorium Ten cool sites is a collection of cool, interactive sites from the web, hand-picked by the Exploratorium

Site: http://exploratorium.edu

Fact Monster

Fact Monster is a tween destination for homework help and facts on thousands of subjects, including sports entertainment, geography, history, biography, education and health. Fact Monster contains encyclopaedia, almanacs, games, quizzes, research tools, holiday features, lots of self-made microsites for books and more. Site: http://www.factmonster.com

Fun Brain

Funbrain is an online educational games for kids of all ages (Maths, Science, grammar, spelling, e.t.c)

Site: http://www.funbrain.com

The Great Plant Escape

This is a colourful and imaginative website for students investigating how plants grow.

Site:

http://www.urbanext.uiuc.edu/gpe/case4/c4facts1a.html

HippoCampus

HippoCampus' goal is to provide students and educators with access to high quality, free multimedia content on various education subjects.

Site: http://www.hippocampus.org

Illuminations

Illuminations provide an increasing access to quality standard-based resources for teaching and learning Mathematics including interactive tools for students and instructional support for teachers.

Site: http://www.illuminations.nctm.org

Jefferson Lab

Jefferson lab is a site with a collection of teacher and student resources. Look around and you will discover hands on activities, science based games and puzzles, cool videos and a teacher section.

Site: http://education.jlab.org/index.html

NASA Space Place

The NASA Space place has been on for 15 years but it is still one of the best educational science website around. There are hundreds of learning activities and educational games all centeredaround space and technology. Activities include interactive games, puzzles, animations and technology concepts

Site: http://spaceplace.nasa.gov

National Geographic Education

National geographic education brings geography, social studies and science to life. Using real-world examples and National Geographic's rich media.

Site: http://wwweducation.nationalgeographic.com

Naturegrid

This website allows pupils to explore the animals and plant life found in various habitats. It has been developed to address modules within the primary science framework. There are many interactive pages for pupils to explore in a variety of habitats, from woodland to ponds. Information sheets containing interesting facts, food-chains details and life cycles are provided. Site: http://wwwnaturegrid.org.uk/children.html

QR Code Resources for the Classroom

QR Codes can be used as an interesting method to capture a student's attention and make lesson material more interactive.

Site: http://www.Zdnet.com/blog/igeneration/50-qr-code-resources-for-the-classroom

Quia

Quia provides a wide variety of tools, including templates for creating 16 types of online activities using your own content, a complete online testing system with automatic grading, immediate feedback and detailed reporting and access to millions of shared activities and quizzes
Site: http://www.quia.com/web

Quizlet

Quizlet is one of the biggest vocabulary and flashcard learning websites on the net. It has flashcards and vocabulary sets for a wide-range of subjects.
Site: http://www.quizlet.com

Razkids

Razkids presents a full curriculum of reading lessons in the form of mini online books. Students from all ages can easily use the system, and teachers can monitor their students' progress through the same platform.
Site: http://www.raz-kids.com

Rubister

Rubister is a tool to help the teacher who wants to use rubrics but does not have the time to develop them from the scratch.
Site: http://rubistar.4teacher.org

Science clips

The BBC's website has been developed for teachers and pupils. The website is arranged into 36 units of primary scheme of work for science. The resources are interactive, simple and clear and can be displayed as full screen, which is handy for whole-class teaching. There is plenty of scope for differentiation and cross year project work, an interactive experiment and quiz for each unit and a thoroughly comprehensive set of teacher resources for each age group.
Site:
http://www.bbc.co.uk/schools/scienceclips/index_flash.shtm

Schoology

Schoology is a social network and learning management system that allows educators to easily create academic content and share it with their students.
Site: http://www.schoology.com/home.php

Seriously Amazing

Seriously Amazing is an interactive learning web where everyone can learn more about art, science, history and other cultures. The page is a mosaic of questions and pictures and one can explore the page by simply clicking one of the many choices. Seriously amazing is a terrific website and it will engage curious learners for long periods of time.
Site: http://seriouslyamazing-si.edu

Science toys

The science toys website contains dozens of ideas for science experiments and science toys for pupils to make at home. Site: www.sciencetoys.com

Slide Share

Slide Share is the world's largest community for sharing presentation. Besides presentations, slideshare also supports documents, PDFs, videos and webinars.
Site: http://www.slideshare.net

Study Stack

This site contains a variety of online flash card activities. Students may use an existing study stack or create one on their own.
Site: http://www.studystack.com

Teachers Pay Teachers

Teachers Pay Teachers.com---70000+ free and priced teaching resources created by teachers for download including lesson plans, unit plans, novel studies.
Site: http://www.teacherspayteachers.com

Teacher Vision

Teacher Vision is dedicated to helping teachers save time. Find 22000 pages of classroom-ready lesson plans, printable sans resources.
Site: http://www.teachervision.com

TeAchnology

TeAch-nology.com offers a wide variety of free resources intended to bring educators into the world of teaching with technology. It provides links to valuable and useful information relativeto current and best practices in the field of education. A large variety of free classroom materials and support tools are also available.
Site: http://www.teach-nology.com

Thinkfinity

Thinkfinity is the Verizon foundation's free online professional learning community, providing access to over 60,000 educators and experts in curriculum enhancement along with thousands of award winning digital resources for K-12.
Site: http://www.thinkfinity.org

Web Poster Wizard

Web worksheet wizard and project poster have combined to make web poster wizard. This FREE tool allows educators to create a lesson, worksheet or class page and immediately publish it online.
Site: http://www.wizard.4teachers.org

Writinghouse

Writing-house is a citation generator that allows its users to easily create bibliographies and citations in the format required for their document. Being able to instantly use the correct referencing style.
Site: http:// www.writinghouse.org
These sites were obtained from Madison County Schools.
www.madison-school.com/domain/2734.
Therefore, for teachers to be able to use these online instructional resources, awareness is very paramount in order to access digital contents of distant library and databases using computers and internet. The question this study intend to provide answer to is "are teachers in the middle schools in Osun state, Nigeria aware of these interesting sites?"

The study is limited to Osun state middle schools in Southwestern Nigeria. The use of On-line resources was assessed in teaching Basic science. Three local

government areas were selected from each of the senatorial districts.

The specific objectives of the study are to:

(i) investigate teachers' awareness of the Online instructional resources for teaching Basic science in the public middle schools in Osun state, Nigeria for National sustainable Development;

(ii) investigate extent of teachers' use of online instructional resources in theBasic science classrooms;

(iii) examine the challenges faced by science teachers in using Online Instructional resources for teaching in Osun State public middle schools.

Research Questions

The study will be guided by the following research questions

(a) Are Basic science teachers aware of online instructional resources/materials for teachingBasic science in public middle schools in Osun state for National sustainable development?;

(b) What is the extent of teachers' use of online instructional resources in the Basic science classroom in Osun state?; and

(c) What are the challenges faced by science teachers in using Online Instructional resources for teaching Basic Science in Osun state middle schools.

METHODOLOGY

The study employed 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 consisted of all the Basic science teachers in the public middle schools in Osun state. The sample consisted of 72Basic science teachers selected using multistage sampling technique. From the three senatorial districts in the state, three Local Government Area each were selected from the senatorial districts using simple random sampling technique. From each local government area, four middle schools were selected using simple random sampling technique and from each school, two Basic science teachers were purposefully selected making a total of 72 Basic science teachers.

One research instrument was used to collect data for the study. This is a questionnaire titled "Teachers Awareness of Online Instructional Resources Questionnaire (TAOIRQ) for teaching Basic science. The questionnaire consisted of four sections. The first section (section A) dealt with demographic variables of the respondents which include sex, qualification, years of teaching experience and level of computer literacy. Section B sought for the teachers; awareness of online instructional resources for teaching science; while section C contained items that sought for the extent of science teachers' use of online learning resources in teaching Basic science and Section D was on challenges faced by the teachers on the use of online resources for teaching. The questionnaire was validated by giving it to an expert in test and measurement in Faculty of Education, Obafemi Awolowo University, Ile-Ife who examined the items in the questionnaire and the objectives of the study and made some suggestions. His suggestions were used for further revision of the instruments.

Data Collections and Analysis

The researcher with the assistance of one research assistant visited the secondary schools selected for the study. We sought for the cooperation of the Basic science teachers in responding to the items in the questionnaire. The questionnaire were administered to the respondents and collected back after ensuring that all the items have been attended to. The study lasted for six weeks. The data collected were analysed using frequency counts and percentages.

RESULTS

Research Question one: Are Basic science teachers aware of the online instructional resources/materials for teaching Basic science in public middle schools in Osun state?;

In order to answer this question, the first section of the questionnaire administered toBasic science teachers was analysed using frequency counts and percentages. The result is presented in table 1.

Table 1: Awareness of Online Instructional Resources for Basic science Teaching in Osun state middle schools for National Sustainable Development

ITEMS	YES		NO	
	Frequency	(%)	Frequency	(%)
Are you aware of Online/Internet instructional Resources/Materials for teaching Basic Science?	10	13.88	62	86.12

Based on the responses obtained as displayed in table 1, only 13.88 % of Basic science teachers are aware of Online Instructional Resources for teaching and learning While 86.12% of the respondents claimed that they were not aware. The result can be represented with bar and pie charts as shown below.

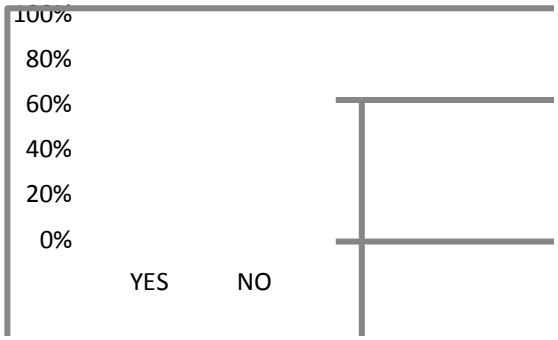

Fig. 1: A bar chart showing the awareness of Basic science teachers to Online Instructional resources

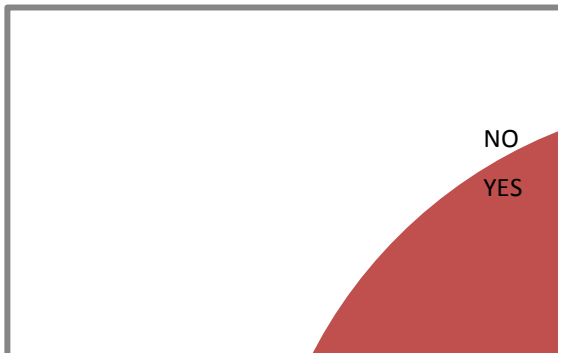

Fig.2: Pie chart showing the awareness of Basic science teachers of Online Instructional resources.

Result showed that a large proportion (86.12%) of Basic science teachers in the state of Osun public middle schools were not aware of Online Instructional resources for teaching in the classroom. The result corroborates the study carried out by Onasanya, Shehu, Ogunlade and Adefuye (2011). They examined teachers' awareness and extent of utilization of information and communication technologies on effective teaching of science and health education in Nigeria. their result indicated that the level of awareness and utilization were very low.
Also, Obidike, Anyike, &Enemou (2011) examined the awareness of teachers of nursery and primary schools on the existence of the technological resources that could be used to support children's literacy instruction. The finding was that both the nursery and primary school teachers are not aware of hoe technological resources could be used for teaching. However, study by Ozdemir and Bonk (2012) on Turkish Teachers' awareness and perceptions of open educational resources. Findings showed that teachers are aware of open educational resources to a certain degree.

Research Question two: To what extent do Basic Science teachers in the public middle schools in Osun state utilize online instructional resources in the Basic science classroom?
To answer this question the responses of science teachers (Biology, Chemistry and Physics) on the use of ICT resources in the science classroom were analysed using frequency counts and percentages. The result obtained is presented in table 2.

Table 2: Science Teachers use of ICT resources in the classroom

S/N	ITEMS	Often		Seldom		Never	
		frequency	(%)	frequency	(%)	frequency	(%)
1	Visit web pages on Teaching resources	00	0.00	05	6.94	67	93.06
2	Download teaching resources from web sites	00	0.0	02	2.78	70	97.22
3	Bring web resources to the classroom	00	0.0	02	2.78	70	97.22
4	Use of Online/Internet Instructional Resources for teaching Basic science	00	0.0	02	2.78	70	97.22
5.	Use of ICT facilities in the science classroom	00	0.0	08	11.11	64	88.89

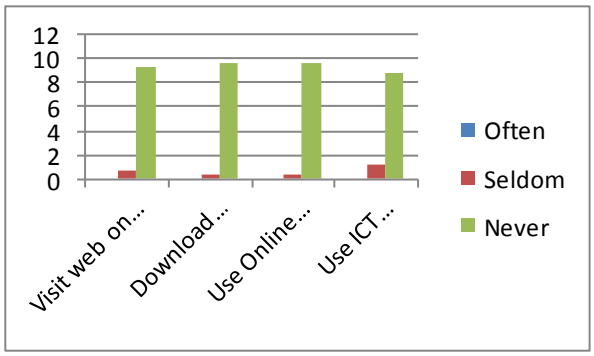

Fig. 3. A bar chart showing Science Teachers use of ICT resources in the classroom

Results displayed in the table 2 above showed that majority of the Basic science teachers (93.06%) in the middle schools in Osun state have never visited any web- site on teaching resources. Likewise, they have never downloaded any online instructional resources for teaching Basic science. Also, most (97.22%) of the teachers have not used Online/Internet Instructional Resources for teaching in the classroom. Results also showed that many of the secondary school science teachers (88.89%) do not make use of ICT facilities for science teaching. This is as a result of the non-availability of ICT facilities in the schools. Similar result was reported by Njelita and Emendu (2015). They submitted that there were no ICT facilities in schools, that some of the desktops available were not functional, some were not installed but packed somewhere for security reasons. There were no computer laboratories where the teachers/students can use ICT facilities. This study is consistent with those of Obidike, Anyika, &Enemou, (2010) in their study on Teachers awareness of the existence and use of technology to promote children's literacy instruction. Their findings were that both the nursery and primary school teachers are not aware of how technology resources could be used. Another research study by Adika and Adeyinka (2007) examined Nigeria secondary school teacher's uses of internet and its implications for further development of ICTs use in Nigerian secondary schools. Result showed that generally have access to ICTs in their various schools except e-mail and internet because their schools were not connected.

Similarly, Thanuskodi (2010) studied the awareness of the internet and electronic resources for teaching, he found out that majority of teachers were aware of e-resources on the internet but they lacked the techniques of accessing such information in order to use them for academic work. The result also conforms with those of Ching, Kong and Cheng (2011) on their study titled "Teacher's selection and use of internet-based resources and tools to facilitate learning in primary classrooms" Their findings revealed that the use of online tools in primary classrooms in Hong Kong is an uncommon practice and the teachers are relying heavily on printed worksheets instead.

Research Question Three: What are the challenges faced by science teachers in using Online Instructional resources for teaching Basic Science in Osun state middle schools? To answer this question, the responses obtained on the challenges faced by Science teachers in public Middle schools in Osun state on the use of Online Instructional Resources were also analysed. The result is presented in table 3 below.

Table 3: Challenges faced by Science Teacher in Using Online Instructional Resources for Teaching Basic Science

S/N	Items	Yes (%)	No (%)
1	Non availability of ICT resources	70 (97.22%)	02 (02.78%)
2	Inability of teachers to use the resources/Non computer literate	10 (13.89%)	62 (86.11%)
3	Non availability Internet services in the school	72(100%)	00 (0.0%)
4	Large population of students	02(2.78%)	70(97.22%)
5	Poor knowledge of teachers about the websites on Instructional resources	60 (83.33%)	12 (16.67%)
6	Non availability of fund to purchase and maintain ICT resources	72(100.0%)	00(0.00%)
7	Lack of seminar/workshop to inform teachers on the Online instructional resources in teaching and learning	60 (83.33%)	12 (16.67%)
8	No source of Power supply in Schools	56(77.78%)	16(22.22%)
9	Poor knowledge of science teachers on the use of ICT facilities for teaching	40 (55.56%)	32(44.44%)
10	No ICT laboratory in the school	72(100%)	00 (0.0%)

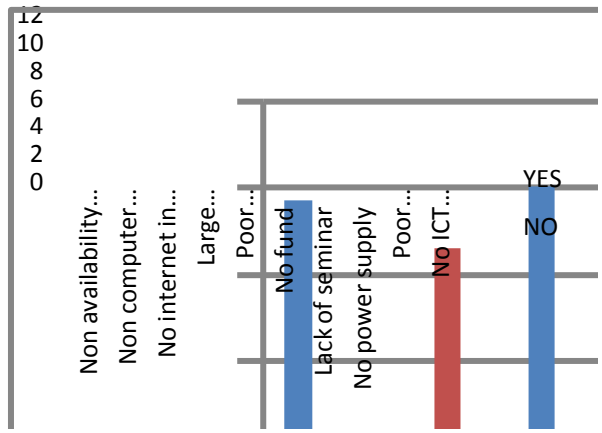

Fig. 4. A bar chart showing the Challenges faced by Science Teacher in Using Online Instructional Resources for Teaching Basic Science

The result presented above revealed that most middle schools have no internet facilities. All the respondents (100%) agreed that they have no internet facilities in their schools. Result also revealed that teachers (83.33%) had poor knowledge of the websites on Instructional resources for teaching basic science. Also, the teachers agreed that there were non- availability of fund to purchase and maintain ICT resources in the public middle schools. In addition result indicated that there was lack of seminar/workshop (83.33%) to inform teachers on the availability of online instructional resources in teaching and learning. It was further revealed that many Basic science teachers (55.56%) had poor knowledge of the use of ICT facilities for teaching. Finally all the respondents maintained that there was no Computer laboratory in their schools.This 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 teachers have difficulties in the use of ICT facilities in teaching and this is associated with non-availability of ICT facilities in the school and weakness of teachers' knowledge about what technologies are available and how they can be used in Nigerian secondary schools.

This study is also in line with study by Njelita&Emendu (2015) and Okanlawon and Ayode (2017). They submitted that ICT materials were not adequately supplied in schools and some of the desktops supplied were not functional while some were yet to be installed but packed somewhere for security reasons. Also, the findings of Olaobaju (2017), indicated that though teachers are knowledgeable in the use of ICT facilities, but the facilities are not available for teaching Chemistry in the High schools in Osun State. Also, Ochuku et.al. (2013) identified some constraints to effective utilization of ICT especially the e-learning technologies to include poor perception and conservative attitude of lecturers on the use of e-learning technologies for instructional delivery, shortage of qualified staff with capacity in e-learning applications, lack of training and retraining of staff and students in e-learning technologies and applications and inadequate time allocated to e-learning instruction and applications

CONCLUSION

The study concludes that Basic science teachers in public schools in Osun state, Nigeria are really not aware of Online Instructional resources and hence are not put in use by them in the classroom. Series of Factors are responsible for this ranging from non-availability of internet facilities in schools, non-availability of ICT resources in schools to lack of training workshop for the teachers on using online resources for classroom teaching. This has made it impossible for the science teachers to use online resources and ICT resources to teach in the classrooms

Contribution to Knowledge

The study provided information on Internet/Online instructional resources that are available which could be used for classroom teaching and learning.

The study is also to sensitize Basic science teachers on the available online resources for teaching and on the need to visit the internet to get real life instructional resources for teaching for National sustainable development

The study will also inform the state Government of the need to provide Internet service in the school to enables teachers to have the opportunity of visiting the websites to search for and use online resources to teach their students especially in Basic science for National sustainable development.

RECOMMENDATIONS

Based on the result obtained from this study, the following recommendations are made:

The Government in the State should endeavour to provide ICT resources for science teaching in public secondary schools.

The State government should provide internet facilities in schools to enable teachers to access the internet and search for resources online for use in the classroom to enhance understanding of science concepts

Government should organise regular workshops, seminars and in-service training for science teachers, head teachers/principals to enable them see the importance and how ICT resources/online resources can be used for teaching and learning.

Ministry of Education should embrace ICT integration for the development of ICT friendly curriculum in the sciences. This will provide the pathway for easy application of ICT in teaching and learning

REFERENCES

Abimbade, A (2006). ICT in Education: Teacher Preparation and Quality Assurance in Africa. *Journal of E-Learning (JOEL). Vol. 2. No1.*

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*

Ajadi,T., Salawu, O., and Adeoye, F. (2008). E-Learning and Distant Education in Nigeria. *Turkish on-line Journal of Educational Technology, Vol 7. No. 4*

Ching, F. N. Y., Kong, S.C. & Cheng, M.M.H (2011).Teachers' Selection and Use of Internet-Based Resources and tools to Facilitate Learning in Primary Classrooms.*Education in a Technological World.*www.formatex.info/ict/book/440-447.pdf

Mar-Ikemenjima, D. (2005). The Integration of ICT into the school system : Our Roles. *Paper Presented at the Student Leaders IT Conference, University of Benin, Nigeria.*

Monsuru, B. M. (2015). Relevance of the Use of Instructional Materials in Teaching and Pedagogical Delivery: An overview. *Handbook of Research on Enhancing Teacher Education with Advanced Instructional Technologies p.21*

Morrisa, S. (2011).A study on the use of ICT in teaching in secondary schools in Kuwait. *An unpublished Ph.D thesis of Cardiff Metropolitan University.*

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*

Obidike, N.D., Anyika, N.E. &Enemou, J.O. (2010).Teachers' Awareness of the existence and use of Technology to promote Children's Literacy Instruction. *African Journal of Teacher Education, 1(1), 115-125.*

Onwu, G.O. and Ngamo, S.T. (2005).ICT integration in Chemistry. *African Virtual University.*

Onasanya, S. A., Shehu, R. A., Ogunlade, O. O., and Adefuye, A. L. (2011). Teachers' awareness and extent of utilization of information communication technologies for effective science and health education in Nigeria. *Singapore Journal of Scientific Research.*1(1).49-58.

Ozdemir O, & Bonk, C.J. (2012). Turkish Teachers' Awareness and Perception of Open Educational Resources. *Journal of Learning for Development 4(3),* 307-321

Ololube, N. P., Ubogu, A.E. and Ossai, A.G. (2007).ICT and Distance Education in Nigeria, A review of Literature and Accounts. *International Open and Distance Learning (IODL) Symposium.*

Ochuku, I.G., Amakaino, U.J.D, & Chamberlain, K. P. (2013). Utilization of E-Learning Technologies in Business Education Instructional Delivery in Colleges of Education in Delta State of Nigeria. *International Journal of Education and Research, 1(10), p 1-13.*

Thanuskodi, S. and Ravi, S. (2011). Use of digital resources by Faculty and Research Scholars of manonmaniam Sundaranar University, *Journal of Library and Information Technology, 31(1), 25-30.*

Okanlawon, A., & Ayoade, E. (2014). Nigerian Teachers' Perception of Barriesrs to Technology Integration into the Chemistry Instructions, *International Journal of Science and Technology, Ethiopia, Vol.3.(2)*

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.*

Okwudishu, C. H. (2005). Awareness and use of Information and Communication Technology (ICT) among village secondary school teachers in Aniocha South Local Government Area of Delta State, Abraka. *Unpublished B.Sc. (LIS) project Delta State University, Abraka.*