Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.6, No.17, 2015

Impact of E-Learning and Digitalization in Primary and Secondary Schools

Sunday Tunmibi [1] Ayooluwa Aregbesola [2*] Pascal Adejobi[1] Olaniyi Ibrahim [1]
1.School of Computer Science, Mathematics and Information Technology, Houdegbe North American University, Republic of Benin
2.Centre for Learning Resources, Landmark University, P.M.B 1001, Omu-Aran, Nigeria
* E-mail of the corresponding author: aregbesola.ayooluwa@lmu.edu.ng

Abstract
This study examines into the impact of e-learning and digitalization in primary and secondary schools, using Greensprings School in Lagos State, Nigeria as a case study. Questionnaire was used as a data collection instrument, and descriptive statistical method was adopted for analysis. Responses from students and teachers reveal that application of e-learning technology in schools will help to promote an efficient, effective and productive way of teaching. More so, e-learning promotes better communication and helps teachers and students to share accountability for learning and achievements. The study shows that most students agreed that e-learning help students to have access to unlimited source of information; reveals connection between subjects; promotes critical thinking; and encourages students' way of learning. The study further shows that majority of the teachers agreed that e-learning is easier and effective; helps to further develop teachers' computer skills; and brings out the best in students. Interestingly, the two parties agreed that e-learning helps teachers and students to share accountability for learning and achievements.
Keywords: E-Learning, Digitalization, Virtual Learning Environment (VLE), Greensprings, School, Lagos State, Nigeria.

1. Introduction

Africa now has more children in primary school than ever before, more girls going to school and more women who are literate (Isaacs and Hollow, 2012). E-learning is an extended form of classroom teaching where learning, either online or offline is facilitated by the use of computer, telecommunication devices, networks, and storage capacity. On top of its easy delivery of information and interactive nature, the main benefit behind using the E-Learning instead of the traditional way is that Learners develop communication as well as personal skills such as autonomy, analytical perception, abstraction and others (Dargham, Saeed and Mcheik, 2013). Over the years, Information and Communication Technology (ICT) has grown to become an important driver of e-learning and digitalization.

Aiyebelehin (2012) as cited by Makinde, Makinde and Shorunke (2013) studied the influence of teachers' information needs on ICT use in schools in Oyo state, Nigeria and found that, computer, multimedia boards, projectors, telephones, internet, scanners, and photocopiers were used by teachers. Further from his findings the largest percentage of computer users (57.26%) reported to be monthly users, the largest percentage of multimedia users (52.56%) reported to be occasional users, and the largest percentage of projector users 125 (53.42%) reported to be occasional users. Earlier, Ajadi, Salawu and Adeoye (2008) observed that the most common type of e-learning adopted in Nigerian schools was in the form of lecture notes on CD-ROM which can be played whenever the learners desire.

There are very few known schools that have adopted high level digital education in Nigeria. Greensprings School, located in Lagos state, is one of the first schools in Nigeria to provide students with such learning edge technology and it has undoubtedly made teaching and learning more enjoyable and productive. In October 2012, the school officially launched their virtual learning environment (VLE) program tagged Greensprings Virtual Learning Environment Program. Teachers at both primary and secondary schools went through extensive training in the use of interactive whiteboards, android tablets and laptop computers. The VLE program was phased across the school as follows:

- Years 1, 2 and 3 started with the use of android tablets
- Years 4, 5 and 6 soon thereafter started with a higher level brand of android tablets
- Years 7-11 were issued classmate PCs (personal computers) while year 12 already had these classmate PCs.

Later in 2013, the school adopted the use of multimedia technology called EUREKA to complement their lectures notes. The school adopted this medium because it is easier for students to assimilate through multimedia. The application had over 4,000 topics covering nursery, primary, secondary, IGCSE and A-levels sections. This study is based on the impact of e-learning and digitalization on schools, using the primary and secondary schools of Greenspring as a case study.

2. Literature Review

E-Learning is a term that encompasses a broad array of content and instruction methods, and that has come to mean a new model of education involving revised curriculum, infrastructure, teacher professional development, textbooks, and exams to provide students with technology and "21st century skills" such as creative problem solving. A particularly useful aspect of ICT in education includes accessing the enormous amount of educational resources on the Internet and online libraries. The networking of teachers, students and others can also produce a lively community sharing information, ideas and strategies. (Olson, Codde, deMaagd, Tarkelson, Sinclair, Yook and Egidio, 2011).

The provision of an E-Learning system is an important factor in providing a comprehensive Information and Communications Technology solution within schools. Blackboard and other similar systems provide an easy to use, well structured medium to assist learning and teaching because students and teachers are able to access information from anywhere around the world. An E-Learning system used properly is an important support structure for the delivery of modern, productive pedagogy (VITTA and Keane, 2005). Pardemean and Suparyanto (2014), in their study, showed that the students' computer skills had a strong correlation with their achievements. Therefore, it is important to consider the influence of computer skills on achievement when implementing ICT into the learning process. A computer skills test should be designed and administered as a part of the student admissions requirements. The test should be taken prior to the students' participation in an e-learning process. Furthermore, the school that implements an e-learning should consider students' computer skills when dividing the students into groups based on students' abilities.

The report from The European EUN Consortium Study from 27 countries suggests that there are two possible reasons for the slow move away from traditional classroom teaching methods. One is that teachers are still learning how to use Virtual Learning Environments (VLEs) in innovative ways, and two, VLEs in their current form hardly support the desired change (Vuorikari, 2003; Lennon and Maurer, 2003). In the United States three in five children under the age of 18—and more than 78% of children between the ages of 12 and 17—go online. For the most part, students' educational use of the Internet occurs outside of the school day, outside of the school building, outside the direction of their teachers. They use the Internet as a: "virtual textbook and reference library …virtual tutor and [most importantly] study shortcut, (includes viewing the Internet as a mechanism to plagiarize material)… virtual study group. Students think of the Internet as an important way to collaborate on project work with classmates, study for tests and quizzes, and trade class notes and observations. .. virtual guidance counselor… virtual locker, backpack, and notebook. Students think of the Internet as a place to store their important school-related materials and as a way to transport their books and papers from place to place. Online tools allow them to keep track of their class schedule, syllabi, assignments, notes, and papers." (PEW, 2003; Lennon and Maurer, 2003)

In a research carried out in Ekiti State, Nigeria, Adeyemi and Olaleye (2010) noted that many schools in Ekiti State are deficient in the availability of information communication and technology (ICT) equipment and facilities. Although most schools have computers and printers, almost all the schools did not have projectors, projectors screen, scanning machines and fax machines. This is an indication that ICT materials are not vigorously provided for the schools and it suggest that, the State is not fully ready to imbibe information communication and technology. The finding however negated the findings made by Adejumo (2000) which indicated a moderate level of usage of ICT in management of secondary school in Lagos State, Nigeria. In a similar research carried out at the University of Lagos, Nigeria, Okiki (2011) reported the following challenges of E-learning: High cost of hardware in Africa; High import tariffs and less price competition; Transmission cost is equally high in Africa; Internet access in Africa is through a foreign gateway; Shortage of skilled manpower; Existing telecommunication infrastructure is in very poor condition; Computer technology illiteracy among the students; Cost of acquiring and installing the gadget required for e-learning; Incessant Power Supply; Maintenance culture; Bandwidth limitations. Limited band-width means slower performance for sound, video and intensive graphics, causing long waits for download that can affect the ease of the learning process.

3. Research Methodology

This study was carried out, using accidental sampling method. A total of 40 students and 40 teachers were sampled, using questionnaire. However, only a total of 32 and 35 were usable out of the questionnaires administered to the students and teachers, respectively. Descriptive statistical method (use of frequency tables and charts) was adopted for analysis.

4. Result

4.1 Demographics

The responses on gender show that sampled male students accounted for 62.5% while female respondents accounted for 37.5%. The highest number of the respondents was from age group 16-20 years with percentage of

50%, followed by the age group of 10-15 years with percentage of 31.25% and age group under 10 years with percentage of 18.75%. Likewise, sampled male teachers accounted for 42.85% while female teachers accounted for 57.15%. For teachers' age, majority of the respondents were from age group 31-40 years with percentage of 60%. This was followed by the age group 21-30 years and age group 41 and above, with a percentage of 20% for each of the category.

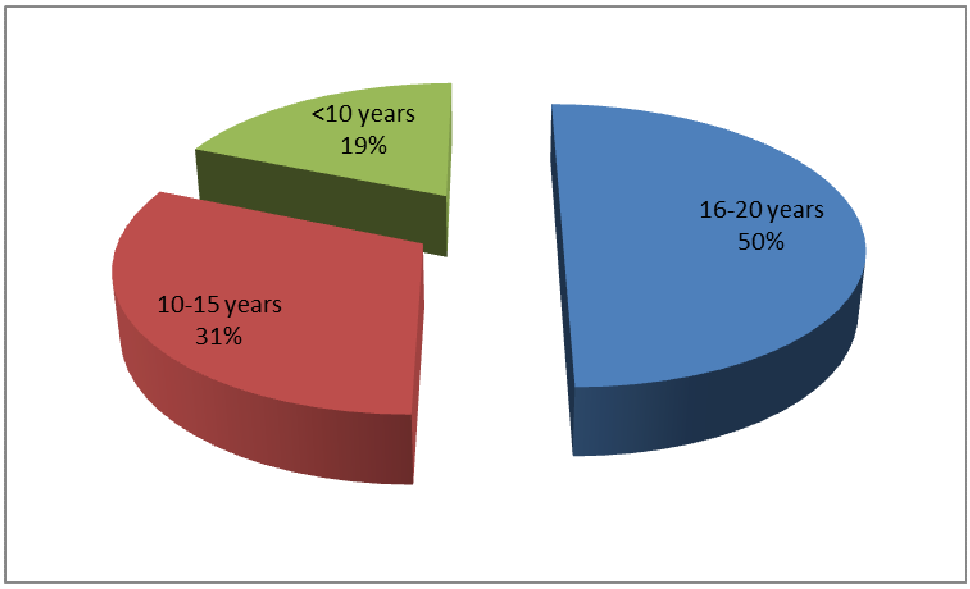

Figure 1: Age of Sampled Students

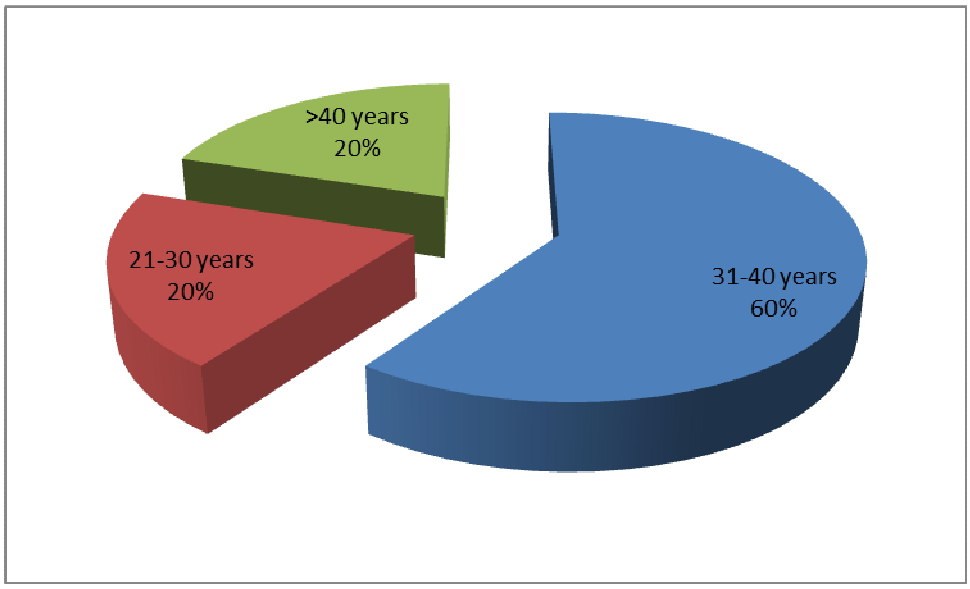

Figure 2: Age of Sampled Teachers

4.2 Other Results

4.2.1 Students' perspective

Majority of the respondents (93.75%) agreed that e-learning further develops student's computer skills; 90.63% agreed that e-learning encourages a student way of learning; 81.25% agreed that the students have infinite access to unlimited information of varying degrees; 68.75% agreed that e-learning helps students study contents in a way that shows connection between subjects; 93.75% agreed that it allows students to use various kinds of technology to conduct research, communicate and create knowledge; 78.13% agreed that e-learning enables students to collaborate with peers, experts, community members and teachers; 71.88% agreed that student's interest and involvement promotes intrinsic motivation and efforts; 56.25% agreed that e-learning makes a classroom environment resemble a work place; 78.13% agreed that this approach of learning encourages very high and critical thinking; 62.50% agreed that teachers and students share accountability for learning and

achievements; 96.88% agreed that e-learning helps students learn faster; 84.38% agreed that e-learning helps students who do not learn best by listening to learn better; 71.88% agreed that e-learning is the best method for learning; and 90.63% of the respondents agreed that e-learning prepares students for life after school.

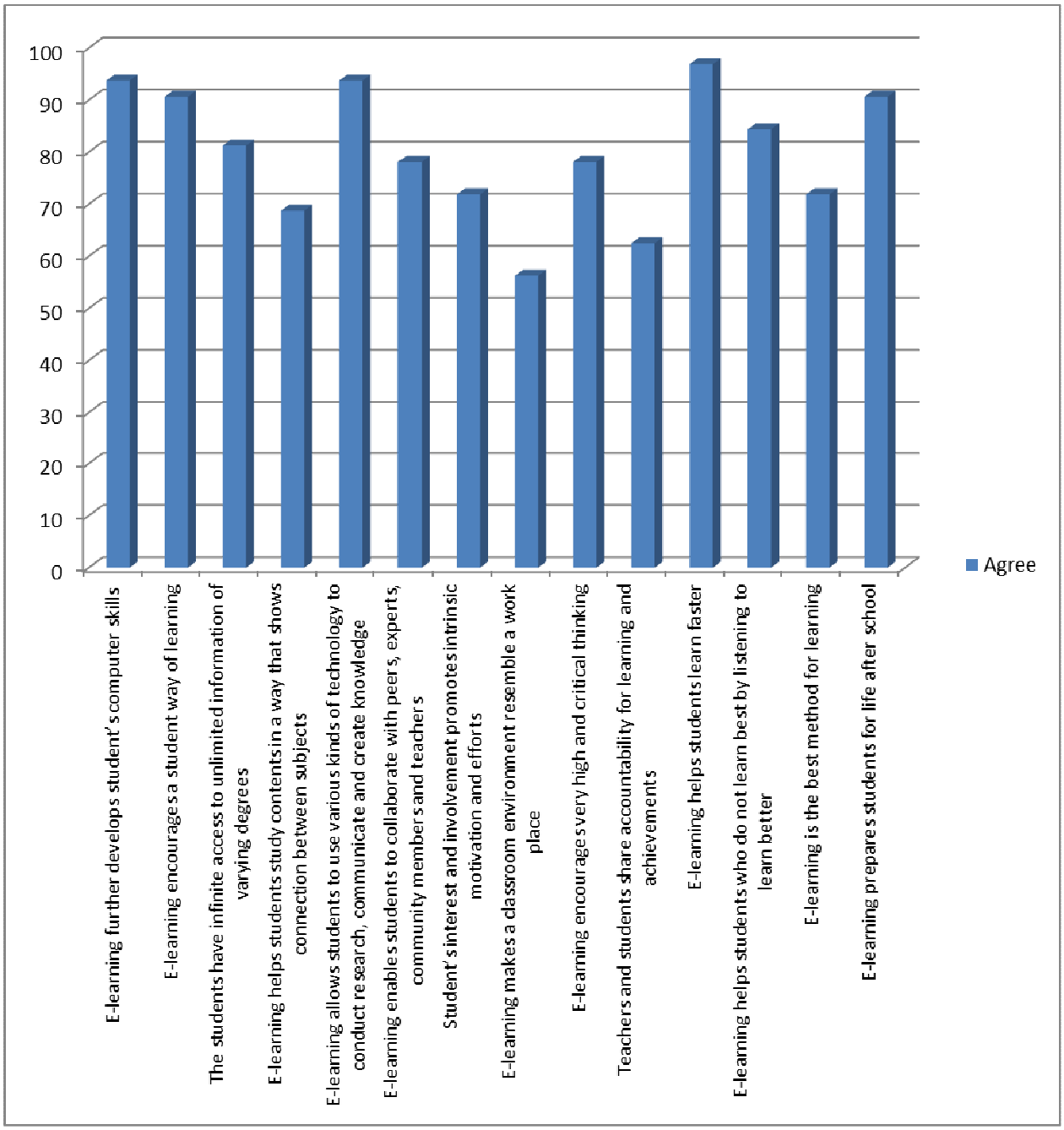

Figure 3: Students' Perspective on E-learning

4.2.2 Teachers' perspective

Higher percentage of respondents (85.7%) agreed that e-learning makes teaching easier and efficient; 77.1% agreed that e-learning introduces technology skills in a practical way that results in the creation of tools and documents that can help increase teacher's productivity; All the respondents (100%) agreed that e-learning helps to further develop teacher's computer skills; 85.7% agreed that e-learning helps teachers teach more effectively and increase productivity; 68.6% agreed that delivering lectures in an electronic way brings out the best in students; 82.9% agreed that e-learning helps teachers get the full attention of their students; 91.4% agreed that the teacher provides opportunities for students to apply their skills and construct their knowledge; 54.3% agreed that the teachers and students share accountability for learning and achievement; 82.9% agreed that the teachers use various kinds of technology to conduct research, communicate and create knowledge; 77.1% agreed that e-learning is the best method of delivering lectures in schools; and 85.7% of the respondents agreed that e-learning

provides teachers and students the opportunity to communicate in class at all times.

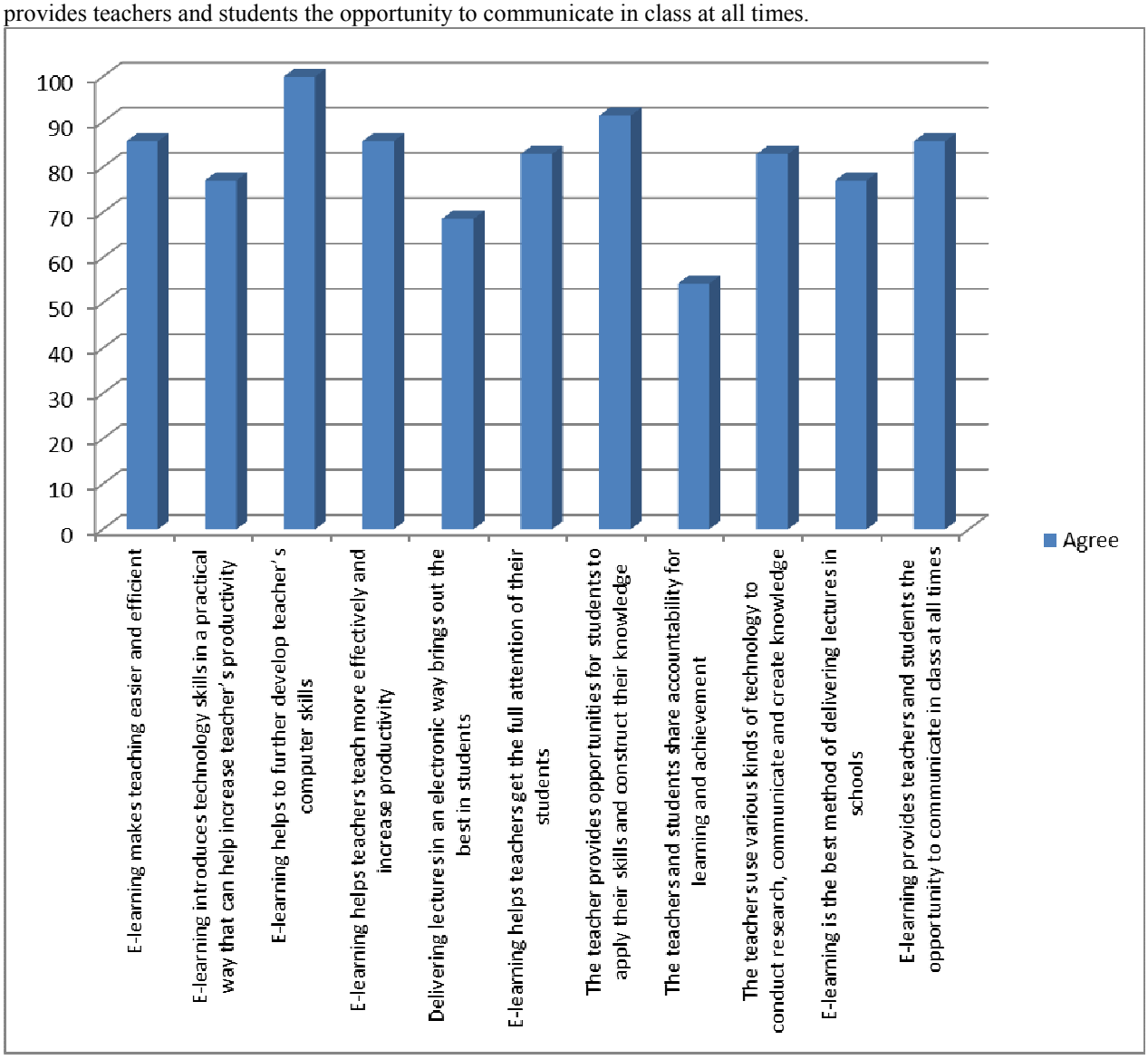

Figure 4: Teachers' Perspective on E-learning

5. Conclusion

This study focuses on the impact of e-learning and digitalization on primary and secondary education in Nigeria, using Greensprings school as a case study. The hardware components of a typical classroom in the school consists of teacher's personal computer, student's personal computer electronic white board, radio for communication between the teacher's PC and student's PC, headphones and microphones. The application softwares include Classroom Management by mythware, Eureka and needed Microsoft Office applications. With these applications, teachers can manage the class; broadcast his/her screen to one or more students; monitor the desktops of students (the teachers can as well, remotely, start up and shut down all students' PC); have a group teaching and group chat with the students; simultaneously distribute a file or directory to multiple students; etc. The students can also submit their works to the specified directory on the teacher's PC; and demonstrate the operations of his/her desktop to the teacher and other students.

The study shows that most students agreed that e-learning help students to have access to unlimited source of information; reveals connection between subjects; promotes critical thinking; and encourages students' way of learning. The study further shows that majority of the teachers agreed that e-learning is easier and effective; helps to further develop teachers' computer skills; and brings out the best in students. Interestingly, the two parties agreed that e-learning helps teachers and students to share accountability for learning and achievements.

References

Adejumo, G. (2000), "Communication for Management", Lagos Malt house Press Ltd, 24-46.
Adeyemi, T.O. & Olaleye, F.O. (2010), "Information Communication and Technology (ICT) for the Effective Management of Secondary Schools for Sustainable Development in Ekiti State, Nigeria", *American-Eurasian Journal of Scientific Research* **5**(2), 106-113.
Aiyebelehin, J.A. (2012), "The influence of teacher's information needs and seeking behaviour on ICT use in secondary schools", *Masters Thesis*, University of Ibadan, Ibadan, Nigeria.
Ajadi, T., Salawu, O. & Adeoye, F. (2008), "E-learning and Distant Education in Nigeria, Turkish on –line Journal of Educational Technology, **7** (4).
Dargham, J., Saeed, D., & Mcheik, H. (2013), "E-Learning at school level: Challenges and Benefits", *The 13th International Arab Conference on Information Technology*, 340-345.
Isaacs, S. & Hollow, D., (eds) 2012, "The eLearning Africa 2012 Report", ICWE, Germany.
Lennon, J. & Maurer, H. (2003), "Why it is Difficult to Intoduce e-learning into Schools And Some New Solutions", Journal of Universal Computer Science, **9**(10), 1244-1257.
Makinde, S.O., Makinde, O.O. & Shorunke, O.A. (2013), "ICT Literacy of Language Teachers in Selected Lagos State Secondary Schools, Nigeria", African Journal of Teacher Education 3(3).
Okiki, C.O. (2011), "Information Communication Technology Support for an ELearning Enviroment at the University of Lagos, Nigeria", Library Philosophy and Practice 610.
Olson, J., Codde, J., deMaagd, K., Tarkelson, E., Sinclair, J., Yook, S. & Egidio, R. (2011), "An Analysis of e-Learning Impacts & Best Practices in Developing Countries With Reference to Secondary School Education in Tanzania", Information and Communication Technology for Development, Michigan state University. tism.msu.edu/ict4d.
Pardemean, B. & Suparyanto, T. (2014), "A systematic Approach to Improving E-Learning Implementations in High Schools", The Turkish Online Journal of Educational Technology, 13(3), 19-26.
PEW (2003), "PEW Internet Project: Summary of Findings", http://www.pewinternet.org/reports/reports.asp?Report=67&Section=ReportLevel1&Field=Level1ID&ID=292.
VITTA & Keane, T. (2005), "Is there a role for e-learning in secondary schools"? *Infonet* **15**(1).
Vuorikari (2003), "EUN Consortium study: Insight Executive Summary: Virtual Learning Environments for European Schools."
http://insight.eun.org/eun.org2/eun/en/Insight_Policy/content.cfm?ov=25201&lang=en.

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Academic conference: http://www.iiste.org/conference/upcoming-conferences-call-for-paper/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar