Assessment of Effectiveness of E-Learning Tablet (OPON-IMO): A Package for Teaching-Learning in Senior Secondary Schools in Osun State

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ABSTRACT

For any meaningful teaching-learning to take place in schools, it is important that students are well directed, guided, facilitated, and supported with device that will enhance attainment of academic goals. Hence, the thrust of the study was to investigate the acceptability and the knowledge of students on the use of tablet as well as ascertaining the influence these have on the effective teaching-learning and academic performance of students. The sample of 250 senior secondary school teachers were selected from 12 schools in Osun State using multistage sampling technique. The results showed that 106(42.4%) of the teachers moderately perceived that their students accepted the e-learning tablet for teaching-learning activities. It showed that 127(50.8%) of the teachers indicated that their students possessed average knowledge on how to use e-learning tablet for learning. Also, the result showed that the most perception among the teachers was that textbook materials in the tablet were relevant and appropriate ($\overline{X}$ = 2.9840, S.D = 0.87338). Again, the result revealed a significant influence of levels of acceptability of e-learning tablet on teaching-learning activities in senior secondary schools (F = 23.865, p < 0.05). Finally, the result showed a significant influence of students' knowledge on use of e-learning tablet on their academic performance (F= 58.472, p < 0.05). The study concluded that most teachers perceived that their students welcomed the integration of the e-learning tablet into teaching-learning and that the learning materials in the tablet were relevant and appropriate.

Keywords: *Assessment, E-learning tablet, Opon-imo, Effectiveness, Teaching-learning.*

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Highlights of this paper

- This study was to investigate the acceptability and the knowledge of students on the use of tablet as well as ascertaining the influence these have on the effective teaching-learning and academic performance of students.
- The sample of 250 senior secondary school teachers were selected from 12 schools in Osun State using multistage sampling technique.
- The study concluded that most teachers perceived that their students welcomed the integration of the e-learning tablet into teaching-learning and that the learning materials in the tablet were relevant and appropriate.

1. INTRODUCTION

In the present world, technology can be seen as of the bases of human existence. Its effect has permeated into almost every part of our culture to the extent to no one can live successfully without it. Adomi and Kpangban (2010) expressed that technology has impacted on all areas of human activity. This can be seen in human life such as education, health, entertainment and sports. It affects how we live, work, play, and most importantly learn. It is for this reason that the technology is being integrating into the school system. According to Almekhlafi (2006) technology has become an increasingly important part of higher and professional education. As a result of this, technology does not only give learners the opportunity to control their own learning process, but also provides them with ready access to a vast amount of information over which the teacher has no control (Lam and Lawrence, 2002). Therefore, it is pertinent to state that every serious country who aims to compete favourably in todays' knowledge economy should rethink her process of educating her young ones, Lane (2012). Otherwise, it can convincingly state that using an old method of teaching for the present crop of students will only yield old result.

Collins and Halverson (2010) observed that the ultimate goal of education is to prepare students for productive and independent lives within their society. Also, Olagunju (2003) and Nancy (2008) remarked that no country can claim to be educationally advanced unless it embraces technology for her educational activities, for easy transition of citizens from the information society into the emerging global knowledge economy. Consequently, Nigeria in her National Policy on Education (2004) mentioned that the aim of education should be to meet the needs of individual citizens and society at large in consonance with the realities of our immediate environment and modern world. To this end, one of the philosophies and goals of Nigeria educational policy is that modern educational techniques shall be increasingly used and improved upon at all levels of the educational system to bring about the desired educational outcomes.

Arising from the above, Nigeria has been making frantic effort to comply with the technology age. Effort is being made to incorporate technology into school system. As such, certain technology assisted devices such as mobile phones, smartphones, e-readers and tablets are being introduced as aids to teaching-learning activities. Several researchers have highlighted the importance of ICT. For instance, Moursund (2005) explained that information acquired through digital technology has the capability of promoting innovation, increasing productivity and enriching the quality of lives. Yusuf (2005) opined that ICT has provided opportunities for students, teachers, academic and non-academic staff to communicate with one another more effectively during formal and informal teaching and learning. In the opinion of Cavas *et al.* (2009) ICT is a potent tool in bringing about an improved learning outcome and enhanced participants attitudes. Supporting the point, Rikala *et al.* (2013) expressed that the application of ICT in education has the potential of contributing substantially towards improving the educational system. Similarly, Singh and Chan (2014) affirmed that integration of ICT in the classroom environment can provide opportunities for students to learn and operate in information age. However, Sahin-Kizil (2011) said appropriate use of ICT in various modes and across various subjects especially in controlled settings is the only condition that can bring the required results.

Realizing the importance of ICT to teaching-learning activities, in 2013, the Government of Osun State in Nigeria took a bold step by becoming the first state in the country to incorporate digital technology-based learning into high school in the state (Aregbesola, 2013). The tablet of knowledge also known as Opon-imo is a standalone Educational Tablets for Self-paced learning at the Senior Secondary School levels. According to Aregbesola (2013) the tablet is regarded as one of the steps taken by the state government towards the realization of globally competent human resources. He also mentioned that the tablet would ease the problem of students carrying heavy bag of books to school, allow access to relevant textbooks in different subjects thereby leading to improved academic performance. Furthermore, Aregbesola also stated that some of the importance of the tablets include: allow the students to learn at their own paces wherever and whenever so wished; eliminate the burden of heavy back-pack for the learners, provide robust and uniform learning content (textbooks, tutorials and past question) and provide feedback mechanism for monitoring students' performance.

Nevertheless, the importance of the tablet, it is believed that the role of teachers in effective incorporation of ICT into schools' system cannot be over-emphasized. Aremu and Fasan (2011) described teachers as the key figures to ensuring the effective utilization of information technology (IT) in education setting. The way teachers perceive technology, how they respond to it, present it, will assist in the accomplishment of their vision for teaching and learning. In addition, Ifenthaler and Schweinbenz (2013) affirmed that if teachers' embrace media tablet and its applications in their teaching practices, it will bring change in their attitudes vis-à-vis technologies going from a weak attitude towards ICT to a confident, affirmative one. Based on this, several studies have revealed the perception of teachers toward the use of tablets by the students for learning. For instance, some researchers have shown that teachers displayed positive perception toward the use of tablet by the students (Hattie, 2013; Ifenthaler and Schweinbenz, 2013; Courtois *et al*., 2014). Also, Heinrich (2012) pointed out that teachers felt that tablet can promote differentiated learning. Contrarily, the study by Karsenti and Fievez (2013) revealed that some teachers believed that personal device such as tablet may be a source of distraction to many students. They held that students can use the device to chat with friends or play games instead of using it for educative purpose. Therefore, Ogunleye (2007) stated that most teachers have negative perception toward the of ICT, hence they are not prepared to use it. Besides, the view of some researchers is that implementing tablet devices into the classroom is not easy, and requires teacher training (Burden *et al*., 2012; Hattie, 2013).

In addition, previous studies have also established the perception of students toward the integration of tablets into teaching-learning activities. The available research, such as from Rossing *et al.* (2012) indicated that students were very positive concerning the use of tablets in higher education, stating these devices are beneficial for immediate access to information and enhancing learning experiences, according different learning styles and preferences. Also, study by Clark and Luckin (2013) remarked that students are generally reported to be positive about the tablet implementation, reporting the possibilities to motivate, engage them to learning, the possibility to make communication between peers and peers, and peers and teachers easier, and the added value for collaboration. In their own contribution, Bonds-Raacke and Raacke (2008) submitted that students did not only maintain positive attitudes towards the implementation of tablets in the classroom, but also perceived tablets as a more interactive, engaging, and effective educational tool compared to standard learning platforms.

Another point that caught the attention of the scholars is the importance of the tablet to students' learning outcomes and academic performance. In their studies, Bayliss *et al.* (2012) revealed that learning using electronic devices did not improve students' performance than that of the printed materials. However, some researchers opined that technology could support the active learning of students in an educational environment, make the students have control of the learning process and enhance collaborative learning among learners (Resta and

Laferrière, 2007; Melhuish and Falloon, 2010; Aebersold *et al.*, 2012). Besides, it was also revealed that regular use of tablets can enhance students' creativity and knowledge building (Abdullahi, 2014; Moruf, 2015). Also, Corlett *et al.* (2005) surmised that the use of tablets could guarantee transition from mass education/teacher-centered education to individualized learning. Bye and large, adoption of tablets in the classroom may be seen as a measure to helping students to achieve meaningful learning which can bring about positive and progressive gains in learning outcomes. Consequent upon this, the study was designed to investigate the acceptability and the knowledge of students on the use of tablet as well as ascertaining the influence which these have on the effective teaching-learning and academic performance of students.

2. RESEARCH OBJECTIVES

i. Investigate the perception of teachers on the levels of acceptability of e-learning tablet for teaching-learning activities by the students in senior secondary schools in Osun State.

ii. Ascertain the perception of teachers on the levels of knowledge of the senior secondary school students on the use of e-learning tablet for learning.

iii. Examine the perception of teachers on relevancy/appropriateness of e-learning tablet to teaching-learning activities in senior secondary schools in the study area.

iv. Determine the influence of levels of acceptability of e-learning tablet on the effective teaching-learning by the teachers and students.

v. Assess the influence of levels of knowledge on use of e-learning tablet on the academic performance of senior secondary school students in the study area.

2.1. Research Questions

1. What is the perception of teachers on the levels of acceptability of e-learning tablet for teaching-learning activities by the students in senior secondary schools in Osun State?
2. What is the perception of teachers on the levels of knowledge of the senior secondary school students on the use of e-learning tablet for learning?
3. What is the perception of teachers on relevancy/appropriateness of e-learning tablet to teaching-learning activities in senior secondary schools?

2.2. Research Hypotheses

1. There is no significant influence of levels of acceptability of e-learning tablet on the effective teaching-learning by the teachers and students.
2. There is no significant influence of levels of knowledge on use of e-learning tablets on academic performance of the senior secondary school students in the study area.

3. METHODOLOGY

The study adopted descriptive survey design. The study population was the teachers of senior secondary schools in Osun State. The sample of 250 teachers were selected using multistage sampling technique. Three local government areas (LGAs) were selected from the three senatorial districts in Osun State using simple random sampling technique. From each LGA, four senior secondary schools were selected using simple random sampling technique. Thereafter, 250 teachers were selected from the 12 schools using proportionate sampling technique. An

adapted instrument titled "Questionnaire on Tablet (Opon-imo) and Teaching-Learning" (QTT) which was divided into six sections was used to collect information from the teachers. Section A was on the teachers' demographic variables. Section B with 16 items sought the perception of the teachers on the students' levels of acceptability of e-learning tablet. Section C had 12 items on the levels of knowledge of students on the use of e-learning tablet for learning activities. Also, section D contained 13 items on the teachers' perception of the relevancy/appropriateness of the e-learning tablet for teaching-learning. Section E had 10 items on the influence of e-learning tablet on effective teaching-learning while section F comprised 12 items on the influence of the device on the students' academic performance. The internal consistency of the instrument was confirmed with Spearman Brown Split-half reliability test which yielded 0.81. Percentage, Rank Order and One-Way Anova were used to analyse the data.

4. RESULTS

The data collected on the effectiveness of e-learning tablet to teaching-learning activities in senior secondary schools in Osun State were analysed with relevant statistical analyses. The results are presented below:

Research question one: What the perception of teachers on the levels of acceptability of e-learning tablet for teaching-learning activities by students in senior secondary schools in Osun State?

Table-1. Teachers perception of their students' level of acceptability of e-learning tablet for teaching-learning activities.

Level	Frequency	Percent
Low	40	16.0
Moderate	106	42.4
High	104	41.6
Total	250	100

Source: Field survey, 2019.

The results Table 1 showed that 106(42.4%) of the teachers moderately perceived that their students accepted the e-learning tablet for teaching-learning activities. Also, 104(41.6%) of the teachers had high perception of the acceptability e-learning tablet by the students while the remaining 40(16.0%) of the teachers had low perception of their students' acceptability of the material. From above, it could be concluded that most teachers perceived that students welcomed the introduction of the e-learning tablet for teaching-learning activities

Research question two: What is the perception of teachers on the levels of knowledge of the senior secondary school students on the use of e-learning tablet for learning?

Table-2. Teachers perception of their students' level of knowledge on the use of e-learning tablet for teaching-learning activities.

Level	Frequency	Percent
Low	63	25.2
Average	127	50.8
High	60	24.0
Total	250	100.0

Source: Field survey, 2019.

Table 2 showed that 127(50.8%) of the teachers revealed that their students possessed average knowledge on how to use e-learning tablet for learning. Another 60(24.0%) of the teachers perceived their students to have high knowledge of the use of e-learning tablet for learning, while only 63(25.5) of students were perceived to have low knowledge on how to use the e-learning tablet for learning. Thus, the results indicated that more than half of students knew how to use the tablet for learning.

Research question three: What is the perception of teachers on the relevancy/appropriateness of e-learning tablet to teaching-learning activities in senior secondary schools?

Table-3. Perception of teachers on relevancy/appropriateness of e-learning tablets to teaching-learning activities in senior secondary schools.

Items	N	$\overline{X}$	S.D	Rank
Textbook materials are relevant and appropriate	250	2.9840	0.87338	1st
The language of the textbook materials is simple and easy for students to learn	250	2.9440	0.74773	2nd
Textbook materials are educationally appropriate	250	2.9240	0.83487	3rd
Textbook materials cover the syllabus contents	250	2.8720	0.90048	4th
The contents are self-explanatory	250	2.8000	0.85494	5th
Textbook materials consider the cultural background of Nigerian students	250	2.7360	0.92397	6th
Textbook materials are up-to-date i.e. not too old	250	2.7200	0.85117	7th
The tablets contain a lot of self-tutoring materials	250	2.7000	0.92380	8th
There are enough practical examples or exercises for students to learn	250	2.6840	0.95277	9th
Textbook materials are well-detailed	250	2.6360	0.96500	10th
The topics in the tablets are in line with the curriculum	250	2.6120	0.88577	11th
The materials in the tablets can be relied upon by the students	250	2.4840	0.95361	12th
The materials in the tablets are accurate and free of error	250	2.3400	0.90091	13th
Valid N	250			

Source: Field survey, 2019.

Table 3 showed the teachers' perception on the relevancy/appropriateness of e-learning tablet for teaching-learning activities. From above, the results the first perception among the teachers was to agree that textbook materials in the tablet are relevant and appropriate ($\overline{X}$ = 2.9840, S.D = .87338). The second thing perceived about the e-learning tablet was to indicate that language of the textbook materials is simple and easy for students to learn ($\overline{X}$ = 2.9440, S.D = .74773). Also, the teachers perceived that textbook materials in the tablet are educationally appropriate ($\overline{X}$ = 2.9240, S.D = .83487). However, only small proportion of the teachers agreed that: the topics in the tablet are in line with the curriculum ($\overline{X}$ = 2.6120, S.D = .88577), that the materials in the tablet can be relied upon by the students ($\overline{X}$ = 2.4840, S.D = .95361) and that the materials in the tablet are accurate and free of error ($\overline{X}$ = 2.3400, S.D = .90091).

Research hypotheses one: *There is no significant influence of levels of acceptability of e-learning tablets on the effective teaching-learning by the teachers and students of senior secondary schools.*

Table-4. One-way analysis of influence of levels of acceptability of e-learning tablet on the effectiveness of teaching-leaning activities.

Source	Sum of squares	df	Mean square	F	Sig.
Between groups	4174.961	2	2087.480	23.865	.000
Within groups	21605.503	247	87.472		
Total	25780.464	249			

Source: Field survey, 2019.

Table 4 showed the results of levels of acceptability of e-learning tablet and the effective teaching-learning activities. It was observed from the table that levels of acceptability significantly influenced the effective teaching-

learning activities with the values of mean squares of between and within groups = 2087.480 and 87.472 respectively at F = 23.865, p < 0.05. The result concluded that there was a significant influence of levels of acceptability of e-learning tablet on teaching-learning activities in senior secondary schools, hence the null hypothesis is rejected.

Research hypotheses two: *There is no significant influence of levels of knowledge on use of e-learning tablets on academic performance of the senior secondary school students.*

Table-5. One-way analysis of influence of levels of knowledge on use of e-learning tablet on students' academic performance.

Source	Sum of squares	df	Mean square	F	Sig.
Between groups	8283.867	2	4141.933	58.472	.000
Within groups	17496.597	247	70.836		
Total	25780.464	249			

Source: Field survey, 2019.

From Table 5 teachers' perception on the influence of students' knowledge on use of e-learning tablet on their academic performance showed the mean squares values of between groups of 4141.933 and within groups of 70.836. The results further showed F= 58.472, p < 0.05 indicating a significant influence. Thereby rejecting the null hypothesis.

5. DISCUSSION OF FINDINGS

The results emanated from above have many implications. For instance, it was revealed from the teachers' perception that most senior secondary school students accepted the introduction of the e-learning tablet for teaching-learning activities.

This supported the positions of Rossing *et al.* (2012) and Clark and Luckin (2013) that students were very positive concerning the use of tablet for teaching-learning activities. In corroborating the point, Bonds-Raacke and Raacke (2008) indicated that the reason for positive attitudes of students toward the integration of e-learning tablet was because they perceived the tablet as a more interactive, engaging, and effective educational tool compared to standard learning platforms. The position of senior secondary school students in Osun State on the acceptability of e-learning tablet might be connected with the economic and social values they derived from it as well as the ability of the tablet to eliminate the burden of heavy load being carried about by the students at all time.

The findings revealed that than half of the students possessed average knowledge on how to use the tablet for learning. Although, it was confirmed that they have knowledge about the use of e-learning tablet, still the students may use the device for other things outside education purpose. This was upheld by Karsenti and Fievez (2013) that the tablet may be a source of distraction to many students especially if it is used for any other purpose outside education.

They believed that students can use the device to chat with friends or play games instead of using it for educative purpose. Again, it was revealed that e-learning tablet provided for senior secondary school students in Osun State was relevant and appropriate in term of textbook materials therein; simplicity of the language as well as the appropriateness of the education materials. This was buttressed by Aregbesola (2013) that e-learning tablet was like a mobile library to students because it contains most learning materials which students can rely on.

Moreover, the findings indicated a significant influence of levels of acceptability of e-learning tablet on the effective teaching-learning activities in senior secondary schools. The findings was in line with Heinrich (2012) that the tablets promote differentiated learning.

Also, Johnson (2012) attested that tablets will help the students learn better and teachers across the world do their jobs better. Confirming the above, Singh and Chan (2014) opined that integration of ICT in the classroom environment can provide opportunities for students to learn and operate in information age.

In addition, Abdullahi (2014) and Moruf (2015) submitted that regular use of tablets can enhance students' creativity and knowledge building. Contrarily, Burden *et al.* (2012) and Hattie (2013) explained that incorporating tablet devices into the teaching-learning activities may not be easy.

Finally, it was also revealed from the results that there was a significant influence of knowledge on use of e-learning tablet on the academic performance of senior secondary school students in the study area. Previous studies have supported the above. For instance, Cavas *et al.* (2009) found tablet to bring about an improved learning outcome and enhanced participants attitudes.

It was also reinforced by the trio of Rikala *et al.* (2013) that the application of ICT in education has the potential of contributing substantially towards improving the educational system. However, Sahin-Kizil (2011) downplayed the above submission. To him, it is only when the tablet is used for the purpose which it was designed for that it can bring positive impact on the students' academic performance.

6. CONCLUSION/RECOMMENDATIONS

It is concluded that most teachers perceived that their students welcomed the integration of the e-learning tablet to teaching-learning and that the learning materials in the tablet were relevant and appropriate.

Thus, it is recommended as follow: that the provision of the e-learning tablet should not only be for senior secondary school students but also to the junior secondary school students and their teachers. More importantly, it is recommended that there should be teachers and parental guidance on the use of the tablet so that the students will not divert its use to non-educational purpose.

REFERENCES

Abdullahi, H., 2014. The role of ICT in teaching science education in schools. International Letters of Social and Humanistic Sciences, 19: 217-223.Available at: https://doi.org/10.18052/www.scipress.com/ilshs.19.217.

Adomi, E.E. and E. Kpangban, 2010. Application of ICTs in Nigerian secondary schools. Library Philosophy and Practice (e-Journal). Paper, 345: 1-8.

Aebersold, M., D. Tschannen and M. Bathish, 2012. Innovative simulation strategies in education. Nursing Research and Practice. 2012. 765212. 10.1155/2012/765212.

Almekhlafi, A.G., 2006. The effect of computer assisted language learning (CALL) on United Arab Emirates English as a foreign language (EFL) school students' achievement and attitude. Journal of Interactive Learning Research, 17(2): 121-142.

Aregbesola, R.O., 2013. ICT policy for the State of Osun (Final Draft).

Aremu, A. and O. Fasan, 2011. Teacher training implication of gender and computer self-efficacy for technology integration in Nigeria Schools. The African Symposium: An Online African Research Journal of Education and Social Sciences, 11(3): 60-67.

Bayliss, L., C. Connell and W. Farmer, 2012. Effects of ebook readers and tablet computers on reading comprehension. International Journal of Instructional Media, 39(2): 131-140.

Bonds-Raacke, J.M. and J.D. Raacke, 2008. Using Tablet PCs in the classroom: An investigation of students' expectations and reactions. Journal of Instructional Psychology, 35(3): 235-240.

Burden, K., P. Hopkins, T. Male, S. Martin and C. Trala, 2012. iPad Scotland evaluation (final evaluation report). Faculty of Education, University of Hull.

Cavas, B., P. Cavas, B. Karaoglan and T. Kisla, 2009. A study on science teachers' attitudes toward information and communication technologies in education. The Turkish Online Journal of Educational Technology, 2(8): 20-32.

Clark, W. and R. Luckin, 2013. What the research says. Ipads in the classroom. London: Institute of Education University of London.

Collins, A. and R. Halverson, 2010. The second educational revolution: Rethinking education in the age of technology. Journal of Computer Assisted Learning, 26(1): 18-27.Available at: https://doi.org/10.1111/j.1365-2729.2009.00339.x.

Corlett, D., M. Sharples, S. Bull and T. Chan, 2005. Evaluation of a mobile learning organiser for university students. Journal of Computer Assisted Learning, 21(3): 162-170.Available at: https://doi.org/10.1111/j.1365-2729.2005.00124.x.

Courtois, C., H. Montrieux, F. De Grove, A. Raes, L. De Marez and T. Schellens, 2014. Student acceptance of tablet devices in secondary education: A three-wave longitudinal cross-lagged case study. Computers in Human Behavior, 35: 278-286.Available at: https://doi.org/10.1016/j.chb.2014.03.017.

Hattie, J., 2013. Visible learning: A synthesis of over 800 meta-analyses relating to achievement. New York: Routledge.

Heinrich, P., 2012. The ipad as a tool for education—a case study. Kent: Naace: Longfield Academy.

Ifenthaler, D. and V. Schweinbenz, 2013. The acceptance of tablet-pcs in classroom instruction: The teachers' perspectives. Computers in Human Behavior, 29(3): 525-534.Available at: https://doi.org/10.1016/j.chb.2012.11.004.

Johnson, L., 2012. The effect of design teams on pre-service teachers' technology integration (Doctoral Dissertation). Syracuse University, USA.

Karsenti, T. and A. Fievez, 2013. The iPad in education: Uses, benefits, and challenges–A survey of 6,057 students and 302 teachers in Quebec, Canada. Montreal, QC: CRIFPE.

Lam, Y. and G. Lawrence, 2002. Teacher-student role redefinition during a computer-based second language project: Are computers catalysts for empowering change? Computer Assisted Language Learning, 15(3): 295-315.Available at: https://doi.org/10.1076/call.15.3.295.8185.

Lane, J.M., 2012. Developing the vision: Preparing teachers to deliver a digital world-class education system. Australian Journal of Teacher Education, 37(4): 59-74.Available at: https://doi.org/10.14221/ajte.2012v37n4.7.

Melhuish, K. and G. Falloon, 2010. Looking to the future: M-learning with the ipad. Computers in New Zealand Schools: Learning, Leading, Technology, 22(3): 1–16.

Moruf, H., 2015. Students' utilization of secondary school libraries in Akinyele local government area of Oyo State, Nigeria. 10.9790/7388-05316066.

Moursund, D.G., 2005. Introduction to information and communication technology in education. Eugena: University of Oregon.

Nancy, H., 2008. Enabled women in knowledge societies. Case study: The Philippines and Thailand. i4d (Information for Development), 6(7): 6-8.

National Policy on Education, 2004. Lagos: Federal Government of Nigeria Press.

Ogunleye, B., 2007. Teachers' perceived barriers to successful implementation of ICT in the teaching and learning of science subjects in Nigerian Secondary Schools. Nigeria Journal of Computer Literacy, 8(1): 1-6.

Olagunju, A., 2003. An investigation into teachers' awareness and extent of utilization of information and communication technology for effective science education. Nigerian Journal of Computer Literacy, 4(1): 82-100.

Resta, P. and T. Laferrière, 2007. Technology in support of collaborative learning. Educational Psychology Review, 19(1): 65-83.

Rikala, J., M. Vesisenaho and J. Myllari, 2013. Actual and potential and potential pedagogical use of tablets in schools. An Interdisciplinary J. Human in ICT Environment, 9(2): 113-131.

Rossing, J.P., M.W. M., A.K. Cecil and S.E. Stampeer, 2012. Learning: The future of higher education? Student perceptions on learning with mobile tablets. Journal of the Scholarship of Teaching and Learning, 12(2): 1-26.

Sahin-Kizil, A., 2011. EFL teachers' attitudes towards information and communication technologies (ICT). 5th International Computer & Instructional Technologies Symposium, 22-24 September 2011, Fırat University, Elaziğ- Turkey.

Singh, T.K. and S. Chan, 2014. Teacher readiness on ICT integration in teaching-learning: A Malaysian Case Study. International Journal of Asian Social Science, 4(7): 874-885.

Yusuf, M.O., 2005. An investigation into teachers' self-efficacy in implementing computer education in Nigerian secondary schools. Meridian: A Middle School Computer Technologies Journal, 8(2): 316-321.