Students' Impression AboutEducational Tablet: Case of *Ọpón-ìmọ̀*inOsun State,Nigeria

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Abstract

The integration of tablet technology for learning is increasingworldwide;however, for the expected outcomes to be achieved, tabletusers must possess positive impressions towards the technology. This study examined secondary school students' impression about educational tablet: case of Ọpón-ìmọ̀ in Osun State, Nigeria. The study employed descriptive method of the survey type. Sample was drawn from senior secondary school 3 across the state using purposive sampling technique. In all, 668 students participated in the study. A researcher-designed questionnaire was validated by two educational technologists and one English language instructor. The instrument was evaluated for its reliability using Pearson correlation; a reliability coefficient of 0.87 was recorded. Data was analysed using frequency counts, percentage, t-test and ANOVA. Findings showed that students had positive impressions aboutỌpón-ìmọ̀ (75%), gender had no significant influence on students' impressions about Ọpón-ìmọ̀ (t= (666) = 1.89, p>.05.), school location had no significant influence on students' impressions about Ọpón-ìmọ̀ (F (2, 665) = 1.287, p>0.05). This study concluded that students had positive impressions about the tablet and that gender and school location had no significant influence on students' impressions. The study recommended that the government should encourage the continuous usage of the tablet across the schools within the state.

Keywords:*Mobile learning* Computer tablet*Ọpón-ìmọ̀*Students' Impression**

Overview

When *Ọpón-ìmọ̀* was deployed by the government for students' instructional use at the various secondary schools in Osun state, it met with lots of resentments by almost all the stakeholders; teachers, students and parents were mostly skeptical and even rejected the tablets in some cases. This initial rejection might not be unconnected with what Ellsworth (2000) referred to as the fear of a displacement of the status quo. Change according to Ellsworth (2000) will be successful only if the change agents including the students are willing and ready to participate effectively in the process. According to Ellsworth's New Meaning of Educational Change Model, one of the important factors that must be in place for meaningful results in change adoption effort is the clarity of the change idea (Ellsworth, 2000). For the change ideas to be assumed to be clear and practicable therefore, it must make good impression on the adopting agents.

The problem

Ọpón-ìmọ̀ as a technological innovation was introduced to public schools in Osun state for the purpose of improving students' academic performances, however, parents and religious bodies within the state rejected the tool claiming that the tablet computer was meant to change the religious orientations of its beneficiaries. This study therefore examined students' impression about the*Ọpón-ìmọ̀* as a learning tool.

Objectives of the Study

This study examined:

1. Students' impression about *Ọpón-ìmọ̀* as a learning tool
2. Influence of gender on students impressions about *Ọpón-ìmọ̀*
3. Influence of school location on students impression about *Ọpón-ìmọ̀*

Research question

1. What are students' impressions about *Ọpón-ìmọ̀* as a learning tool?

Research hypotheses

H_{01}: there is no significant difference between male and female students' impressions about *Ọpón-Ìmọ̀*

H_{02}: there is no significant difference in the students' impression about *Ọpón-ìmọ̀* based on school location.

Operationalization of terms

Educational tablet: is a computer device with touchscreen capability that is bigger than smart phones but smaller than computer laptop used by students for learning purposes.

Ọpón-Ìmọ̀ (known locally as *Tablet of knowledge*): is a computerised learning device with educational software used by high school students and teachers for instructional purposes in Osun state, Nigeria.

Ọpón-Ìmọ̀ Technology Enhanced Learning System (OTELS): is software used for learning by senior secondary school students in Osun state, Nigeria upon which the *tablet of knowledge* runs.

Literature Review

The tablet as described by Henrik and Martin (2012) is a portable version of a personal computer and a companion to the smartphone in the sense that at most times; they share the same operating system and input method. There is also a consensus amongst many that a tablet is a synergy of the latter and the former mostly because of how it is identified as a device that does the same tasks as their personal computers and mobile phones. The tablet's primary input method is the touchscreen which made the user's fingers to function as a mouse cursors; this removed the need for physical accessories like the keyboard or the mouse. The tablets come in various sizes larger than the smart phone but smaller than the laptop computer. It runs on various operating systems and can connect to the internet wirelessly (Hursh, n.d.).

The integration of different technologies into the teaching and learning process is not new; several countries are currently experimenting with technologies such as tablets, laptops and netbooks in their school systems (Olagunju, Adenegan&Lawal, 2015). However, this is gradually changing with the advent of the tablet (Clarke &Svanaes, 2012). Many criticisms had been raised against these technologies in education, some of which includes short battery

life, slow booting processes and relatively heavy weight. However, these criticisms have being eradicated with the advent of tablet technology. The tablet comes with additional features which makes it a superior educational tool with wide spread adoption. Features such as touch screen capabilities, built in easy to use camera, and voice recognition are some of the things that set it apart from the laptops and netbooks (Clarke &Svanaes, 2012).

This innovative technology, has thrown-up a new set of instructional tools that can assist stakeholders' creativities in instructional delivery system; large amount of online resources can be accessed within short period of time, communication between students and colleagues can be achieved within minutes. The tablet is believed to be one tool that is cable of transforming instructional system in a revolutionary way. The most important benefit of mobile technologies, including the tablet in education is their ability to enable learning anywhere and anytime which clearly is a deviation from the industrial era where traditional model of learning takes place within the classrooms driven by the teacher (Goodwin, 2012).

Although tablets introduction into teaching and learning situations is still at the infancy, many countries are already trying out its full implementation. According to Clarke and Svanaes (2012),United States is leading other countries in the drive towards integrating tablet into teaching and learning through her iPadprogramme. Jaffray(as cited in Clarke &Svanaes, 2012) in supporting the above assertion, affirmed that most districts in the US have stated experimenting with the introduction of tablet technology for educational purposes and that the amount of computer systems in these districts would soon be outnumbered by the tablet in no distant time.

In Europe, trials of tablets in classroom situation are also being carried out. Countries such as Germany, Italy, and United Kingdom were reported to be participating in the Acer tablet pilot trial with schools. Other countries such as Turkey which began her tablets trial in February 2012 across 52 schools is expected to run the programme over a period of four years (Clarke &Svanaes, 2012). Scandinavian countries such as Sweden which had commenced tablet trial in primary schools across the country and Norway with her intervention to have tablets in both secondary and primary schools. Among the Scandinavians, Denmark had gone a step further with a national policy for mobile learning with emphasis on smartphones and tablets (Clarke &Svanaes, 2012). Also in Australia as stated by Clarke &Svanaes (2012), the states of Queensland, Victoria and New South Wales are considering the introduction of tablet technology into their respective systems of education.

Similarly in Asia, tablets that contain digital textbooks and capable of wireless connection are being integrated experimentally in South Korean schools. Specifically, the country had commenced the implementation of a road map that would see her substitute tablet technology for paper books in her schools by 2015. Japan is another Asian country which had commenced the implementation of tablet technology into her educational system. Since the beginning of this decade, the country's authority had distributed thousands of tablets to students at the elementary schools (Clarke &Svanaes, 2012). Other Asian countries such as Singapore and Thailand are at different stages of tablet implementation in their respective countries (Clarke &Svanaes, 2012). Africa is also not left out of embracing tablets for educational purposes. For instance, tablets powered by solar technology is being implemented in Zimbabwe (Clarke &Svanaes 2012), while State of Osun in Nigeria, has gained substantial momentum in her drive towards integrating tablet in her educational system (Tijani, 2013).

As explained by Goodwin (2012), some of the advantages of the tablets in education include redefinition of teachers' role and unrestricted access to learning contents. With the deployment of tablets, teachers are no longer the chief repertoire of knowledge; rather they have become the chief guide towards learning discovery. Also, with the tablet, both students and teachers can access large amount of learnable contents anywhere and anytime they so desired. It has widened the scope of available learning materials beyond the traditional classrooms and the paper textbooks.

Contributing to the advantages tablets would bring to education, Hursh (n.d.) submitted that the tablet offers uncommon capabilities in instructional system. With its small size, touchscreen capabilities, low energy consumption and relatively larger screen size compare with mobile phone; it supports presentation of materials in a dynamic way. The tablet could also be used to collect information such as pictures and video materials outside the school environment for presentation in the classroom.

Also with the tablet, Hursh (n.d.) argued that a teacher with the aid of the stylus can make direct drawing on materials during lesson presentation. The researcher stressed further that, although teachers can still draw with the mouse, it is however easier for many to draw using the stylus than the mouse. The tablet, according to the researcher allows learners to read from it in different positions either vertically or horizontally which makes it easier for materials which are originally in either formats to be read conveniently. Even with the advantages of tablet in education, it has its own drawbacks. According to Hursh (n.d.) some of the drawbacks include: high cost of purchase compare with other technologies, non-compatibility with certain software, can be difficult to read from under fluorescent lights or bright sunlight. Also, when using the stylus, it does not display any indication of activeness.

In a recent review, ProCon.org (2013) presented various advantages of tablets over the textbooks in education to include that: tablet helps students learn more learning materials faster, has capacity to store several textbooks on a single device, eliminate the use of bookshelves, the cost of e-books is lesser compared with printed materials, it improves students performances in standardized tests, students learning with tablets are better prepared for the technology-driven world, it supports instantaneous update of e-books and through software such as Bluetooth, materials can be shared among students and teachers thereby promoting high interactivity among them.

On the other hand, it presented some drawbacks of the device in education to include that: mobile devices pose certain health risks to its users, tablet cost more than paper textbooks, tablet might be a source of distraction during lesson presentation, tablet is subject to malfunctioning such as freezing and crashing, tablet battery must be recharged at least once within a school-day work and it might be out of reach of the poor due to high cost compared with paper books thereby increasing the technological divide. Also that with the tablet, the roles of teachers would gradually be downplayed, the number of textbooks that can run on tablet format are still limited and may poses challenge to less technological skilled students and teachers.

In a recent evaluation study, Clarke and Svanaes (2012), highlighted why the tablet computers are becoming more popular now than before, the researchers adduced to the following reasons as being responsible: cost less compared to other technologies such as the laptop and desktop computers, it is handy and can be carried by young learners anywhere and

anytime, easier to learn compare to other form of computer technologies which makes it easier to use by almost all categories of users.

Ọpón-ìmọ̀ Technology Enhanced Learning System (OTELS)

The main goal of the *Ọpón-ìmọ̀*, as explained by Mrs. Laoye-tomori, the Deputy Governor of the State of Osun who also doubles as the Commissioner of education, is to improve students' performances in the senior secondary certificate examinations (WAEC & NECO) (Apata, 2013). While tracing the unacceptable though consistent improvement in students' performances in the SSCE in recent years, the Deputy governor disclosed that the state occupied 35th position in WAEC performance index in 2009, moved up to 32nd in 2010 and 18th position in 2011.The vision of the state government according to her is to put the state among the best three positions in the WAEC performance index, hence the deployment of the learning system (Apata, 2013).

Ọpón-ìmọ̀ is a standalone educational tablet deployed for self-paced learning at the senior secondary school levels in the State of Osun, Nigeria. It is controlled through touch screen interface and runs on android 4.0. OS. It has 512MB of RAM with a combined memory of about 32GB and a back-up non-detachable battery which can run up to 6 hours. The system contains applications such as the camera, games, calculators, the calendar, MP3 recorder, English language dictionary (www.Osun.gov.ng).

The E-learning software is called OTELS (*Ọpón-ìmọ̀* Technology Enhanced Learning System). This software contains three major content categories namely: the Extra-curricular subjects, the Otels and Hints and Tips. The Extra-curricular environment contains subjects such as: Civic education, Yoruba history, Owe, Ifa, Sexuality education, Computer fundamentals and Enterprise education (www.Osun.gov.ng). While the Hints and Tips environment contains tips on how to read and prepare for examinations on different subjects. This environment has 15 sections on subjects such as: agricultural science, financial accounting, further mathematics and other subjects offered at the senior secondary school levels. On the other hand, the OTELS environment has three other sub-environments which are the main trust of the e-learning device and they are: the E-book library, the Virtual classroom and the Integrated Test Zone.

The E-book library: the E-book library contains digital books for students in S.S.1, S.S.2 and S.S.3 (Art, Science and Social science). The S.S.1, S.S.2 and S.S.3 Art sections contain e-books on subjects such as Biology, Commerce, CRS, Economics, English language, Geography, Government, History, IRK, English literature, Mathematics and Yoruba.

The Science sections of S.S.1, S.S.2 and S.S.3 contain e-books on subjects such as Agricultural science, Biology, Chemistry, CRS, Economics, English language, Geography, Further math, IRK, Mathematics, Physics and Yoruba while the Social science sections of S.S.1, S.S.2 and S.S.3 contain e-books on subjects such as Accounting, Biology, Commerce, CRS, Economics, English language, Geography, Government, History, IRK, Mathematics, English language and Yoruba.

The Virtual classroom: the virtual classroom environment contains audio voiceovers on 16 subjects for SS1, SS2 and SS3 across Art, Science and Social science classes. Altogether it contained 42 audio materials for all the subjects with 823 chapters culminating in more than 15 hours of audio file with more than15 chapters for each course (www.Osun.gov.ng).

The Integrated Test Zone: the integrated test zone has two test environments; practice tests and mock exam environments. The practice test environment contains test items in 42 courses across over 1,220 chapters, approximately 29,000 past questions which references approximately 825 images while the Mock exams environment contains over 40,000 past questions from Joint Admission and Matriculation Board (JAMB) and West African Examination Council covering about 20 years altogether (www.Osun.gov.ng).

The state government commenced the distribution of the educational tablets to about 150,000 senior secondary students and their teachers across the state-owned schools in September, 2013 (www.osun.gov.ng). This educational tablet is assumed to: allow students to learn at their own paces wherever and whenever so wished, provide robust and uniform learning contents (textbooks, tutorials & past question), provides a feedback mechanism for monitoring students' performances, promote self-paced learning, allow flexible usage i.e. in different positions, sitting, lying down, while walking and eliminates the burden of heavy back-pack for the learners (Osun.gov.ng, 2013).

Some of the observed educational advantages the device may have over the paper book include: the ability to record audio lessons, encourages accidental learning, makes the students ICT compliant, saves time which hitherto devoted to note-copying, serves as a mobile library, provision of textbooks in a digital format and source of motivation for teachers and students. Recently, *Ọpón-ìmọ̀* won an award in World Summit Award World Congress 2013 in Sri Lanka under e-learning and science category. The World Summit Award (WSA) is an international programme of the United Nations World Summit on Information Society (WSIS) put together by the International Center for New Media (ICNM), Salzburg, Austria (WSA, 2013).

Methodology

This study examined secondary school students' impression about educational tablet: case of*Ọpón-ìmọ̀* in Osun State, Nigeria.The geographical scope of the study was Osun state of Nigeria. Politically, the state is divided into Osun West, Osun East and Osun Central senatorial districts. These senatorial districts are further sub-divided into 30 Local Government Areas and one area office in Modakeke, Ile-Ife.701 (362 males and 306 females) S.S.S. 3 students from six secondary schools across six local governments areaswere purposely selected for the study.As at December, 2014, only 2,100 S.S.S. 3 students had received the tablets across 12 local governments within the state (www.Osun.gov.ng). The selection of these categories of samples was based on their relevance to the study.

One researcher-designed instrument i.e. Students' Impression Questionnaire (SIQ) was used to collect information from the respondents. The QIS was divided into two sections. Section A contains questions bothering on students' demographics while section B covers questions on students' impression about Ọpón-ìmọ̀. The instrument was given to two educational technology lecturers at the Department of Educational Technology, University of Ilorin, Nigeria and one secondary school English language instructor from Osogbo grammar school for content and face validation, their suggestions formed part of the final copy of the instrument. The instrument was also evaluated for its reliability; 40 students of Osogbo grammar school, Osogbo participated in the exercise.Using test-retest reliability method with

an interval of two weeks, the instrument yielded a reliability coefficient of 0.87. Therefore, the instrument was deemed reliable and was used for the study.

The researcher with his assistants visited the Tutor-generals/Permanent secretaries across the three senatorial districts of the state for government approval and after the approval was granted, the research team thereafter visited the schools concerned. At the selected schools, the research team accompanied by respective school teachers visited the respondents, explained the purpose of the research, confidentiality and their right to agreed or decline to participate in the exercise. After the researcher's address and clarifications were made, copies of the questionnaire were distributed to the respondents. In all, 701 copies of the questionnaire were distributed and retrieved out of which 668 were found usable. The research question was analysed with frequency and percentage while hypothesis one and two were tested with t-test and ANOVA respectively.

Data presentation

The data presented in this section provides a summary of the major characteristics of the students who were respondents in the study. The questionnaire was administered on these respondents to ensure that valid information were collected and accurately measured. The demographic representation of students was presented in Table 1 and 2 below.

Table 1

Demographic data of students based on gender

Variables	A	Total	Percentage	B	Total	Percentage	Total
Stdts' Gender	Male	362	54.2	Female	306	45.8	668

Table 2

Distribution of students by school location

Variables	Frequency	Percentage
Rural	238	35.6
Urban	223	33.4
Sub-Urban	207	31.0
Total	**668**	**100.0**

In Table 2 which shows students' school locations, out of 668 students sampled, 238 (35.6%) were from schools based in the rural areas (i.e. Osu and Ile-Ogbo), 223 (33.4%) were from schools based in the urban areas (i.e. Ile-Ife and Osogbo), while the remaining 207 (31.0%) were from schools based in the sub-urban areas (i.e. Ede and Ire).

Research Question 1:What are students' impressions about *Opón-Ìmò* as a learning tool?

Table 3

Students' impression about *Ọpón-ìmọ̀* as a learning tool

	Statement	SD		D		A		SA	
		F	%	F	%	F	%	F	%
1	The *Ọpón-ìmọ̀* is difficult to use	**288**	**43.1**	**286**	**42.8**	**42**	**6.3**	**52**	**7.8**
2	I wish I can take note on my *Ọpón-ìmọ̀*	**37**	**5.5**	**45**	**6.7**	**382**	**57.2**	**204**	**30.5**
3	Using the *Ọpón-ìmọ̀*helps me a lot in my learning	**21**	**3.1**	**32**	**4.8**	**325**	**48.7**	**290**	**43.4**
4	I am willing to carry out more learning tasks on my *Ọpón-ìmọ̀*	**25**	**3.7**	**68**	**10.2**	**357**	**53.4**	**218**	**32.6**
5	The *Ọpón-ìmọ̀*supports important aspects of my study	**18**	**2.7**	**40**	**6.0**	**344**	**51.5**	**266**	**39.8**
6	I can still carry out my learning tasks without the *Ọpón-ìmọ̀*	**50**	**7.5**	**90**	**13.5**	**315**	**47.2**	**213**	**31.9**

Note: Agree and strongly agree were merged into strongly agree while disagree and strongly disagree were merged into strongly disagree.

According to Table 3, 14.1% of the respondents strongly agreed that *Ọpón-ìmọ̀* was difficult to use while 85.9% strongly disagreed. However, 87.7% of the total respondents strongly agreed that they wish they could take note on their *Ọpón-ìmọ̀* while 12.3% also strongly disagreed. A total of 92.1% strongly agreed that using *Ọpón-ìmọ̀* helped them tremendously in their learning while 7.9% strongly disagreed. Likewise, 86% of the respondents strongly agreed that they were willing to carry out more learning tasks on their *Ọpón-ìmọ̀* while 14% strongly disagreed. A total of 8.7% of the respondents also strongly disagreed with the fact that *Ọpón-ìmọ̀* supported important aspects of their study while 91.3% strongly agreed. More so, 79% of the respondents strongly agreed that they could still carry out their learning tasks without the *Ọpón-ìmọ̀* while 21% strongly disagreed. This implies that the students' impressions about *Ọpón-ìmọ̀* were positive as demonstrated by 75% of the total respondents as presented in table 19.

Research Hypothesis One: There is no significant difference between male and female students' impression about *Ọpón-Ìmọ̀.*

Table 4

Students' impression about *Ọpón-ìmọ̀* based on gender

Variable	N	X	SD	df	t	Sig.	Remarks
Male	362	17.54	2.39	666	-1.89	0.59	Accepted
Female	306	17.91	2.70				

Table 4 revealed that there was no significant difference, between the male and female students' impression about *Ọpón-Ìmọ̀*. This was reflected in the result: *t (666) = 1.89, p>.05.* Thus, the hypothesis was accepted. This implies that there was no significant difference between the impression of male and female students about *Ọpón-ìmọ̀* at 0.05 alpha

level. The impression of the male students was not different significantly from that of their female counterparts.

Research Hypothesis Two: There is no significant difference in the students' impression about the *Ọpón-ìmọ̀* based on school location.

Table 5

Students' impression about *Ọpón-ìmọ̀* based on school location

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	16.634	2	8.317	1.287	.277
Within Groups	4297.857	665	6.463		
Total	4314.491	667			

In Table 5, results revealed that *F (2, 665) = 1.287, p>0.05,* for students' impression about *Ọpón-ìmọ̀* based on school location. This was found not to be significant, meaning that there was no significant difference in the students' impression about *Ọpón-ìmọ̀* based on school location. Since it was established that there was no significant difference in the students' impression about *Ọpón-ìmọ̀* based on school location, it implies that students' impression about *Ọpón-ìmọ̀* based on school location was not significantly different, therefore the hypothesis was accepted.

Summary of findings

1. Students' impressions about *Ọpón-ìmọ̀* as a learning tool were positive.
2. Gender did not have any significant influence on: students' impression about the *Ọpón-Ìmọ̀*
3. School location did not have any significant influence on: students' impression about *Ọpón-Ìmọ̀*;

Recommendations

1. The *Ọpón-ìmọ̀* is very popular among students in the state and enjoys positive impressions from them; therefore, the state government may wish to build on this momentum by putting in place a system that would take care of students' complaints after system deployment to avoid user apathy.

2. Since gender was found not to have significant impression on the students' impression about the tablet, the government maywish to consolidate on this by instituting programmes that would further encourage participation of both male and female students across the schools.

3. School location had no significant influence on students' impression about the tablet; therefore, government may ensure even distribution of the educational tablets across the secondary schools within the state regardless of their locations.

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