105

ONE TO ONE COMPUTING IN HIGH SCHOOLS

DAKUR B. MANGUD
EASTERN MEDITERRANEAN UNIVERSITY
FAMAGUSTA, CYPRUS
manguddakur@yahoo.com

Abstract-The research study attempts to discuss one to one Tablet computing as an effective device for improving teaching and learning in high or secondary schools and the concept of one to one computing is mentioned. The study included a comparative literature review of some secondary or high schools that use one to one computing. A highlight of the effectiveness, benefits and demerits of one to one computing is given and a conclusion made.

Keywords; one –to-one-computing, Tablets, high or secondary schools Devices, Learning and teaching.

INTRODUCTION

All over the world, the popularity of Tablet devices within the education sector seems to be growing rapidly. The level at which tablet trials in schools are currently going on globally is alarming. It is a policy of bringing your own device [BYOD] which requires students to use their own Tablets, laptops, smartphones or any device that can access information. So much has been written on one to one computing ranging from examining the factors affecting implementation, its uses, teachers support to one to one and various aspects, it appears little has been written about the potential effectiveness, benefits and drawbacks of Tablets to children in schools. It is in the light of this that this research is undertaken to look at the effectiveness, benefits and drawbacks of one to one tablet computing on teaching and learning.

PURPOSE OF THE STUDY

- The study is undertaken to find out if one to one tablet as a veritable device can impact effectively on learning and teaching. The reason for selecting tablet other than other devices is because tablet has large screen which consumes large content.
- To know the benefits that can be derived from one to one tablet
- To know the effect it has on pedagogy.

TARGET GROUP

The target population of study includes some selected high [secondary] schools as indicated in the review of related literature.

LITERATURE REVIEW

The concept of one to one computing in which every student is given his or her own device to school is very significant today. It is an educational program initiated to provide teachers and students a tablet, computer laptop, or other mobile device for use at school or home.

A research study was carried out by Barbie and Clarke [2012] between ''September, 2011and July 2012'' and included a review of an evaluation of three secondary schools in Belfast, Kent and Essex that had provided students with one to one tablet devices in September 2011. The study research had a focus on a School in Essex. There was also a control school situated in the same zone, Essex. Interview was conducted on students, teachers and parents as well. A total of 18 focus groups were held with students, teachers and parents. In the research, observations were undertaken to ascertain how teachers taught using the introduction of tablet devices into the class. The researcher carried out a study in Belfast, Longfield Academy and Wallace High schools which were given the tablet devices. An interview was held with

the Principal of the schools, vice principal, and the head of Information Technology [IT]. A similar interview took place with the person heading Special Education Needs [SEN].

- At interviews Honywood a decision was taken to focus on independent learning supported by the Tablet, and in fact, it had been a factor for the adoption of the device.
- At the two schools, Wallace and Longfield Academy, teaching structures were properly carried out to encourage Tablets to be used in classrooms.
- In the three schools teachers perceived an increase in pupil-led learning as a result of the use of Tablet computing in these schools.
- It enhanced communication between teacher and students using e-mail.
- It helped Teachers to mark and submit students' work without delay.

The major objectives of the research work were to find out if giving the tablet devices to students in schools in the United Kingdom could be reasonable as regards students and teachers benefiting from it.

DECISION TAKEN BY THE MANAGEMENT

The desire of management in adopting Tablet devices in the three high schools within the period of research, 2011 to 2012 was based on the following reasons:

- The First intention was to change the practical way of teaching by teachers and how students learned.
- To provide each pupil with their own one--to-one device, to enhance learning and give same chance to every child in the school.

The three schools with one to one tablets under study had been helped in their decision making by looking at what other schools were doing, especially schools in Scandinavia and in the US.
The critical issue in this study is that it focuses on the availability and usage of technology without mentioning any concern about the strategies on how to handle the devices.

In a study carried out by Habler et al [2015], on the use of tablets by children in schools, with a particular focus on learning outcomes. Their aim was to determine if, using tablets might impact on learning outcomes: Do the tablets increase the knowledge and skills of students following the use of tablets for particular purposes, and, if so, what factors contribute to successful or unsuccessful use?
Their research work builds on, and advances, previous research through considering all brands of tablet in use and through reviewing the literature focus was on actual learning output. It addresses an identified need for greater information on the nature of learning outcomes due to sharp interest in use of tablets for education in schools as asserted by Johnson [2014].

The researchers' review focuses on learning gains experienced by school pupils (defined as those in secondary schools aged between 11 and 18) as regards the use of tablets in lessons.
In order to determine this, two research questions were asked as follows:

- Do the students gain any skills and subject knowledge by using tablet devices in Supporting educational endeavor?
- What reasons are being advanced for the successful use of these technological devices

THE REASONS THAT GUARANTEED THE SUCCESSFUL USE OF TABLETS.

The researchers considered some reasons which helped the use of tablet computing to succeed .

- **The tablet device has many features which include the following:**
- Microphones, use of built-in cameras and tools like dictionaries, screen readers can easily be accessed, and can support learning.
- **Availability and portability.**

- **Easy customization and supporting inclusion:** This means size and text color Could be adjusted in addition to using synthetic voices and screen viewing modes- portrait, landscape, zoom.
- **Touch screen.** Teachers of geography and history such as those teaching history and geography can perceived felt that touch screens give clear representation of pictures.

Teachers have identified benefits for their workload following tablet implementation.
Teachers could now use tablets to change and redefine student learning by transforming their teaching models.
Results discovered that there were many benefits to learning which include enhancement of desire to learn; raised interest of parents, teachers could monitor progress of students more appropriately.

The study looks at the impact of providing Tablet devices to each student in 3 United Kingdom [UK] schools. Research was undertaken starting from September,in the year 2012 and April, the year 2013. The Results signified that length of tablet usage greatly impacted on pedagogy, and that helped students to benefit from having access to content both in the classroom environment and their homes.
This research unlike the one carried out by Barbie and Clarke {2012}, focused on using the device beyond the school period by the students which could be monitored by parents at home.

Another research on the use of tablets in secondary schools was carried out by Barbie and Snavae [2014] In research,Teachers were provided with 236 devices in 63 schools. Additionally, 116 students across four classes were provided with Tablets; three in Spain and one in UK . The research had two main purposes of the research were

- To ascertain how Tablets devices have impacts on teachers' practices and
- To ascertain the effects tablet has on students and teachers as regards using one to one computing in a school environment.

The research survey established teachers acceptance generally as positive regarding the use of Information Technology. During the testing, Tablets were used across a various disciplines especially ,checking the internet to get teaching materials. The teachers use the tablets to prepare lessons and less for communication and assessment. Most instructors used them in more than half of their lessons. The students found the device very useful for class work, increase collaboration.
The study only considered students and teachers engagement with the devices in the class. There was no consideration given to learning outcomes. Teachers only took advantage of it to plan their lessons and delivery. When compared with the study carried out by Habler et al [2015], one can argue that it focused on learning outcomes or learning gains experienced by students.

Another survey research carried out by David [2014] on the use of mobile technology by students of high schools in the United States. Among all high schoolers in the United States, not more than 33% made use of the mobile devices. While 31% of the students in Middle school made use of the mobile devices.

Based on the research work, many of them used the devices for work r elated to what they do in school.

In addition to this, the research found the following information that were beneficial as follows:

- Access to information by students using online portal with a rating 75% of high school students, while 68%of middle school students.
- The percentage for those taking test online for high school students was52% , while for middle school students was 47% .
- On the use of online texts for high school students, 37% and 32% of middle school student.

Outside the classroom, most are using their mobile devices for activities related to school work. The students engaged in using the mobile devices to text their classmates precisely about schoolwork which gave percentage rate of 60% of boys and 73% of girls. They also engaged themselves in taking pictures of their homework. In some cases, parents' decision to provide their children with tablet was to enable the children have access to good quality learning process beyond the school day.Other parents which constituted about 61% said they prefer their children to bring their own tablet devices which they could use in the class.

The Business Information for Education Decision Maker {2012} conducted a research on how tablets impact learning and attainment. In this research an evaluation study was undertaken to look at the educational impact of giving tablet devices to each student. The study took place between the month of September, 2012 and April,2013. In the study, an evaluation of four [4] high schools that had agreed to give students tablet devices in 2011;In 2012 which was in Autumn, two schools introduced tablet devices and 3 schools that were given tablets by tablets for schools for year 7s between 2012-2013. The methodologies employed were Qualitative and quantitative research.

Results of the suggested that long period of use of the tablets had a great significant effect on pedagogy and that people gained by accessing content both at school and in their homes.

From the study above, some benefits were highlighted actually, such as greater engagement accessibility both at school and home and pedagogical approach. However, the research did not address the issue of access to appropriate content. But it actually supported the research study conducted by David [2014] which stated that students use the devices both in school and outside the classroom which means extending its usage beyond the school day for other school activities.

This study contradicted the one carried out by Stephanie and Erica [2013] on the Los Angeles Unified School Districts where thousands of tablets were temporarily took back from students at three high schools and required the device to remain on campus. The reason was that students used the devices to access social media, online games and other content that was supposed to be blocked.

A pilot study was undertaken by Damian and Kay [2010] to examine the educational impacts and ascertain the result of tablet computing in changing the way teachers teach and students learn in schools that were based on traditional. It was a pilot program of the Berkshire Wireless Learning Initiative (BWLI), that made tablet computing accessible to the pupils and teachers across five [5] government owned middle schools owned by private individuals in western Massachusetts. In a comparative study design, the research study explored a wide range of program impacts within the three years of implementing the project . The specific targeted outcome of the BWLI included improvement in students' engagement, what they achieved and improving classroom management, creating opportunities for students to collaborate with their mates and changing teachers' perspective on pedagogy.
The result of the study indicated that pedagogy changed as students and teachers were given the tablet computing devices. It was discovered that the there were variations in the implementation and efficacy of the program across the five one to one computing and taking the three years of student one to one tablet implementation.
The students' survey response rates of June, 2008 areThe table presented below showed students' response rate of June 2008 for each of the pilot and
Comparison schools.

Table 1. Year 3 STUDENT SURVEY RESPONSE RATE

SCHOOL NAME	STUDENT POPULATION	SURVEY RESPONSE	RESPONSE RATE
South Middle school	695	555	80.6%
North Middle School	780	552	71.6
Total comparison ''	1475	1107	75%
Conte Middle School	316	316	100%
Herberg Middle ''	697	690	99%
Reid Middle school	642	640	99.6%
St. Mark	83	83	100%
St. Joseph	40	25	62.5%
Total Pilot 1:1 Schools	1784	1760	99%

For the final student survey, a total of 1,107 students completed the Year 3 survey from the two comparison schools yielding a combined response rate of 75% while a response rate of 99% was achieved across the BWLI schools with 1760 out of 1784 eligible students completing the survey.

In this research, the results of this pilot study indicated that, within months of the first program, pupils and teacher's usage of technological device change the curriculum in almost all the classes that they participated. There was a transformation in the way teachers handled the curriculum which was of course traditional. The majority of teachers adopted various ways of using the technology such as communicating with their colleagues, parents using the email and adopting electronic record keepin. including electronic record keeping, communication with other staff and parents via email and so on. This pilot research is more comprehensive than the one conducted by Barbie [2012] and David [2014] in the sense that, Damian [2010] had an in depth study of both public and private schools using quantitative method.

Though, this study did not make mention of using the device outside the school environment, while Damian contradicted the study carried out by Stephanie and Erica[2013] on Los Angeles Unified School Districts where thousands of tablets were temporarily taken back from students at three high schools and required the device to remain on campus for students to access because they were using the devices for social media, online games and other related content that was supposed to be blocked.

A survey was conducted online by Harris [2014] which interviewed the students on how they now use mobile devices for learning .The survey included 1001 high schools 9^{th} -12^{th} grade students. According to the survey, most students gave optimism regarding the positive impact one to one tablet has on the classroom particularly when it comes to improving students' engagement. Notable findings indicated that 81% of pupils agreed that using tablets in class let them learnt in best way possible. There were 79% of the students who said that the tablet helps do better in class.

In comparing this study to the ones carried out by Habler et al[2015] and David [2014], it concentrated on classroom engagement of students with the devices, but the study supported the one conducted by Barbie and Snavae [2012] as focus on the tablet by students and teachers was more in the classroom engagement.

EFFECTIVENESS OF ONE TO ONE TABLET COMPUTING

In all the literature searches stated in the work, it is pertinent to mention that one to one tablet has been a good computing device for effective learning and teaching. Students are provided with frequent and immediate access to internet and educational software. Students with the device can access information to support their classroom learning and encourages collaboration among the students and their teachers as well. Introducing one to one Tablets into secondary schools increase pupils' learning as well as increase motivation.

BENEFITS OF ONE TO ONE TABLET

- One of the benefits of one to one tablet computing is portability. The device can be used anytime, anywhere.
- Independent learning
- Communication. It creates communication between teachers and pupils
- Improves collaboration among students
- Made pedagogy better by helping instructors to change their teaching style to meet individual students' needs.
- It helps those who struggle by using their hands to write.
- Materials can be stored and viewed later.

DEMERITS OF ONE TO ONE TABLET

- The introduction of one to one tablet in schools is said to be distracting the students' attention.
- Lack of careful handling can make the device to break and malfunction.
- It contributes to eye strain and headaches.
- Requires costly Wi Fi networks
- It can easily become outdated as new technology emerges

Schools can procure any of these Tablets as shown above depending on choice. They have different capabilities and they are light-weight, touch screen, and have apps.

CONCLUSION

One to one tablet computing has been identified by researchers in this paper as a good device that can maximize student learning opportunities, empowering both student and the teacher. In all the researches carried out on schools that have introduced one to one tablet computing in schools or trials on one to one tablets, there is no doubt that they have affected education positively. Though they [Tablets] have their own challenges and problems, they have made learning become so enjoyable, students become so motivated to learn. They have played an increasingly critical role, having found their way into schools and there by aligning well with the education Information Technology [IT] trends.

REFERENCES

Barbie, C. and Svanaes [2012] One to one tablet in secondary schools: An Evaluation. Canadian Journal of Learning and Technology, Vol.38, No. 2

Damian, B. and Ray, R. [2010] One to one computing: A summary of the quantitative Results from Berskhire Wireless Learning Initiative. The Journal of Technology Learning Assessment Vol. 9 No. 2

David N [2013] Mobile study:Tablets make a difference in teaching and learning. The Journal Transforming Education

Habler, B. Major, L. Hennesy, S. [2015] Tablets use in schools: Acritical review of the evidence For learning out comes. Journal of Computer Assisted Learning Vol. 10 No. 4

Stephanie, B. and Erica, E. [2013] School learn tablets limit. The Wall Street Journal Vol. 7 No. 3

Web Sites:

Web-1 http://www.educationbusinessuk.net/index.php/features/5-/4562-theimpact of-tablet-in-the-Classroom.

Web-2 http://.pearson.com/news/new-study reveals-u.s-student-believe-tablets-are-games-changers-in-learning-and study-engagement.