One-to-one Tablets in Education: The Global Picture

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**Tablets for Schools**

**Introduction**

Tablets for Schools is a not-for-profit initiative that aims to enable all schoolchildren to have access to Tablet technology to transform the way they learn. It is led by companies including Carphone Warehouse, Dixons, Google, Samsung, Pearson, Virgin Media and TalkTalk, working in partnership with schools and academics. Its focus continues to be to inspire schools, teachers and parents and to provide a blueprint for them to adopt Tablet technology; to help them change the way they teach and significantly improve children’s engagement and attainment.

While there is as yet little empirical evidence that looks at the use of Tablets to enhance pupil learning, there are many studies on the effectiveness of digital learning for children, and the benefits of, for example, educational video games that can hone critical-thinking skills and help teach academic curricula, while also evaluating what students learn. A 2010 report from the European Commission concludes:

> Despite the increase in the numbers of computers in schools, our survey shows that hands-on access for pupils remains limited. Allowing pupils to play with and explore new tools could enhance their motivation to think, understand, learn and conceptualise in creative ways.

Many countries are trialling the use of Tablets in schools. Tablets for Schools believes that it is not a matter of *if* but *when* Tablets will be universally adopted as a learning device in schools. A recent report found that most US schools are testing Tablet devices. Emerging economies in Asia and Eastern Europe have also announced the adoption of Tablets in schools, including South Korea, India, Kazakhstan and Turkey. Trials have already begun to explore the benefits for children’s learning through the use of Tablets in France, the Netherlands, Japan, Singapore and Australia.

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1 Please note that Techknowledge for Schools changed its name from Tablets for Schools in May 2015


The Global Picture of the Educational Tablet Market

1. Introduction

This chapter updates the global picture first outlined for Tablets for Schools by Family Kids and Youth in September 2011 and revised in Stage 1 research December 2012. Inevitably this is a fast and constantly moving market, and one that Family Kids and Youth continues to monitor regularly. At the time of the publication of the first Tablets for Schools research report the use of Tablets in education was very much in its early stages. Nonetheless, there was already substantial interest in the transformational potential of Tablets in education. Apple’s iPads held the majority of the market, but other manufacturers were launching educational devices as well as software. Educational publishers were observing the developments closely, but had not yet invested heavily in content for this market. A brief summary of Tablets for Schools Stage One report that described the global picture at the end of 2012 looked as follows:

- Tablets were expected to outnumber computers in American schools within five years.
- In Europe trials were being carried out in France, the Netherland and Scandinavia.
- Turkey was undergoing initial trials of their “Movement of Enhancing Opportunities and Improving Technology” (FATIH) project, which involved Tablets provided by General Mobile in 52 schools. The aim of the project was to supply 16 million students with Tablets by 2015.
- Kazakhstan had announced plans to introduce Tablets to 83,000 students by 2020.
- In India trials were being carried out with the solar-powered iSlate. In March 2012 it was announced that 50,000 of these devices would be introduced to 10 to 13 year old students in the district of Mahabubnagar in Andhra Pradesh over the next three years.
- In Zimbabwe a similar project focusing on solar-powered Tablets was being developed.
- In Singapore, the education minister proposed to give all schoolchildren iPads by 2013.
- In South Korea the Ministry of Education announced that all textbooks would be replaced by Tablets by 2015.
- Thailand had announced plans to introduce Tablets in all schools.
- In Australia trials were being carried out in New South Wales, Queensland and Victoria.

Nearly one year on it is notable that spending on ICT is increasing and the majority of this appears to be going towards one-to-one schemes. According to a recent survey by European Schoolnet an average of 8% of students in Europe have access to a personal laptop or Tablet, but there are large differences between countries. For example, in Year 9 or Grade 8 (13-14 years olds) 40% of Spanish

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7 http://www.eun.org/c/document_library/get_file?uuid=56f0b01a-844e-479c-994a-419bf2333ded&groupdocid=43887
pupils have access to a one-to-one device, whereas in Finland, Lithuania, Estonia and Slovenia hardly any pupils at the same age have access. In Year 13 or Grade 11 (16-17 years old) almost 90% of Norwegian students have access to a one-to-one device, but in countries such as Austria, Turkey, Italy, Lithuania and France access to computers is currently far less common.

The survey also shows that especially in Denmark, Norway and Portugal BYOD schemes are popular and over 50% of students in these countries are allowed to bring their own smartphones, tablets or laptops to school.

2. Tablets in the USA and the Americas

The popularity of Tablets in the USA continues to rise, and during 2012 the educational Tablet market increased by 103%. The country faces some challenges however before the majority of the schools can access digital learning devices. Limited funding has been available for upgrading school infrastructure, and according to US government data 80% of schools currently lack the necessary infrastructure to support digital learning. To address this President Obama announced in June 2013 the ‘ConnectED program’, which aims to provide broadband for 99% of schools and teacher training to prepare teachers to use technology. While schools wait for these upgrades to come into effect many have chosen BYOD schemes as temporary solutions. Approximately 25% of schools allow students to bring their own smartphones, as even in more deprived areas children tend to own their own phone.

In Spring 2013 the Los Angeles school district, the second largest in the country, announced that it would be introducing iPads to all school students. The total cost of the programme was estimated at $30 million, approximately £19 million, but the Los Angeles Board of Education claimed that this was the cheapest device that would meet its specifications. Content for the devices however will be delivered through Pearson rather than Apple’s own iBooks application.

Apple is supplying devices to several other school districts. The state of Maine recently introduced nearly 40,000 iPads to teachers and students. Schools in McAllan, Texas have also announced a deployment of 6,800 iPads to schools.

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8 BOYD: Bring Your Own Device
11 http://www.huffingtonpost.com/2013/06/20/lausd-students-ipad_n_3472714.html?ncid=edlinkusaolp00000003&ir=Education
12 http://m.imore.com/despite-hps-preferred-status-maine-schools-stick-apple
Other manufacturers are however increasingly entering the market. Amplify, the educational Tablet manufacturer owned by NewsCorp announced in Spring 2013 that it would be supplying a total of 21,215 Tablets to 23 middle schools in North Carolina. The deal runs from the beginning of the academic year 2013 until 2016.

Aakash 2, the low price Tablet manufacturer noted for introducing Tablets across schools in India, recently announced that it will also be supplying Tablets for 2,000 children in North Carolina. One hundred devices were successfully trialled there at a summer school for disadvantaged children and led to the purchase of further 2,000 Tablets which it is hoped will go some way to close the digital divide that exists in the State.

As research from the Pew Research Centre’s Internet and American Life Project shows that Tablets are being used by 43% of teachers and students in the US, content providers are increasingly creating learning material for this market. Discovery Education is currently the largest provider of digital content across a variety of platforms. The growth in digital content is likely to offer significant cost savings for schools. Discovery’s lessons, known as ‘Techbooks’, are priced at $38- $55 per student for a six-year subscription, while the average textbook costs $70 per student.

The Jamaican government has announced that it is to distribute 400,000 Tablet computers to schools over the next five years. It has sought competitive bids from companies to distribute 30,000 Tablets to 35 shortlisted early childhood, primary, and secondary schools in the 2013-14 school year. A stipulation is that the Tablets must have the facility to be disabled, and tracked, should they be stolen.

Sales of mobile devices are rapidly increasing in Latin America, especially in the major emerging economies such as Brazil and Mexico, and this growth is driven by substantial purchases from both private academic institutions and the public sector. These investments are driven by the significant digitization efforts of the education systems. In Brazil the federal government has announced plans to purchase 900,000 Tablets for more than 58 schools. The state government of Sao Paolo announced in Spring 2013 that it was considering a $2.73 billion project which includes one-to-one Tablet roll-out and digital content provision. Meanwhile in Columbia plans have been announced to introduce 500,000 Tablets for public schools.


16 http://www.pewinternet.org/~/media/Files/Reports/2013/PIP_Tablet%20ownership%202013.pdf


19 http://blogs.edweek.org/edweek/marketplacek12/2013/05/major_brazilian_education_project.reflects_burgeoning_market_abroad.html
3. Europe

A pilot project run by Acer and European Schoolnet evaluating the use of Tablets in schools was completed in 2012 and the final report was published in 2013. Tablets were supplied to 263 teachers across Estonia, France, Germany, Italy, Portugal, Spain, Turkey and the United Kingdom. In addition three class sets of Tablets were given to students, one in the UK and two in Spain. The researchers reported increased motivation among pupils, and teachers were observed to enjoy using the devices in lessons. Due to the limited sample size of the research however, and the fact that the Tablets were spread across several countries and schools, the implications for research on one-to-one Tablets is currently somewhat limited.

In the UK, the Scottish Government has introduced plans to supply school children with Tablets. The ICT specialist XMA will be supplying Samsung and Apple Tablets to schools and other public services at a reduced cost. The feedback has been very positive, although some IT specialists have argued that the plans ignore the additional costs of introducing mobile devices, such as infrastructure and network management. A spokesperson for the Scottish Government stated that the programme was hoped to support collaborative learning, parental engagement and greater motivation to learn.

In France approximately 15,000 Tablets are currently trialled around the country. Evidence so far is showing that the ease of use and transportation of the device, and ability to be personalised is having a positive impact on students and teachers and altering the way in which ICT has traditionally been used in the classroom. Certain drawbacks have been highlighted however, such as the fragility of the device, cost and lack of interactive content.

In the Netherlands the O4NT Foundation (Education For A New Era) has distributed iPads to seven primary schools across the country, with a further three to be supplied before the end of the year, in an attempt to bridge the mismatch between children’s use of technology at school and at home.

In Scandinavia individual schools and school districts continue to trial Tablets, but so far there have been few large scale projects. The reason for this may be because ICT in Scandinavian schools has been an important focus for some time, and computer access is already provided to almost all pupils, with less of a need for updating. Scandinavia is also leading the use of laptops and netbooks in schools.

20 http://1to1.eun.org/web/acer/evaluation

21 http://www.tes.co.uk/article.aspx?storycode=6324506


23 http://www.bbc.co.uk/news/world-europe-24015255

One research project in Sweden however is currently assessing the impact of Tablets and smartphones in secondary schools for students with SEN.\(^{25}\) Another significant recent survey carried out with over 800 Swedish head teachers indicated that one-to-one laptops and Tablets have a significant impact on student motivation and the quality of student work, but teachers’ lack of confidence in utilising the technology stands in the way of large scale introduction.\(^{26}\) In Denmark at least three local districts have introduced Tablets, and interest among teachers and school leaders is high, but politicians and officials remain sceptical of the long term implications.\(^{27}\)

In Kazakhstan the government continues to invest heavily in e-learning.\(^{28}\) The Ministry of Education has doubled the investments in education, and has set goals to involve 90% of schools in e-learning programmes by 2020. Several technology companies are involved in the project, which runs from 2011 to 2020, including Microsoft, who is collaborating on software use and teacher training and Apple, whose iPad Tablets are used in many mid-education institutions.

### 3.1 FATIH project in Turkey

In July 2013 in Turkey 11 domestic and international companies bid for a contract to supply over 10 million one-to-one Tablets for all primary school children in Turkey for the main phase of the Fatih project.\(^{29}\) Apple, Samsung, HP, Toshiba and Microsoft constitute the international bidders. The winner will supply the Tablets over three years, and will have to commit to manufacturing the Tablets in Turkey, in order to contribute to the Turkish economy. The Ministry of Education is also planning a research and development facility for the project. The Turkish company General Mobile won the bid last year to supply Tablets for the pilot of the project and Turk Telecom won the contract to build the infrastructure for the project.\(^{30}\)

Although the project has received much international attention, critics have argued that the implementation of hardware and infrastructure is behind schedule, and the use of Tablets in the pilot have yet to have any impact on students’ learning.\(^{31}\)

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4. Africa

Major growth in the use of mobile technology has been observed in Africa over recent years, and this is now also transforming education in many areas in the region. Companies such as Intel have been collaborating with African governments, helping them invest in basic computers, in the hope that education will lead the growth of mobile technology in coming years. The increase in the child population in many African countries has put pressure on already underfunded and poorly managed education systems, and many are calling for large scale changes. Some governments are hoping that Tablets can offer access to educational content and communication technologies, especially in more rural areas. E-Limu is one of many start-up companies in the region delivering digital learning, and it has recently introduced one-to-one Tablets in several schools across Kenya.

In South Africa Tablets have been introduced to 50 primary schools in the Limpopo Province by the Molteno Institute for Language and Literacy. The institute expects to roll out Tablets to 30,000 students across 250 schools countrywide in an attempt to improve literacy.

The Ministry of Education in Mauritius has announced that over 23,000 Orange Tablets will be supplied to Form 4 students (Year 10, 14-15 year olds) in both private and public secondary schools over the course of the 2013/2014 academic year. Before introducing the Tablets the ministry has equipped 170 schools with improved wifi connection to support the devices. The overall cost of the project is estimated at Rs 150 million, almost £1.5 million. The devices will come preloaded with digital textbooks, but will block the use of social networking sites.

5. India

With a rapidly growing population, a highly pressurised education system and low internet access figures, India had shown interest in adopting one-to-one Tablets as a means of democratising education, pushing long distance learning and bringing connectivity to rural parts of the country. The Aakash device, produced by the British company Datawind, has been chosen as a means to transform learning in India. The Aakash is reported to be the cheapest Tablet device available, and its second generation, the Aakash 2, was launched last year. The Indian Government’s ambition to introduce Tablets in schools is seen as one of the driving forces of the development of IT and

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35 [http://www.thedailybeast.com/articles/2013/01/30/datawind-prepared-20-tablet-computer-for-indian-market.html](http://www.thedailybeast.com/articles/2013/01/30/datawind-prepared-20-tablet-computer-for-indian-market.html)

connectivity in the country. By March 2013, 100,000 devices were being used in schools, and the order for the third generation of Aakash Tablets is expected to be for around 5 million devices.

6. Asia

The Japanese government launched its Future Schools project in 2010, which amongst its objectives is the intention to introduce Tablets PCs to all school children. The scheme was introduced to Primary schools between 2010 and 2012, and in special support schools and junior high schools between 2011 and 2013. The devices support independent learning and collaboration in the classroom and have been shown to improve communication between students and teachers, and between the school and home. The evaluation of the program was positive overall but underlined the importance of teacher training. Fujitsu is the main provider of both software and hardware for the Future Schools project, supplying the wifi infrastructure, interactive whiteboards and Tablet PCs.

The Thai government announced plans to supply 1.8 million schoolchildren with Tablets in 2012, making it the largest Tablet contract in the world. The Tablets were supplied by Shenzhen Scope Scientific Development, a Chinese company which had recently won similar contracts in the region. In its first year Tablets were provided to all first graders in the country. A year later the government has carried out an evaluation of the project which shows that despite pupils and teachers being very positive about the devices there were still improvements to be made. 97% of students and 92% of teachers said they found the Tablets useful, and 92% of teachers said they now preferred using Tablets in their lessons. Teachers have however expressed concern about a reduction in physical exercise and social interaction among children. The project has also suffered from a breakage rate of nearly 9%, mainly related to broken screens, programming errors and charging flaws. Tablets have been distributed to new first grade students in Autumn 2013.

Under a different project run by the One Tablet per Child organisation, 1.22 million Tablets will be supplied to students across three Thai regions. Two regions will be supplied by the Chinese firm Yitoa Shenzhen, while the third region will be supplied by the Thai firm Supreme Distribution.

38 http://www.thedailybeast.com/articles/2013/01/30/datawind-prepared-20-tablet-computer-for-indian-market.html
41 http://blogs.ft.com/beyond-brics/2013/03/08/thailand-pioneers-tablet-computers-in-schools-nationwide/?Authorised=false#axzz2cP5jdwrj
43 http://www.bangkokpost.com/breakingnews/357382/contracts-let-for-1-22-million-tablet-computers-for-schools
In China the Sunshine Library Rural Digital Education Initiative, an organisation hoping to bridge the gap between rural and urban education, is introducing Tablets and wifi connectivity to rural schools. The initiative was recently named a finalist in this year’s Global Social Venture Competition, which is run by the University of Berkeley in the U.S. Apart from this initiative the use of Tablets in Chinese schools is very much in its early phase, but recent developments suggest a substantial increase over the coming three years. In November 2012 the Chinese government launched the Digital Education Full Coverage Project in order to fund the introduction of digital devices in schools. Multiple city governments, including Shanghai, Beijing, Nanjing and Guangzhou have announced plans to purchase Tablets for use in schools. Digital China will be distributing Tablets for many of these projects, and iPads and Windows 8 devices are expected to be the main contenders. Apple has already trialled devices in several schools, but currently lacks educational content partners in China in order to supply devices on a larger scale. Windows is in use in many parts of the education sector, and since Google Apps is not currently available in China this may benefit Microsoft.

7. Australia

The education sector in Australia is increasingly investing in Tablets and cloud technology as the demand for PCs drops rapidly. The government’s investment in broadband through the National Broadband Network is argued to be driving the digital delivery of education, and make it easier for schools to make the investment in hardware.

iPads have until recently been the most common device in schools in Australia, but a recent drop in price from Microsoft has led many schools to invest in Surface and other Windows Tablets. In April 2013 Lenovo won a contract to supply 257,000 netbooks to secondary schools in New South Wales, and in June Acer won a bid to supply secondary schools in Queensland with 14,000 Tablets, which is so far one of the largest deployments of Windows 8 Tablets globally. Windows 8 Tablets have also been deployed at other schools around the country, including Western Australia, Southern Australia and Victoria.

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45 [blogs.forrester.com/bryan_wang/13-07-17-microsofts_surface_promotion_signals_the_growing_importance_of_tablets_in_chinese_schools](http://blogs.forrester.com/bryan_wang/13-07-17-microsofts_surface_promotion_signals_the_growing_importance_of_tablets_in_chinese_schools)

