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A young girl with dark hair, wearing a colorful striped sweater, is looking intently at a tablet computer she is holding with both hands. The background is a blurred classroom setting. The image is framed by large, overlapping geometric shapes in shades of grey and blue.

Large-Scale, Government-Supported Educational Tablet Initiatives

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ABSTRACT

A growing number of countries are embarking on large-scale, government-supported initiatives to distribute tablet devices to students in the K–12 schooling sector. Unfortunately, there is a misconception that by simply putting this technology in the hands of students, educational access issues will be resolved and educational transformation will occur. In this research project, a systematic review of current government-supported tablet initiatives around the world was conducted to understand their origins, underlying principles, financial and organisational models, and expected outcomes. An extensive literature search and data extracted from identified documents showed that 11 countries have launched government-led tablet initiatives. The review concluded that the majority of these initiatives have been driven by the tablet hype rather than by educational frameworks or research-based evidence.

INTRODUCTION

Tablets are among the latest in a long list of tools that have been introduced to classrooms around the world with the hope of facilitating the shift of technology's role from deliverer to enabler that enriches the learning experience.

Research findings support the overall hypothesis that technology is beneficial for student performance. For example, the results from a synthesis of 25 meta-analyses — encompassing 1,055 primary studies in all — showed that average students' performance in technology-enhanced contexts tends to be 12 percentile points higher than those in technology-limited ones (Tamim, Bernard, Borokhovski, Abrami, & Schmid, 2011).

However, the assumption that mere introduction of computers will lead to higher levels of interactivity and constructive learning has been refuted by other research (Bethel, Bernard, Abrami, & Wade, 2007; Wurst, Smarkola, & Gaffney, 2008). Stronger effect sizes are achieved when technology is used for cognitive support rather than presentational purposes (Schmid et al., 2014) and is used to support instruction rather than to deliver material (Tamim et al., 2011).

A systematic review of laptop initiatives revealed that such programmes might increase technology integration in learning, improve attitudes toward technology, and slightly increase engagement and motivation (Bethel et al., 2007). Laptops have been found to increase: note-taking activities; in-class academic and collaborative tasks; communication and information sharing; resource accessibility; and improved organisation (Kay, 2012; Kay & Lauricella, 2011a). However, research also indicates that individual laptops do not lead to better performance or satisfaction with courses (Wurst et al., 2008) and may distract both users in class and their classmates (Fried, 2008; Kay, 2012; Sana, Weston, & Cepeda, 2012), although when the laptop use is well structured, the distracting influence is minimised (Kay & Lauricella, 2011b).

At present, tablets are the focus of attention, garnering a hype similar to that received by personal computers. The promise is to change the teacher's role from the “sage on the stage” to the “guide on the side” (Van Dusen, 2000). While the term *tablet* seems to possess an inherently understandable meaning for 21st-century technology users, it is not as clear as one might think it is. The lines between laptops, tablets and mobile phones are also blurred, a situation that has resulted in the new terms such as *phablet* (to indicate a device that is something between a phone and tablet).

For the purpose of this review, the definition of a tablet by Perrin (2011) was adopted: “device with a touchscreen interface, screen sizes ranging from 5 inches to 12 inches, colour displays, Wi-Fi or 3G internet connectivity, and advanced mobile operating systems such as Apple iOS, Google Android, Windows 7 or BlackBerry.”

Tablets are among the latest in a long list of tools introduced to classrooms around the world with the hope of facilitating the shift of technology's role from deliverer to enabler that enriches the learning experience.

A direct indication of the current popularity of tablets is the global sale of 13 million iPads to K–12 systems and higher education, as reported in Apple’s third-quarter results for the 2013/2014 fiscal year. Apple’s executives highlighted that this was a significant increase from the estimated 8 million devices a year earlier (Education Week, 2014). Five affordances give iPads and other tablets their strong edge (Melhuish & Falloon, 2010):

- portability;
- affordable and ubiquitous access;
- situated “just-in-time” learning opportunities;
- connection and coverage; and
- individualised and personalised experiences.

The available research findings, though limited, indicate that mobile learning activities are successful in engaging students (Wang, Shen, Novak, & Pan, 2009), but there is no conclusive evidence about the impact of those activities on students’ performance and attitudes. Many academics and researchers are raising concerns about addressing technology use with a replacement mentality (Weston & Bain, 2010). The argument is that smart and mobile technology use should not be limited to replacing books with webpages, report cards with student information systems, chalkboards with interactive whiteboards, and filing cabinets with electronic databases.

Regardless of research findings, a growing number of countries are embarking on large-scale, government-supported initiatives to distribute tablet-computing devices to students in the K–12 schooling sector. Numerous countries either have already distributed devices to significant segments of their school populations or are in the process of tendering for the devices. A recent World Bank blog post highlighted nine countries that have invested significantly in this technology, and lamented that, in most cases, there did not appear to be any clearly articulated educational rationale for the initiatives. The post concluded that this phenomenon is the “latest manifestation of a long-observed trend that refuses to die: that of simply wanting to buy the latest popular gadget for use in schools.” As Trucano (2013b) points out, too often the question being asked is not “What challenges are we trying to solve, and what approaches and tools might best help us solve them?” but rather “We know what our technology ‘solution’ is: can you please help us direct it at the right problems?”

These tablet initiatives are being launched with much the same uncritical enthusiasm that surrounded the One Laptop per Child (OLPC) initiative and with many of the same unchecked assumptions. For example, the OLPC initiative was promoted not as a technology project but as an educational project and as a “transformatory example of educational technology” (Selwyn, 2013, p. 128) that would “create educational opportunities for the world’s poorest children” (OLPC, 2012, as cited in Selwyn, 2013, p. 128). Yet, much of the focus of the OLPC has been on the devices and their technical specifications. The same sense of techno-utopianism tends to pervade many of the tablet

initiatives. There is a misconception that by simply putting this technology in the hands of students, educational access issues will be resolved and educational transformation will occur.

However, the tablet initiatives differ from the OLPC in at least one significant aspect: who is driving the initiatives. The OLPC was a global development effort driven by a team of academics and technology entrepreneurs and led by high-profile technologist, academic and founding member of MIT's Media Lab, Nicholas Negroponte. As such, it has been criticised for its cultural insensitivity and neocolonialist approach in attempting to “import a homogeneous set of ‘other’ principles and values into a diverse range of countries and contexts around the world” (Selwyn, 2013, p. 142). By contrast, tablet initiatives are being managed and driven by governments and are, one presumes, being tailored to meet local needs and values — or are they?

Tablet initiatives are being managed and driven by governments and are, one presumes, being tailored to meet local needs and values — or are they?

The fact is, we know very little about the origins of these tablet initiatives, what specific challenges they are attempting to address, how they are being financed, and what their underlying philosophical and educational principles are (if they exist at all). Furthermore, it does not appear that countries are attempting to learn from each other as they embark on their tablet projects. Instead, each country seems to be operating in isolation. This is particularly troubling for the Commonwealth of Learning, whose mandate is to assist member states in implementing local and context-relevant technology solutions that improve access to education and educational quality and that are models that can be replicated.

OBJECTIVES

The purpose of this research project was to examine tablet initiatives around the world in order to understand their origins, underlying principles, and financial and organisational models. We wanted to find out:

1. What explicit and implicit factors are motivating governments to launch tablet initiatives?
2. What financial and organisational models are governments using to implement their tablet initiatives?
3. What are the intended educational outcomes of the tablet initiatives?
4. To what extent are the tablet initiatives aligned with educational policies and strategies?
5. To what extent has the use of tablets been integrated with the curriculum?
6. What provisions have been made to develop or provide access to relevant educational content on the tablets?

7. What provisions have been made for teacher, student and parent preparation for the use of the tablets?

We carried out a systematic review of publicly available information about current government-supported tablet initiatives around the world. Our focus was on extracting information that would answer the above questions. For details about the methodology used, see Appendix A.

FINDINGS

The literature search led to the identification and retrieval of the *UNESCO Working Paper Series on Mobile Learning*, published in 2012 (UNESCO, 2012). The series focused on all forms of mobile technologies (including tablets, laptops and phones) and how they can be used to increase global educational access, equity and quality. The series included reports that focus on: a) mobile learning initiatives and their policy implications; and b) the way that mobile technologies can support teachers and improve their practice.

The working papers targeted five geographical areas: North America, Latin America (and the Caribbean), Europe, Asia, and Africa and the Middle East. Among the individual papers published in the series were:

- six papers examining mobile learning initiatives and policy implications in each of the geographical regions;
- six papers focusing on how mobile technologies can support teachers and improve their practice in each of the geographical regions; and
- one “Global Themes” paper that summarises the main findings from the five regional papers.

While acknowledging the wider scope of technologies addressed in the UNESCO series, we decided to build on its findings and use it to help in the overall organisation and structure of the current report. The following sections are therefore organised around the same five geographical areas. Each section starts with an overview of the corresponding UNESCO report, and is followed by findings of the current review about formal government tablet initiatives in countries within that region. A final section addresses any countries that do not fall within any of the five geographical regions (such as Australia and Oceania).

North America

The UNESCO report on mobile learning initiatives and policy implications in America (Fritschi & Wolf, 2012) indicated that mobile learning efforts in Canada and the United States are generally school or district led. In addition, findings revealed that several programmes have been initiated to support and promote mobile learning in both countries. The initiatives are not set with the particular aim of deployment or enforcement of mobile technology use, but rather with a focus on supporting and

enhancing mobile technology for educational purposes, generally falling under one of the following three broad approaches: a) school-provided device initiatives; b) bring-your-own-technology initiatives; and c) shared-expense plans for devices and broadband access.

Mobile learning efforts in Canada and the United States are generally school or district led.

The current review resulted in similar findings, the particulars of which are presented below by country.

CANADA

The Canadian government, both at the federal and provincial levels, seems to be more focused on providing appropriate support for technology-enhanced learning or technology integration in general than on mobile learning per se.

The literature search turned up eight documents, of which seven focused on general efforts to render various technological resources (including tablets) more affordable to students or to provide clearer guidelines and policies for successful mobile learning (e.g., Alberta Government, 2012, 2013; Chen, Gallagher-Mackay, & Kidder, 2014; Government of Saskatchewan, 2013).

While no large-scale Canadian initiative was identified, the review did find a notable project initiated in Ontario by the Rainbow District School Board in 2011. A commissioned report (Wachnuk, 2013) described the L4All K–12 Regional Project, provided an initial evaluation of it, and offered recommendations. The project started in 2011 with a pilot phase, where tablets purchased for an educational research project were provided to volunteering Grade 9 teachers in the Rainbow District School Board. During the trial period, 35 students had access to the tablets while 1,000 students could benefit from the tablets during the 2012/2013 academic year. The tablets were used with special needs students as part of the Assistive Technology Learning Community for the development of individual educational plans. Limited reference to the effectiveness of the tool was provided, although gain in literacy was noted for students who used the tablets, especially those who followed the individual educational plan. Nevertheless, no specific data collection results were reported.

UNITED STATES

The search located 19 documents, one of which revealed the commitment of the United States government to the advancement of technology integration in K–12 school contexts. The ConnectED initiative (United States Government, 2013) was announced by President Obama in June 2013 and targeted K–12 schools in various states. The initiative aims at connecting 99% of America’s students with next-generation broadband and high-speed wireless in their schools and libraries by 2017. While the ConnectED initiative is not focused on tablet use in K–12 educational contexts, it does incorporate the deployment of iPads and Macs to particular schools based on successful proposals. More importantly, professional development and teacher training are among the promised provided services.

Of the remaining 18 documents located through the search strategy, none presented a national or state-wide tablet initiative. There were, however, some district-level initiatives. Following is a brief overview of the most prominent ones:

- Los Angeles Unified School District (Newcombe, 2013; “LA Unified School,” 2013): In 2013, the initiative aimed at equipping all of the district’s 640,000 students with iPad tablets, at a total financial cost of \$1 billion. The Pearson Common Core System of Courses was to be delivered with the help of a number of apps within an integrated approach. However, there was no uniform policy pertaining to responsibility for lost or broken devices, and in light of the scope of the project, the initiative led to a major controversy pertaining to financial responsibility for breakage or loss of tablets.
- San Antonio Independent School District (Drinkwater, 2013d): In 2013, the initiative was launched with the goal of improving the literacy of K–8 students. Dell Latitude10 tablets were distributed to 33 of the 90 campus libraries that have e-books for student and teacher use.
- Dodge City Public School District in Kansas (Singer, 2013b): In 2013, the pilot phase of the 1:1 iPad initiative included the distribution of more than 1,200 iPads for students and teachers. The district’s Board of Education has already voted to expand the initial deployment to 6,500 devices by the end of 2014.
- Eloy Elementary School District in Arizona (Singer, 2013c): The initiative was launched in 2013 with the deployment of tablets and software for 350 Grade 4, 5 and 6 students. The district adopted a combination of software and hardware called Samsung School, which incorporates Galaxy Note 10.1 tablets, interactive whiteboards and wireless printers, connected together by classroom management software.
- Coachella Valley Unified School District in California (Pierra, 2014c): In 2013, a pilot programme saw the distribution of iPads to 5,000 students. In 2014, the mobile learning initiative project was expanded, with 18,000 students from preschool to high school receiving individual iPads.

The remaining eight documents found were related to either general policy or university-based projects that were consequently excluded from the review (e.g., Needle, 2013a, 2013b; Trucano, 2009).

Latin America and Caribbean

The UNESCO report on mobile learning initiatives and policy implications in Latin America (Lugo & Schurmann, 2012) indicated that education stakeholders in the public and private sectors are targeting mobile technologies and mobile learning as a viable solution to address pressing educational challenges, particularly among indigenous communities and low-income urban and rural populations. Those challenges of the utmost concern are high dropout rates, adult illiteracy, little or no access to education, low educational quality, and insufficient teacher training programmes. Findings from

the report revealed that the majority of available projects in 2012 are pilot projects supported by non-profit organisations, universities or both, focusing on small groups and aimed at addressing local needs.

The report also indicated that policies addressing mobile learning are still limited because of restrictions on mobile technology. Furthermore, government and institution rules restricting mobile technology use are still very common.

ANTIGUA & BARBUDA

Antigua & Barbuda started its Government Assisted Technology Endeavour (GATE) project in 2012. The Ministry of Telecommunications, Science and Technology announced a \$9-million initiative to allocate more than 3,000 Samsung Galaxy tablets with 4G LTE to school students. The objective of GATE is to ensure that Antigua & Barbuda continue to lead the region in information technology. The project also includes collaborative efforts with the Registrar of the Caribbean Examinations Council (CXC) to pilot an interactive e-books project. Officials in the Ministry of Education have noted that the collaboration has resulted in a 75% increase in timely submissions of school-based assessments (Government of Antigua and Barbuda, 2013a, 2013b).

ARGENTINA

There were no reported massive tablet initiatives in Argentina. However, similar to what has occurred in other Latin American countries, the commitment made by the Argentine government to technology integration in the educational sector is reflected by the Conectar Igualdad project. Rubin (2013) reports on the 1:1 educational programme project that aims to enhance Argentina's secondary public schools, teacher training colleges and special education schools through the provision of netbooks to all students and teachers. Similar to other One Laptop per Child initiatives, the goal of this is to empower students in low-income communities and minimise the challenges they face, including access to core academic content.

BRAZIL

The search returned three relevant documents. One provides an overview of a collaborative programme between the New Media Consortium (NMC) and Sistema FIRJAN (Johnson et al., 2012). The objective of the Horizon Project Regional Analysis plan was to inform educational leaders in Brazil about important developments in technologies that support teaching, learning and creative inquiry K–12 education.

More relevant to the current review was the document on the Brazilian Ministry of Education's tablet initiative (Drinkwater, 2013a). According to the report, the plan to distribute more than 460,000 tablets to Grades 6–9 public school teachers has already been approved. Little further information about the initiative was provided, however,

Education stakeholders in the public and private sectors of Latin America and the Caribbean are targeting mobile technologies and mobile learning as a solution for addressing educational challenges, particularly among indigenous communities and low-income urban and rural populations.

and the report concludes with a remark about the absence of widespread approval for the initiative in the country.

A more recent document (“Brazil Equip Teachers,” 2014) indicates that the project is up and running and that the Brazil Education Department has already purchased the 460,000 tablets to be distributed to teachers in schools that have Internet access. The objective is to support teachers and enhance their teaching skills while providing them with the opportunity to become “information hubs.” Brazil’s Positivo and Digibras manufacturing companies are the tablet providers. The cost is US\$130 for a 7-inch tablet and US\$200 for a 10-inch one. The state government is to decide and approve the list of applications to be provided with the tablets, and teacher training will be provided to allow for making the best of the project.

JAMAICA

Saunders (2013) and Smith-Edwards (2014a, 2014b) reported on the Jamaican national tablet initiative, which the Minister of Science, Technology, Energy and Mining announced in the 2013/2014 budget presentation. The pilot phase of the project included the distribution of more than 25,000 tablets to students and teachers in 38 schools. The selected schools varied from infant departments to special education institutions and teachers colleges. The project cost more than \$1.4 billion and targeted schools that were assessed and found to be under-performing academically. Future phases of the national tablet initiative include providing tablets to more than 600,000 students and teachers across the island.

PERU

While the search did not reveal any particular large-scale tablet initiative in Peru, it is worthwhile to note that the one located document (Trucano, 2012) focused on overall technology integration with an emphasis on the One Laptop per Child project (OLPC). Trucano stressed that Peru had the largest OLPC programme to date. He also noted

Given the scope of Peru’s One Laptop per Child project and the extensive data collected about it, this may be a helpful case study in terms of relevant implications and lessons learned.

that many supporters believe that an authentic assessment of the OLPC approach is best conducted in Peru in light of the OLPC’s focus on rural, less advantaged communities and the initiative’s underlying pedagogical philosophies. Numerous research studies have been completed, with data collected from 319 primary schools in rural Peru and a major Inter-American Development Bank working paper being published to disseminate major findings. Considering the scope of the project, the planning that was involved and the extensive data that was collected, this may be a helpful case study to investigate further and make use of relevant implications and lessons learned.

URUGUAY

The situation in Uruguay was very similar to that in Peru. The identified documents focused on the country's various laptop initiatives (Fullan, Watson, & Anderson, 2013; "Government of Uruguay to Distribute," 2013; "Laptops for all," 2009; Trucano, 2013a).

One of the most prominent projects was Plan Ceibal, a five-year programme in which small laptops were distributed to students and teachers in the schools and Internet connection was provided. Ceibal's objective was to narrow the digital gap by enabling social inclusion. Of importance was the public support that the plan garnered among community members. Fullan, Watson, and Anderson (2013) provide an assessment of the first two phases of the project that was started in 2008; and provide recommendations for the next phase, which is expected to have focused implementation, with greater emphasis on the teaching and learning process and on how technology can help improve that. Similar to Peru's OLPC project, Ceibal warrants an in-depth analysis to further investigate its successes and possible implications for other countries' tablet initiatives.

Uruguay's Plan Ceibal warrants an in-depth analysis to further investigate its successes and possible implications for other countries' tablet initiatives.

Europe

Reports indicate that there is on average one computer for every five students in the European Union, and that pervasiveness of laptops, tablets and net-books in some countries is increasing (European Commission, 2013). However, according to the UNESCO report on mobile learning initiatives and policy implications in Europe, mobile learning seems to be a low priority at the policy level, with policy-makers showing an overall lack of interest and awareness (Hylén, 2012).

Adding to this barrier is the negative social attitude towards mobile technologies. For example, mobile phones are perceived by many individuals as being disruptive tools used primarily by students to play games, chat with friends and engage in inappropriate behaviours such as cheating and cyber-bullying. The report identified numerous small-scale research and development projects where mobile technology is used for educational purposes. The report also noted that the European Commission has funded a number of projects that evolved from merely hardware and software development to more learner-centred usage of mobile technologies for teaching and learning.

In Europe, mobile learning seems to be a low priority at the policy level.

As for national initiatives, the UNESCO report stated that the United Kingdom had (as of the time the report was published) launched the largest mobile learning project in Europe, as well as the greatest number of mobile learning projects. On the other hand, Denmark was identified as the most promising European country in the field of mobile learning.

GERMANY

The current review indicates that the state of mobile learning and digital media in the German context is in line with the general conclusions presented in the UNESCO report. The search did not reveal any particular large-scale tablet initiative, but the one located document highlighted that although schools are poorly equipped, new mobile and tablet technologies are integral tools for the majority of young Germans (Uing, 2013). The author further argues that although the advantages of educational technology may be obvious, allowing students to bring their own devices to schools may be the only way to improve the use of technology in schools.

IRELAND

Based on our review, Ireland seems to be a good example of the small-scale school-based projects that were referred to in the UNESCO report. Hallissy, Gallagher, Ryan, and Hurley (n.d.) presented a literature review as well as an evaluation report about tablet use in the Association of Community and Comprehensive Schools (ACCS), which had commissioned H2 Learning to investigate the influence of tablets in their network of 93 schools in Ireland. An extensive survey enabled the authors to offer an overview of current tablet use within ACCS schools and identify three schools that have active tablet programmes. This was followed by the collection of qualitative data from senior management, teachers, students and parents. Various funding approaches were used, ranging from students purchasing the devices to the devices being offered as prizes.

MALTA

The current review did not locate any information about a formal tablet initiative in Malta, but the government's commitment to advancing education with technology integration is reflected by the country's ongoing efforts. As part of the government's plan to build a school every year, St Ignatius College Girls' Secondary School was opened in 2013 (Maltese Eurydice Unit, 2013). The school is designed with full accessibility facilities, science and IT labs, technology and home economics workshops, a library and a literacy/reading area, career guidance rooms, an 800-seat auditorium, staff rooms and administration offices. It accommodates 1,000 students. Beyond the focus on advanced technologies, the school design also incorporates renewable energy sources.

The report also highlights the government's future plans to equip students with tablets to help incorporate educational applications and programmes, thus supporting the paradigm shift toward inclusion and differentiated instruction. The government's vision is to support the community and local organisations by offering equipped schools for use as community centres.

NETHERLANDS

Retrieved documents addressing the current status of mobile learning and tablet initiatives in the Netherlands provide inconsistent and contradictory information. On one hand, documents report the government's plans to link the schools with a single vendor and enforce the use of proprietary technology and closed standards (Keijzer,

2011). On the other hand, a more recent document announces De Windhoek's iPad pilot project, in which 1,000 iPads were distributed to various schools around the country as part of the Education for a New Era (O4NT) programme. Interestingly, the report stresses that the education ministry does not interfere with individual schools' choices for teaching materials, and highlights that methods for funding the iPad project is left to the schools to decide.

The other two documents located provide more contradictory standpoints. In a document reflecting a skeptical view pertaining to the successful use of laptops in schools, Hoffelder (2012) reports on Hondsrug College's decision to back down from its 1:1 iPad approach, started a year earlier. The report notes that while school officials announced that the ability to run the hardware side of the iPad programme was not under question, they attributed the failure to the curriculum not being ready for the project. A more recent article (Drinkwater, 2013b) discusses the ambitious Education for a New Era Foundation (O4NT) programme, which promises to change how children learn with the use of iPads in schools. So far, 11 of these "Steve Jobs schools" have been launched, with more than 1,000 students between the ages of 4 and 12.

UNITED KINGDOM

A number of documents reflected the attention given to mobile learning in the United Kingdom, although not all focused on tablet-specific initiatives. For example, the report addressing GSMA's Mobile Education initiative aims at accelerating the implementation of Mobile Education solutions, including e-readers and tablets in mainstream education (GSMA, 2011). The growing interest is also very evident in the results of the C3 Education review of the projected needs of tablets in English schools (Connor, 2013). A far-reaching survey targeted heads of Key Stage, heads of departments, and subject coordinators in primary and secondary schools across England. Findings indicated that about 260,000 tablets were used by students in 2013, with a forecast of more than 600,000 tablets by the end of 2015, and 1.8 million by the end of 2020.

From a more academic perspective, Clark and Luckin (2013) reported on the collaborative efforts between the London Knowledge Lab and the Institute of Education at the University of London that resulted in a comprehensive report about the current status and benefits of iPads in the classroom. Advantages include: a) supporting seamless learning in which students can switch easily between formal and informal learning; b) motivating and engaging students while enhancing face-to-face social interaction that is not deterred by a blocking screen (as is the case with laptops); c) supporting different forms of communication between teachers, students, parents and administrators; d) enabling a variety of activities in combination with other devices; and e) enhancing formative evaluation and self-assessment and reflection (Clark & Luckin, 2013).

Of higher relevance to the current review were the documents that addressed tablet initiatives in particular. Similar to other European countries, the United Kingdom has a number of small-scale projects and initiatives. For example, a number of faculty members at the City of Liverpool College have experimented with the use of tablets, which led to

the deployment of 600 Lenovo Tablet 2 devices for student use (Singer, 2013a). While the report does not provide specific details about how the tablets were used, it notes that teacher training was provided.

Meantime, we found that the United Kingdom seems to be pushing for tablets on a larger scale. Drinkwater (2013e) reported that the UK's education secretary had approved the Tablet for Schools initiative, which planned to get tablets in schools across the country by the end of 2013. However, there was no indication about where the initiative stands at the present time.

In Scotland, the attention to information and communication technology (ICT) in that country is not a recent one. Condie, Munro, Muir, and Collins (2005) reported on the impact of ICT in Scottish schools. The evaluation study investigated the impact of a number of Scottish executive initiatives launched in the last 10 years with the aim of giving students the chance to learn with technology and develop personal skills and expertise. More specifically, Granville, Russell, and Bell (2005) reported on the success of the Masterclass Initiative launched in 2002 to help local schools develop their ICT integration strategies. That project involved the use of tablets as an example of ICT tools.

The more recent documents indicate a growing interest in tablets, particularly iPads. The article “Engage for Education” (2012) focuses on the tablet's potential for school students, reporting that 10 local authorities are currently using a multitude of tablet devices at 20 schools. With a wider scope, a research group from the University of Hull published the results of an investigation addressing the adoption of 365 iPads in eight Scottish schools having various demographics, infrastructure and approaches to tablet integration (Burden, Hopkins, Male, Martin, & Trala, 2012). The report summarises three main models: a) deploying class sets of iPads, with the devices being kept in the school and issued only as needed for a lesson; b) allocating devices to students for use across subject matter without approval to take the device home; and c) providing students with the devices throughout the pilot project duration for use in school and at home — the most personalised approach.

Asia

The UNESCO report on mobile learning initiatives and policy implications in Asia revealed that various countries have established strategic plans for ICT integration in education, but there are very few national-level policies addressing mobile technologies and learning for education (So, 2012). The report further indicates that there are a number of mobile learning initiatives in the region aimed at: a) making learning more accessible; b) promoting self-directed learning; and c) designing future learning environments. However, these initiatives are mostly small scale and ad hoc.

INDIA

The search revealed a 2012 announcement to launch a major tablet initiative in India (Gardner, 2012). The Aakash 2 tablets, manufactured by the UK-based company Datawind, were selected for the initiative. The report noted that the Indian government

would purchase each tablet at a cost of approximately US\$40 and sell it to students for US\$21. The initiative was to focus on university students in its first phase, with 100,000 university students and professors to receive Aakash 2 tablets. Furthermore, the government's objective was to provide an Aakash 2 tablet to India's 220 million students. The tablets were believed to have a transformational potential for Indian education, especially with reaching out to rural communities. It was also reported that the government would provide teachers with needed e-learning training. The search did not locate more recent documents that provide further information about the project and whether it reached the implementation stage.

IRAN

The IT division in Iran's Ministry of Education announced a major tablet initiative as part of the plans to provide schools and classrooms with the new technological devices (Rahmani, 2013).

The tablets will be distributed in the schools of the Iranian capital, Tehran. However the plan has yet to be finalised and approved by the top officials of the ministry. The IT division was waiting for the approval at the time of the publication of Rahmani's paper. No further information could be located about the present status of the project.

JAPAN

The review did not find any formal tablet initiatives in Japan, but the attention garnered by mobile technologies and tablet devices in that country is evident in the rising popularity of tablet-based learning. Pierra (2014b) reports that tablet-only correspondence courses are "catching fire" in Japan, with more than 100,000 families registered for such courses. Unfortunately, the report does not provide any further information pertaining to the rationale behind families' registration or expected advantages. Currently, three major educational providers offer the courses, and statistics reveal that parents are favouring this mode of education for their elementary school children over paper-based courses.

KAZAKHSTAN

Drinkwater (2011a) reports that Kazakhstan is launching a major tablet initiative, in which tablets will be placed in all schools in the coming years. The government is focusing its efforts on enhancing electronic learning in its schools, and plans on procuring 83,000 tablets for school use by the end of 2020. The initiative is coupled with infrastructure improvements: high-speed Internet access is already activated in 44 schools, and there are plans to connect all the others. Furthermore, the country is focusing on providing needed content matter. Currently, 95% of subject matter has been digitised, and universities have released over 7,000 electronic textbooks.

Various countries in Asia have established strategic plans for ICT integration in education, but very few national-level policies address mobile technologies and learning for education.

MALAYSIA

According to the current literature, Malaysia has not started any major tablet initiative. However, there seems to be growing awareness of the importance of mobile learning, especially with the Ministry of Education's introduction of an ICT policy to organise use of mobile learning in schools (Mohamad & Woolard, 2012). Most of the efforts are with the objective of reducing the digital divide among schools and enhancing teaching and learning, with an emphasis on teaching English.

PAKISTAN

In Pakistan, the Punjab provincial government announced the launching of the Smart Schools System initiative in 2013 ("Punjab School Students," 2013; "Punjab to launch," 2013). The provincial education minister noted that the project is a large-scale tablet initiative that aims to relieve school students from their heavy bags. Tablets will be deployed to the 1.2 million students in the 55,000 public sector schools ("Punjab to launch," 2013). However, the two documents found provided contradictory information pertaining to the grade levels to be targeted in the first phase. The "Punjab School Students" (2013) report said from Grade 6 to 10; the "Punjab to Launch" (2013) said Grade 8 to 10.

RUSSIA

The review revealed that Russian attention to tablets is not limited to educational use, but also includes competitive production of the tablets. In 2011, Rusnano, a Russian state company, announced its plan to start manufacturing inexpensive plastic-based tablets for school use (costing \$420 per tablet), rivaling Apple's iPad (\$670 for the least-cost iPad) at that time (Bryanski, 2011). A school-based project that shows this interest in action is the electronic educational system (or E-OK project). In the programme, initiated by Russian businessman Alexander Shustorovich during the 2010/2011 academic year (Silver, 2012), 300 Grade 6 students from 11 different schools in Russia were loaned portable hybrid e-books and tablets that they could use to learn, to complete and revise their homework, and to study for their exams. The E-OK are designed to replace all other tools relevant to the students, including learning materials, assignments, exams, administrative information and medical records. Although starting small, Shustorovich's aim was to reach a point where all 16.5 million students in Russia's 50,000 secondary schools would have their own tablets. More recent information about the project could not be located.

As for government initiatives, the Ministry of Education has announced a trial distribution of 1,000 e-readers as the first phase of a larger future project (Pilkington, 2014). The project is linked with the Rusnano plastic-based tablet programme, and involves an investment of approximately \$150 million.

SOUTH KOREA

Available information about the situation in South Korea reveals that country's growing awareness of the importance of tablets and online content. Honig (2011) and Anthony (2011) have reported on the Ministry of Education, Science and Technology's announced plan to spend over \$2 billion to develop digital textbooks to replace paper books in all schools by 2015. The main emphasis is on supplementing traditional content with multimedia resources on school-supplied tablets. Such a move will enable students to access paper-free learning materials from a cloud-based system, and allow homebound students to catch up on work from a distance.

Although there does not seem to be a single large initiative, the government is supporting a variety of small-scale projects around the country. A recent report (Ki-Hwan & Soo-Min, 2014) highlights the current situation with regard to actual tablet use in schools. According to the authors, 163 schools are currently using tablet devices financed by the Ministry of Education. These are referred to as SMART technology, an acronym for self-directed, motivated, adaptive, resource-enriched, technology-embedded schooling. The ministry's vision is to have all schools involved in SMART teaching and learning by 2020.

THAILAND

The state of affairs in Thailand when it comes to the use of tablets in education has been through a few changes and controversial stops. As part of her election campaign, Ingluck Shinawatra, the 28th Prime Minister of Thailand, promised that she would make sure each child received a tablet. This was the initial point for the massive One Tablet per Child policy. As part of the policy, the government distributed tablets to all first-year primary school students with the objective of improving education. Since then, there have been many reports skeptical about the benefit and success of the policy (Fernquest, 2012; Fernquest & Vejjajiva, 2011; Fredrickson, 2013; Viriyapong & Harfield, 2013). The reports highlight and discuss numerous challenges, including providing teacher support, ensuring usability, developing contextualised content, and assessing learning outcomes (Viriyapong & Harfield, 2013).

Reports following the 2014 coup indicated that the One Tablet per Child policy would be suspended (Pierra, 2014a). It was noted that to maintain the tablet project, the National Council for Peace and Order would have to authorise a \$26.7-million budget to deploy tablets to 400,000 students and teachers throughout Thailand's schools. Instead, the Ministry of Education has decided to use the allocated 7-billion-baht funds to build a smart classroom in every school (Intathep, 2014).

Africa and Middle East

The UNESCO report on mobile learning initiatives and policy implications in Africa and the Middle East indicated that the education systems in the region are facing major problems, particularly with the impact of inequality, political insecurity, natural disasters, poverty, war and the ongoing state of unsettlement that several countries in the region face (Isaacs, 2012). With all those problems, the report also notes that numerous

Although the education systems in several countries in Africa and the Middle East are facing major problems because of political insecurity, war, natural disasters, poverty and other unsettling events, mobile learning is gaining attention as a means of enabling educational system reform and transformation.

projects have been initiated with the aim of supporting ICT integration in the educational context. Furthermore, in light of the growing access to mobile devices and telephones, mobile learning is gaining attention as a viable method to improve teaching and learning while enabling educational system reform and transformation.

ETHIOPIA

The literature search did not identify any document that indicates the initiation of a formal tablet project in Ethiopia. However, ICT integration and tablet use in educational contexts is starting to emerge, aimed at empowering students, particularly in rural contexts. Talbot (2012) reports on a one-on-one laptop project that was being implemented in two isolated rural villages. Motorola Xoom tablets, operated with a solar charging system, were used with 20 Grade 1 students in two villages located at least 50 miles away from Addis Ababa. Of higher significance is the fact that there were no teachers in either village and the Ethiopian children were never trained or given instruction of how to use the tablets. Rather, the tablets were dropped off in

the villages in boxes taped closed, with no instruction, and the children were followed to investigate how much they could learn without training or teacher support. The preliminary results of the project were promising, with the children gaining skills with using the iPads and learning various songs and games. No further information about the progress of the project was found.

GHANA

Attention to ICT and portable devices, including their potential for enhancing education, is increasing in Ghana, as evident in the results of the current review. Sikiti da Silva (2014b) presents an overview of the 2014 corporate social responsibility (CSR) campaign that runs with an “Investing in Education for All” theme. MTN Ghana invites subscribers to text “Y’ello Care” to a specific code, with all the subscription proceeds going towards the purchase of laptops, tablets, modems and routers for school teachers across the country. In addition, there are plans for building e-libraries to provide teachers and students with access to e-books. Finally, the company will be providing free cloud services to two universities. Of even higher relevance to the focus of the current review is the Ghana Reads project that has been implemented with 28 schools in its first phase (Sikiti da Silva, 2014a). Elementary school children are provided with low-cost tablets and hand-held devices to give them access to learning resources and material.

JORDAN

Retrieved documents did not indicate that a formal tablet initiative is currently running in Jordanian schools. However, a comprehensive proposal was found, submitted by PRAVO to the Connect Arab Summit 2012 for the development of a “21st-Century Digital Interactive World Class Education System” for Jordan (Al Disi, 2012). The total cost of the project was US\$482.11 million for four years. The action plan includes a stepwise methodology to be followed to achieve the final target of networking and connecting 3,450 government schools with an estimated 1.144 million students. Unfortunately, no further reference to the project could be located, nor could evidence of the proposal being funded or approved.

NIGERIA

Findings from the review reveal that Nigeria has started a provincial-level tablet initiative, where the Governor has ordered the deployment of 150,000 adapted tablets — known as *Opon-imo* — to be used for teaching and learning in the secondary schools (“Nigeria: Osun State’s Tablet of Knowledge,” 2013). The tablets are hand-held tools fitted with a virtual classroom (over 900 minutes of lessons), an e-library (containing more than 56 textbooks) and an integrated test zone (with thousands of practice questions for the Nigerian tertiary education entrance examinations).

SOUTH AFRICA

Two small-scale initiatives in South Africa have been reported. The first has been initiated by local officials in the Boksburg area, and is underway in Sunward Park School, which caters mainly to disadvantaged students (Oxford, 2013). As part of the initiative, students were given a discount on purchasing 7-inch and 10-inch tablets running with Google’s Android operating system. The main focus was on using e-books and various electronic resources for teaching and learning.

The second project was initiated at Gauteng’s provincial level and targets disadvantaged communities (SAinfo Reporter, 2013). The project, in partnership with a non-profit Wi-Fi company, is part of the province’s overall e-learning programme and is expected to replace a previously established online schools programme. However, this initiative is not focused on tablet provision, but rather on enabling the use of tablets by providing the needed networked connectivity and e-learning requirements.

TURKEY

The Turkish Ministry of Education initiated the Fatih Project in 2012 in collaboration with the Ministry of Transport, Maritime Affairs and Communications (Republic of Turkey, Ministry of National Education, 2012). The objective of the project is to activate the concept “Smart Class” in 570,000 classes in 42,000 Turkish schools. The project also incorporates in-service teacher training, in addition to the development of educational e-content in accordance with the Turkish curriculum. While the project is not specifically tablet-focused, it is still considered to be a positive support to the move by Turkish schools towards stronger ICT integration in schools. To achieve its objectives, the project

includes five different components: a) provision of equipment and software substructure; b) provision and management of educational e-content; c) use of ICT in teaching programmes; d) in-service teacher training; and e) use of ICT in conscious, reliable, manageable and measurable ways.

UNITED ARAB EMIRATES (UAE)

The located documents indicated that tablet and iPad use in the UAE educational context is on the rise. Bring Your Own Device and iPad initiatives are becoming the norm in several schools, including nurseries (“Tablets in UAE Schools,” 2013). However, the interest and activity is being spearheaded by government officials, not just limited to small-scale or school-based projects. The Mohammed Bin Rashid Smart Learning Initiative might be one of the largest tablet initiatives in the world. The initiative was launched in 2012 and cost \$272 million (United Arab Emirates, 2013).

The project is to be implemented in four stages: 1) changing the classroom environment and incorporating smart interactive tools and software; 2) providing advanced electronic infrastructure and distributing tablets to all students; 3) creating “virtual backpacks” for students and providing training for teachers; and 4) providing special services for parents to be more involved with their children’s education (Ali, 2012). The Smart Learning Programme is to be installed in all K–12 government schools by 2017 (Pennington, 2014).

ZIMBABWE

Similar to government administrators in many other African countries, Zimbabwe officials are considering the option of solar-powered iPads to help enhance the teaching and learning experience of children in remote rural schools (Drinkwater, 2011b). The education minister has noted the potential of tablets to reduce the digital divide between urban and rural areas in Zimbabwe. However, no further information could be found about actual implementation of a tablet initiative in Zimbabwe.

Pacific

AUSTRALIA

As is happening in many other countries around the world, school interest in iPads and tablets seems to be a driving force for the Australian government. For example, Western Australia’s Department of Education and Training announced in 2010 that because a number of schools were showing interest in iPads and tablet devices, the department would purchase the hand-held computers independently to pilot test them in their teaching environment (Pitcher, 2010). There have since been several small- and medium-scale initiatives in the last few years. The State of Victoria’s Department of Education and Early Childhood Development launched the iPads for Learning trial project (State of Victoria, n.d.). The project included the deployment of more than 700 iPads to students

in nine schools, including special needs schools and the Royal Children's Hospital Education Institute. Available information indicates that the project was successful, although the exact criteria used to evaluate the effectiveness are not identified.

In New South Wales, the government is focused on the establishment of a Bring Your Own Device policy (New South Wales Government, 2013).

In Queensland, the Department of Education, Training and Employment started small and then expanded its focus on tablets in the schools. It launched the Smart Classroom iPad trial project in 2011 (Queensland Government, 2011), distributing, in two selected schools, 50 iPads to primary and secondary classes. More recently, the department launched a much larger initiative. Drinkwater (2013c) reported that 14,000 Windows 8 tablets from Acer had been purchased by the department to be handed out to high school students in the area.

DISCUSSION

The major findings of this review reflect the increasing attention to, and penetration of, ICT around the world. The findings confirm the magnitude of the financial investment spent with the goal of reforming educational systems, the hope of making K–12 classrooms more motivating and engaging, and the dream of bringing literacy to children in rural areas and breaking their isolation.

Except for a few skeptical voices, most of the 142 retrieved documents focused on the advantages of technology for teaching and learning and the need to use the power of ICT for the advancement of education. For some countries, this was to be achieved by paying greater attention to guidelines and policies. Other countries opted to invest in infrastructure and network setups, some decided to focus on digital content for e-books, and — as occurs with any new technology — some elected merely to flood their classrooms with the latest (most fashionable) gadgets.

The review also shows that large-scale, government-supported tablet initiatives have been launched in 11 countries, as summarised in Table 1.

In addition to locating large-scale, government-supported tablet initiatives around the world, the current review aimed at examining the initiatives to understand their origins, underlying principles, and financial and organisational models. While the task proved to be more challenging than expected because of the limited amount of publicly available information, the overall findings of the review confirm the original assumption: that the majority of the tablet initiatives are launched with a hasty and uncalculated approach, often weak on the educational, financial or policy front.

The following sections provide an overview of the findings in response to the particular questions addressed in the review, and also highlight pertinent implications for relevant stakeholders.

Table 1: Countries that have reported large-scale, government-supported tablet initiatives, and a summary of relevant information

	LEVEL OF APPLICATION	BODY IN CHARGE	SCOPE OF THE PROGRAMME	TYPE OF DEVICE	GRADE LEVEL	EDUCATIONAL SPECIFICATIONS	FINANCIAL MODEL	COST (USD)
Antigua & Barbuda	National	Ministry of Telecommunications, Science and Technology	3,000 tablets	Samsung Galaxy tablets with 4G LTE connectivity	Grades 4–5	Not specified	Largely funded by Digicel	\$9 million
Australia	Provincial: Queensland and New South Wales	Queensland Department of Education, Training and Employment New South Wales Department of Education and Communities	Over 14,000 devices	iPads and Windows 8 tablets from Acer: Iconia W701 with 3G mobile broadband	Across grades (K–12)	Not specified	Partly funded by the National Secondary School Computer Fund government initiative Also: Bring Your	Own Device Over \$12.9 million
Brazil	National	Ministry of Education	Over 460,000 devices	iPads	Grades 6–9	Not specified	Government-funded tenders for local companies.	Over \$75 million
India	National and provincial	Ministry of Human Resource Development	35,819 public provincial schools and 100,000 university students nationally	My Class Buddy (A 700 E and A722G E); Aakash 2 tablet (UK, DataWind Inc)	Grade 8; contest winners at provincial level; university students	Smart School Solution	Public–private (Amtrak commercial enterprise) partnership provincially; government subsidised (half price) nationally	Total is not specified; \$40–\$110 per device
Iran	National: initial stage is for Tehran's schools	Ministry of Education	Not specified	Not specified	Not specified	Not specified	Not specified	Not specified
Jamaica	National	Ministry of Science, Technology, Energy and Mining and Ministry of Education	24,000 students and 1,200 teachers; 25,000 tablets	Not specified	All levels of education	Not specified	Paid from the government Universal Service Fund	\$1.4 billion
Kazakhstan	National	Not specified	44 schools; 83,000 tablets	Not specified	Not specified	Access to relevant digital content	Not specified	Not specified
Pakistan	Provincial: Punjab State	Provincial Ministry of Education	55,000 public sector schools; 1.2 million students	Not specified	Grades 8–10	Access to relevant digital content	Not specified	Total not specified; \$50 per device
Russia	National	Ministry of Education	Over 1,000 classrooms	Plastic Logic (a portable e-book/tablet hybrid)	Grade 1–6	Not specified	Government via Rusnano state corporation	Total not specified; \$420 per device
Turkey	National	Ministry of Education with support from Ministry of Transport, Maritime Affairs and Communications	570,000 classrooms in 42,000 schools of 81 provinces; over 10 million students	PC tablets	Across grades (K–12)	Access to and management of relevant digital content	In-service training of teachers; government-issued tenders for suppliers	\$1.4 billion
United Arab Emirates (UAE)	National	UAE Prime Minister	200,000 devices	iPads; high-speed 4G networks	All levels of education	Not specified	Government funded	Over \$272 million

Motivating Factors for Launching Tablet Initiatives

Located documents provided explicit indications that the initiatives were motivated by the desire to enhance teaching and learning processes. Many of the stated objectives included catchphrases and buzzwords that may have been more fitting for public relations and political campaigns than for educational reform actions. Examples include: “improve student learning with anytime anywhere access”; “support social inclusion”; “induce paradigm shift in education”; “promote independent learning”; “offer individualised and personalised education”; “narrow the digital divide”; “increase knowledge beyond books”; and “enable future citizens through connectivity and independence.”

However, none of the identified initiatives was supported by a rationale or evidence for why tablets in general would help achieve the articulated objectives, let alone be supported by the reasons for selecting a particular brand or type of tablet.

While the review identified 11 countries with large-scale, government-supported tablet initiatives, the documents also revealed that other countries are interested in mobile learning, with a focus on objectives and priorities other than merely tablet distribution. The findings suggest that countries with more developed and established educational systems seem to focus on creating strong policies, procedures and infrastructure for enhancing the educational process for students while also making use of various devices, not just tablets. Examples include the American ConnectED initiative that aims at connecting 99% of America’s students to next-generation broadband and high-speed wireless in their schools and libraries (United States Government, 2013) and the Bring Your Own Device initiative implemented by Alberta’s schools in Canada (Alberta Government, 2012).

Other countries are focusing on providing the needed content for various mobile- and technology-enhanced initiatives to be successful, such as the Netherlands’ push for mandatory use of Open Standards and guaranteed platform-independent access to all materials required in the public educational system (Keijzer, 2011).

Financial and Organisational Models

Discussion of the financial and organisational models used in planning various initiatives was limited in the located documents, and likely to be of little use to other countries interested in embarking on similar projects.

Countries with more developed and established educational systems seem to focus on creating strong policies, procedures and infrastructure for enhancing the educational process for students while also making use of various devices, not just tablets.

General statements about tablets being a less costly option overall were frequently offered as a rationale. However, no real cost comparison analyses for any of the projects were presented. Although many reports referred to the financial cost of the initiative in question (either overall cost or per device), they never provided information about how or why a decision to go with a particular device was taken. And discrepancies in scope of initiatives are puzzling. A case in point: both Jamaica and Turkey reported tablet initiatives at a total cost of \$1.4 billion — Jamaica’s to support 24,000 students, and Turkey’s to support over 10 million students.

Procurement issues related to tablet purchases were also rarely discussed, yet in reality the challenges in procuring tablets with suitable technical and functional specifications can be daunting.

When important decisions are being made about embarking on such large-scale initiatives, ambiguity like this is alarming.

Discussion of financial and organisational models used in planning various initiatives was limited, and no real cost comparison analyses for any of the projects were presented.

Educational Factors

For academics and researchers, educational factors such as pedagogical and theoretical frameworks, accessibility of content, and teacher preparation and support may be of highest relevance.

Of those factors, only content was mentioned in the located documents within the context of tablet initiatives (and of other forms of educational reforms), but reference was limited to the need to digitise available content or to provide content in the official language of the country. There was no reference to interactive content or more active involvement of students in the production of content. This confirms the use of tablets to deliver and share content with a teacher-centred mindset.

As for teacher preparation and support, the description of some initiatives has an implicit indication that training is focused on technical aspects. Reference to the most important factor — pedagogical and theoretical frameworks — was non-existent.

Overall, it was obvious that the initiatives focused on the hype around tablets and not on their use as a tool to achieve an educational goal.

Overall, we found that the initiatives focused on the hype around tablets and not on their use as a tool to achieve an educational goal.

CONCLUSION

This review provides a snapshot of current large-scale, government-supported tablet initiatives around the world. The information collected confirms that the majority of the initiatives were launched in a hasty and uncalculated manner, similar to the uncritical enthusiasm that surrounded the One Laptop per Child initiatives.

However, this statement should be used cautiously, as the review was limited by the nature of the documents retrieved and the shortage of publicly available information. For a better understanding about the effectiveness of tablets in educational contexts and a clearer idea about best practices, a more focused review of the academic literature addressing tablet use in educational contexts is warranted.

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APPENDIX A: METHODOLOGY

We took a systematic approach in the stages of our review to ensure reliability of the overall literature located and the subsequent selection of relevant documents. The stages were:

1. Literature Search Strategy and Data Sources
2. Inclusion/Exclusion Criteria and Review Procedure
3. Information/Data Extraction Process

Literature Search Strategy and Data Sources

Considering the focus of the current review, the literature search concentrated on government websites and media documents and reports rather than academic resources. To locate government policies that promote tablet use in schools, three steps were followed:

- First, the websites of several governments were searched for relevant material: Canada and its provinces; the United States and its states; Australia and its provinces; and the UK government and Scotland.
- Second, a series of Google searches was conducted, first broadly but later for specific countries. (Examples: tablets government policy schools; iPad government policy schools; mobile device government policy schools; touchscreen government policy schools; tablets government policy schools Jamaica; tablets government policy schools Angola.) Google searches resulted primarily in news accounts of policies. Where possible, the government websites were then checked to look for any policy documents pertaining to the tablet initiatives. This was not always possible due to language barriers.
- Third, several online resources were identified that report on tablet news, and these were browsed for additional mentions of policies and government-backed initiatives. Examples:
 - ZDNet – www.zdnet.com/
 - GSMA – www.gsma.com
 - TabTimes – www.tabtimes.com/
 - Tablets for Schools – www.tabletsforschools.org.uk

The latter two resources were the most fruitful. The majority of retrieved hits came from the searches in Google.

The search process targeted 60 countries, as listed in Appendix B. In total, 142 leads were identified and added to the Endnote¹ database: government websites (direct) – 11 records; Google – 99 records; Tabtimes – 21 records; Tablets for Schools – 9 records; GSMA – 1 record; and ZDNet – 1 record.

¹ EndNote is a software tool for publishing and managing bibliographies, citations and references on the Windows and Macintosh desktop.

Inclusion/Exclusion Criteria and Review Procedure

To ensure reliability, a systematic process was used while reviewing the located records. The vast majority of the documents addressed a tablet-related report, policy, initiative or announcement, but the reviewers still needed to identify those related to formal government tablet initiatives. While the inclusion criterion was clear, the exclusion criteria were more varied. They included one or more of the following:

- Overall literature review or opinion article addressing the importance of tablets in education
- Government policy document (more generic or not related specifically to tablet initiatives) targeting:
 - Mobile learning
 - Technology integration
 - Bring Your Own Device
- Government overall technology, resource and/or infrastructure initiative
- One-to-one laptop initiatives (either being launched or brought to a halt)
- Local school board or individual school tablet initiative
- Announcements for corporate and government deals to ensure tablets are more affordable
- Design, development and launch of mobile learning and tablet-compatible content

Two researchers working independently reviewed the documents and rated them as either includes or excludes, noting the reason for exclusion and discussing disagreements until they were resolved.

Information/Data Extraction Process

It was clear that most of the currently available documents would not enable the extraction of in-depth information for a particular initiative. A code book for data extraction was therefore designed with a future case study phase in mind. The main areas of coded information included:

1. Country
2. Ministry responsible
3. Scale/level of distribution
4. Cost of initiative/financial model
5. Date of implementation or proposed implementation
6. Technical specifications (hardware, software)
7. Educational specifications (content, specific plans for integration)
8. Use/ownership policies
9. Monitoring and evaluation plans
10. Concept note for the initiative

To establish reliability, two researchers extracted data from a random sample of 10 documents and discussed the codes. Once assured that there were no major concerns in the use of the codebook, data extraction was completed by one of the researchers. For the full code book, see Appendix C.

APPENDIX B: COUNTRIES TARGETED IN THE LITERATURE SEARCH

Of the 60 countries targeted, 11 (names highlighted in blue) were found to have launched large-scale, government-supported tablet initiatives.

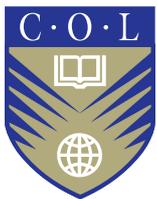
REGION	COUNTRY	DOCUMENTS LOCATED?	HAS TABLET INITIATIVE?
North America	Canada	Yes	No, has higher focus on policy
	U.S.	Yes	District-level tablet initiatives
Latin America	Antigua & Barbuda	Yes	Yes
	Argentina	Yes	No
	Belize	No	No
	Bolivia	No	No
	Brazil	Yes	Yes
	Costa Rica	No	No
	Ecuador	No	No
	Jamaica	Yes	Yes
	Mexico	No	No
	Nicaragua	No	No
	Paraguay	No	No
	Peru	Yes	Laptop initiatives
Uruguay	Yes	Laptop initiatives	
Europe	Albania	No	No
	Estonia	No	No
	Germany	Yes	No
	Hungary	No	No
	Ireland	Yes	No
	Luxembourg	No	No
	Malta	Yes	No
	Netherlands	Yes	Contradictory reports
	Poland	No	No
	Portugal	No	No
	Romania	No	No
	Slovakia	No	No
	Slovenia	No	No
	United Kingdom	Yes	Few localised initiatives

REGION	COUNTRY	DOCUMENTS LOCATED?	HAS TABLET INITIATIVE?
Asia	India	Yes	Yes
	Iran	Yes	Yes
	Japan	Yes	No
	Kazakhstan	Yes	Yes
	Malaysia	Yes	No
	Pakistan	Yes	Yes
	Russia	Yes	Yes
	South Korea	Yes	No
	Thailand	Yes	Yes, with retraction
Turkmenistan	No	No	
Africa and Middle East	Algeria	No	No
	Angola	No	No
	Benin	No	No
	Burundi	No	No
	Egypt	Yes	No
	Ethiopia	Yes	No
	Ghana	Yes	Company-led initiative
	Jordan	Yes	No, but full proposal available
	Kuwait	No	No
	Namibia	No	No
	Nigeria	Yes	Provincial
	Oman	Yes	No
	Palestine	Yes	No
	Qatar	Yes	No
	Saudi Arabia	Yes	No
	Senegal	No	No
	South Africa	Yes	Limited small-scale initiatives
	Turkey	Yes	Yes
	United Arab Emirates	Yes	Yes
	Zimbabwe	Yes	No
Pacific	Australia	Yes	Yes

APPENDIX C: CODE BOOK

- Reason for exclusion
 1. Not government initiative
 2. Literature review
 3. Opinion/media article
 4. Primary research/evaluation project
 5. Personal opinion/blog
 6. Not educational use of tablets
- Resource type
 1. Official government
 2. Open source media
 3. Academic/commissioned report
 4. Other (open code)
- Country/state/city (open code)
- Focus of document:
 1. Approved and implemented initiative
 2. Approved plan for initiative
 3. Trial/ pilot/evaluation
 4. Other (open code)
- Ministry responsible or government body in charge (open code)
- Declared purpose of the initiative (open code)
- Grade level:
 1. Elementary
 2. Secondary
 3. Post secondary
 4. Combination (open code)
 5. Not specified
- Users
 1. Students
 2. Teachers
 3. Students and teachers
 4. Not specified
- Parent involvement:
 1. Yes
 2. No

- Scope
 1. Number of schools (open code)
 2. Number of tablets (open code)
 3. Number of participants (open code)
- Cost of initiative (open code)
- Financial model (open code)
- Date of implementation (open code)
- Technical specifications (open code)
- Educational specifications (open code)
- Use/ownership policies (open code)
- Monitoring and evaluation plans (open code)
- Concept note for the initiative (open code)



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