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DERN Research Brief Mobile learning – why tablets?

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Introduction

Although flexible and distance learning has been an integral part of the education landscape for many years, the nature of learning using technology has experienced an unprecedented rate of change over the last decade. This change has been also reflected in the terminology used to describe this learning, such as e-learning, m-learning and more. In the broadest sense, the new technologies have been a catalyst for merging the boundaries of formal, informal and lifelong learning.

Global economies are driving aspects of social change through the adaptation of new technologies for everyday business and transactions. As such education needs to transform itself in order to adopt these technologies in learning and teaching.

As Sharples (2006) points out 'we are now entering the mobile age, where phones are carried everywhere... airplane seats are entertainment centres, computer games are handheld, and advertising is ubiquitous' (Sharples, 2006, p. 2). Education needs to change if learning is to meet the challenges and opportunities of the mobile age.

In recent times the tablet has been the tool of choice, especially the iPad, by many educational institutions to provide innovative learning opportunities.

This brief, will not address the theoretical issues of education and its role in an ever changing technology driven society. Its primary focus is on the pedagogical aspects that aid in the improvement of teaching and learning through the use of digital devices and in particular tablets including the iPad.

Discussion is centred on the following areas:

1. How can mobile technologies **support literacy** development **for children**?
2. How can mobile technologies support teachers and their **professional development** in order to improve the **quality of education** delivered to students?
3. How can mobile technologies support **gender equality** in education and extend opportunities to women and girls in particular?
4. How can mobile technologies support **equity**?

Definition of mobile learning

Literature reveals a range of definitions about mobile learning. It is noted that mobile learning is not about learning using portable devices, but learning across contexts. 'Mobile learning is not something that people do; learning is what people do' (Walker, 2006).

Mike Sharples and Jeremy Roschelle (2010, p.4) provide the following definition: 'Mobile learning is the study of how to harness personal and portable technologies for effective education. The term also covers research into technology-enabled learning across contexts and learning in an increasingly mobile society. '

In *m-Learning: Positioning educators for a mobile, connected future*, Peters (2007, p. 3) states 'The advent of mobile technologies has created opportunities for delivery of learning via devices such as PDAs, mobile phones, laptops, and PC tablets. Collectively, this type of delivery is called m-Learning...thought of as a sub-set of e-Learning...the emerging potential of mobile technologies tends to indicate that m-Learning...has links directly to the 'just enough, just in time, just for me' model of flexible learning, and is therefore just one of a suite of options that can be adapted to suit individual learning needs'

> *"Mobile learning is the study of how to harness personal and portable technologies for effective education"*
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> Mike Sharples and Jeremy Roschelle (2010, p.4)

Yeonjeong Park (2011) asserts that applications of mobile learning range widely, from K–12 to higher education and corporate learning settings, from formal and informal learning to classroom learning, distance learning, and field study.

In short mobile learning can be summarised as:

- learning using a mobile device
- an extension of e-learning
- learning that happens when the learner is not at a fixed or predetermined location
- taking advantage of learning opportunities offered by mobile technologies.

Evidence for introducing tablets

There is evidence to indicate that mobile devices have reached education from the bottom-up, where learners have been exposed to these devices in their daily lives. Mobile devices have been used outside of school or university to read, take pictures and videos, write, play games and communicate with others (Vosloo, 2012, p. 12). The fascination and intrigue with new technologies, by young people, should be harnessed for teaching and learning purposes. These devices enable learning to take place ubiquitously while also

empowering the learner. Twenty first century teaching and learning is different from what we have been used to. It embraces the use of technology and new devices that can be used in innovative ways to engage with learning.

Surveys and numerous studies show that more than '95% of students in colleges are users of these smart mobile devices in the developed world' (Baloch, 2012).

IPads are one such new device that have been used in teaching to encourage and motivate learning. Murphy (2011) presents the following points for why tablets are effective tools for teaching and learning:

- It is seen as a logical extension of their already extensive e-learning and blended learning program.
- Significant numbers of universities are conducting iPad pilots. In effect, these institutions are conducting student centred action research to examine user behaviour prior to any significant m-learning strategy being developed.
- Many universities appear to be looking at the device as an effective content delivery device, complementing other forms of conventional content delivery with learning management systems like Blackboard or Moodle.
- At its most fundamental the iPad is at first and foremost a media consumption device, designed with multi-media and e-book reading in mind.
- An iPad would appear to be the ideal candidate for the delivery of course content -- given the ability to store a vast diversity of materials such as interactive e-texts, PDF files, slideshows, videos, podcasts, etc.

Image: Flickr by Wayan Vota

In short, ease of access and use, simplicity of programs and apps, storage capacity and assistive technologies and communication apps (built-in accessibility tools) make them ideal educational tools.

Additionally, tablets enable collaboration to take place in a range of environments. As such, collaboration is a very useful interactive function for social networking, especially using the flexibility enabled by mobile technologies. Himmelmann (1993) argues that:

> Collaboration is exchanging information, altering activities, sharing resources and enhancing the capacity of another organisation, for mutual benefit, and to achieve a common purpose (p.1).

He suggested that there is a hierarchy of activity for working with others online with the lowest level being that of exchanging information, then coordination, followed by cooperation and finally, collaboration. Collaborative working together requires a high

level of trust because it is focused on exploring, experimenting, trialing and innovating where the path forward is not always obvious. An excellent example of successful collaboration was the international collaboration that resolved the SARS crisis in 2004.

Collaboration is more than a mechanism for cooperation. As conceptualised by Monteil-Overall (2005), it is both dynamic and creative with an 'underlying assumption… that meaning and knowledge are co-constructed' (Monteil-Overall, 2005, p. 3).

Monteil-Overall's views are close to those proposed by Schrage (1990) who sees 'Collaboration [as] the process of shared creation' (Schrage, 1990, p. 40-41). The two definitions of Montiel-Overall (2005) and Schrage (1990) explore the co-creation of knowledge through interactions between individuals or groups to arrive at shared processes, understandings, products or events that they could not have done alone. Collaboration as co-creation is a process for adding value and in that sense is more than routine cooperation but creative and somewhat unpredictable.

White (2012) defined collaboration as the process of co-creating knowledge while sharing physical or virtual space and goes on to argue that collaboration is one of the great advantages of social networking. Harasim (2012) argues that online collaboration is the future of pedagogy and a powerful educational environment for learning in a connected world.

For example, school students can collaborate on classroom projects across the globe, they can be involved in sharing and editing content and information; medical students can access relevant databases ubiquitously; TAFE apprentices can access appropriate applications ''just in time, just enough and just for me;' learning that is situated (typically in the field or at the workplace); and learning that is contextualised through mediation with peers and teachers' (Peters, 2007, p. 15).

Literacy development

As 21st century citizens, learners need to have the skills and knowledge to operate effectively in a technology driven society. It is not a case of learning how to use a device -- one needs to have the skills to adopt and adapt as the situation demands it.

The portability and connectivity of mobile devices offer learners the opportunity to carry out a wide range of activities related to the searching, collating, storage and interpretation of data and information relevant to their courses. For example, using the iPad the iAnnotate app or Android qPDF allows students to highlight sentences of a PDF document and then email those highlighted sections to themselves as notes that can then be manipulated and combined with other material (Murphy, 2011).

Image: Flickr

At Abilene Christian University's College of Business Administration (COBA) students are using iPads to conduct market research as part of the university's summer abroad program in

Oxford, England. Students were required to use their iPads to conduct surveys, collect data, take notes and present new product pitches. Similarly, health faculty Masters students of Duke University were given iPads for use in medical field work (Winograd, 2010). Students have 3G iPads with preinstalled apps to use for collecting data, importing media files, and graphing results. In Australia, the University of Adelaide's Science department provided iPads for their first-year science students in 2011 (Cross, 2010). This enabled students to access lecture notes, documents, and textbooks through tailored web-based apps.

The Victorian Department of Education and Early Childhood Development, working with Apple, has been conducting trials to test the value of the iPad and the applications it can access to engage learners and to improve their educational attainment. A diverse range of Victorian schools are participating in the trial including primary, secondary, Prep to Year 12 and specialist settings (http://www.ipadsforeducation.vic.edu.au/ipad-student-trial).

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To date, feedback from participating schools has been overwhelmingly positive. For instance the touch screen interface of the iPad is proving to be a great success especially for learners with special needs.

Quality education and equity

The paramount objective of any education system or educational institution is to provide quality education while striving to meet equity issues. An emerging trend is to embrace ' bring your own technology' (BYOT) (Lee & Levins, 2012). However, the biggest concern with any BYOT programme is equity, since not all learners are likely to have access to devices or sufficient data plans to connect online. Additionally, there are likely to be disparities in the quality of the devices learners own and the features they offer. While some learners may have high-end touch-screen tablets, other learners might have a mobile device with clunky navigation controls, poor screen resolution and very limited processing power. In fostering the use of diverse range of devices, educational institutions must ensure equity by making available devices of comparable quality to learners who need them.

For example, Algonquin College in Canada has a Mobile Learning Centre from which learners can borrow high-quality devices (Algonquin College, 2011). In South Africa the MoMath project provides mobile kits, which include phones, to participating schools so they can supply devices to learners who need them.

Furthermore, mobile learning carries significant potential to extend educational opportunities to learners with disabilities. Mobile devices can deliver flexible and personalised learning experiences that meet the unique and varied needs of the disabled. For example, audio voice messaging is easily accessible to hearing impaired users, and assistive programs that

read text aloud or enlarge text size on screens are useful to learners with visual impairments.

> *"In low- to-middle income countries about 300 million more men than women own mobile devices".*
>
> (Vosloo, 2012, p. 37).

While mobile phone ownership is widespread throughout the world, in low- to-middle income countries about 300 million more men than women own mobile devices. In these countries, a woman is 21% less likely to own a mobile phone than a man. This figure increases to 23% if she lives in sub-Saharan Africa, 24% in the Middle East, and 37% in South Asia (Vosloo, 2012, p. 37). Likewise, Gonski (2012, p 28) reports that there is a strong relationship between one's socio-economic background and educational outcomes, with learners from disadvantaged backgrounds consistently achieving educational outcomes lower than their peers, ' with socioeconomic status explaining 13 per cent ... of variation in student performance'.

Mobile learning holds great potential for reaching marginalised women and girls and providing them with access to lifelong learning.

Quality access to learning resources

A barrier to accessing educational content online is that the content is often constrained by restrictive licenses or simply too expensive to allow widespread use and reuse in digital mediums. Open educational resources (OERs) provide a reasonable solution to this problem. OERs such as textbooks, study guides, research articles, audio files and videos can be freely accessed, reused, modified and shared. By applying Creative Commons licenses creators of resources can encourage people to share and distribute their materials.

Governments around the world, including the Australian Government, have substantially invested in the development of online curriculum resources to embrace ICT in teaching and learning (Scootle). Now, attention needs to be diverted to the potential use of such resources via touch screen devices. Policies related to mobile learning should support the open licensing and accessibility of content designed for mobile technologies to ensure it is widely used and adapted. Furthermore, governments and educational institutions should work with publishers of learning materials to develop business models that will allow more flexible use of educational content on touch screen devices (Kukulska-Hulme, 2010).

Professional development

It is a given, supporting new forms of learning and acknowledging twenty-first century skills and literacies requires revisiting current curricula, learning outcomes and assessments to ensure workforce capabilities. UNESCO's *Media and Information Literacy Curriculum for Teachers* (Wilson et al., 2011) is a useful resource for the integration of multiple literacies into the formal teacher education system.

Kukulska-Hulme (2010b), states that learning can become trivialised if it is reduced to snippets of information of the type that mobile phones are ideally suited to deliver. Such an approach, without meaningful support, risks undermining the deep and complex understandings and cognitive skills education is intended to foster. Teachers are core to the

process of advancing understanding and facilitating learning -- learners need to be taught digital literacy skills that allow them to navigate the online world effectively, safely and appropriately. In the 21st century 'teachers are more important than ever, as is the professional development that ensures they are qualified to fulfill new and more dynamic roles' (Vosloo, 2012, p. 34).

In general, mobile technology is viewed as disruptive in the traditional model of learning. That is learners are expected to be listening to the teacher instead of engaging in texting or other means of online communication.

It is vital that the perception of 'disruption is changed from a negative one (where banning appears to be an appropriate response) to one that recognises the potential of mobile technology to transform education by improving pedagogy and making learning less monolithic. By looking beyond the surface-level disruption, it is possible to imagine the positive aspects of mobile learning, even as it calls for sometimes uncomfortable changes in classroom dynamics (Vosloo, 2011, p. 34).

In order to recognise the benefits of what is considered a kind of ‘disruption’, teachers:

- need to be shown how mobile learning can improve teaching, learning and administration
- should be trained to incorporate touch screen devices into classroom pedagogy, teach digital literacy and manage possible disruptive behaviour.

A short article by Tim Pelton and Leslee Francis Pelton, *7 Strategies for iPads and iPods in the (Math) Classroom,* outlines strategies supporting the adoption of iPhone, iPad and other touch screen devices in the classroom to encourage the exploration of mathematics and science concepts and to provide individualised opportunities for students to achieve mastery. It's worth noting that pedagogies such as exploration, collaboration and teamwork are key strategies in working with such devices.

Image: Flickr by kkjarrett

In general, there has not been widespread professional development on mobile learning, and mobile devices have rarely been used to deliver professional development and teacher support.

It is also important for mobile learning to be portrayed as a viable approach to achieving educational outcomes, not as a new technology fad. For example, at Saddleback Valley Unified School District in the USA, teachers in a mobile learning project participated in extensive professional development that included guidance on how to develop digital content and resources.

Main stream policies should actively promote the development and sharing of best practices for professional development using mobile devices in order to augment this relatively emerging area of mobile learning.

Issues facing mobile learning

It is not simply an Issue of mobile learning -- new technologies and in general the use of ICT in education have changed the dynamics of teaching. The digital age has created a new relationship between teachers and learners and one that appears to be more on equal footing. As Peters (2007) states, it is not one simply based on 'receiving and memorising the wisdom of their elders' (Peters, 2007, p. 5). Today's learner demands learning based on their needs.

The most serious issue faced by mobile learning is the lack of a solid theoretical framework which can guide effective instructional design and evaluate the quality of programs that rely significantly on mobile technologies. As Traxler (2007) pointed out, evaluation of mobile learning is problematic because of its “noise” characteristic with “personal, contextual, and situated” attributes (p. 10). Several attempts to conceptualize mobile learning have been made since the emergence of mobile and wireless technologies. Traxler (2007) provided six categories by reviewing existing trials and pilot case studies in the public domain:

- technology-driven mobile learning
- miniature but portable e-learning
- connected classroom learning
- informal, personalised, situated mobile learning
- mobile training/performance support, and
- remote/rural/development mobile learning.

Additionally, user attitudes may influence the use of mobile devices in learning and teaching.

A research project on the use of mobile devices at Bond University reports that when asked whether the iPad motivated them to learn, 22% said it did not, 32% sat on the fence and 46% said it did. Similarly, 48% said the iPad gave them an advantage in the classroom, while 17% did not think so and the rest were neutral; 44% said the iPad improved their study habits while 21% did not think so and the rest were neutral (Brand et al, p. 174). If apparent benefits in the use of mobile devices are not obvious the use of such devices may not be encouraged.

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Finally, the benefits for the integration of mobile technologies in education are apparent, however, they form only a sub-set of what is required to improve teaching and learning. While mobile learning is not a panacea for the challenges facing education, it fosters the use of pedagogies that encourage engagement and innovation in teaching and learning whilst promoting individual learning and empowering the learner.

References

Baloch, H (2012). Mobile collaborative informal Learning Design: Study of Collaborative Effectiveness Using Activity Theory. *iJIM*, *Volume 6, Issue*. Retrieved from http://dx.doi.org/10.3991/ijim.v6i3.2090.

Bondeson, J. (2012). Rockville private school gives iPad a classroom trial. *Gazette Net*, *June*. Retrieved from http://www.gazette.net/article/20120613/NEWS/706139579/1042/rockville-private-school-gives-the-ipad-a-classroom-trial&template=gazette

Brand, J., Kinash, S., Mathew, T. & Kordyban, R. (2011). iWant does not equal iWill: Correlates of mobile learning with iPads, e-textbooks, BlackBoard Mobile Learn and a blended learning experience. In G.Williams, P. Statham, N. Brown, B. Cleland (Eds.) *Changing Demands, Changing Directions*. *Proceedings ascilite Hobart 2011*. (pp.168-178). http://www.ascilite.org.au/conferences/hobart11/downloads/papers/Brand-full.pdf

Chen, B. (2010). Colleges dream of paperless, iPad centric education. *Wired*. Retrieved from http://wired.com/gadgetlab/2010/04/ipad-textbooks/.

Cross, K. (2010). iPad replaces uni textbooks at University of Adelaide science faculty. *Adelaide Now*. Retrieved from http://www.adelaidenow.com.au/technology/ipad-replaces-uni-textbooks-at-university-of-adelaide-science-faculty/story-fn5jhv6y-1225918213032

Crompton, H. (2012). Implementation of a one-to-one iPod touch program in a middle school. *Journal of Interactive Online Learning*, *Vol. 11(1)*. Retrieved from http://www.ncolr.org/jiol/issues/pdf/11.1.1.pdf.

Dede, C. , & Bjerede, M. (2011). Mobile learning for the 21st century: Insights from the 2010 Wireless EdTech Conference. Qualcomm's Wireless Reach™ Initiative. Retrieved from http://isites.harvard.edu/fs/docs/icb.topic1116077.files/!Wireless%20EdTech%20Research%20Paper%20Final%20March%202011.pdf

Department of Education and Early Childhood Development (Vic), (2011). Getting started: Classroom ideas for learning with the iPad - Resource booklet for schools . *Department of Education and Early Childhood Development*. Retrieved from http://www.scribd.com/doc/54455120/iPads-for-Learning-Getting-Started.

Department of Education and Early Childhood Development (Vic), *iPads for Learning*. Victoria, Department of Education and Early Childhood Development. Retrieved from http://www.ipadsforeducation.vic.edu.au/

Dikkers, S. (2012). Mobile learning classroom practices and integration. *Meaningfull Play 2012 Conference*, *October 18-20*. Retrieved from http://meaningfulplay.msu.edu/proceedings2012/mp2012_submission_90.pdf.

Education Services Australia. *Scootle*. Retrieved 20 March 2013, from http://www.scootle.edu.au/ec/p/home

Gronski, D. , & et al. (2011). *Review of funding for schooling — final report*. Canberra, ACT: Department of Education, Employment and Workplace Relations. Retrieved from https://foi.deewr.gov.au/system/files/doc/other/review-of-funding-for-schooling-final-report-dec-2011.pdf

Harasim, L. (2012). *Learning theory and online technologies*. New York; Routledge.

Himmelmann, A. (1993). A. Chapel Hill Training-Outreach Project, Inc. National Resource Centre for Respite and Crisis Care Services. Helping Each Other Help Others: Principles and practices of Collaboration. *ARCH: Fact Sheet Number 25*. Chicago. Retrieved, from http://archrespite.org/images/docs/Factsheets/fs_25-principles_collaboration.pdf.

Jennings, G., & et al. (2011). *Report on the Step Forward iPad Pilot Project*. Melbourne, Vic: University of Melbourne, Trinity College. Retrieved from http://www.trinity.unimelb.edu.au/Media/docs/iPadPilotReport2011-1b1e1a52-79af-4c76-b5b6-e45f92f2c9e9-0.pdf

Kinash, S. (2012). Challenging mobile learning discourse through research: student perceptions of Blackboard mobile learn and iPads. *Australasian Journal of Educational Technology*, *Vol. 28(4)* Retrieved from http://www.ascilite.org.au/ajet/ajet28/kinash.pdf

Kukulska-Hulme, A. (2007). Mobile Usability in Educational Contexts: What have we learnt?. *International Review of Research in Open and Distance Learning*, *Vol 8, No 2*, Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/356/879.

Kukulska-Hulme, A. (2010a). Mobile learning as a catalyst for change. *Open Learning: The Journal of Open and Distance Learning*, Vol. 25, No. 3, November 2010, pp. 181–185. Retrieved from http://oro.open.ac.uk/23773/2/Open_Learning_editorial__Accepted_Manuscript_.pdf

Kukulska-Hulme, A. (2010b). *Mobile learning for quality education and social inclusion. Policy Brief*. Moscow, UNESCO Institute for Information Technologies in Education . Retrieved from http://iite.unesco.org/publications/3214679/

Lee, M. , & Levins, M. (2012). *Bring your own technology: the BYOT guide for schools and families* . Melbourne, Vic: ACER Press

Montiel-Overall, P. (2005). Toward a theory of collaboration for teachers and librarians. *School Library Media Research*. American Library Association. Retrieved from http://www.ala.org/aasl/aaslpubsandjournals/slmrb/slmrcontents/volume82005/theory.

Murphy, G.D. (2011). Post-PC devices: A summary of early iPad technology adoption in tertiary environments. *e-Journal of Business Education & Scholarship of Teaching*, *Vol. 5, Issue 1*, 18-32. Retrieved from http://www.ejbest.org/upload/eJBEST_Murphy_2011_1.pdf .

Park, Y. (2011). A pedagogical framework for mobile learning: categorizing educational applications of mobile technologies into four types. *International Review of Research in Open and Distance Learning*, *Vol. 12 (2)*, Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/791/1699.

Pelton, T., & Pelton, L. F. (2012). 7 Strategies for iPads and iPods in the (Math) Classroom. *The Journal*, *Nov*Retrieved from http://thejournal.com/articles/2012/07/11/7-strategies-for-ipads-and-ipods-in-the-math-classroom.aspx.

Peters, K. (2007). m-Learning: positioning educators for a mobile, connected future. *International Review of Research in Open and Distance Learning*, *Vol. 185 (2)*.Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/350/894.

Schrage, M. (1990). *Shared minds*. New York; Random House.

Sharples, M. (Ed.). (2006). *Report of a workshop by the Kaleidoscope network of Excellence Mobile Learning Initiative*. Learning Sciences Research Institute, University of Nottingham. Retrieved from http://hal.archives-ouvertes.fr/docs/00/19/02/54/PDF/Sharples_Big_Issues.pdf

Sharples , M., & Roschelle, J. (2010). Special Issue on Mobile and Ubiquitous Technologies for Learning . *Learning Technologies*, *Vol. 3, No. 1.* Retrieved from http://www.computer.org/csdl/trans/lt/2010/01/tlt2010010004.html.

Sussman, R. (2010). Duke taps into iPad for Fall 2010. *The Chronicle*, *April 16*. Retrieved from http://www.dukechronicle.com/article/duke-taps-ipad-fall-2010.

Symonds, M. (2010). *Technology adds a new dimension to learning: modern tools can facilitate future corporate leaders*. The Independent. Retrieved from http://www.independent.co.uk/student/postgraduate/mbas-guide/technology-adds-a-new-dimension-to-learning-2099743.html

Taborn, T. W. (2011). Tower School's 1:1 program brings the iPad 2 to the elementary classroom. *The Journal*, *March*. Retrieved from http://thejournal.com/Articles/2011/08/03/Tower-Schools-11-Program-Brings-the-iPad2-to-the-Elementary-Classroom.aspx?Page=1.

Traxler, J. (2009). Learning in a mobile age. *International Journal of Mobile and Blended Learning*, *Vol. 1(1)*. Retrieved from http://www.academia.edu/171500/Learning_in_a_Mobile_Age.

Vosloo, S. (2012). *Mobile learning and policies - key issues to consider*. Paris, France: UNESCO. Retrieved from http://unesdoc.unesco.org/images/0021/002176/217638E.pdf

Walker, K. (2006). Introduction: Mapping the landscape of mobile learning . In *Big issues in Mobile Learning Report of a workshop by the Kaleidoscope network of Excellence Mobile Learning Initiative, edited by Mike Sharples*, Retrieved from http://hal.archives-ouvertes.fr/docs/00/19/02/54/PDF/Sharples_Big_Issues.pdf.

Walsh, K. (2011). iPads In Education – how's it going so far?. *EmergindEdTech*, *July*. Retrieved from http://www.emergingedtech.com/2011/07/ipads-in-education-hows-it-going-so-far/.

West, M. (2012). *Mobile learning for teachers: global themes*. UNESCO. Retrieved from http://unesdoc.unesco.org/images/0021/002164/216452E.pdf

West, M. (2012). *Turning on mobile learning: global themes*. UNESCO. Retrieved from http://unesdoc.unesco.org/images/0021/002164/216451E.pdf

White, G. (2012). Digital social networking: implications for education. *Professional Educator*, 11 (5). Carlton, Australia; Australian College of Educators.

White, T. (2010). iPads to be distributed to incoming class by Stanford medical school. *Stanford University School of Medicine*, *August 5*. Retrieved from http://med.stanford.edu/ism/2010/august/ipad.html.

Winograd, D. (2010). Duke University to use iPads for field research. *TUAW*, *July 21*. Retrieved from http://www.tuaw.com/2010/07/21/duke-university- to-use-iPads-for-field-research/.

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