

Case Study: Mobile Learning and Connectivism

Ultimate Question: *How do we educate primary/high school learners about being responsible and authentic with 'Mobile Learning' and 'Connectivism' so that mobile devices, blogs, social media are seen as key learning tools as an adult?*

Context

On the 29th of April, 2016 a focus group was conducted where forty Year Eleven students from St. Vincent's College discussed current learning pedagogies within the classroom. All forty students believed that mobile learning and connectivism was not allowed in the classroom. Students believed that it was common within all schools within Australia to outlaw the use of mobile devices and social media.

Hence the question: do primary and secondary institutions need to rethink *mobile learning* and *connectivism* in order to create more authentic adult learning experiences in the future?

Supporting Culturally Appropriate Learning

In the 21st century, informal and non formal learning is more important and relevant to individuals than formal learning in creating *authentic adult learning experiences* (Burden, K., & Kearney, M., 2016).

Secondary institutions cannot afford to be left behind in terms of developing a learner's ability to utilize mobile learning and connectivism tools. Integral tools to enable effective informal and non formal learning to occur.

There is no time like the present with the availability of better digital infrastructure such as universal 4G/3G wireless connectivity. Secondary educators need to rethink the protectionist view of new mobile learning pedagogies and connectivism theories which is crucial to future adult learning.

As stated by West (2013), "mobile devices with cellular connectivity improve learning and engage students and teachers. Wireless technology is a way to provide new content and facilitate information access wherever a student is located. It enables, empowers, and engages learning in ways that transform the learning environment for students inside and outside of school (pg.1).

Mobile learning can therefore be conducive to connectivism theories where learning can be shared by all learners despite location, time or background. Bridging the gap between non-English speaking backgrounds, indigenous communities, rural communities and those disadvantaged. But to share West's (2013) sentiment not every learner will have access to technology, hardware and infrastructure to enable effective mobile learning and ultimately ensure learner's benefit from connectivism practises.

Why the question?

Non formal learning refers to as experiences which take place outside of recognized educational institutions (Tight, 1996). Popescu (2011) further eludes that non formal learning is intentional from the learner's point of view, and normally does not lead to certification (p.78). Although hard to quantify, non formal learning is important and can be delivered via environment, community based, incidental and flexible mediums such as social media (infed.org, 2016).

For this task, we will focus on how mobile learning is an important pedagogy to ensure that principals of connectivism remain crucial to an individual's *informal learning*. To reinforce the concept of ubiquitous learning which is explored by Burbules (2009), informal learning can occur anytime and anywhere.

From a study put together by Degreed.com (2016), 32% of employees surveyed say that 80-100% of what they learn comes from informal learning. Informal learning occurs through many activities including: reading, watching television, listening to the radio, visiting libraries, attending public lectures, volunteering, learning from family, friends and co-workers, on-the-job learning, engaging in workplace mentoring, learning through trial and error and by using computers or the internet (Halliday-Wynes & Beddie, 2009). Research like this suggest that mobile learning technologies/pedagogies and connectivism theories should be reintroduced as key tools to support and enhance informal learning in secondary schools in preparation for the adult experience.

Mobile learning is a *globally responsive pedagogy* which can easily facilitate principals of connectivism (Hashim, K., Tan, F., & Rashid, A., 2015). Especially when learning has changed in society; with an increase in mobile device use, social media being a common form of communicating, instantaneous and immediate communication flows, a time poor generation, and an abundance of information from various sources which become obsolete very rapidly (Nicholas, W. & Ng, W., 2016).

However, educators developing new thinking about and reintroducing mobile learning and connectivism pedagogies must be *culturally sensitive* in their approach (Nicholas, W. & Ng, W., 2016). There are also many difficult issues to overcome. Not every learner or school has the funding for mobile devices. Multiculturalism and compromise is becoming more important in a highly populated world. Knowledge must be considerate and responsible.

From the research gathered thus far, the most difficult issue to overcome is that educational institutions have an established thinking and policy which is ingrained in their learning culture.

Mobile learning

Mobile learning (m-learning) is defined as the delivery of learning activities to students anytime and anywhere through the use of mobile devices (Wang, Wu & Wang, 2009). However, smart phones are not the only tool for mobile learning. With the advent of 4G/3G wireless network and the Governments NBN plan, mobile learning can also occur by having access to common and contemporary hardware, platforms, software and social media. In Australia, many individuals have access to hardware such as tablets, computers, Apple TV, video conferencing equipment and televisions. All secondary institutions have access to free platforms such as google classroom. A large percentage of individuals have access to social media.

Examples of Effective Mobile Learning

In Finland, a company called VTT have been implementing Mobile Technologies in Schools to alleviate issues faced by teachers and students. Being more mobile, stream lining the classroom experience and overcoming time/space/communication restraints. All while, blurring the lines between the classroom and break times creating more effective, self directed informal learning (VTT, cited 2016).

The Keble School in North London introduced an iPad programme to focus on project based learning in 2013. Especially for the boys within the school in the hope of higher engagement levels. There was a considerable change to the thinking behind learning and with the use of platforms such as MediaCore students were able to capture experiences and create movies to share with the school community. Learners started to think outside of box, projects continued outside of the classroom and students were able to access knowledge and information anytime. Ultimately, learning could be self directed for long periods of time even at home (MediaCore.com, cited 2016).

At the University of Technology, Sydney post graduate students, currently undertaking the subject of Learning in the Digital Age, are experimenting with mobile learning through video conferencing tools such as Skype and Webex Webinars. By integrating the use information aggregators such Twitter and Google Classroom learners can connect anywhere and anyhow.

In the Youtube clip '5 Technologies That Will Change Classroom Education' (2015), virtual reality using mobile phones for science projects and cloud classrooms enabling connectivism pedagogies are being developed for the future classroom settings (AJ+, cited 2016). But the issue highlighted in the clip is whether learners will get too caught up in the technology and forget about the learning?

Connectivism – Its Not Just Mobile Learning

Based on George Siemens (2014) paper 'Connectivism: Learning Theory for the Digital Age', *Connectivism* is learning which is not necessarily under the control of the individual and integrates principles of non linear learning, networking and self organisation.

Using connectivism as a theory to base mobile learning pedagogies, the learner is able to continually acquire new knowledge. Within connectivism, the learner's point of view is based on the information they deem as critical. Learning is enhanced and information is therefore deemed to be current and relevant (Siemens, 2014).

As outlined in the YouTube clip by USC Blended Learning (2014), Dr Siemens explains that connectivism can occur in many forms. The use of mobile learning is one aspect of sharing, curating information and connecting with other communities. Creating accessible knowledge can be as simple as developing a blog/online tool such as Facebook and Twitter where there can be many flows of information. In no liner order, personal knowledge from individuals can be fed into a socially connected process. Other individuals, institutions and organisations make a conceptual connection to foster and maintain feedback. The individual can decide using critical thinking skills what current knowledge and connections are important to them.

What Does Effective Connectivism Look Like?

Many businesses use information aggregators as platforms to keep employees connected and up to date with work in progress within the organisation. Aggregators such as Yama, Basecamp2, Diigo and Google Drive enable employees to store information, data and knowledge which can be accessed anytime and anywhere by employees. Currently, connectivism within Australian schools is limited with many protective policies in place.

In schools, learning management systems are designed to fulfill the role of connectivism within the school community. The issue is that connectivism is mostly closed to those outside of the community. Social media platforms such as Facebook, Twitter and Instagram on the other hand allow access to more people and communities than ever before. Unfortunately, the use of social media is outlawed in most primary and secondary schools in Australia.

To encourage connectivism at the local level online tools like Reword.it can educate learners about the correct use of social media. Reword.it is a tool that makes individuals think twice before posting their comments. By using a simple red line which strikes through any inappropriate comments the learner's use of language within social media is enhanced. One less distraction when implementing mobile technology pedagogies and connectivism theories.

To encourage innovative learning, connectivism must be addressed at the national level. For example, the European Schoolnet Academy provides free online teacher training in key ICT concepts and ideas for

European teachers and schools (European Schoolnet Academy, cited 2016). The academy run online and blended courses where practicing teachers share their experiences with their colleagues across Europe.

In 2015, The Finnish Board of Education went one step further and rolled out the Future Classroom Network which included the use of the Edukata model (Media Lab Helsinki, cited 2016). Edukata is designed to assist teachers convert ideas in actual classroom practice. Teachers investigate digital scenarios such as mobile learning, BYOD, and future classroom learning activities.

Many of the ideas from both the European Schoolnet Academy and Edukata are shared on Twitter with profiles such as @eu_schoolnet and hashtags #WebWeWantEU (Twitter, cited 2016). By collaborating ideas with programs such as the European Schoolnet Academy change can be made within the Australian National Curriculum.

Issues Impeding the Re-introduction of Mobile Learning Pedagogies and Connectivism Theories

Researchers from the Institute for Policy Research at Northwestern University studied obstacles to successful technology integration in schools. Researchers found that inadequate training and teacher's attitudes about the value of technology have the strongest impact (Ipr.North Western.edu, cited 2016). Subsequently, introducing mobile learning and connectivism pedagogies can be difficult for individual learners and educators alike.

Difficulties for Individual Learners

Mobile learning can be difficult for learners as there can be many distractions. Not all learners have access to the same types of mobile devices and some may find it hard to self direct their learning. Mobile devices can be expensive and most younger adults have never been educated about the appropriate use of mobile devices (VTTFinland, 2012).

In conjunction, connectivism may be difficult for individual learners as they may not be responsible enough to self direct their learning. Many young people cannot cope with messages that are uncontained and cannot be directed. Anxiety is created with many suffering from new phenomena such as fear of missing out (FOMO) with uneven contribution from community members (ABC news, cited 2016). Ultimately, the individual's decision making skills critical to connectivism may not be mature enough and sometimes messages can be connected to bias agendas (VTTFinland, 2012).

Current Context for Educators

The underlying conflict faced by educators incorporating mobile devices and connective tools such as social media is that educational institutions often regulate against and do not formally acknowledge/reward learners for using such tools.

For example, in many high school institutions there is a trend to set policies to contain the use of mobile devices. This containment is illustrated in Asquith Girls High School Policy which states '...Mobile phones must be out of sight and turned off during all lessons including library study...' (Asquith Girls High School, cited 2016). Ironically, the motto for Asquith Girls High School is 'independent and responsible learners and leaders' (Asquith Girls High School, cited 2016).

Not only do Australian Schools look to contain the use of personal devices but there is some movement towards using no technology within the classroom. Natasha Bitá (2016) for The Australian reports that Sydney Boys Grammar at the start of 2016 banned laptops in class because technology was seen as a

distraction. John Vallance, the head master introduced school policy to ban students from bringing laptops to school.

To compound the issue even further, “despite the widespread agreement on the importance of digital competence, training in the digital-supported teaching methods is still too uncommon in teacher education and in the preparation of teachers” (Johnson et al. 2015 pg. 24).

In 2015, research was conducted about creating effective learning environments at the St. Vincent’s College. Ms. Rachel McLean (Director of Faith and Mission) was the acting principal overseeing the research. In consultation with the learning and environment committee, the research came to some conclusions, including;

1. A large percent of teachers needed basic training with Microsoft programs such as Word and Excel.
2. Most teachers were frustrated with the capabilities of the Learning Management System. Many did not know the array of capabilities the LMS provided.
3. Some of the teachers did not know and understand the use of many ICT technologies within the classroom.
4. Most teachers described ICT Training as laborious and not relevant.
5. Many experienced teachers were fearful of change and were not equipped to use such technologies.
6. A large percentage of teachers only used didactic teaching styles.

Reflecting on the findings, discussions with Ms. McLean support Johnson’s (2015) idea that ICT training is uncommon in formal teacher education. A common theme within the discussion was that teachers felt they don’t have time to focus on creating authentic mobile learning that incorporate connectivism activities with reasonable control.

On the 16th of April 2016, I posted a question and link using the hashtag #assessment2LiDA on the **UTS MoE - Digital Learning** Facebook page setup by Paul Marter. I explored the idea of integrating mobile learning into the classroom. Kim Maksimovic, a UTS University M.Ed(L&L) Colleague and IT/Professional Development Lead at Roseville College replied with the following: “I would love to explore m-learning but my answer is 'not yet'. For my context, for the time being, teaching my students to be self motivated learners who demonstrate critical thinking in research and tech resiliency in using their laptops. As each learner doesn't bring a phone, it would be an uneven playing field. I've only scratched the surface with students using phones to capture photos and videos of work to add to their own e-portfolio”.

Given her position and experience in digital technologies for the classroom, it seems that the facilitators in the high school setting are concerned about the responsibility of students to cultivate their own authentic learning. As a consequence, mobile learning is not considered a priority and the concept seems to be swept aside and controlled with policies rather than explored and experimented with.

Presenting a Positive Outlook

Founded in 1993, the New Media Consortium present each year the NMC Horizon Reports which analyse emerging technology in education throughout the World (nmc.org, cited 2016). Having compared the 2015 NMC Horizon ‘K-12’ and ‘Higher Education’ reports there were common challenges significantly impeding important developments in educational technology in the near and long term future.

In both reports, significant challenges were divided into three areas; solvable, difficult and wicked challenges (Johnson et al. 2015, Johnson et al. 2016). I took particular notice of the solvable challenges that we understand currently; creating authentic learning opportunities, blended formal and informal learning,

integrating technology in teacher education and improving digital literacy (Johnson et al. 2015, Johnson et al. 2016).

Short Term Benefits in the School Context

Case studies about *creating authentic learning opportunities* in the NMC K-12 report and *blended formal and informal learning* in the NMC Higher Education report demonstrate the impact of mobile learning pedagogies and connectivism principles.

In Australia, there is a growing trend of litigation and regulations in education and the workplace. As a result, educational institutions have lost the art of creating authentic learning experiences and struggle with the idea of providing real world situations in order to develop life long learners. But mobile learning tools mentioned previously can assist in creating real world situations for secondary students. Johnson et al. (2015) states: “schools can bridge the gap between academic knowledge and concrete applications by establishing relationships with the broader community; through active partnerships with local organizations, learners can experience the future that awaits them outside of school... to better prepare students for continued education, vocational careers, and global citizenship, in a way that traditional practices too often fail to do” (Johnson et al. pg22).

Connectivism principles can also enhance informal and formal learnings which can be shared with individuals outside the learner’s immediate community. Learning will incorporate a diversity of opinions and information will be current. Many contributions can be made with no particular starting point and end point so individuals can choose to contribute and/or absorb knowledge (Seimens, 2014). The process of sharing knowledge becomes more important than the knowledge itself.

Long term benefits for the adult learner

Connectivism also leads to further long term benefits and rewards those who wish to contribute and know more. The NMC Horizon Report: Higher Education Edition (2016) it states, “blending of formal and informal methods of learning can create an environment that fosters experimentation, curiosity, and above all, creativity. In this sense, an overarching goal is to cultivate the pursuit of lifelong learning in all students and faculty” (Johnson et al. pg22).

Mobile learning and connectivism can encourage more self directed learning. For mobile learning and connectivism to be effective individuals must be responsible and accountable for their own learning, think critically about information and select what is relevant to them and be able to problem solve throughout real life situations. All being important characteristics for authentic learning as an adult (Merriam & Bierema, 2014).

Going Forward

Integrating technology in teacher education should focus on changing the thinking about mobile learning and connectivism rather than just professional development about how to use technology. There is an array of software, platforms, LMS, aggregators and forums which change rapidly. Most are superseded by new and more innovative ideas. Hence the importance of introducing new learning pedagogies and rethinking current day classroom practice.

At the core of connectivism, emphasis should be placed on creating and sharing resources about ICT technologies like mobile learning. For example, the Monash University Faculty of Education created the **Learning with New Media** website where anyone can share information and case studies about technology and education (newmediaresearch.educ.monash.edu.au, cited 2016). The **Learning with New Media**

Research Group (LNMRG) which created the website continues to connect educators with research. In addition to the website, LNMRG integrates a blog and uses the profile @LNM_Monash on Twitter to allow any individual despite their location to participate in current conversations and learnings.

Strategies for Reintroduction of Mobile Learning Pedagogies

The key to effective use of mobile learning and connectivism is to *improving digital literacy* and educate students on the responsibility and appropriate use of such technologies.

Considering Toh et al. (2013) conceptual model of authentic mobile learning, the impact of mobile learning depends on three interrelated continuums; planning design (emergent or predefined), context (simulated or participatory) and personal relevance (engaged or detached).

Teachers using Twitter on their mobile phones as a back channel at TeachMeet conferences is an ideal example of what authentic mobile learning can look like in the classroom. Based on Toh's et al. (2013) model, the planning design of the Twitter activity is emergent as the interaction is not planned or predetermined. During the conference Teachers tweet their responses and impressions of each presentation and these tweets were simultaneously projected on a large screen behind the presenters. The activity itself is participatory in context and has high relevance to all involved as the tweets act as concurrent feedback (Churchill, 2016).

Strategies for Reintroduction of Connectivism Pedagogies

In planning for advances in connectivism pedagogies, educators must practice what they preach and engage in conversations with learners, institutions and various communities. Strategies must be based on past and current learnings to improve digital literacy about mobile learning and connectivism theories.

Conclusion

As primary and secondary educators, if we do not change the way we think about mobile learning and connectivism we may, as a society, miss an opportunity. The opportunity to understand how educators can use everyday mobile learning to enable crucial informal and authentic learnings. The current lack of change in educators thinking will be exacerbated with more difficult challenges in the future such as adapting to the new roles of teaching, deciphering which of the many models of learning to implement and how do we personalise learning, which Johnson et al. (2015) deems as areas that researchers do not yet have answers for.

Bibliography

Burden, K., & Kearney, M. (2016). *Conceptualising Authentic Mobile Learning*. In D. Churchill, J. Lu, T. Chiu & B. Fox (Eds.), *Mobile learning design: theory and application* (pp. 27-42). Singapore: Springer.

West D.M. (2013) *Mobile Learning: Transforming Education, Engaging Students, and Improving Outcomes*. Washington DC: The Brookings Institution.

Tight, M. (1996) *Key Concepts in Adult Education and Training*, London: Routledge.

Popescu, A. (2011) *The Investigation of the Role of Universities in Providing Lifelong Learning in Romania*. Romania: European Journal of Interdisciplinary Studies.

What is Non Formal Education? Infed.org. Available at: <http://infed.org/mobi/what-is-non-formal-education/> (accessed 26 March 2016)

Burbules, N. (2009). *Meanings of "Ubiquitous Learning"*. In B. Cope & Kalantzis, M. (Eds.), *Ubiquitous Learning* (pp. 15-20). Champaign, IL: University of Illinois Press.

The Importance of Informal Learning Infographic. Degreed.com. Available at: <http://degreed.com/blog/importance-informal-learning-infographic/> (accessed 29 March 2016)

Halliday-Wynes, S & Beddie, F (2009) *Informal Learning: At a Glance*. Adelaide: National Centre for Vocational Education Research.

Hashim, K., Tan, F., & Rashid, A. (2015). *Adult Learners Intention to Adopt Mobile Learning: A Motivational Perspective*. British Journal of Educational Technology, 46(2), 381-390.

Nicholas, W., & Ng, W. (2016). *Mobile Seamless Learning and its Pedagogy*. In L. Wong, M. Milrad & M. Specht (Eds.), *Seamless Learning in the Age of Connectivity* (pp. 261-280). Singapore: Springer.

Mobile Technology in Education. VTFinland. Available at: <https://www.youtube.com/watch?v=JOqYTqi5ik&ebc=ANyPxKorYoXC6DpHldrCoMP3OM0qFE1clsnLrK4STV0XlwZhswfmK61LpCdfbZcixP6q9eeiQYy> (accessed 20 April 2016)

Case Study: Mobile Learning at Keble School. MediaCore Blog. Available at: <http://www.mediacore.com/blog/case-study-mobile-learning-at-keble-school> (accessed 2 May 2016)

5 Technologies That Will Change Classroom Education AJ+ Available at: https://www.youtube.com/watch?v=loFL5gT_m8I (accessed 30 April 2016)

Future Classroom Scenarios. European Schoolnet Academy. Available at: <http://www.europeanschoolnetacademy.eu/web/future-classroom-scenarios> (accessed 2 May 2016)

Edukata. Media Lab Helsinki. Available at: <https://vimeo.com/82281460> (accessed 4 May 2016)

Siemens, G. (2014). *Connectivism: A Learning Theory for the Digital Age*. International Journal of Instructional Technology and Distance Learning, (pg. 1).

Overview of Connectivism. George Siemens. Available at: <https://www.youtube.com/watch?v=yx5VHpaW8sQ&feature=youtu.be> (accessed 20 April 2016)

Teaching ABC's in a Digital Classroom. North Western University Institute for Policy Research. Available at: <http://www.ipr.northwestern.edu/about/news/2015/wartella-early-education-digital-technology-classroom.html> (accessed 24 April 2016)

#FOMO Leading to Higher Levels of Depression, Anxiety for Heavy Social Media Users. ABC News.com Available at: <http://www.abc.net.au/news/2015-11-08/wellbeing-survey-finds-teens-feeling-left-out-on-social-media/6921780> (accessed 3 May 2016)

Mobile Phone Policy. Asquith Girls High School. Available at: <http://www.asquithgirh.schools.nsw.edu.au/our-school/rules-policies/mobile-phone-policy> (accessed 3 May 2016)

Computers in Class 'A Scandalous Waste': Sydney Grammar Head. Natasha Bitá, The Australian. Available at: <http://www.theaustralian.com.au/national-affairs/education/computers-in-class-a-scandalous-waste-sydney-grammar-head/news-story/b6de07e63157c98db9974cedd6daa503> (accessed 2 May 2016)

Johnson, L., Adams Becker, S., Estrada, V., and Freeman, A. (2015). *NMC Horizon Report: 2015 K-12 Edition*. Austin, Texas: The New Media Consortium.

The NMC Horizon Project Reaches 195 Countries! NMC.org Available at: <http://www.nmc.org/nmc-horizon/> (accessed 19 April 2016)

Johnson, L., Adams Becker, S., Cummins, M., Estrada, V., Freeman, A., and Hall, C. (2016). *NMC Horizon Report: 2016 Higher Education Edition*. Austin, Texas: The New Media Consortium.

Merriam, S.B. & Bierema, L.L. (2014) *Adult learning: Linking Theory and Practice (1st ed.)*, Jossey-Bass, San Francisco, pp. 1-23.

Learning with New Media. The Learning with New Media Research Group. Available at: <http://newmediaresearch.educ.monash.edu.au/lnm/> (accessed 25 April 2016)

Toh, Y., So, H. J., Seow, P., Chen, W., & Looi, C. K. (2013). *Seamless Learning in the Mobile Age: A Theoretical and Methodological Discussion on Using Cooperative Inquiry to Study Digital Kids On-The-Move*. Learning, Media and Technology, 38(3), 301–318.