Mobile Learning and Indigenous Education in Canada: A Synthesis of New Ways of Learning

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Key Messages

The use of wireless technology is revolutionizing e-learning: helping to create, deliver, and facilitate learning regardless of the location and enabling the delivery of comprehensive, individualized, and dynamic learning content in real time. According to current projections, global mobile internet use is expected to grow to 90.1 percent in 2017.

In fast developing regions like Asia and Africa, mobile learning is helping to bypass the establishment of costly education infrastructure; and is providing opportunities to develop culturally relevant and contextually based learning materials to support and supplement new curriculum development. And in developed regions such as Europe and the Untied States, mobile learning is emerging as a new and innovative response to outdated approaches to curriculum delivery to younger generations of "digital natives."

The rapid adoption of mobile technologies amongst Indigenous peoples both in Australia and Africa suggests that m-learning may be highly successful with students from indigenous cultures. The portability, low cost, and versatile features of these emerging mobile learning technologies makes sense for remote and rural Indigenous learners who do not have access to formal "bricks and mortar" schools and their associated resources; in fact, mobile technologies may be the only option for some Indigenous learners where there is no substitute for a formal school.

In Canada, e-learning for Indigenous secondary school students is proving to be a successful tool to support positive educational outcomes. Virtual high-schools are providing First Nations students with equal access to education by minimizing distance as a barrier, and in some instances allowing students to access learning opportunities from their communities and homes. And while m-learning for Indigenous students is still in its infancy, this is the next step to enhancing and growing the success of these e-learning frameworks.

Canada continues lags behind the global community in innovating, implementing, and reporting on the broad use of mobile learning in support of Indigenous education. And while countries like Australia, New Zealand and South Africa are much farther advanced in their adoption of mobile learning technologies and applications in support of Indigenous learners, there are some exciting case examples of the use of mobile learning in support of Indigenous education in Canada. More detailed and targeted research is required, however, to fully explore and report on the impact of these initiatives on advancing mobile learning paradigms within a Canadian context.

Executive Summary

This research provides a synthesis of existing research knowledge and identifies knowledge gaps relating to mobile learning (m-learning) technology and its applications to urban, rural and remote Indigenous communities and learners in Canada. The use of wireless technology is revolutionizing e-learning: helping to create, deliver, and facilitate learning regardless of the location and enabling the delivery of comprehensive, individualized, and dynamic learning content in real time. M-learning is a natural extension of e-learning and has the potential to make e-learning even more widely available and accessible. It is also unique from e-learning with a focus on contextual and ubiquitous forms of knowledge sharing and generation. In 2010, there were an estimated 5.3 billion mobile users worldwide, and in 2013 73.4 per cent of the global online population accessed the internet from their mobile phone. According to current projections, global mobile internet use is expected to grow to 90.1 percent in 2017.

In fast developing regions like Asia and Africa, mobile learning is helping to bypass the establishment of costly education infrastructure; and is providing opportunities to develop culturally relevant and contextually based learning materials to support and supplement new curriculum development. And in developed regions such as Europe and the Untied States, mobile learning is emerging as a new and innovative response to outdated approaches to curriculum delivery to younger generations of "digital natives."

Research exploring the adoption, use, and augmentation of m-learning by Indigenous communities throughout the world is an emerging field. On the one hand there remains a general suspicion amongst some traditional cultures of these technologies, limiting the rate of its adoption and innovative use; and on the other hand, research highlights how some Indigenous cultures are using and augmenting digital and mobile technologies to support their cultural empowerment and language revitalization efforts. The rapid adoption of mobile technologies amongst Indigenous peoples both in Australia and Africa, for example, suggests that m-learning may be highly successful with students from indigenous cultures. The portability, low cost, and versatile features of these emerging mobile learning technologies makes sense for remote and rural Indigenous learners who do not have access to formal "bricks and mortar" schools and their associated resources; in fact, mobile technologies may be the only option for some Indigenous learners where there is no substitute for a formal school.

In Canada, e-learning for Indigenous secondary school students is proving to be a successful tool to support positive educational outcomes. Virtual high-schools are providing First Nations students with equal access to education by minimizing

distance as a barrier, and in some instances allowing students to access learning opportunities from their communities and homes. Case examples include: Credenda Virtual High School in Saskatchewan; the Sunchild E-Learning community in Alberta; the Wapawskwa Virtual Colligate in Manitoba; the Keewaytinook Internet High School in Ontario; and Gai Hon Nya Ni—The Amos Kelly Jr. E-Learning Institute—also in Ontario. And while m-learning for Indigenous students is still in its infancy, this is the next step to enhancing and growing the success of these e-learning frameworks.

The application of mobile learning to Indigenous education in Canada is such an emerging area of investigation that there is virtually no research currently to report on. The data examined relating to the global context for m-learning clearly indicate that Canada lags behind the global community in innovating, implementing, and reporting on the broad use of mobile learning in support of Indigenous education. And while countries like Australia, New Zealand and South Africa are much farther advanced in their adoption of mobile learning technologies and applications in support of Indigenous learners, there are some exciting case examples of the use of mobile learning in support of Indigenous education in Canada. More detailed and targeted research is required, however, to fully explore and report on the impact of these initiatives on advancing mobile learning paradigms within a Canadian context.

M-Leaning holds great potential for expanding the success of e-learning opportunities to underserved Indigenous communities in the North, and even in urban centers, that are at risk of exclusion from affordable, high-quality learning experiences. The technical advantages of having mobile technology to deliver educational curricula and assess outcomes, however, must not overshadow the continuing need for culturally relevant teaching modalities that work for Indigenous learners. The data from the global context indicates that, when used innovatively, mobile learning can be integrated successfully into a context of existing practices, beliefs, experiences, and values related to Indigenous epistemologies and pedagogies. These mobile technologies are not only helping indigenous learners to develop new media aptitudes, they are providing an opportunity for learners and instructors to develop stronger links between formal and informal learning opportunities—building on the inherently mobile and contextual traditions of Indigenous peoples across Canada. Educators need to be able to be better leverage the use of informal and contextual learning opportunities afforded by mobile technologies to support for the co-creation of cultural relevant and contextually based learning materials. Mobile learning, for example, could help to expand current e-learning frameworks by supporting the incorporation of learner-generated knowledge that plays to both the visual and oral strengths of Indigenous cultures and provides a flexible and interactive medium for learners to engage with.

Mobile assisted language learning (MALL) offers new opportunities to facilitate Indigenous language revitalization efforts. It provides a safe and non-judgmental environment for learners to build their language proficiencies; and mobile learning devices are versatile: they can be used for language learning even without an internet connection. This versatility is s a key aspect of supporting Indigenous language learning in remote and rural communities that may lack reliable internet connections and formal spaces to house learning resources. MALL also supports the development of flexible and interactive learning programs that support visually enhanced and contextual learner-generated knowledge. This plays to both the visual and oral strengths of Indigenous cultures and provides a medium for learners to engage with. Research on mobile gaming and language learning also suggests that language "gamification" provides opportunities to engage learners with a new and interactive medium that innovates mobile language learning beyond the development of digital dictionaries, flash cards and crossword puzzles.

Four broad research implications relating to the emerge from this knowledge synthesis analysis on the use of mobile learning technology and its applications to urban, rural and remote Indigenous communities and learners in Canada:

1) Efforts are still required to address connectivity and cost issues to bridge the increasing digital divide in Canada;

2) Mobile learning can provide crucial links between formal and informal learning environments to align with the diverse array of indigenous epistemologies and pedagogies within Canada;

3) Mobile assisted language learning efforts need to 'move beyond the dictionary' to focus on interdisciplinary approaches to language learning that incorporate principles of mobile game design and Indigenous epistemologies; and

4) Schools and school boards need to develop the capacity of their leaders and educators to guide the adoption and augmentation of mobile learning into their curricula.