

Mobile learning, exploring the possibilities for rangatahi

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This paper presents the findings of a small exploratory study that evaluated the effectiveness of mobile learning to supplement the face-to-face teaching and learning of a whakairo (Māori carving) three-day course for secondary school age Māori. The study found that in relation to participant learning, the use of mlearning to supplement the learning experience appeared to improve the knowledge transfer or ability to recall key elements relevant to the course for the experimental group. This study forms the basis for further research in the area of mlearning for secondary school age students within tikanga Māori learning environments. It is anticipated that the research will contribute to a tikanga-based framework, shaping the future of learning in Aotearoa.

Keywords: Māori, mobile learning, teaching and learning, secondary schools.

Mobile learning

The uptake of mobile devices, such as mobile phones and MP3 players has, over recent years, overtaken the proliferation of personal computers in both modern professional and social contexts (Herrington, 2009). With the ubiquitous uptake of mobile devices coupled with their ever-broadening technological advances and applications, mobile technologies have set alight the imagination for use within education.

Mobiles embody the convergence of several technologies that lend themselves to educational use, including electronic book readers, annotation tools, applications for creation and composition, and social networking tools. GPS and compasses allow sophisticated location and positioning... digital capture and editing bring rich tools for video, audio and imaging – more and more, mobiles encompass it all, and innovation in mobile device development continues at an unprecedented rate. (Johnson, 2011).

Johnson succinctly captures and highlights the current state of mobile technology in its broadest applications. While advances in technology continue to broaden the use of mobile devices for educational purposes, the field of mobile learning is still evolving (Traxler, 2007). It was within this broader context of mobile learning (mlearning) that a small exploratory study was conducted to evaluate the effectiveness of mlearning to supplement the face-to-face teaching and learning of a whakairo short course.

The rationale for evaluating the effectiveness of mlearning

The rationale to explore the use of mobile technologies for teaching and learning within the organization that the study occurred, was to contribute to an informed position on the use and application of mobile technologies for educational purposes.

A whakairo (Māori carving) short course (three days) was identified for the study as the course was already being delivered, it had been developed so successful completion would attain unit standards, and the visual dimensions inherent within the practice of whakairo readily lends itself to the media rich presentation capabilities of mobile devices (accordingly, the iPod touch was selected, in part, for its media capabilities). The purpose of the course was for students to be able to describe aspects of their lineage, heritage and cultural identity. A whakairo instructor delivered the course and the learning was then conveyed and captured through workbook completion and the medium of student designed whakairo pattern.

The exploratory study

The course was delivered one day a week over three weeks. The first aspects covered by the course include whakapapa (genealogy) and its importance to Te Ao Māori (Maori world view), whakawhanuanga (process of establishing relationships) and mihimihi (speech of greeting). The course then covers the key whakairo concept of whakarei (surface patterns) and provides visual examples in the learning journal of the many different styles used, their basic meaning and tribal origin. The course provides the opportunity for students to practice drawing each type of whakarei (surface patterns) before they are required to design their own pattern that captures and symbolically depicts their individual cultural identity. At about the halfway point

of the course, the steps involved in carving-out whakarei are presented so students can carve-out their design. This course was delivered to two cohorts at two separate locations. There were 11 participants in Cohort A (control group) and 19 in Cohort B (experimental group). All participants self identified as being Māori. In addition to the face-to-face classroom instruction of the course, Cohort B received a mobile device to supplement the learning experience. The experimental materials for each condition are described below.

For the Cohort A classroom instruction condition the Whakairo Short Introductory Course was delivered (face-to-face) within the school marae on the first day, a school classroom on the second day and a technical facility for the final carving day. The technical facility was equipped with workbenches and vices for the purpose of whakairo. Haehae (chisels) and pao (mallets) were provided and the whakairo learning journal was provided to students for completion.

For the Cohort B classroom instruction condition, the STAR Whakairo Short Introductory Course was delivered (face-to-face) within a whakairo room. The technical facility was equipped with workbenches and vices for the purpose of whakairo. Chisels and mallets were provided and Whakairo learning journal were given to students to complete. In addition, students in Cohort B were loaned an iPod for the final week of the course. On the iPod was loaded several videos, including the CEO welcoming students through mihimihi (welcome, included lineage) and overviews of the concepts of kaupapa and whakapapa, presented by members of the Cultural Office. Video recorded sessions of the different whakarei (surface patterns) being carved into particleboard, including the name of each pattern and the carving stages were also displayed on the iPod video (refer Figure 1).



Figure 1: iPod video of whakairo pattern being carved into particleboard (example only)

For each cohort, pre-course questionnaires were administered to form a baseline of student's existing experience and understanding of whakapapa, mihimihi, whakarei, kowhaiwhai, pao and haehae. A post-course questionnaire was also administered to cohorts to gain their reactions through self-ratings. The questionnaire also provided space in which students could comment on aspects they liked least, and liked most about the course. As per the pre-course questionnaire, the post-course questionnaire again prompted students understanding of the courses key concepts (whakapapa, mihimihi, whakarei, kowhaiwhai, pao and haehae).

The study findings

The study found that overall satisfaction of the course was high, with slightly higher levels of satisfaction reported by Cohort A (control group), than Cohort B (experimental group). Of interest to the study objective, Cohort B indicated that they enjoyed getting an iPod touch to use but equally did not enjoy giving the iPod back. In relation to understanding the course key concepts, each cohort improved after completing the course. However, results indicated that Cohort B displayed an improvement in knowledge or ability to recall the meaning of the above elements than the Cohort A participants. In summary, the use of mlearning to supplement the learning experience may improve the knowledge transfer or ability to recall key elements relevant to the course.

Moving the exploratory study forward

After completing the study, questions arose about how mlearning might best be applied for Māori students. These questions were influenced by the observation that the study simply loading edited video information to a mobile device for students to view presented limitations. Alternative approaches for using mobile devices could yield substantially greater gains for participants through podcast productions and authentic e-learning.

Podcasting

Progressing from mere information consumption is the use of mobile devices for capturing and compiling

information that can be delivered or presented to others through, for example, podcasts. The term podcast refers to the development and subsequent distribution of digital audio / video files manually from the Internet or automatically through subscriptions (Buffington, 2010; M. Lee & Chan, 2007; McGarr, 2009; Shumack & Gilcrest, 2009). At the risk of not fully exploiting the possibilities offered by mobile technology as highlighted by Herrington (2009), podcasting as a means of content delivery also offers relatively low barriers of access to produce knowledge and learning resources (M. Lee & Chan, 2007). These resources can augment the learning experiences of students by preparing them for an upcoming learning topic or session, or potentially be submitted for (formal) assessment. This is highlighted by the audio or video recording functions of mobile devices, the ease of access and increasingly intuitive nature of editing software, and the availability of subject matter expertise, providing the foundation for near instant development and distribution. Listening or viewing these files can be done directly from the PC desktop or via a mobile device such as an MP3 player (Buffington, 2010; M. Lee & Chan, 2007; McGarr, 2009; Shumack & Gilcrest, 2009).

Three broad categories presented by McGarr (2009) relating to the purpose of using podcasting, these are: substitutional, supplementary and creative use. At the basic level, podcasting substitutes the traditional lecture and are best suited to revision and review of passive information. The use of podcasts to provide supplementary material is of significantly more educational value, especially if the material is in addition to that provided from the lecture. Creative use refers to the construction of knowledge by students through a deep understanding of the subject matter to construct a podcast. McGarr explains that this type of use of podcasting occurs least in the literature. Similarly, Lee, McLoughlin & Chan (2008) hold strongly to the belief that knowledge creation and its ability to disseminate learner-generated content is the true potential of podcast technology.

Authentic e-learning

The concept of authentic e-learning, as described by Herrington, Reeves & Oliver (2010) occurs when learners are engaged in “an inventive and realistic task that provides for complex collaborative activities” (p.1.). Herrington et al., (2010) identify nine key elements of authentic e-learning which form a framework for the design and production of authentic e-learning courses, these elements relate to; an authentic context, authentic tasks, access to expert performances and modeling of processes, multiple roles and perspectives, collaborative construction of knowledge, reflection, articulation, coaching and scaffolding, and authentic assessment.

Herrington et al., (2010) explain that the purpose of authentic learning is to ensure that the knowledge obtained from the learning experience will be more likely to be used for problem solving situations. This claim is contrasted against the concept of inert knowledge, whereby principles, facts and concepts are taught in abstract and decontextualised form. The problem with the latter approach means that the knowledge cannot be readily retrieved and applied to a given situation, as information has been stored as facts and not as tools. As an example, viewing information simply provides a ‘window’, whereas authentic learning provides students with a ‘door’ through which they can engage with the information on a practical level.

Relevance to Aotearoa New Zealand

The convergence of several complimentary factors within the Aotearoa context also necessitated further review of mlearning, including the increasing uptake of smartphones, schools (soon to be) connecting to ultra fast broadband, a growing emphasis on NCEA attainment for target groups, and the need for increased ICT skills for students to be successful 21st century citizens.

Seemingly, most young people have at least a mobile phone in their possession and, if their mobile phone does not offer the capability, they may have a digital music player as well. Price, both in terms of the devices and the related network charges (for mobile phones), were significant barriers to access. However, advances in technology have made these devices widely and progressively more available (Hung & Zhang, 2012). As such, the use of mobile phones and increasingly smartphones are an ubiquitous feature of today’s society.

In a recent press release (National Government, 2012), the Minister of Social Development, the Honorable Paula Bennett, signaled that the Ministry has placed a priority on supporting young people (16 to 17) who have been disengaged from education and re-engaging them under its Youth Services initiative. This initiative stems from the looming issues currently prevalent among young people, a problem faced disproportionately by Māori (and Pasifika) (Ministry of Education, 2011a). Although overall improvements in performance have lifted in the education system over the last ten years, the Ministry of Education acknowledges that although the education system works for some learners it is not suitable for others (Ministry of Education, 2011a).

The Ministry of Education, in its statement of intent 2011/ - 2015/16 (Ministry of Education, 2011b), places greater emphasis on using technology in learning and improving outcomes for Māori students. Accordingly, the Ministry expects the following; use of modern technologies that supports and increases student achievement as well as effective and efficient teaching and learning; more Māori gaining NCEA level 2 qualifications and above; culturally responsive teaching that is high quality and effective; relevant skill and qualification attainment; and approaches that ensure Māori are achieving education success as Māori. Each of the above contributes to the Ministry's vision to be a "world-leading education system that equips all New Zealanders with the knowledge, skills and values to be successful citizens in the 21st-century" (Ministry of Education, 2011b).

A research proposal

It is from the potential of integrating these broad and loosely defined areas that research is being proposed to further explore mlearning for Māori. More precisely, it will seek to find an effective way to use mobile technology to engage young people in formal learning to produce positive learning experiences. Positive experiences could include something as simple as having fun or learning something new from the internet, through to something more complex like the construction of a video presentation as a piece of assessment towards specified learning criteria. As mlearning is relatively new, there does not appear to be any research relating to tikanga Māori based mlearning activities and accordingly there is no literature available on effective practices or experiences associated with such activity. While these practices undoubtedly are occurring, they do not appear to be published within the research literature. It is anticipated that the proposed research will contribute to a tikanga-based mobile learning framework to shape the future of learning in Aotearoa.

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