

MLEARNING AND THE WORKPLACE LEARNER: INTEGRATING MLEARNING EPORTFOLIOS WITH MOODLE

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This paper reports on trials undertaken at CPIT to set up a support system for workplace based learning. A mlearning programme involves the use of a text messaging to disseminate summative and formative assessments. The use of mobile phones to take photos, videos, audio and text evidence of workplace skills being acquired to compile an eportfolio are also part of the trials. Evidence will be stored on Web 2.0 applications / personal portals and accessed by students via a course site set up using the content management system, Moodle.

1 Introduction

This paper reports on a series of trials that have taken place at CPIT in 2005 and 2006 and are still on-going. These trials are undertaken to put in place a mLearning based blended distance learning and support programme. The trials test out a range of opportunities presented by an ever growing range of Web 2.0 applications that are also accessible using mobile phones. In 2007, CPIT will pilot the mLearning programme with a cohort of baking apprentices.

The paper will first begin with a short overview of the context in which the trials are taking place. Then a literature review and discussion will be undertaken into why we are using mobile phones along with Web 2.0 applications to deliver the mLearning programme. A short introduction to ePortfolios is also included to provide background on the promise that ePortfolios can provide in recognising skills and knowledge attainment in workplace based settings. Trials undertaken to evaluate various Web 2.0 applications and how we have been able to bring them into the CPIT content management system (CMS), Moodle are then described and discussed.

2 Overview

Bakery training has been taking place at CPIT since the early 1970s. In the mid 1990s, bakery qualifications moved from Trade Certificate Qualifications into the competency based National Certificates based on unit standards governed by the New Zealand Qualifications Authority (NZQA). The Industry Training Organisation (ITO) that looks after baking training is Competenz. In 2004, Competenz began a review of the National Certificates in Baking so that new National Qualifications at levels 2, 3 and 4 are now registered on the NZQA framework. One of the aspects of restructuring the qualifications was to allow providers (CPIT is one of 3 providers for off-job training to the baking industry) to provide a 'total' package to bakery apprentices so that bakers did not have to undertake workplace assessments in the workplace. This means that providers will need to assess workplace based competency of apprentices along with providing for block and correspondence course training.

CPIT is based in the South Island but the majority of apprentices who attend block courses at CPIT are from the North Island. A distance learning / assessment process needs to be put in place in order for CPIT to provide the 'total' package. Informal surveys of bakery apprentices over the last five years reveal that computer ownership and access has remained at 15%. However, all apprentices surveyed in the last three years own mobile phones. Therefore, mLearning has been chosen as the method to be used to complete the following:-

1. Course content for theory of baking courses delivered to apprentices on hard copy.
2. Theory of baking courses supported using mobile phones via voice and text messaging (SMS).
3. All formative / summative assessments for theory of baking and the written part of workplace based competencies to be delivered & answers collected via SMS.
4. Evidence gathering to form ePortfolios using mobile phone to take photos or videos and posted on photo collation applications on the web.
5. CPIT learning management system (LMS) accessed by mobile phone for students to check on their ePortfolio collection.
6. Collation and reflection on their ePortfolio to be completed when the apprentice comes to CPIT for their yearly block courses.

3 Literature Review

3.1 Why are we using mobile phones?

There are an estimated 2 billion mobile phones in the world today (Dennis, T. 2005). In 2003, there were 2,825,000 (66% of the population) mobile phone subscriptions in New Zealand (Petrova, 2005). Young people have embraced mobile phone ownership and the mobile phone is seen as an essential accessory to maintaining an active social life.

Apprentice bakers are starting out on their careers, purchasing computer equipment and paying for internet access is often something that is not the most important priority in their young lives. One of our first mLearning trials (Chan, S. 2005b) was to use eTXTTM, a bulk text messaging system provided by New Zealand Telecom, to disseminate questions and archive answers to the questions. This trial revealed that response to the text messaging was 100% return within 2 hours of the questions being texted out. Therefore, CPIT has made a commitment to investigate ways in which the mobile phone could be made use of for better student support and improved learning opportunities.

The ease of contact with workplace learners is enhanced via mobile phone contact. This leads to better rapport between tutors and learners. Using mobile phones and the Web 2.0 applications available online provides workplace based learners with the opportunity to connect, create, collaborate and network. The principles outlined by the work of Brown (2002) with his treatise on how the 'web' has changed the way people work and learn and Siemens' (2005) connectivism learning theory have been pivotal in our work on blending cognitive apprenticeship models of learning (Brown,

Collins and Duguid, 1989) to distance learning contexts. (Chan, 2005a) The mobile phone is therefore another conduit that we are now making use of to enhance student / tutor interaction.

3.2 Why are we using Web 2.0 applications?

O' Reilly (2005) provides a good introduction to "what is Web 2.0". Alexander (2006) presents a summary and discussion of the use of Web 2.0 in teaching and learning. Web 2.0 emphasises the use of the web as a platform for 'social software'. Users of the software generate the content that is hosted on various Web 2.0 applications. Files that are archived on Web 2.0 applications are stored on the servers of the companies that provide the applications. Access to Web 2.0 sites is therefore possible as long as there is the ability to access the internet. Accessing the web via mobile phones is now almost main stream although the cost is still considerably higher when compared to access from a networked desktop personal computer.

There are many applications that bring together aspects of blogging and WIKIs on to sites like MySpace, Bebo and Windows live that provide the options for archiving, tagging, organising and showcasing photos, videos, audio files and mp3 collections. These collections can then be shared with friends by providing them with the URL of the site with private sites being accessed via the URL and the entry of a password. Sharing of the contents within these sites is enhanced by the seamless way in which these sites also provide for internet relay chat (IRC) or email or even for SMS. These conglomerate sites are the ones most useful for use as a base for forming ePortfolios. At the moment, the use of these sites attracts no charge and this makes them an attractive option for educational purposes.

In our trials, we used Flickr and Filemobile as the sites to which photos taken on a mobile phone would be archived. Videos can be emailed using the mobile phone to YouTube or Metacafe. Springdoo provides the possibility of recording and sending voice messages to email. These applications are used as sites for evidence to be easily collected and stored. We are also using Web 2.0 applications to bring the evidence from stored at various web sites into one area, these are now discussed in the next section on ePortfolios.

3.3 The role of ePortfolios in workplace based learning

Portfolios of student work to be used for assessment purposes have been around for a long time. Going back just a few hundred years, traditional craft apprentices would have to complete a 'master piece' in order to complete their apprenticeship and enter the ranks of master craftsmen. This 'masterpiece' would often be a product supported with sketches, drawings and sometimes written descriptions of how the product was designed and manufactured. Therefore the concept of using a portfolio to track a learner's journey from novice to practitioner is not a new one.

ePortfolios are a way of digitally storing the evidence of a learner's skill and knowledge acquisition. They can be used to collect evidence to support competency based assessments and can often then be used to showcase a learner's achievement. There are different levels of ePortfolios (Love, McKean and & Gathercool, 2004),

- Level 1 basically revolves around a scrapbook concept

- level 2 provides more structure to bring it up to curriculum vitae status
- The authors argue that a true web folio begins at level 3 whereby there is the ability for both the student and faculty to put together a working portfolio that showcases the student's work.
- Level 4 opens the web folio up to feedback from other parties that may include the student's families, employers (current and potential), various mentors and the faculty.
- At level 5, the web folio becomes an authentic / authoritative evidence that links the contents of the folio to standards, programmes and "other descriptors including higher order taxonomies."

It is therefore important in our ePortfolio project, to avoid becoming stuck at level 1 or 2 with a 'show and tell' ePortfolio. Instead, the construction of the ePortfolio itself should involve input from the apprentice in selecting, archiving, describing and preparing material for inclusion in their ePortfolio. The process will also require the apprentice to think about their skill / knowledge acquisition process when they link the evidence they have collected with the standards and learning outcomes expected. Apprentices will also need to be encouraged to provide backup text / audio descriptions of the photos / videos that they have selected so that meta-cognition is encouraged with regards to the ePortfolio construction process. The provision of an easy to use, fully mobile phone accessible interface to support this process is therefore an important part of this project.

Barrett (ongoing) provides a comprehensive web site that is a good resource for any educator embarking on working with ePortfolios. She has evaluated many generic (including word processors, slide display software, databases etc), off the shelf and open source software for their suitability for use as ePortfolio repositories and collators. Her work has directed us towards looking at the use of Web 2.0 applications for our work on setting up learning portfolios using mobile phones as the main evidence collection, collation and viewing tool.

We are currently in the process of trialling a number of personal portal 2.0 applications. These allow individuals to choose the type of items they would like to have on their own personal page. Many personal portals allow for the storage of photos, videos, blogs, music, address book, links, RSS feeds etc. The newer personal portals also provide links to other photo, video, blogging and music storage sites, so that an individual's page provides easy access to a range of digital media stored at various places on the net. The personal portals we have been trialling are Windows live, Pageflakes, Vox, Multiply and Freewebs.

4 Description of project

4.1 Trials of Web 2.0 applications and alignment with Moodle

Virtual learning environments (VLEs) such as Moodle provide tutors and learners with a secure learning environment. They also provide tutors with a range of plug in modules like discussion boards and online chat with which to create a range of learning experiences. We are making use of Moodle as a secure 'aggregation' site so that students are able to access their evidence archives and personal portals along with

learning activities from one site. Moodle will also provide tutors with an administration site so that all students' work can be easily viewed and evaluated and learning activities can be built and distributed.

To date, a significant gap exists in the provision of learning modules that utilise the power and potential of mobile communication devices. This is largely due to the diversity of technologies that currently exist in the commercial telecom industry and the security features that VLEs and educational institutions employ.

The rise of third party services (Web 2.0) such as Flickr and YouTube which provide mobile access and can be simply integrated into VLEs such as Moodle provide a way of being able to integrate these technologies into mainstream educational use. The possibilities afforded by the combination of activity and resource modules provided with VLEs and Web 2.0 applications which are freely available on the world wide web has been an area our project has wholeheartedly embraced. The linking of Moodle with the possibilities offered by Web 2.0 applications provides a high degree of flexibility. This enhances the student learning experience by expanding the range of activities available, increasing the number of points of entry into the instructional material, enabling higher levels of student to student and tutor to student communication / collaboration and providing students and tutors with a personal space in which to collate and reflect on their learning. All of these modules and applications can be designated as publicly or privately accessible. The use of this form of 'mashing' provides a flexible & student centred learning environment at virtually no monetary cost.

We undertook searches using the search function within Moodle and with Google to see if anyone else was working on integrating Web 2.0 applications into Moodle for mLearning. We found several projects (Moodle discussion sites, 2005) but none that were working on a similar project that we were.

However, the above sites did provide us with input on how mobile accessible sites should be set out. These prompted us to work on optimising our Moodle entry page for easy download on to a mobile phone. Also, due to the cost of mobile web browsing, the page had to be kept lean and access to a student's Moodle page had to involve as few page downloads as possible.

Linking external web 2.0 applications to Moodle modules is very straightforward. The important aspect to note here is how to layout the Moodle page for ease of access via mobile phone and to ensure that mobile usability is enhanced at all times. Not all web 2.0 applications load up well for display on to a mobile phone screen. Some of the personal portal sites we have chosen to work with will only work with a Java enabled browser like Opera Mini. Allowing student access to their sites using a personal computer via Moodle, opens up better options for access. However, our long range goal is to have as much as possible of the ePortfolio evidence collection and collation completed using a mobile phone.

5 Discussion

At CPIT, we have taken a pragmatic approach in making use of existing hardware and software that we have been able to source to make up our mLearning programme.

Our students all own mobile phones and we have found that SMS is an effective way of reaching out and maintaining contact with them. The web is now flooded with a range of applications that can be utilised by educators. These applications are free to use but often need some experimentation with in order to ensure that they fit in with the context and educational philosophies that they will be used within. In our evaluation of various web 2.0 applications, we have also been careful to only use sites that have a wide user base and have been accessible for some time. This ensures the longevity of these sites for sustained usage by our students. We are also continually evaluating a range of sites, so that newer, more mobile phone accessible sites can be continually sourced for our trials.

We have therefore made use of a tool that our students are familiar with using, combined it with web based applications that are available and brought these together for our students to form an ongoing ePortfolio of their workplace based competencies, skills and knowledge. All the disparate sites are hosted on a Moodle course with students being able to access their individual areas and the tutor able to see all of the students' work.

In line with our work on ePortfolios, discussion and reflections on our ongoing trials and our pilot for 2007 are archived on a [blog](#) (Chan, S. ongoing). This blog records our journey into mLearning and archives many resources, contacts and our learning about setting up ePortfolios for workplace learners using mobile phones. Our work is still in its early stages of implementation, but mLearning holds great promise in assisting workplace based / distance learners in recording their own learning journeys.

6 Conclusion

Our work in aligning Moodle to our mLearning pilot project is progressing well. With the development of a 'clean' access page for mobile phones, download of Moodle on to mobile phones has become faster and less mobile phone platform dependent. We are continually on the lookout for Web 2.0 applications that are suitable for use as ePortfolio type repositories. Mobile access to many Web 2.0 applications has improved considerably over the last year or so. As both PDA / mobile phones and web 2.0 applications become more advanced, they become more accessible for use by educators. Problems with incompatibility of mobile phone models, operating systems and telecommunication providers become less pervasive. The future therefore looks very promising for the development of an easy to use mLearning / ePortfolio interface that is accessible using a mobile phone.

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