

Chapter 20

Student Development of E-Workbooks: A Case for Situated-Technology Enhanced Learning (STEL) Using Net Tablets

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ABSTRACT

The project reported in this chapter is based on the combination, inter-relationships and synergies of four pedagogical approaches to improve student engagement with learning. These approaches are mobile learning; constructivist learning, with contemporary emphasis in the form of connectivism; situated learning of skills in purpose-built workrooms and workshops mirroring 'real-world' practice environments; and multimodal and multi-literate user interactivity. In the project, the interactions of the above four pedagogical approaches, led to the development of 'situated-technology-enhanced learning' (STEL). Situated-technology enhanced learning is enabled through the deployment of net tablets in the form of ipad2s and Android operating system tablets and a selection of mobile apps. Of importance is the use of net tablets to encourage students to create their own E-textbooks or E-workbooks. These E-workbooks are collated by collecting and annotating photos, videos, and notes of students' progressive skills and knowledge learning as practical learning and theory-based learning activities occur in specialised workshops/workrooms. This project evaluated how to best deploy situated-technology enhanced learning to increase student engagement in learning; encourage teaching and learning activities based on student-centred and student-generated learning approaches; and develop teaching staff and student capability in using technology to support student learning. The overarching theme arising from the study was the need to enable students and staff to utilise technology for learning. An outcome of this project is the derivation of guidelines, achieved through the project's participative action research approach, to assist other vocational educational institutions to introduce net tablets into trades-based learning spaces.

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INTRODUCTION

In this chapter, the introduction of mobile learning opportunities in the form of net tablets (ipad2s and Android-based Toshiba Thrive tablets) is described. The project leverages on the affordances provided by mobile devices and the situated-learning available through teaching and learning activities based in purpose-built vocational education workshops and workrooms. The project's main objective was to re-engage students by encouraging students to collect evidence of their learning in the form of multimedia artifacts (e.g. photos, video clips and annotated work sheets) to produce their own workbooks.

Christchurch Polytechnic Institute of Technology (CPIT) is the largest Institute of Technology or Polytechnic (ITP) in the South Island of New Zealand (NZ)-Aotearoa. CPIT offers a range of programmes of learning from foundational (level 1 to 2 on the New Zealand Qualifications Framework [NZQA]) to undergraduate degree (level 7) in a range of applied disciplines across trades, science, engineering and health sectors. The project described in this chapter was undertaken with students studying in full-time programmes of up to sixteen weeks. The participant students were enrolled in level 2 programmes and were either learning basic automotive engineering or barista (espresso making) skills. The majority of these students were 'reluctant learners' who had dis-engaged with the formal school system. For these students, the opportunity to re-engage with learning through vocationally-focused programmes assisted the establishment of pathways into entry-level work or apprenticeship/industry/work-based learning, potentially leading to National Certificate qualifications at levels 3 and 4.

To begin, the chapter introduces the interactions of four pedagogical approaches adopted to inform the project. The project studied the combination and inter-relationships of mobile learning, constructivists learning approaches, situated skill learning and encouragement of learners'

development of multimodal/multiliteracies. As described in this project, the synergy of the four pedagogical approaches, led to the development of 'situated-technology-enhanced learning' (STEL). This project also undertook to study how best to deploy situated-technology enhanced learning to increase student engagement in learning; encourage teaching and learning activities based on student-centered and student-generated learning approaches; and develop capability in using technology to support student learning.

BACKGROUND

The project brings together two learning technologies, mobile learning (mlearning) and ebooks, both of which are predicted to become main stream within educational settings in the next one to two years (Johnson et al., 2011). The project is a continuation of mobile learning projects undertaken at CPIT from 2005 to 2009 (Chan, 2011a, 2011b). Ubiquitous computing, using mobile hardware (in this case net tablets) and wireless internet access, creates optimum conditions for enhancing student learning. The net tablets used in this project are mobile tablet computers with wireless access to the internet running applications (called apps) that include eBook readers. The educational use of net tablets, coupled with a constructivist, student-centered learning approach, holds great potential. However, although the use of net tablets in education is still in development, the deployment of net tablets into vocational education workshop learning environments offers much promise for extending the original tenets of mobile learning—to create available, anywhere learning opportunities (Belshaw, 2011).

In the next section, short overviews of the four pedagogical approaches framing the project are provided. These four approaches offer background information for planning, deployment and evaluation of the project. Each approach is now briefly discussed.

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