Project title: Consolidation and Embedded Articulation of Dual Sector Skill Electives in Construction

Project leader: Patricia McLaughlin

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Funds approved: $31,500

Funds acquitted (attach financial statement): Attached

Introduction:

The construction industry required skill/knowledge mix of graduates has changed. Industry sources and research quote the need for "hands on" experience coupled with a higher education knowledge base (Curtis and Lucas, 2001). Changing work practices in construction are demanding greater breadth and depth of understanding of technical equipment and construction processes (Productivity Commission, 2000). Reliance upon narrow understandings of building processes will not adequately equip future students for the rigours of an ever changing international workplace. There is an urgent need to develop and firmly embed dual sector and nested programs in line with the knowledge and skill requirements of the current and future construction labour markets. There is also a need to provide our students with both academic and technical qualifications and various entry and exit points.

This project embedded the outstanding gains made in the 2008 LTIF dual sector pilot project in construction management* into a permanent articulated arrangement for all students. This project also provided clear pathways for all students (TAFE, HE and VET) undertaking skills electives combined with core studies. Finally, it met industry demand for all-rounded graduates with dual sector qualifications and skills.

*Evidence from the published results of the LTIF pilot project in 2008 indicated improved student learning experiences with over 80% of students indicating greater course satisfaction, greater links between theory and practice and improved industry understandings and employment opportunities.

Detailed project description:

This project addressed priority 2.1 of the 2009 RMIT Learning and Teaching Innovations Programme: dual sector qualifications. It built upon the outstanding successes of the 2007 and 2008 LTIF pilot projects in dual sector education in construction management (TAFE/HE). Research results and published academic evaluations from both pilots indicated overwhelmingly a desire by students to undertake dual sector studies and the satisfaction of staff, students and industry with the pilot outcomes. The 2009 dual sector project embedded the skill electives in the HE construction curriculum and remained both self-funding and a permanent feature of TAFE/HE construction education. It promoted pathways for future study, provided students with industry relevant education and developed a model for staff exchange and collaboration. In an extension of the 2008 project, HE students have been able to select TAFE building and services modules as part of their elective programme and receive a statement of competency upon successful completion, leading, if desired, to a full qualification: Diploma of Building
and Construction (Building). A curriculum review was also undertaken to align VET studies with TAFE and HE construction studies, enforce articulated pathways for TAFE and VET students, provide students with the opportunity to obtain accelerated dual sector qualifications, including a three year HE degree, link the existing skill elective courses with industry demand and increase current and future student awareness of opportunities in construction studies at RMIT.

This project is directly linked to the funding priority 2.1: dual sector qualifications. This project was conducted in the school of Property, Construction and Project Management. It involved approximately 70 plus enrolled students.

Some of the key outcomes of the project:

- Collaboration and consultation with TAFE/HE staff to determine selection of modules, delivery times and student pre-requisites etc.
- The completion of extensive curriculum mapping between TAFE/HE in elective studies.
- New "reverse" articulation course BUIL1223, available to all HE students in PCPM.
- Articulated pathways between the skill electives and core courses designated and advertised in flyer/poster/website format to students.
- Completion Of BUIL1223 leading to dual awards (Diploma & Degree) if selected by student.
- An evaluation study of the student demand, satisfaction and learning outcomes of dual; sector offerings formalised.
- Dissemination of both the report and the pilot study within the university and publication of conference and journal articles within educational networks
- Project outcomes leveraged for an ALTC grant application in the area of lifelong learning.
### Outcomes and project tasks completed:

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<tr>
<th>Tasks and Completion Dates</th>
<th>Activities and Outcomes</th>
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<td><strong>Task 1</strong> – Embed a VET qualification into the undergraduate diploma and degree in building and construction&lt;br&gt;Achieved: April, June &amp; September 2009</td>
<td>• The Pathways project commenced with 12 VET students undertaking Certificate 3/4 which is embedded into the Diploma Building and Construction (Building).&lt;br&gt;• Skill electives conducted in plumbing, electrical and building. 36 HE students undertook the skill electives in plumbing and electrical, 27 undertook the skill elective in building.</td>
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<td><strong>Task 2</strong> – Utilise team teaching and industry work-based learning in the delivery of dual sector courses&lt;br&gt;Achieved: May &amp; June 2009</td>
<td>• Skill electives involved new TAFE staff from mechanical services and electrical schools.&lt;br&gt;• Construction companies Hooker Cockram and Baulderstone provided site based work for all TAFE staff and students in new technology installation for one week intensives, plus teacher professional development.</td>
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<td><strong>Task 3</strong> – Review programme structures to enhance credit transfer and reverse articulation for Diploma of Building and Degree in Construction&lt;br&gt;Achieved: June 2009</td>
<td>• Mapping of programme competencies completed and TAFE skill set registered. Students can now undertake a skill elective, BUIL 1223, and then apply for a Diploma of Building and Construction (Building) upon successful completion. Any HE student can now graduate with two qualifications upon successful completion of the skill set.</td>
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<td><strong>Task 4</strong> – Advertise the new embedded dual sector qualifications to current and future students&lt;br&gt;Achieved: August 2009</td>
<td>• An advertising campaign listing the reverse articulation and skill elective BUIL1223 and the opportunity to gain two qualifications over the time of one degree completed. A web page, poster and flyers were available in August 2009 to coincide with open day.&lt;br&gt;• Advertising Flyer attached.</td>
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<td><strong>Task 5</strong> – Preparation of ALTC application in area of embedded (lifelong learning) qualifications&lt;br&gt;Achieved: September &amp; October 2009</td>
<td>• Data collected from dual sector projects over the past two years prepared for an ALTC application (in time for November submission) in the area of lifelong learning.&lt;br&gt;• Summary of ALTC application attached.</td>
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| **Task 6** – Preparation of dual sector research outcomes for submission to academic journals, conferences and industry publications<br>Achieved February & June 2009, | • One article in ED Mag., Feb., 2009./<br>• VIDEO on dual sector for L/T Expo<br>• Conference paper: (accepted as keynote paper), AUBEA, Adelaide, July 2009.<br>• Journal article accepted (‘Dual sector education: TAFE and higher education collaborate in construction management’, Teaching in Higher Education, ID: CSHE-
Evaluation of outcomes:

The outcomes address the following objectives:

1. **Improved student learning experiences, outcomes and employment opportunities**
   The provision of dual sector (TAFE/HE) courses in construction allows flexibility of learning by enabling students to augment theory with the development of technical and vocational skills that will enhance their work careers. The opportunity to obtain accelerated dual sector qualifications also adds to students’ employability. Evidence from construction industry employers indicates a need for students to have both industry "hands-on" experience and sound understandings of construction theory and technical developments. (McLaughlin and Mills, 2006) This project overwhelmingly achieved this goal.

2. **Innovation**
   This project was innovative in that it created new articulated pathways for TAFE/HE students, linked existing courses with industry demand and increased current and future student awareness of opportunities in construction studies at both TAFE and HE levels at RMIT. The course BUIL 1223 for the first time enabled HE students to gain an additional qualification from VET sector (Diploma Building and Construction).

   HE students at work in the TAFE plumbing workshops with teacher Warren James.

3. **Strategic alignment**
   This project addressed priority 2.1 of the RMIT Learning and Teaching Innovations Programme for 2009: dual sector qualifications. It is in line with the Victorian Government Skills Reform (2008) agenda by promoting multiple entry and exit points for learners and practical competency based vocational education. It reflects the recommendations arising from the Bradley Review of Higher Education in Australia (2008) by promoting lifelong learning and a mix of sector qualifications to meet an individual's learning needs.

4. **University wide application**
   The model created under this project has positioned RMIT as the first choice provider of education in construction and the first choice supplier of graduates to construction employers. This model has application for dual sector initiatives in the future throughout the whole university. Furthermore, previous pilots have already become university templates for dual sector education, such as embedded qualifications and reverse articulation.
Dissemination of completed project outcomes:


RMIT Teaching and Learning EXPO 2009. Panel member dual sector qualifications and large class teaching.


Video of dual sector initiatives shown at LT EXPO, 2009

Summary:

This dual sector project was the culmination of three years of LTIF funding for discipline based dual sector initiatives. Over the course of the three years the achievements have been multiple. A brief summary of the projects:

**Year 1 (2007)**
Trial of 2 elective courses for HE students in selected and co-operative TAFE schools.

A key objective was to value-add to the existing theoretical curriculum in the area of Building Services: refrigeration/heating services and plumbing/mechanical services.

Staff and student satisfaction and co-operation was outstanding. Course evaluations indicated high levels of student engagement and learning.

**Year 2 (2008)**
Creation of the existing trial courses into skill electives offered as part of the HE programme for all PCPM students.

A key objective was to create stand alone courses that were delivered by TAFE sector, but counted as programme credit in HE programmes.

Three electives were offered in areas of plumbing, mechanical services and electrical wiring.

Skill electives were developed of 12 credit points and offered as PCPM electives, Assessment activities and curriculum content was finalized. Again staff and student satisfaction was consistently high over all electives offered.

**Year 3 (2009)**
Embedding and reverse articulation of the Diploma of Building into the HE degree

**Staff Development.**
Staff development over the three years of the initiatives in dual sector has been deliberate and achieved by placement of TAFE staff involved with the project on sites demonstrating new technology and processes. Regular site visits have been undertaken to achieve professional development and industry briefing sessions have been held in site settings.

TAFE and HE staff have collaborated on journal articles and presentations.
Research and Dissemination Profile.
Throughout all three years the project initiatives have maintained a research profile through the publication of three journal articles relating to the various dual sector initiatives and three conference papers detailing developments. All of the students and staff involved have participated in data gathering activities and evaluation processes.

A culmination of the three year project has been the formalization of an ALTC application in Year 3. In addition elements of the project have formed the basis of an ARC competitive grants application in 2009.

Industry Involvement.
Throughout the three year period the following sites and companies have been involved:
Baulderstone: Alfred Hospital site (2009).
Hooker Cockram Pty Ltd: CSL site (2008), RMIT university site (2009)
Multiplex Brookfiled: Convention centre site (2007) and Hilton Hotel site (2009)

Assessment work, practical site work and services work has been undertaken by students and staff on all sites. New advances in technology, OHS, green star ratings and site management have been exchanged between industry partners and TAFE and HE staff.

HE students undertaking sheet metal work in TAFE workshop.