

RMIT University
Learning and Teaching Investment Fund 2008
Final Report

Project Title: *Dual sector delivery of Construction Management Elective Courses*

Project Leader:



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Team Members:

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Funds Approved: \$46,250

Funds Acquired (attach financial statement): attached

Introduction:

Demand for construction management graduates has remained consistently high over the past decade (Gradsonline, 2004) In the five year period 2002-2007 RMIT construction management graduates posted 100% employment figures. Employment demand for construction/building graduates is predicted to remain strong over the next decade (CFMEU, 2004).

But the 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 is not adequately equipping future students for the rigours of an ever changing international workplace. There remains an urgent need to develop dual sector and nested programs in line with the knowledge and skill requirements of the current and future labor markets and learning needs of our students. This project created the opportunity for students to tailor courses to match their current employment needs and their long term construction careers.

The current core courses in construction management in higher education do not address the practicalities of vocational situations that graduate construction students often encounter in their working lives. The nature of construction higher education courses means graduates are often not equipped with the vocational knowledge to understand the equipment demands and technical requirements in a work situation. Evidence from the 2007 LTIF pilot project surveys and student evaluations indicates overwhelming support for dual sector studies in construction management. (Mills & McLaughlin, 2007) This project has further developed and finally embedded the process of dual sector education and learning within the area of construction management and met the demand for all-rounded graduates with dual sector qualifications and skills into the future.

Detailed project description:

This project addressed priority 2.1 Course and Programme development:-dual sector qualifications. This project built upon the outstanding success of the 2007 LTIF pilot project in dual sector education in construction management. (TAFE/HE) This dual sector project is now self funding and a permanent feature of both TAFE and HE construction education. It has a listed course code, BUIL1223, inot which students wishing to undertake dual sector subjects can enrol. It has provided students with the opportunity, over time, to obtain dual sector qualifications within their selected HE construction programme. It has promoted pathways for future study. It has also provided students with industry relevant education and learning and developed a model for staff exchange and collaboration. In this extension of the 2007 project, HE students in the School of PCPM selected up to three elective units from TAFE Building Services modules to build a programme of study leading to a TAFE statement of competency and eventually, if they choose to pursue RPL, a TAFE qualification. This project resulted in three TAFE modules embedded in the HE programme, with third and final year HE students selecting to undertake these modules commencing in 2008.

An outline of what was completed:

Tasks and Completion dates	Activities and Outcomes
Task 1: Feb - March 2008	Consultation with TAFE/HE staff to determine selection of modules, delivery times and student pre- requisites etc. Modules in services , plumbing and refridgeration, electrical were selected, course content agreed, delivery times agreed
Task 2: April 2008	An initial feedback report disseminated to HE students detailing the results of the consultations and TAFE module offerings with areas of knowledge information outlined as well as potential vocational training areas highlighted. Selection by HE students of modules, delivery mode and timeframes.
Task 3: May – September 2008	Courses conducted in selected TAFE modules or course units. Delivery: TAFE modules conducted over semester.
Task 4: October – November 2008	Evaluation of three courses. Publication of report and related research articles for dissemination on internal and external educational networks Published course and pilot evaluation. Dissemination of both the process and the pilot study within the university and publication within educational networks such as Ednews, ATN Conference, etc.

Evaluation of outcomes:

This project is directly linked to the funding priority 2.1 Course and Program development: *Dual sector qualifications*. This project was piloted in third and final year HE elective courses in the school of Property, Construction and Project Management. It involved approximately 60 plus enrolled students. This project was an initiative to develop dual sector electives in an existing higher education programme. The initiative was undertaken within the project plan presented above.

Some of the key outcomes of the project were:

- Collaboration and consultation with TAFE/HE staff to determine selection of modules, delivery times and student pre-requisites etc.
- An initial feedback report disseminated to HE students detailed the results of the consultations and TAFE module offerings with areas of knowledge information outlined as well as potential vocational training areas highlighted. (It is hoped this document will be formalized into a brochure for HE students under the final stage of the project in 2009)

- Positive and on-going professional linkages with RMIT TAFE (building, building design and services schools) were created to establish optimum opportunities for dual sector delivery of the selected TAFE modules.
- An evaluation study of the demand and delivery of the dual sector course formalised.
- Dissemination of both the report and the pilot study within the university and publication within educational networks



PCPM/HE students solve some practical problems

How the outcomes address the following objectives:

- 1. Improved student learning experiences, outcomes and employment opportunities:** The provision of cross-sector (TAFE/HE) courses in construction allows flexibility of learning by enabling students to pursue areas of interest at the technical and vocational level and to develop skills in new areas that will enhance their changing work careers. 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 over-whelmingly achieved this goal.
- 2. Innovation-** This project was innovative in the way in which it generated and maintained interest and enthusiasm, leading to the creation of lasting relationships between both sectors. This attempt was more successful than previous attempts due to the innovative ways these initial relationships were captured and enhanced. It allowed new relationships to develop and professional collaboration to occur.
- 3. Strategic alignment -** This project addressed priority 2.1 Course and Programme development: dual sector qualifications.
- 4. University wide application -** The contractual details such as staffing, equipment usage, timetabling, enrolments and certification will need to be further refined beyond this project, but the model created and trialled under this project has application for dual sector elective courses in the future throughout whole university.

Dissemination of completed project outcomes:

*Mills, A., & P. McLaughlin (2007). Towards a New Model of Professional Education: An Opportunity to Enhance University and Industry Links in Construction Education. Partnerships for World Graduates Conference RMIT University, Melbourne.

McLaughlin P., (2008) , Dual Sector Skill Electives in Construction Management' in, *Ed Magazine*, vol. 3, Issue. 3.

Mills, A, McLaughlin, P & Robson, K (2008), 'Employers' Perspectives On Work-Integrated Learning In Project-Based Workplaces', paper presented to World Association of Collaborative Education conference, hosted by ACEN, Manly, Sydney.

McLaughlin P., (2009) Dual Sector Education: TAFE and Higher Education collaborate in Construction Management.. Paper accepted for AUBEA conference, Adelaide, Sth. Australia, July 2009.
<http://ieeweb2.ml.unisa.edu.au/AUBEA/subpaper.aspx>

Powerpoint presentation DSC/PCPM T/L forum, October 2008.

RMIT T/L EXPO, Decembner 2008, poster presentation.



PCPM/HE students tackle hands on learning

Summary:

The original LTIF 2007 pilot project drew upon sound educational research indicating the importance of hands-on knowledge and first hand experience in the learning process. Approaches were made to the TAFE School of Plumbing and Fire Protection and the School of Air-conditioning and Refrigeration. These two schools were identified as containing curriculum that had practical modules matching the theoretical knowledge offered in the degree course. The level of co-operation between the three groups was at first tentative, but over time grew to a position of mutual respect and professional collaboration. All 80 enrolled HE students in the Building Services course were given the opportunity to undertake two units in each of these TAFE schools. The curriculum was carefully selected by the teachers and HE staff to reflect learning needs and to "value-add" to the HE course.

Wherever possible, existing curriculum was utilized at Certificate 3 level. The students undertook the units over a full, intensive week of classes in TAFE, rotating between the teachers and buildings. At the completion of each TAFE unit, competency assessments were undertaken and student feedback was obtained. The results were overwhelmingly positive. Students and staff were immensely satisfied with the pilot project and rated it highly in terms of improved learning, better understandings and greater opportunities for dual sector qualifications. The staff involved were also over-whelmingly supportive of the classes and prepared to undertake additional work to enhance the project. The professional collaboration between the three schools was much enhanced and was one of the unexpected positives in the pilot project.



TAFE Refrigeration Staff with PCPM/HE students

Reviews of the project however revealed that the success of the 2007 pilot project, although outstanding and beyond expectations, was not sustainable in terms of project budgeting, staffing and resourcing. The 2007 pilot project was a huge success due in most part to the goodwill and energy of the TAFE Heads of School, the HE staff and in particular the TAFE teachers who had engaged in the day to day teaching. The research outcomes indicated that the students' level of satisfaction was in part due to the professionalism and energy of the TAFE teachers involved. Also the sheer numbers of students enrolled in the HE program was prohibitive: over 200 students in any year level. Clearly a better alternative was required to sustain dual sector collaboration into the future! All of the staff involved were heavily committed to the vision of cross sector education and the value of the project, so in 2008, LTIF funding was sought to create a more sustainable model of dual sector education.

In 2008, the School of PCPM and TAFE School of Plumbing and Fire Protection jointly offered skills electives in a range of areas. Students could freely enrol into an elective in the TAFE school. HE students in the School of PCPM selected elective units from existing TAFE modules in School of Plumbing and Fire Services to build a program of study leading to a TAFE statement of competency and, if they wished to continue, an eventual TAFE qualification.

Due to resourcing issues, the number of students enrolling at any one time was capped at 28 students. This is an OHS and TAFE structural requirement. Over an intensive week of classes, students undertook modules drawn from the Certificate 3 programs. Students and staff also undertook a variety of site visits to the Multiplex Brookfield Convention Centre site to enhance learning and practical applications. Students were required to complete competency assessments and undertake a reflective journal. Current feedback indicates the success of the electives and again indicates the desire by students to have dual sector pathways provided in their programs.

Positive outcomes were also indicated by staff feedback. The Construction Skill electives were embedded in the HE program with course codes and curriculum and are now self-funding through HE enrolment.

The provision of cross-sector (TAFE/HE) skills electives in construction allowed flexibility of learning by enabling students to pursue areas of interest at the technical and vocational level and to develop skills in new areas that will enhance their changing work careers.



TAFE Plumbing staff with PCPM students

The two pilots (2007 and 2008) were different in delivery and philosophy. One embedded TAFE units in the existing HE course, value adding to the learning experience; one created stand alone elective courses built upon TAFE units of competency. In 2009, LTIF funding will be sought for a review of these articulated pathways and a proposal for a model of greater access and equity will be tested in a new pilot project combining the best practice features of both pilots.

For these projects to succeed, the goodwill and additional support of a wide-range of people from the PVC, Jim Barber, to Heads of Schools, co-ordinators and administrators was required. Most importantly they require the energetic support of the front line personnel: the teachers and lecturers. It is these people who provide the learning experience for the students and create solutions to the problems on the ground when the pilot is conducted. Geoff Burns, Warren James and Glen Woods were instrumental in making the project successful. Without the support of these staff, the project would not have succeeded.

These projects create a template for the future for other TAFE and HE schools and provide flexible, useful pathways and learning opportunities for RMIT students, ensuring our graduates are first choice for construction employers and remain industry leaders into the future. The skill electives will again be offered to HE students in 2009, with an emphasis on formalising the qualifications and skill profiles for the future.