Online resources for Work Integrated Learning: A case study in re-usability and flexibility

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Abstract

A comprehensive suite of online resources has been developed to support university students undertaking a co-operative or workplace year as a structured part of their studies. A curriculum designed to emphasise reflective learning, collaborative learning and life-long learning principles adopts a people focus, with the incorporation of student stories and experiences. Five academic programs, delivered from three different Schools, incorporate some or all of eight self contained online modules, which can be linked from within the menu of the Blackboard learning management system. This allows for shared resources alongside separate announcements, discussion and administration areas. Preliminary outcomes show increased student satisfaction, greater reflective practice and improved learning. Staff report reduced administration load and enthusiasm for a new way of supporting students in their off campus placement.

Keywords

Co-operative education, shared learning modules, online communication

Introduction

A co-operative or workplace year is a feature of many university courses, involving students in paid discipline related employment as a structured part of their studies. By allowing students to integrate their work and academic experiences, such placements can, in the right circumstances, engender deep level learning. There is however a need to strengthen the level of academic support in these programs (Weisz & Smith, 2005). Recent changes in government funding flowing from the Higher Education Support Act, 2003 have put extra pressure on universities to formalise and increase the level of support provided as well as the learning and assessment requirements for Work Integrated Learning (WIL).

In 2005 RMIT introduced a comprehensive set of online resources to support co-operative education students across a range of courses: marketing, transport and logistics, international business, accounting, and business information systems. Resources were developed to incorporate and support the preparation phase involving resume development and interview skills before the students go out on placement. The bulk of the development work focussed on a number of modules which included guidance to students on individual learning contracts and portfolios to direct and showcase their learning, examples of projects submitted by students in previous years, report writing advice and material that provided students with the language and concepts to reflect on the experience of learning in the workplace. These materials were supported to differing degrees by online discussions that assist reflection and understanding of variation of experiences, and which offer mentor and peer support. Finally there is a module designed to assist the transition back to study and the integration of new-found skills and experiences into the interaction with conventional classroom learning.

The resources are used by different discipline areas in different ways. This paper describes how a flexible design structure enables the sharing of resource modules.

The pedagogy of WIL

Work Integrated Learning (WIL) and work-based learning are umbrella terms to describe the range of educational programs that integrate formal learning and workplace experience. Examples of such programs are work-based projects, unpaid work, apprenticeships, practice firms and co-operative education programs (Atchison, Pollock, Reeders, & Rizzetti, 1999). For many years RMIT Business has included a co-operative year after completion of the second year of the Bachelor of Business degree, with students working in paid discipline-related employment for a year before returning to the university to complete the final year of their degree.

Research into the benefits of WIL has been collated a number of times, including Dressler and Keeling's (2004) recent overview of outcomes attributed to co-operative education. Their literature review found mostly positive — but sometimes mixed — results that have been obtained on the effectiveness of co-operative education in promoting student learning outcomes. These learning outcomes are broader than those generally found in a classroom based course. In their review they distinguish between:

- academic benefits (e.g. increased discipline thinking, increased motivation to learn, improved performance in the classroom),
- personal benefits (e.g. increased communication skills, increased initiative, increased team work and co-operation),
- career benefits (e.g. improved career identity and clarification, increased employment opportunities and increased salaries), and
- work skills development benefits (e.g. development of positive work values and ethics, increased competence and increased technical knowledge and skills).

It is almost a commonplace that people learn by doing. This is consistent with Dewey's belief that 'all genuine education comes through experience' (Dewey, 1938, p. 25). Experience in a real life context readily provides the four conditions for effective learning: a knowledge base, a motivational context, learning activity and interaction (Biggs, 1999, pp. 73, 78). WIL provides an opportunity for students to gain experience in the workplace where they apply the problem-solving skills and discipline-based theory learned in their formal education to an authentic context as a colleague and employee, with all the responsibilities and expectations such a role entails.

However, experience is a necessary, but not a sufficient condition for learning (Kolb, 1984). For learning to occur, learners need to observe and reflect on the experience, develop concepts to make sense of the experience and then apply and test out these concepts through new experiences. Reflection and reflective practice are crucial features in developing the effectiveness of WIL (Coll & Eames, 2004). As Van Gyn (1996) notes:

> People do not necessarily learn from experience, particularly if they do not think about it or do not take responsibility for its creation. If co-op is only a vehicle for experience to gain information about the work place and to link technical knowledge with work place application, then its effectiveness is not fully developed
>
> (Van Gyn, 1996, p. 125)

Work-based learning generally has antecedents in varied aspects of university learning including curriculum interventions like co-operative education programs and practicums, negotiated and project curricula, the accreditation of prior learning and the recent emphasis on generic capabilities (Boud, Solomon & Symes, 2001). Drawing from these antecedents and on the basis of the many case studies that emerge from them, Boud (2001, p. 48) has identified seven elements that must be included in the design of work-based curriculum to develop broader educational goals:

i. Establish work-based learning as a learning enterprise that, while commonly undertaken at work, is not identical to work.

ii. Address the diverse range of knowledge and skills possessed by students at the commencement of work-based learning.

iii. Locate the outcomes of work-based learning in a framework of levels and standards of achievement.

iv. Promote the development and negotiation of a program of activities.

v. Support the ongoing learning of students in situ.

vi. Encourage critical reflection throughout the programme.

vii. Document learning in a form which can be assessed in terms of the frameworks previously established.

Content design

The curriculum design for the online resources was influenced by Boud's (2001) seven elements of a work-based curriculum. While responsibility for elements 3 and 7 rests at a school level, the online resources aimed to address these other educational goals across the program. Students are encouraged to think about their learning in the context of the organisation, and to relate their previous studies to the new workplace experience. They are encouraged to negotiate a learning contract specific to their needs and environment and to engage in ongoing critical reflection.

Eight modules were developed:

i.   Placement Survival — preparation for WIL, including issues of health and safety, legal and ethical, and managing problems.

ii.   About Organisations — providing an overview of an organisational structure with the aim to get students to think about the context in which they learn.

iii.   About the Proposal — this module aims to assist students to think about what type of project they will undertake in the workplace. It includes views from employers, students and academic mentors.

iv.   Workplace Learning — aims to give students an understanding of the difference in learning in a workplace setting from a University setting.

v.   About the Learning Contract — aims to assist students to think consciously about the type of self-directed learning they may choose in the workplace.

vi.   Report — aims to assist students in writing a workplace report.

vii.   Portfolio — aims to assist students in developing a learning portfolio including evidence of their learning.

viii.   Moving on — aims to provide a transition back to the students final year of study.

One of the design intentions was to develop materials that had a people-focus. During the WIL year, students are undertaking the common experience of operating within a work environment, but they are largely isolated from sharing their observations and experience with other students. Vicarious learning (Fowler and Mayes, 1999) is based on the finding that people can and do learn through being given access to the learning experiences of others. It was, therefore, a conscious design decision to include student stories and experiences.

Past WIL students were approached to provide a retrospective account of their WIL experiences and these were presented as short interview segments. The students were reluctant to be shown on-screen, so their written responses were used with student models. Examples of student projects from previous years are provided as exemplars so that students can assess the potential and suitability of possible projects in their own workplace. Later enhancements of the materials could enhance the vicarious learning aspect of the resource through the ongoing collection of such student stories and where appropriate, learning dialogues conducted through the online communication.

Photographs and voices of RMIT supervisors were used as a form of teacherly annotation, to provide course advice in a more personalised fashion. One employer was approached to provide employer input for an information-gathering scenario.

The development of these resources provides a mechanism for supporting students across the whole span of the workplace experience from job seeking to returning to the university. Much of the support offered to students has previously been focussed on the recruitment and interview aspects of the job search, with varying opportunities for support while students were actually on placement. Having access to the resources on a needs basis has meant that students can consider how they are to fulfil the assessment requirements once they are situated in the authentic environment, instead of in the hypothetical climate of preparatory sessions. The Moving On module is one step towards addressing the issue of maintaining the deep approach to learning that students adopt during their co-operative year (Weisz et al., 2001) once they return to the university environment.

Accommodating different requirements

The online WIL materials were designed to draw on the approaches and assessment requirements of the co-operative education program across a number of discipline areas, namely marketing, transport and logistics, international business, accounting, and business information systems. Even though the learning outcomes were similar, over time different Schools had developed their own distinctive practices, nomenclature, staffing responses and assessment requirements. During pre-development meetings of academic and administrative staff with the development team, it seemed that these differences might preclude genuine co-operation. However a technical solution was found that allowed for all options within an economical re-use of resources. Once everyone saw that sharing of content was possible, an extended sharing of ideas and experiences followed.

The online resources were taken up by staff in three Schools within the Business Portfolio. A fourth area (Economics and Finance) adopted a 'wait and see" policy, and will in fact use the online resources in 2006. Marketing was the only area to use all eight multimedia content modules. Accounting and Law did not use either the Learning Contract or the Portfolio sections. Business Information Technology (BIT) chose to use only the two modules Placement Survival and Workplace Learning.

Blackboard 6 (the University's learning management system) provides areas for standard features such as announcements, content as html pages or other documents, discussion forums, online quizzes, and external links. Apart from the content resources, each of the Schools involved in this project used the features of Blackboard in different ways. Marketing had a series of specific discussion forums to which students were expected to contribute as part of their assessment. They covered topics including an introduction to the type of work being done, reflections on the workplace experience, preparation for the mentor visit, and thoughts on project proposals. BIT combined face-to-face forums with online discussion. They formed "Willing groups" where 10 to 15 students were teamed with an academic mentor. Discussion topics here revolved around soft skills such as time management, negotiation and reflective practice. Accounting and Law decided not to run online discussion forums. They used the site for announcements and procedural information as well as for the learning content.

The technical environment

The design of the WIL materials needed to be modularised into separate, discrete objects that could be reassembled into a coherent whole. Each module had to be complete within itself, with no references to other modules that may or may not have been selected for delivery.

Two technological innovations in the RMIT Distributed Learning System in January 2005 enabled implementation of the WIL resources. The first of these was the upgrade to Blackboard version 6, enabling customised menu items which could link to external resources. Second was the provision of an area on the web server (the "web farm") where content could be placed behind password protection. Only links from a registered user within Blackboard can access this area.

Students access the resources through Blackboard. Menu items in the Blackboard point to particular modules of the WIL content which sits in the background on the web farm. The menu structure varies according to the particular modules required (see Figure 1).
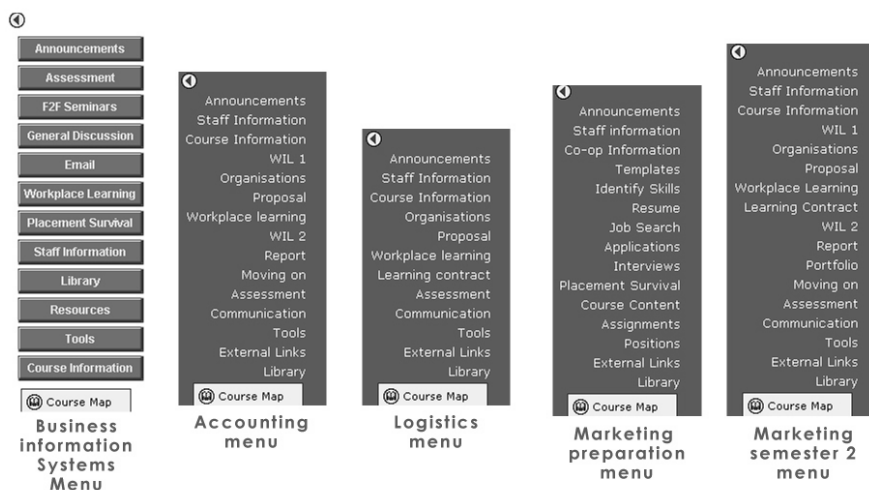

Figure 1: llustrating a variety of Blackboard menu structures

The content is displayed seamlessly within the Blackboard frame (see Figure 2). The structure enables a single version of the common content, which can be accessed by multiple programs. This allows for easy editing and updating by the multimedia development team. The web farm here is acting as a primitive Learning Object Repository, providing the facility for different groups to share common content.
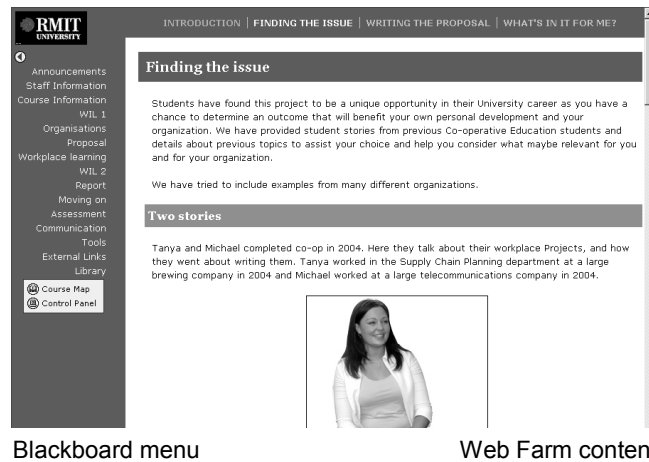
Blackboard menu   Web Farm content

Figure 2: Web farm content within the Blackboard frame

Other material that is particular to a program or discipline, such as announcements and discussions, sits in the Blackboard sites where those can administer it can be directly involved (see Figure 3). The communication features of Blackboard are fully utilised in the online forums where students can discuss issues and share experiences with each other and with staff.
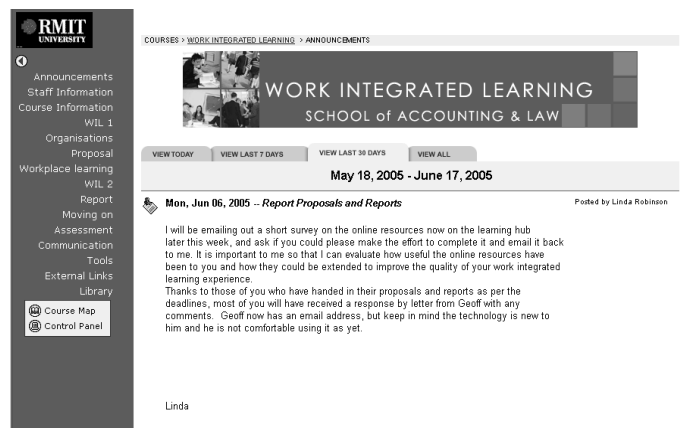

Figure 3: WIL main interface showing Announcements

Outcomes

The material has been in use for one semester only. So far no students have been enrolled in courses requiring the final three content modules, although these have been available to one of the three cohorts. Evaluation is based on usage statistics, qualitative feedback from academic and administrative staff users, and from limited student feedback. We are planning to collect more comprehensive student feedback at the end of the year. Because the three academic areas used the material in such widely differing ways, the outcomes will be discussed separately for each area, as well as highlighting the common threads.

Usage statistics

Usage statistics for Semester 1 2005 are presented below. Figures given are for hits to the front page of the module, so are an indication of the number of times students visited the section, as opposed to total hits for the entire module, which would be influenced by the number of pages involved. From the visits to the introductory (Announcements) page as shown in Table 1, it can be seen that there was a higher level of usage from BIT and Marketing students, the two areas that used online forums.

Table 1: Student hits to Announcements page

School	Total hits	Number of students	Range (per student)	Mean hits per student	Mean hits per week
BIT	4095	118	0-269	34.7	2.7
Marketing	3536	104	0-164	34.0	2.6
Acc & Law	1275	109	0-71	11.7	0.9

A comparison of the two areas that used online forums shows a slightly higher use of the discussion forums in the School of Marketing, where contribution was assessable (see Table 2).

Table 2: Use of discussion forums

School	Total hits (ie viewing)	Mean hits per student	Total messages (ie contributing)	Mean messages per student
BIT	9067	76.8	312	2.6
Marketing	9781	94.0	424	4.1

Most hits to the content material are to the sections relevant to the Semester 1 course, although some students (in Accounting & Law) did have access to the content for Semester 2 as well. By far the greatest interest was in the four modules associated with the main Semester 1 learning requirements. Those students from marketing who needed to complete a learning contract made more visits to that section than to any other, possibly because it was a less familiar concept. The "placement survival" module was made available to students who had not yet embarked on their co-operative education placement as well as to some placement students in one of the discipline areas. Overall, the figures show a reasonable level of access per student. It is expected that access to the later modules will increase significantly in Semester 2.

Table 3: Hits to content pages

Content area	Total hits (including students and all others)	Total number of students with access	Mean hits per student
Placement Survival	1298	656	2.0
About Organisations	828	212	3.9
About the Proposal	1020	212	4.8
Workplace Learning	1002	330	3.0
About the Learning Contract	650	104	6.2
Report	251	108	2.3
Portfolio**	84	0	
Moving on	231	108	2.1

** this section will be available to Marketing students in Semester 2. Hits so far are from staff and developers

The mixed mode application

The School of Business Information Technology adopted a team-based, hybrid model for the implementation of WIL. A face-to-face seminar was conducted once a month and complemented by a series of related online team-based forums. Each month the online team-based discussions focussed on some professional development theme where students, staff and alumni were encouraged to share stories, experiences, problems and achievements. Other areas of the online environment were used for announcements, administrative details and the shared online content modules for Placement Survival and Workplace Learning.

Staff reported that the online forums encouraged reflective thinking. These discussions had the effect of raising student awareness of their professional development. The convenience of the online media allowed all students (including those placed overseas) to contribute to the forums at any time from anywhere. Also the quieter and shyer students were far more "vocal" than in face-to-face class situations.

Using small group discussions rather than open forums for the entire class of over 100 students encouraged student involvement and gave a more manageable number of postings for the academic moderators.

The virtual team structure reduced the sense of isolation some students experience out on co-operative education placement. Previously there was no infrastructure for students in the workplace to talk to other students in other organisations. The online forums not only increased communications between colleagues but also had the additional value of widening the student's support and job prospects networks.

From the staff point of view, the online environment allowed for much faster communication with the student body in their workplaces, and enhanced the regular delivery of support material. Many more staff than previously were involved in the virtual teams. This resulted in greatly increased awareness of and communication about WIL among academic staff. These academics are now more able to refer back to the workplace experience when teaching into the final year of the program, thus better integrating the university and workplace experiences.

Fully online using discussion forums

The School of Marketing runs co-operative education for students in three different academic programs. The lecturer used the same Blackboard environment for all three groups. This allowed for sharing of announcements and administrative documents. All students will have access to the full range of online content resources in Semester 2 of their WIL studies. However, for Semester 1 they were only able to view the modules relevant to the first phase of the placement activities, namely Organisations, Proposal, Workplace Learning and Learning Contract. Separate discussion forums were set up for the three groups (See Figure 4). This meant that for example students in the Transport and Logistics degree could restrict their reading of discussion threads to those in their own discipline if they so desired, although it was possible to view contributions from all areas.
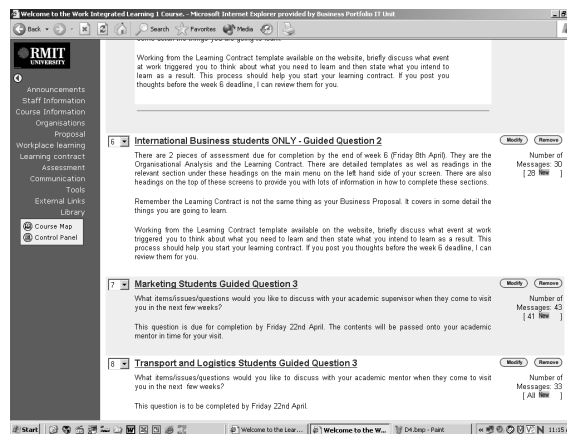
Figure 4: Examples of discussion forums

The academic coordinator spent about two hours each Monday and Friday moderating the discussion forums. She found that the use of open discussion reduced the number of individual email queries about the assessment tasks:

> When students were unsure of what was required of them in the assessment tasks, it was easy for them to
> see what other students were doing and to get into a discussion with both the other students and myself to
> brainstorm ideas.

The main benefit of the discussion forums was however the creation of a sense of community and a reduction in the feeling of isolation, particularly for those students who were working overseas.

A survey was conducted in 2004/2005 with final year students from the School of Marketing. One question posed: "Would online communication with other students have been beneficial during your co-operative year?" elicited a 70% 'yes' response. Most students stated that they would have appreciated support during the industry year, and found the link with the University poor while they were on their co-operative education year. The other highlighting feature from this research was that the 'best thing' students gained from their co-operative education year was the friendships in the workplace.

Both the online content and the regularly moderated discussion forums were implemented in response to this feedback. Evidence from the actual discussion threads is that students are communicating with each other and sharing reflections on different workplace cultures, as well as formally responding to the set questions from the lecturer. Students enjoy reading other posts on the website, and give encouraging comments to their peers in different workplaces. Over 80% of marketing students currently on co-operative education placement gave a positive response to the value of the online resources.

Online resources and administration

Staff in the third area, Accounting and Law, did not feel ready to embark upon fully online discussion in this first implementation of the project. They opted to link to six of the eight content areas, omitting the Learning Contract and Portfolio sections since these were not required for assessment in that program. They did however make extensive use of the announcements and course documents areas of the Blackboard site to post instructions, reminders, forms and other administration documents. There was a perceived need to make consistent and clear information available to all participating students. With a large number of student participants, many of whom have English as a second language, and several of whom are working overseas, the use of announcements and an online FAQ section was seen as a strong benefit of the project.

The administrative officer in Accounting and Law reported an 80% reduction from the previous year in the number of email requests for information. Students were also much better at handing in material on time, perhaps due to a combination of better communication and the ability to use the digital drop box.

> Written work was submitted close to the set date unlike in previous years where it was common to spend four months chasing up course work.

Twenty-nine students responded to a preliminary feedback survey administered towards the end of the first semester. The most highly rated sections of the online content were the Proposal and Report sections, with almost 90% of respondents rating them 'very useful' or 'extremely useful'. There was some criticism of the navigation used in the online content, with a few students not recognising the menu links at the top of some content pages. This was responded to immediately with the inclusion of a "how to navigate" document, which was highlighted in the announcements area.

Common staff reflections

The administrative staff from all disciplines involved with the program reported an increase in efficiency and transparency of the administration. For most there was a steep learning curve to use the online management system, but all responded well to the provided training. One quote sums up many responses:

> Personally I learnt to work as a member of a fully functioning team as well as how to use the Distributed Learning System, along with the benefits of online teaching. The anxiety of how it was all going to work left me as I saw the quality work submitted by students.

One consequence of the project has been a greatly increased collaboration across the different schools. People are interested in seeing what other groups are doing and how students in other areas are responding to the different styles of delivery. There is a sense of excitement and willingness to share and to try new ideas.

Conclusion

The analysis that precedes any design of online resources examines student and curricular needs, but it also must consider the teaching context in which the resources are to be used. A key feature of this project is that teaching and learning strategies varied from program to program. Initially this was seen as an impediment to the overall success of the project, but the design of the materials enabled the flexibility to support different needs.

The vicarious learning approach that has underpinned the design of these modules could be expanded in future iterations. Students using the resources currently have benefited from the experiences of previous students and could be approached in the future to make their own contributions to the student-voice component of the materials.

It is not simply the students who learn vicariously; lecturers and teachers do too. Teachers, administrators and university supervisors have come to the program with differing levels of time allocation, responsibility and facilitation skills. Through discussion with staff in other schools that are using the resources in different ways, there is increased awareness of alternative ways of using the materials. People are already thinking of ways to improve their delivery for 2006 with ideas shared with their colleagues.

It is beyond the scope of this study to comment on students' improved learning in the four areas identified by Dressler and Keeling (2004), that is, academic, personal and career benefits and work skills development. However, in the development of further iterations of the resources, aspects of these areas could be clearly targeted in the materials and research conducted to document student outcomes as a result of this focus.

The development of this comprehensive suite of online resources would not have been economical had it not been able to be shared across the different programs. By creating a system whereby modules can be selected and shared in differing implementations, we have produced a truly flexible resource.

The project is still evolving, and there will be many improvements to come. To summarise the benefits so far, they can be seen in three areas:

- the learning: provision of valuable online learning resources, in terms of content, activities and opportunities for students to communicate with staff and fellow students while on placement

- the people: the journey towards collaboration between academic and administrative staff in several schools, the portfolio co-operative education team and the development team, as well as the new learning involved for all about how the technology and the other parties worked

- the technology: innovative use of the new features of Blackboard and the web farm to enable a solution to a complicated set of competing requirements.

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