Promoting Industry Links in Higher Education to Enhance Teaching & Learning.

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Promoting Industry Links in Higher Education to Enhance Teaching and Learning: A Case Study

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ABSTRACT

This case study examines a range of options that were used to deliver an E-commerce unit at Edith Cowan University, using strategies to directly involve industry. These included using industry tutors, students designing and developing real industry projects, designing tutorial activities based on industry-relevant tasks and negotiating funding with the Department of Commerce of Trade for a presentation night that was attended by many industry representatives.

Keywords: Industry, Authentic Assessment, Higher Education, Cooperation

INTRODUCTION

While university-industry links have existed for some time, their relationship has intensified over the past decade, and is becoming more critical to both parties. More than ever universities are promoting research activities, training and consultancies with government and industry bodies. This comes at a time when universities are being forced to be less reliant on federal funding, while at the same time industry is becoming more aware of the benefits of forming relationships with universities. Within this new paradigm, how can faculty staff promote and develop the drive towards a university-industry nexus to promote teaching, learning, research and consultancies?

Universities have been recognised as being critical contributors to the creation, distribution and use of knowledge that is vital for the growth of industry (Hart, 1999). Also, there has been a substantial growth in industry related and commercial operations carried out by universities through their business units and commercial arms. Income from sources other than the Commonwealth has nearly doubled from 1992 to 1998, an increase of $1.3 billion dollars over this period (Kemp, 2001). This has encouraged many universities to strengthen their business operations, employing staff with entrepreneurial skills, and inviting industry leaders to sit on university council.

At the same time there has been a growing concern about the role of higher education institutions and how they are meeting the needs of employers. Increasingly, higher education institutions are being asked by industry, government and higher education funding bodies to produce graduates with versatile workplace skills, as well as subject-specific knowledge and skills (Australian National Training Authority, 1998; Bennett, Dunne, & Carre, 1999; Candy, Crebert, & O'Leary, 1994; Dearing, 1997; Mayer, 1992).
How can academics design courses that integrate these demands, involve industry, teach students the required content, motivate students and also promote the development of generic skills? This paper considers a range of strategies that were used to achieve these aims by involving industry at all stages of the academic program.

CONTEXT & BACKGROUND

There is an acknowledgement in the university and industry communities that it is necessary to bridge the gap between what was historically a general university education and the industry expectations of graduates (Goldsworthy, 1999). The idea of linking industry and university in terms of research and development and educational programs is not new (Zhao, 2000). Japan and the United States have been consistently improving and developing close partnerships with industry (Hane, 1999) and Australia “has a long and evolutionary history of the development of university-industry cooperative linkages” (Aylward, Garrett-Jones, & Johnston, 1996). The focus of this paper is not on developing research links, but providing strategies to develop educational and pedagogical strategies to help promote authentic teaching and learning practices.

Our students need to develop workplace problem solving, and transferable skills, which will provide the basis for developing contextual practice and further education. Changes in the workplace demand that workers continue to update their skills, especially technological skills, and increase their level of education and training. To address this higher education needs to equip students with the competencies, and abilities, to enter into the workforce as confident, enthusiastic, flexible learners, who have the necessary skills to become dependable multi-skilled employees (Carmichael, 1993; O’Brien & Hart, 1999).

Graduate attributes, industry expectations, new technology, and workplace demands need to be addressed in university courses. It is essential that the university system reflect the needs of students and society, including industry demands and expectations. What this means for universities are vital changes to pedagogical philosophies, curriculum content and direction, development of pragmatic learning environments reflecting current industry trends and innovation as well as integrating information communication technologies including online learning, to provide students with technological literacy skills. Employers will continue to see many young, disadvantaged job seekers, if educational change does not reflect industry demands (Hart, 1999).

In the political arena, a report from the Commonwealth Department of Education Science and Training titled “Higher education at the crossroads: an overview paper” identifies that higher education, specifically, university education as having the greatest influence and impact on Australia’s future generations (Nelson, 2002). The purpose of higher education, specifically university education is not just to provide job training but is regarded as “contributing to the fulfilment of human and societal potential, the advancement of knowledge and social and economic progress. The main purposes of Australian higher education is to:

1. Inspire and enable individuals to develop their capabilities to the highest potential;
2. Enable individuals to learn throughout their lives (for personal growth and fulfilment, for effective participation in the workforce and for constructive contributions to society);
3. Advance knowledge and understanding;
4. Aid the application of knowledge and understanding to the benefit of the economy and society;
5. Enable individuals to adapt and learn, consistent with the needs of an adaptable knowledge-based economy at local, regional and national levels; and
This has lead to the identification of eleven principles of for higher education including: value adding, learner-centred, high quality, equitable, responsive, diverse, innovative, flexible, cost-effective, publicly accountable and socially responsible.

**LEARNER-CENTRED FOCUS**

Education and training needs to shift its focus to customise and develop a range of programs and opportunities to meet the needs of students and expectations of industry (Scollay, 1999). Innovative teaching and learning environments, based on constructivist pedagogy, are also enhanced by creating strong, mutually benefiting industry links. Being responsive to community needs, client and industry stakeholders are integral to fostering industry-university collaboration.

This case study was designed in a learner-centred mode where students were encouraged to work independently and interdependently on collaborative, real world projects. The design of the unit, including its authentic activities, was based upon research that included student-centred or learner-centred pedagogical principles.

A focus of the following case study has been to engage with industry to enhance our student’s competitive edge and employability. It has provided opportunities for industry to have a significant input into the delivery of the unit that fosters a more active engagement between the interactive multimedia course and industry clients. Creating links with the community and industry should be considered part of the “core business, seen as being academically relevant and recognised as an important contribution to the overall role of the university” (Nelson, 2002, p. 23). There are concerns that expectations for universities to contribute to the growth of the economy may be unrealistic, and the “distortion of traditional academic values arising from links to industry” (Kodama & Branscomb, 1999, p. 3) and “university commercialisation efforts threaten traditional research and scientific values, and accepted norms of academic life including academic freedom” (Harman, 2001, p. 245). Universities are exploring and determining what their relationship with industry actually is even though many universities have over a number of years developed expertise and strong links with specific local industries especially in industrialized countries such as the United States, Germany and Japan (Kodama & Branscomb, 1999).

University-industry collaboration can be somewhat difficult to create and sustain as industry partners are constrained by time, economic and productivity factors (Brace-Govan, Farrelly, Joy, Luxton, & Davey, 2001). The following case study attempts to involve industry in all aspects of delivery.

**CASE STUDY**

These principles were applied in the development of a final year unit at Edith Cowan University, ‘IMM 3329 Multimedia Business Solutions’. This unit covers the general fundamentals of e-business principles, and applies them to the specifics of the multimedia industry, and in turn the wider industry that the multimedia business serves.

**Industry Tutors**

Creating successful university-industry links requires both stakeholders to have a strong desire to improve educational outcomes. Edith Cowan University has a strong presence in the provision of training and collaborative activities with the service industries such as hospitals, police, entertainment and tourism. As this e-business unit has evolved over the last three years, opportunities have emerged with industry groups to widen the sourcing of industry tutors for the teaching unit.

After locating appropriate industry tutors and links, the final selection of industry tutors was based upon developing a ‘win-win’ strategy. The e-business unit, because of the nature of the subject matter, required tutors that were innovative, enterprising, motivated and willing to interact with students in a collaborative manner. Tutors would sometimes change classes for a few minutes, to share their
different backgrounds and knowledge within different classes. The tutors were from the following industries:

- The e-commerce manager of a major international resort complex;
- The owner-manager of two multimedia businesses;
- A consultant in enterprise-wide e-business systems from a major international consulting group;
- The e-procurement manager of a major international resource company; and
- The commercial manager (with significant SAP experience), of a mining company.

Occasionally, tutors would present part of the lecture on a relevant topic, to incorporate their knowledge and experience. In addition, guest lecturers from other industries, when available, were invited to present to the class.

The general criteria that was used to help make decisions about selecting tutors for this unit include:

- Tutors require current experience in the field;
- Their company is innovative, aims for best practice or leader in the field;
- The tutor has a desire to mentor and share professional knowledge with students;
- The tutor sees value to their own personal growth and knowledge acquisition in being involved in an academic role;
- The tutors see the benefit in contributing and enhancing students opportunities for employment, work experience, and cadetships;
- Having an open and flexible approach to the teaching environment, in which they are receptive to the students’ ideas and feedback i.e. having appropriate interpersonal skills; and
- Desire to be involved in course design and influencing the industry relevance of the unit.

**Authentic weekly activities**

Each week the activities included an authentic business case study that provided an exemplar of an e-business issue. A discussion session at the end of each lecture reviewed whether the relevant issues were resolved in the real world business case presented, and importantly, how these were resolved. Each weekly lecture was followed by a two-hour laboratory tutorial. The laboratory tutorial exercises utilised real world e-business examples specifically selected to illustrate key concepts, and in particular, to illustrate the processes involved with planning, starting, and marketing a new e-business. For example:

"Investigate the process used by Jeff Bezos in founding Amazon.com. Still extremely successful after 10 years even though he has never made a profit”.

Students were given one hour to research this, and produce a one-page summary of the topic. The general criteria that was used to help integrate current industry knowledge and skills in the design and delivery of authentic weekly activities:

- These represent regular assessment points that are submitted at the end of each tutorial, and over the semester represent 20% of the total marks. The tutor (industry) performs the assessment.
- All the weekly activities reflect industry practice – case studies. Is a case study where students search for information and synthesise into a solution
- Students need to see the industry relevance – must be proved. Must be authentic to the students
- Current and relevant activities that support interaction between the students i.e. can discuss ideas while preparing a solution. In the following week, the tutor discusses the results and gives feedback.

**Authentic projects**

The projects were designed to reflect industry practice, and provide an authentic context to enable students to see the real world relevance of the project. The students worked in project teams to produce business plans for industry clients. The deliverables included:
An e-business plan, using an international template, enhanced by the specific suggestions of the industry tutors;
An integrated B2B or B2C web site with an Internet “front end”, integrated to the enterprise “back end”, containing customer relationship management, purchasing, invoicing, and credit and debit control issues, plus human resource management; and
A formal public presentation to industry in a competitive environment with students from the Management Information School.

The general criteria that was used to help integrate current industry knowledge and skills in the design and delivery of authentic projects:

- Provide authentic projects from the industry and government, to allow students to experience real world practice;
- Select clients that understand the scope of academic projects and provide the required support and content for students;
- Select projects that meet the assessment requirements of the unit;
- Provide appropriate scaffolding such as legal templates, professional interaction skills, time management, project management, and budgeting; and
- Make contacts through “cold calling”, professional associations and networking.

Examples of authentic projects included:
- Smart-E-party
- e-Pies
- e-Dinner
- e-Drilling Quotes
- On Line Debt Collection
- Perth Short Term Property Rentals
- MyNurse.com
- e-Funerals (pick-a-box)
- Aqua Eco
- Entertainment on line
- Possibilities….. (e-Hookers)
- BillDoctor.com
- OzThings.com

Presentation night

A presentation night was facilitated by a $10,000 grant from the Department of Commerce and Trade. Approximately 400 representatives attended the event that showcased student e-business enterprise, and entrepreneurial skills. Sponsors were selected to give prizes to the best project teams with the best e-business plans. The general criteria that was used to create a successful presentation night incorporating industry support and opportunities for networking and collaboration:

- Obtain funding for advertising from government and industry to host the presentation night;
- Provide opportunities for employers to view student projects and meet potential recruits;
- Have wide industry representation on the presentation night;
- Use industry representatives to adjudicate the presentations;
- Provide a social session as part of the presentation to allow attendees to meet presenters with some light refreshments; and
- Provide industry-sponsored prizes for the best products.

FEEDBACK
An evaluation questionnaire was administered at the end of the presentation night. Students were asked to comment on their perceived validity and usefulness of the unit. An analysis of student responses provided consensus that the unit was useful for:

- Enhancing employment opportunities;
- Generating business ideas for own business; and
- Providing an understanding of business expectations from potential employers and clients

Some sample comments from students included:

- “Hey! I got a job offer from those “suit – people” at the end of the presentations!”
- “This is the most useful subject I’ve ever done!”
- “We should do this earlier in the course, it would help us immensely!”

CONCLUSION

As the requirements for industry-university collaboration increases it is necessary to develop and maintain effective mutual relationships. This paper aims to provide some strategies to help academics integrate industry practice in the design, development and delivery of units in higher education as follows:

- Industry tutors – require current and relevant experience to the unit, be part of an innovative company and be a leader in their field. The tutor sees the mutual benefits of being involved with the university and also has a disposition to teaching and learning and interpersonal skills;
- Authentic weekly activities – designed around weekly assessment points, which are case studies that clearly reflect industry practice. Students are required to individually research information and discuss with their peers, and submit a one-page summary by the end of the tutorial that reflects industry practice. These are assessed by the tutor and discussed in the following week, relating back to an industry context;
- Authentic projects – selected from clients that understand the scope of academic projects and requirements of the unit, and also provide students with real world experience; and
- Presentation night – if possible obtain funding to advertise the event widely. Encourage as many industry representatives as possible to attend, and provide sponsorship for prizes. Also, use industry representatives to adjudicate the presentations, and provide opportunities to socialise and make contacts during the night.

REFERENCES


