Building Employability Skills in ICT Master Coursework Curriculum

Fazel Naghdy
University of Wollongong, Wollongong, Australia
fazel@uow.edu.au

Alison Hayes
University of Wollongong, Wollongong, Australia
amh304@uow.edu.au

Emily Purser
University of Wollongong, Wollongong, Australia
epurser@uow.edu.au

***Abstract**: Development and delivery of a subject called Employability Skills and ICT Workplace Practice, targeted at international students taking Masters of Engineering Studies is reported. Almost all of the students are international with a desire to stay and work in Australia. In practice however, seeking professional employment in Australia has proved quite challenging for many of these students. A study conducted by the Australian Chamber of Commerce and Industry identifies certain 'soft skills' in demand by employers. These include: initiative, communication, teamwork, technology, problem solving, self-management and planning. The learning objectives of the subject are designed to further develop and enhance such skills. The design and structure of the subject are described. The evaluations conducted on the first delivery of the subject strongly indicate that the learning objectives set for the subject are achieved and a high degree of student achievement and satisfaction is obtained.*

Introduction

Almost all students enrolled in the coursework Master Degrees offered in the Faculty of Informatics, University of Wollongong are international students. The majority of these students are eager to stay and work in Australia after their graduation. The available evidence shows that finding professional employment in Australia is quite difficult for these graduates. Failure to secure employment is partly due to their lack of what has been recognised as the employability skills within Australian workforce market.

In order to address this challenge, a pilot project has been underway at the School of Electrical, Computer and Telecommunications Engineering (SECTE), University of Wollongong. In this study, a new subject called Employability Skills and ICT Workplace Practice, targeted at international students taking Masters of Engineering Studies has been under development. The study draws on research by the Australian Chamber of Commerce and Industry that identified certain 'soft skills' in demand by employers. These include: initiative, communication, teamwork, technology, problem solving, self-management and planning.

The subject runs over one semester, with shared teaching by the university's Career Services and The Learning Development team as well as SECTE Academic staff. It uses the model of a virtual workplace to integrate different aspects of the course, stimulate teamwork among the students and encourage language development. Following the first four weeks of lectures and workshops, where

they learn how to hunt for jobs and prepare a resume and covering letter according to employer expectations, students apply for a job in one of three electrical engineering companies. Then, after an assessed mock interview, they enter the virtual workplace. From here on, students take on role model scenarios in their 'companies', while building language and communication skills, particularly with a view to self-evaluation and continual development. The course features regular assessments including weekly contributions to an online learning journal and group discussion forums, culminating in a group oral presentation as well as a written policy-scoping document.

For the first time, the subject was delivered in Autumn session of 2009 to 40 students. The formative and summative evaluations strongly indicate that the learning objectives set for the subject have been achieved. The continuous assessment of the subject and the survey demonstrate a high degree of achievement and satisfaction.

This paper provides a report on this significant development. As well as providing an overview of the subject development and delivery, the paper provides a critical analysis of the survey results and highlights the significance of the contribution made by this work.

Background

The available evidence indicates that finding professional employment in Australia is quite difficult and challenging for international students. Failure to secure employment is partly due to the lack of what has been recognised as 'employability skills' within Australian workforce market.

The study conducted by the Australian Chamber of Commerce and Industry in 2002, indicates that employers seek a series of personal attributes in addition to technical knowledge and skills (Australian Chamber of Commerce and Industry, 2002). Such attributes are referred to as Employability Skills and are defined as "skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions." Employability Skills are not job specific and "cut horizontally across all industries and vertically across all jobs from entry level to chief executive officer." (Sherer and Eadie, 1987).

Employability can be distinguished from employment as education from training (Cox and King, 2006). It is the capability to acquire the necessary skills to do a task rather than having the necessary skills upon graduation without further training.

Reports on graduate employment indicate that the employers are generally not satisfied with the employability skills of university graduates at entry levels (Cassidy, 2006). The graduate generic skills are perceived more important than technical skills by employers and valued over them (Cotton, 2001). Literature shows similar observations in other countries. In a major study conducted by Harvey et al. (1977), graduate employability was identified as a major concern for employers. According to the report from the UK Industry and Parliament Trust's Study group on employability, "employers are not satisfied with quality of young people and graduates coming into the labour market." (Clarke, 1997).

In a study conducted by the Department of Education, Science and Training (DEST), the Australian Chamber of Commerce and Industry (ACCI) and the Business Council of Australia (BCA), the following list of employability skills (Department of Education, Science and Training, 2006); sometimes referred to as 'soft skills' are identified: initiative, communication, teamwork, technology, problem solving, self-Management, planning, learning. The study has also identified various ways that each skill can be manifested and practiced as provided in Appendix A. There are some overlaps between these skills and the graduate qualities defined by University of Wollongong.

There are diverse views expressed in the literature on the most effective method of building employability skills in students. The major debate has been on whether such skills should be taught separately or can be integrated into the curriculum as a holistic approach. For example, Graham et. al. (1993) suggests that the best approach to transfer employability skills is to include them in the instructional goals and explicitly teach them. On the other hand, there is a group of educators who assert students develop such skills as they go through a course. A third group believes that some of these skills such as critical and creative thinking, positive attitude, and cooperation are not teachable.

Empirical research, however, shows that employability skills and generic qualities can be systematically taught (Stasz, et. al., 1993). The teaching and learning processes can be more effective when the acquisition of those skills is explicitly defined as the learning objectives of a program along with technical skills.

Democratic instructional methods such as role playing/simulation, problem solving, and group discussion encourage students to explore their own attitudes and tendency without supporting a particular outcome (Gregson, and Trawinski, 1991). Indoctrinational instruction, on the other hand, discourages students to have input and raise questions.

According to the literature, there are a number of factors which contribute to successful introduction and teaching of employability skills. They have been summarised by Cassidy, S. (2006) as:

- Instructional method,
- Teacher attributes
- The inclusion of skills acquisition as an explicit learning goal,
- Student involvement and activity
- Relevant context and student responsibility and autonomy

Based on the background provided earlier, embedding employability skills in a degree can be considered as bridging a gap between industry and academia Neumann, B.R. and Banghart, S. (2001). This axiom is deployed in this proposal to develop a strategy to achieve the objectives set.

Approach

Both technical and generic attributes and qualities that a graduate should acquire during completing a degree forms the basis of the curriculum and subjects designed and developed for that course. While there is sufficient time and opportunity in an undergraduate degree to work towards accomplishing these qualities through the project subjects, Master postgraduate coursework degrees are relatively short in duration with most of the attention going into building technical knowledge and skills. Working within this constraint, it was decided to design a core subject for the degree with focus of enhancing the employability skills of students.

The work started with a deeper review of the literature. In particular, examples of subjects being taught with focus of employability or soft skills and communication were identified and considered. As a result of reflection on the findings of the review and considering the needs of typical international postgraduate students enrolled in the degree, the following major learning objectives were identified for the subject:

- Enhancing the spoken and written communication skills of students
- Building confidence in students to participate in discussions and express their views
- Familiarising students with the Australian workplace culture, job-hunting methods, resume writing and interview skills

Such objectives can be achieved only when students are active participants in learning processes. It will require their personal thought and reflection and opportunities to express themselves in both spoken and written communications during interaction with others. This was achieved by creating a dynamic learning environment as well as formative and summative continuous assessments. Accordingly, he following components and activities were designed for the subject:

- e-learning and online activities
- Role plays
- Journal activities/ reflective & writing practice
- Group work
- Mock interviews
- Industry visits/talks/guest speakers

The subject was delivered over a session of 13 weeks, with 4 hours contact time per week. The session was divided into three sections. In the first part, which took place between weeks 1-6 students were introduced to workplace practices, resume writing and interview skills.

Three virtual companies were set up based on the majors studied by the students. They were also asked to apply for jobs announced in the virtual companies and were interviewed for the jobs in week 6. Week 7 to 12 had its focus on communications skills. One of the tasks students worked on during this period was developing a group presentation. This was delivered in week 13.

Survey Results

In order to measure student achievement and satisfaction, an evaluation was conducted at the end of the session. Feedback from the 38 students that completed the survey is overwhelmingly positive. As a result of taking the course they have a greater sense of belonging to the school (78% either agree or strongly agree); they've learnt a great deal about Australian Culture (92% agree/strongly agree); have developed friendships with other students (89% agree/strongly agree, 42% 'strongly'); three in four feel integrated in university life and almost two in three are more confident in talking to faculty staff.

When it comes to the aims of the course, those too are being met for the vast majority of the students. 78% have a better understanding of how to communicate effectively to individuals; 84% have a better understanding of how to communicate effectively to groups. They are also more confident in using English, whether it's electronic media (81%), speaking (75%) or writing (61%).

Among good points of the course, students mention opportunities to practice English, receive feedback from staff, being encouraged to improve language skills, working as a group and the oral presentation.

Students report difficulties such as being nervous in a presentation or not being sure about an assignment. The most common ways these were resolved were talking to groupmates or asking staff and 'practice'.

Looking at the different elements of the course, the e learning site was popular, with 50% of students agreeing it was 'really useful and relevant', and a further 39% seeing it as 'fairly useful and relevant'; the learning journal too was considered a useful and relevant part of the course. 43% put it as 'really useful and relevant' (with a further 32% 'fairly useful and relevant'.) 81% of students found the discussion forum useful and relevant.

The virtual workplace module clearly needs improving. 22% of students found it irrelevant and not useful (this represents 8 students); one in four had no opinion on it, while 55% thought it either 'fairly useful' or 'really useful'. Suggestions for improving the workplace set up focus on giving better instructions, setting tasks and more active moderation from staff.

Other suggestions for improvement included providing more opportunities for speaking/presenting. A summary of responses given to some of the questions in the evaluation is provided in Figure 1.

Conclusions

The work conducted on developing a subject to teach workplace practices and enhance the communication skills of international students enrolled in an Engineering Master degree was reported. Evaluation conducted on the subject indicates that the learning objectives set for the subjects were achieved. In addition, the subject has resulted in better cohesiveness among the students through interaction in group work activities. Students have also developed a strong sense of belonging to the degree and university which was previously identified a challenge to achieve among postgraduate international students.

The evaluation also points to some weaknesses and deficiencies that should be addressed in the next delivery of the subject. For example, some of the assessment tasks should be better defined. Students also need more opportunities to develop presentation skills.

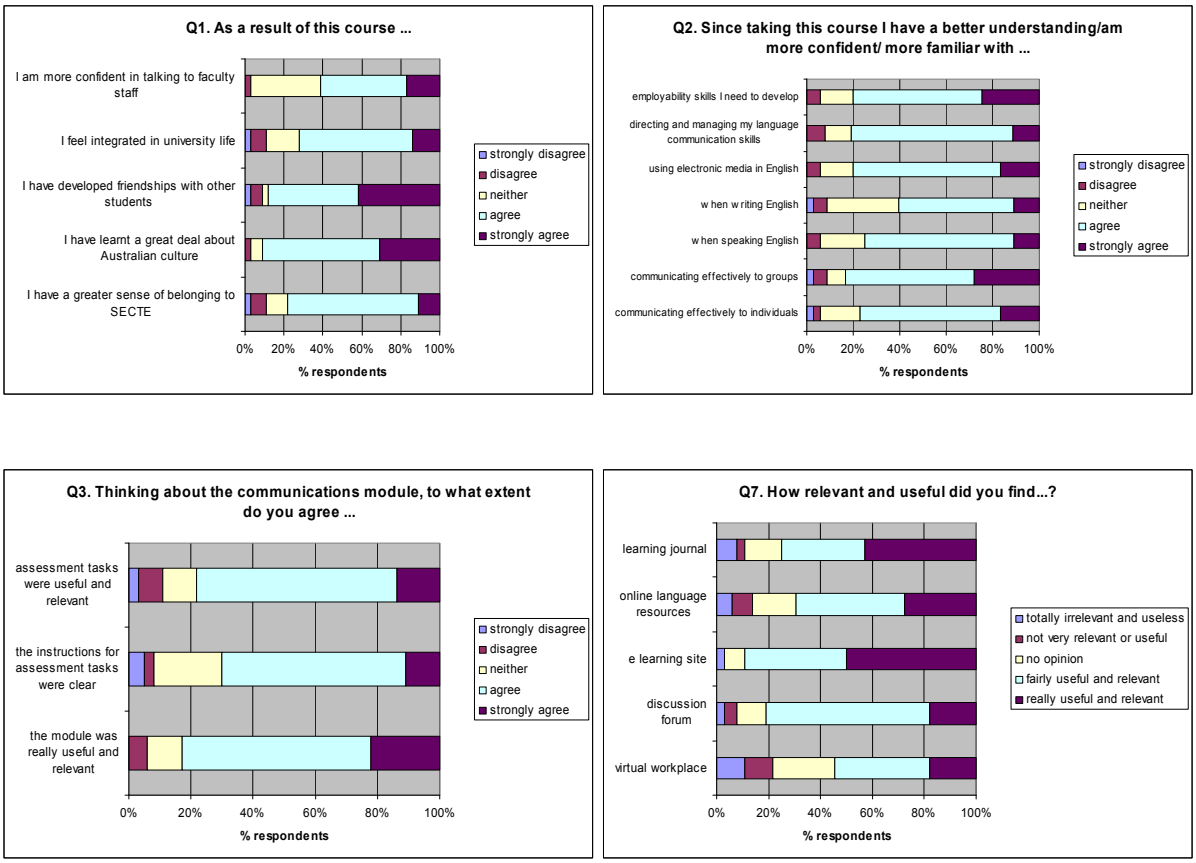

Figure 1- Responses to some of the questions in the evaluation

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