2007

Producing Graduates with Essential Generic Skills: A Model for Teaching and Learning

Joseph Luca
*Edith Cowan University*

Deanna Heal
*Edith Cowan University*
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Joe Luca, Edith Cowan University, Australia
t.luca@ecu.edu.au

Deanna Heal, Edith Cowan University, Australia
d.heal@ecu.edu.au

Abstract: Higher education institutions are under increasing pressure from government, industry and business organizations to equip students with required discipline based skills as well as generic skills. At the same time universities are experiencing cuts in resources and increased competition for student numbers. Within this environment, there is much uncertainty as to how to effectively prepare students for the university/industry nexus.

This paper investigates the effectiveness of a teaching and learning model designed with the key aim of helping promote students’ employability prospects. The model focuses on providing activities that identify, and help improve students’ job-specific and generic skills. In this study, a group of final year multimedia students were used, and their opinions were monitored.

Introduction

In response to government and industry pressure, higher education institutions have been striving to meet the employability criteria identified initially in the Mayer Key Competencies since 1992. In order to keep pace with this rapidly changing workplace environment the Framework for Employability Skills was undertaken by DEST in 2002 to build on this former work. The report indicated that business and industry now require a broader range of skills than the Mayer Key Competencies framework provided. It also highlighted the requirement for more specific personal attributes that were not part of the Mayer Key Competencies. Qualitative research was gathered from a cross section of industry encompassing 40 SMEs and 13 detailed case studies. The findings determined a set of key personal attributes, such as loyalty, commitment and reliability and a broader range of employability skills. These were found to be transferable between organisation types. These skills are:

• Communication skills that contribute to productive and harmonious relations across employees and customers;
• Team work skills that contribute to productive working relationships and outcomes;
• Problem solving skills that contribute to productive outcomes;
• Initiative and enterprise skills that contribute to innovative outcomes;
• Planning and organising skills that contribute to long and short term strategic planning;
• Self management skills that contribute to employee satisfaction and growth;
• Learning skills that contribute to ongoing improvement and expansion in employee and company operations and outcomes; and
• Technology skills that contribute to effective execution of tasks. (DEST, 2002)

Of paramount significance was the fact that employers felt that, “the employability skills identified are as relevant as job-specific or technical skills.” (DEST, 2002) However, there is no national framework for universities to apply these key skills, so individual institutions have selected what they deem to be the key graduate attributes. Edith Cowan University has identified 10 graduate attributes. These are:- Awareness of Political, Social and Ethical Issues; Communication; Enterprise, Initiative and Creativity; Internationalisation, Cross Cultural Awareness; Problem Solving, Decision Making; Professional Knowledge; Service; Teamwork; Use of Technology, Information Literacy; and Workplace Experience in Industry. Also, significantly there are no guidelines as to how to integrate these employability skills into existing teaching materials. How then should this be achieved and how successful are we at bridging the nexus between graduate abilities and employability needs?
Authentic Context

A great deal has been written about authentic context and situated learning. It is now a commonly held belief that learning is greatly enhanced by making it more meaningful, relevant and allowing learners to construct their own meaning. Learning designs need to incorporate student-centred learning pedagogy such as project-based, case-based, inquiry-based and problem-based scenarios (Oliver, 2001). Students need to be immersed in learning environments that promote real learning in real contexts. As promoted by Biggs (1999), Candy, Crebert & O’Leary (1994), Gibbs (1992) and Ramsden (1992), an emphasis on process, rather than subject content is needed to help develop generic skills. Learning environments with a focus on the learner activities are replacing the more traditional didactic methods of teaching in higher education institutions.

Similarly, people learn something if it helps them achieve a goal (Schank, 1997). According to Alessi (2001) learners are active creators of knowledge, who learn by observing, manipulating, and interpreting the world around them. Similarly according to Park & Hannafin (1993) learning should be based in real-life situations to improve outcomes. This is tied closely to the theories of adult learning where adults learn in the most meaningful way when the learning is anchored to their everyday lives (Knowles, 1980), and learning is intimately related to the world and affected by it (Jarvis, 1987). Situated approaches to learning environments put the emphasis on how learning should take place, which is through the exercise of skills and knowledge within an authentic context or anchoring knowledge in the real-world.

This pedagogical approach is further validated by the DEST report. Interviewees were asked their views on the role of education and training in developing employability skills. One of the recommendations that came out from those interviewed was to “link skills to their application in a commercial context” (DEST, 2002). One interviewee commented, “Higher education can be a “content dump,” with not nearly enough opportunity to practically apply and integrate the theory. More use should be made of work-based projects. That is the best way to learn important skills like time management and prioritising, and to develop business acumen.” (DEST, 2002; Field, 2001)

This relationship between contextual setting of the key employability skills, personal skills and organisational goals and is illustrated in Figure 1. The respondents also advocated a “facilitative and partnering role” between enterprise and educational institutions and felt that graduates should be aware of the breadth of jobs that existed in their industry. Again the model developed from this research (Figure 1), attempts to address these issues by having students work with real clients on a real project. Industry and government representatives are invited to speak to the students about what is going on in their industry and the type of work available and give valuable advice on how to best prepare themselves to meet workplace requirements.

Figure 1: A Model of Employability Skills (Field, 2001)
e-Portfolios and SAOs

The ACER report (Curtis & Phillip, 2001) describes as a push-pull strategy in implementing employability skills (Figure 2). It shows that industry is providing the pull (a demand for evidence of employability skills), which is putting pressure on educational institutions to implement, and more importantly, to provide assessment of these skills. The important point here is that industry is seeking evidence of employability skills from prospective employees. The DEST report for 2006 highlights ways in which institutions might deliver and provide evidence of their achievement to industry. It recommends assessment tools that: generate a range of evidence over a period of time from a variety of applications; empower those being assessed to take more responsibility for collecting evidence and presenting their portfolio; collect evidence that assists assessors to infer the attainment of less tangible soft skills such as analytical skills, creative thinking and complex problem solving.

![Figure 2: Push-pull strategy in the implementation of employability skills (Curtis & Phillip, 2001)](image)

However, as pointed out in the ACER report in the final item, it is difficult to provide evidence of less tangible soft skills. This is corroborated by work by Dr Janet Barker who has been running a series of workshop to try to improve students’ PDP (personal development skills). “However, our experience of running a HEFCE funded project ‘Promoting key skills through the use of portfolios’ showed that students did not automatically acquire the skills required to keep a portfolio of evidence, and that while students may have been taught a set of PDP skills, there were often very few opportunities for students to apply their employability skills in practice.”

It appears that even though portfolios are used widely, their actual value and how they are deployed is questionable. This is where the use of SAOs (Situation, Action and Outcome) play a useful role in providing evidence required by employers for soft skills. They provide students with a framework upon which to reflect on a determined skill, such as interpersonal skills and then decide on how they can provide evidence of this. They are required to think of a Situation in which they found themselves where they had to use the skill, what they did, the Action and what was the eventual Outcome, following their actions. This enables them to consider, what otherwise could be a very difficult concept.

In order to further assist and scaffold this process role-plays were introduced that demonstrated good and bad techniques for a particular skill set. According to the Cognition and Technology Group (1990) the role of the student in anchored instruction activities should include observation of some events, such as watching a video, verifying the accuracy of some information, looking for clues, and applying those clues to solving a problem. Role-playing allows students to reflect on their performance and determine what is a good or bad approach to a specific task. Using role-play to practice, helps to facilitate skill acquisition (Anderson, 1983), applying skills toward achieving a specific goal provides a context in which those skills are useful (Bransford, Sherwood, Hasselbring, Kinzer, & Williams, 1990; Collins, Brown, & Newman, 1989).
Students were asked to first critique the bad scenario, were provided with some research on the area for discussion and were then asked to reflect on the good role play. This enabled them to conceptualise each skill and reflect on when they had demonstrated such skills or areas where they might adopt some of the techniques to provide themselves with new SAOs.

This is similar to another system adopted by the federal government in WA and many employers, the STAR system, which stands for Situation, Task, Action, and Result. Either approach provides concrete evidence of the application of these generic skills. (Department of the Premier and Cabinet, 2006)

A Model to Help Promote Student Employability

The model adopted in this study has been developed over time and anchors learning in authentic settings that attempts to integrate a selection of employability skills, known as graduate attributes, into an integrated model, which improves technical prowess and provides real connections with industry. Particular emphasis is made on teamwork skills within this unit, and looks specifically at: active listening, interpersonal skills, decision making, interdependence and confliction resolution as these were seen to be essential elements of teamwork following previous research. (Luca & Heal, 2006) More importantly it aims to produce an evidence-based portfolio to demonstrate both the job-specific or discipline based skills and generic skills to prospective employers.

The key design goal of the learning environment is to develop and promote an authentic context that provides real and tangible benefits for the students. Students create an authentic CV item, e-portfolio, SAOs and reflect on their skills gap. It is an opportunity to identify their strengths/interests as part of a multimedia development team, e-portfolios are used as the basis for evidencing soft and discipline based skills. A portfolio is deemed to be an efficient means to achieve this aim as “it focuses on growth and development over time and can be seen as a concrete representation of critical thinking and reflection of skills and achievements; implemented through the selection of evidence for goal setting and self evaluation and therefore ongoing professional development” (Barrett, 1999, 2000).

The model (Figure 3) combines critical elements that help students prepare for industry and employment as follows:

- They consider their job aspirations, or within the discipline a specialiality. For example, in multimedia students can elect to specialise in animation, graphic design, programming, project management, media development or instructional design;
- They then scan job advertisements, talk to industry representatives, guest speakers and career counsellers to identify required skills;
- They then consider how to “bridge the skills gap”. This requires identifying the correct project, as well as the correct team role, in which they may be required to learn new skills;
- An authentic learning environment is promoted to help students engage in developing these skills, which may be using a new software package to build a website, or to further develop a particular generic skill, such as leadership or communication skills; and
- The portfolio is then used as a repository to collect artefacts for discipline based skills as well as evidence from SAOs for generic skills.
Context of the Implementation

The School of Communications and Contemporary Arts at Edith Cowan University offers a major stream in Interactive Multimedia. Students in the final year of this course come from a variety of disciplines including graphic design, programming, business, public relations, advertising, photomedia, film and television, media studies and so on. They are required to complete two units, IMM3228 “Project Management Methodology” in semester 1, and IMM3330 “Industry Project” in semester 2. Skills learnt in the first semester are then applied in the following semester with industry clients. Both units are designed to encourage the development of graduate skills, as shown by the units’ learning outcomes:

- “Apply a range of project management and generic skills appropriate to the development of multimedia projects including time management, collaboration, communication, self-assessment, peer-assessment, task management, problem solving, information management and learning to learn skills”; and
- “Make a significant contribution to a team-based multimedia development project”.

Project work is integral in both of these units and students liaise with clients to scope, design, develop, evaluate, cost, schedule and track projects, reporting on discrepancies and developing documentation that has direct relevance in the industry. The final product and documentation is hosted on a university server for students to use as an electronic CV to enhance employment opportunities. The web site contains the project name, description, team members, their roles, web site URL, and documentation. (Edith Cowan University, 2006)

Teamwork is carefully structured to allocate clear and concise responsibilities in a fashion that supports the development of important professional skills (Collis, 1997; Klemm & Snell, 1996; English & Yazdani, 1999). Students are encouraged to select own teams and roles based on their skills and aspirations for future employment, and are required to negotiate:

- **Team role** - each team requires a project manager, graphics designer, programmer and instructional designer. Roles could also be shared, combined or created (e.g. media designer, content developer, evaluator and tester). These details were negotiated and finalised in the first two weeks of the semester; and
- **Project topic** - selected by students to enhance their skills, though considered for suitability by tutors i.e. team roles, client, clearly achievable objectives value of final product;
- **Clients** - team members considered how to approach clients and establish what commitment and input they would give the project. The client was requested to pass comment on the quality of the final product.
The IMM3330 students are seen as an ideal sample set as they have a real need to develop their skill sets and find employment on completion of this unit. They need to be as fully informed as possible as to the current workplace activity and how best to prepare for this. Therefore, the structure provided should be highly relevant to their needs and also will assist them in providing the sought after evidence based materials needed by prospective employers.

Students involved in these units are effectively role-playing in their teams as they conduct themselves as a business, with team roles and responsibilities and take on a particular role for example, the Project Manager or Graphic Designer. The degree of authenticity that the students apply to this task appears to have a direct impact on the end result in that the students that set up a business with logos, brand, rigid procedures etc. tend to perform better than those that just approach it as another student project.

**Design of the Learning Environment**

The first process the students undergo on entering this unit is to consider what specific role they wish to perform and to form teams that reflect complementary strengths, so they should have a Project Manager, Programmer and Graphics Designer and maybe other roles such as Instructional Designer or Media Collector and so on, but they need to ensure that within their team they have the required expertise to match their elected client project. Aligned to the model shown in Figure 3, the learning environment promoted the following:

- **Real industry projects and clients** – students work with real clients on professional projects. Some of these are published and allow the students to showcase their work to prospective employers as completed industry standard projects such as websites on the world wide web or DVDs that have been published and professionally packaged. Students request permission from their client to add their credits to their work.
- **Contract for team roles and accountability** – once students decide on their roles and join a team they negotiate with each other on their respective roles and tasks, level of commitment in hours and enter a contract with one another based on this. They also formulate a Team Agreement, which details such matters as weekly meetings, communications procedures and disciplinary procedures. This at least gets the students to consider seriously and reflect on their responsibilities both to themselves and to the team.
- **Industry Employers as guest speakers** – guest speakers are invited from government and industry to speak about specific career opportunities, workplace requirements, current trends and so on. Previous students are also invited to speak to the students to make it even more realistic to them. The students this year had taken up a position of Project Manager, for one of Perth’s leading website design companies, progressing from a Graphic Design position taken up on graduating from ECU and another two students talked about the successful start up of a website design company, discussing the the highlights and pitfalls and what students need to do to prepare themselves for entering the workplace. Each session was followed by a question and answers session, which sometimes was more valuable for the students.
- **Industry associations and Web Awards** – students are encouraged to network within their chosen profession and students are introduced to several of the major associations in Perth and WA. The Director of one of the leading website associations, Port 80, addresses the students each year and encourages them to participate in meetings and to use the opportunity to speak to prospective employers. Exemplary websites are entered into the WA Web Awards and the students are encouraged to design the websites based on the criteria upon which these websites are judged. These standards conform to industry standards and protocols. It is felt that this all gives the students authentic context for their work and provides an industry framework for quality in their productions.
- **Industry Presentation Night** – this is attended by all groups and allows the students to showcase their work to their peers, clients and other industry representatives. This gives them a platform to present their work in a professional manner. Students are encouraged to treat this as a job opportunity and are given presentation guidance before event. Quite often students turn up in suits and present at a level far superior to what they do with informal prototype demonstrations to their peers. They really set up to the clients and other industry representatives. This gives them a platform to present their work in a professional manner. Students are encouraged to treat this as a job opportunity and are given presentation guidance before event. Quite often students turn up in suits and present at a level far superior to what they do with informal prototype demonstrations to their peers. They really set up to the client to add their credits to their work.

**Methodology**

The students formed themselves into 13 groups of 3 to 4 students. The sample size (number of respondents) was 19 and volunteered from IMM3330, the Industry Project unit. Students were based over 2 campuses. Students underwent a series of lectures on evaluation, which was built upon from the previous Methodologies unit, as well 5 sessions covering 5 generic skills, communications (active listening), interpersonal skills, interdependence, decision making and conflict resolution. These were approached in the form of demonstration of a bad role-play, presentation of some theory and discussion time and then the demonstration of a good role-play. Students were then asked to reflect on where they could demonstrate these skills or situations where they could apply these skills and then develop their SAOs as evidence of their application.
During this time on a periodic basis outside speakers addressed the students and then took a question and answer session to allow the students to maximise the benefit of these sessions. Throughout this time students were working on their projects and periodically meeting with their clients. Each week the student tutors would meet with the teams to ensure that the students were on track and to oversee any issues that arose. The culmination of the unit is the Industry Presentation Night where students showcase their final work to their peers, the clients and other industry representatives.

The research aim was to test the validity of the model and its effectiveness to improve employability skills. Therefore, students were surveyed at the end of the unit to give feedback on their experiences and how effective they believed each area of the model to be as well as the whole learning environment.

The questionnaire was based on 8 quantifiable questions, where students could rate a component of the model, for example, on a likert of 1 (poor) to 10 (extremely good). To attempt to validate this data, as the sample was relatively small a series of qualitative questions were also included to attempt to reinforce the findings.

Results

Of the 19 students who completed the questionnaire the following results were obtained. These were based on a likert of 1 to 10, where 1 was poor and 10 extremely good.

Table 1: Quantitative Results

<table>
<thead>
<tr>
<th>Results (n. = 19 total sample)</th>
<th>Total</th>
<th>n. actual responses</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>How effective were the Role -play activities in helping you develop life skills and prepare you for your future career?</td>
<td>131.5</td>
<td>19</td>
<td>6.9</td>
</tr>
<tr>
<td>How useful did you find the preparation of SAOs for e-portfolio to provide evidence of life skills for future employers?</td>
<td>128.5</td>
<td>19</td>
<td>6.8</td>
</tr>
<tr>
<td>How useful did you find developing a resume and e-portfolio for employability?</td>
<td>141</td>
<td>18</td>
<td>7.8</td>
</tr>
<tr>
<td>Peer feedback (rapid prototype sessions)</td>
<td>135</td>
<td>18</td>
<td>7.5</td>
</tr>
<tr>
<td>Student contract – agreed roles and responsibilities and task allocation</td>
<td>132.5</td>
<td>18</td>
<td>7.4</td>
</tr>
<tr>
<td>Guest speakers – from government, industry, new business etc.</td>
<td>165</td>
<td>19</td>
<td>8.7</td>
</tr>
<tr>
<td>Authentic setting – working in teams, with real clients, real roles to produce real product</td>
<td>155.5</td>
<td>18</td>
<td>8.6</td>
</tr>
<tr>
<td>How would you rate the overall effectiveness of the integrated teaching approach used in this unit?</td>
<td>123.5</td>
<td>15</td>
<td>8.2</td>
</tr>
</tbody>
</table>

“IT’s their presence that reminds us of the reasons why we are at uni studying and also assists students in the understanding of what’s required of us in the workforce. We would definitely like to see more.”

“Gives an overview of our ideal industry,” “useful and insightful”
“It gave an insight into the feelings towards an industry, showing the amount of work required and realistic outcomes”

Scoring very close to this at 8.6 was the authentic setting. The students really felt the benefit of working with real clients on real projects. One commented, “I’ve identified my strengths and weaknesses in the project management areas, and that helps me to focus on what I am good at whilst improving on those areas I am not good at. It improved my understanding of real world operations.” Their enthusiasm throughout the unit was delightful and their commitment and professionalism was commendable. Each semester there seems to be a higher level of commitment and certainly a higher standard of finished product being presented at Industry Presentation Night. This has also been noted by external examiners. It is hoped that this is a reflection of the commitment of the designers and the continual development of the unit and attempts to contextualise it at much as possible with authentic inputs and outcomes. This might very well be the case considering the overall effectiveness of the integrated model used scored an overall 8.2. Responses to how effective they felt that the model was to improve their employability supported this result.

‘I have a resume and relevant skills now to be considered for employment now.’ “I have more skills now.” “I feel ready to work in real life.” “I believe it was good as it provided a different aspect of learning instead of the usual product and documentation.”

This comment in particular demonstrates that this particular student preferred this approach of immersion as opposed to a more didactic approach to delivery of material.

Conclusion

The 2006 DEST report for trainers advocates that trainers assess these employability skills and although graduates coming out of this model are able to provide some evidence-based material to prove their abilities, this is not concrete evidence that they have actually acquired the skill. This may only be ascertained through observation over time. Further research needs to be undertaken in the area of assessment of these generic skills, but getting students to reflect on this area is a big step towards improving their employability. It is a move away from just considering job-specific skills and gets students considering their overall employability in terms of what their job aspiration requires at this current time.

However, in this study the model has proven to be popular with the students and they clearly see the relevance of what it is attempting to achieve.

Bibliography


