



Developing Quality Graduates Through Graduate Qualities

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ABSTRACT

For some time universities have endeavoured to address the shortfall in skill requirements that have been identified by prospective employers of graduates. The University of South Australia (UniSA) numbers itself amongst these universities and has identified a number of 'graduate qualities' that are required to be developed within the curriculum. This paper explores a case study and role play approach to embedding graduate qualities in an undergraduate business course and investigates methods identified for successful assessment of these qualities.

INTRODUCTION

The development of graduate qualities is aimed at facilitating the transition from university to graduate employment. DETYA (2000) examines employer satisfaction with graduate skills and concludes that deficiencies perceived by graduates and employers are in the areas of creativity and flair, oral business communications and problem solving, interpersonal skills and understanding of business practice. Steven and Fallows (1998) explore '[t]he strategic decision to embed employability skills into each level of the undergraduate curriculum ...' to ensure that '... every student is fully equipped, at graduation, with the skills necessary for the very important transition into the world of employment'. UniSA has adopted the approach to embed the graduate qualities into its courses rather than teach them separately.

After consultation with business, UniSA (2000a) identified that a graduate:

- operates effectively with and upon a **body of knowledge** of sufficient depth to begin professional practice
- is prepared for **lifelong learning** in pursuit of personal development and excellence in professional practice
- is an **effective problem solver**, capable of applying logical, critical and creative thinking to a range of problems
- can work both **autonomously and collaboratively** as a professional
- is committed to **ethical action and social responsibility** as a professional and citizen
- communicates effectively** in professional practice and as a member of the community
- demonstrates **international perspectives** as a professional and as a citizen

UniSA (2000b) requires that all programs within the University should be structured to include a plan for the development of Graduate Qualities (GQs) throughout the duration of the program.

Taylor (1997) states that 'assessment has become a potent tool in dictating institutional and professional goals' and that universities are 'being assessed and publicly compared on the basis of student results, and professions being required to introduce specific learning outcomes'. UniSA (2000b) view assessment as 'the key to the development of Graduate Qualities' and requires academic staff to match appropriate assessment methods to the Graduate Qualities.

This paper explores a case study and role play approach to embedding the graduate qualities in an undergraduate business course (Data Management for Administrators) and the methods identified for successful assessment of these qualities. During the course design careful consideration was given to how the assessment related to the development of graduate qualities.

DESIGN OF THE COURSE

The course (subject), Data Management for Administrators (DMA), was designed and introduced in 1999 in response to feedback from past and present students, local businesses and professional

organisations during a review and re-accreditation of a Bachelor of Business (Administrative Management) degree. The course forms one of 24 courses in the degree program and is a core of this program. It is also offered as an elective to other business students. Barker and Monday (2000) highlighted the increased development of spreadsheet and database applications by many of the business graduates, as well as other employees. In most instances, they demonstrated little understanding of the concepts of problem solving, information gathering, analysis, design and implementation of databases or the implications of the process used in developing the application, or the quality of the applications developed, for the organisation.

DMA consists of 140 hours of study over 14 weeks. Internal students attend lectures, tutorials and workshops. External students work from a study package and have access to tutors via the web, email and the telephone. Overseas students attend lectures delivered by visiting UniSA staff, and workshops supported by local tutors. Access to UniSA tutors throughout the semester is via email and the web. Access to technology is not consistent; currently it cannot be assumed that all external students have access to the Internet and thus the course web page, or to email. The course is a 4.5 unit course and the balance of the graduate qualities (GQs) is detailed in the table below.

Table 1: Balance of the graduate qualities (GQs)

Graduate quality	1 body of knowledge	2 lifelong learning	3 effective problem solving	4 work autonomously and collaboratively	5 ethical action and social responsibility	6 communicates effectively	7 international perspectives
Unit weighting	1.2	0.5	1.0	0.5	0.2	1.0	0.1

Appendix 1 provides a summary of the course objectives, graduate qualities, learning outcomes, teaching and learning strategies and assessment activities.

TEACHING/LEARNING STRATEGY

Case Study Teaching

Yuan (2001) identifies a significant shift to alternate methods of teaching including problem-based learning, student-centered learning and the use of case studies. Case studies are used to describe problems or incidents based on real-life situations (Roselle, 1996). The problems to be analysed are usually those which have occurred in the past or are likely to be encountered by the students in their professional life (Kreber, 2001) It is essential that case studies contain sufficient data for analysis and observation to be made whilst being conducted in their natural context (Yuan, 2001). When used effectively, case studies should give the students an understanding of the problems they are likely to experience in business and ways to approach these problems.

Gross Davis (1993, cited in Kreber, 2001) in summarizing research into effective case studies lists the features of a good case study

as one which tells a story, raises issues for discussion, contains elements of conflict, lacks a definitive answer, encourages students' thought processes, requires a decision to be made and is reasonably concise. Each case study for DMA is written within these parameters. Students are supplied with the basic procedures adopted by the organisation and are required to develop a small-scale database to solve the issues raised by the business.

Role Play

In DMA, role play is used to explore the case organization. Role play, as defined by Ladousse in Cutler and Hay (2000), is 'a short, low input-high output, interactive teaching and learning technique'. Rather than a role being mapped out for students, students are required to engage with the parties to the role play and their role is shaped as they learn (Cutler and Hay, 2000). They also note that this enables students to tackle 'live' projects, adopt a role and view a situation from the viewpoint of their role, requires them to present arguments and defend their viewpoints in verbal and written form, and to work in teams thus developing their group skills. This approach is particularly suited to the development of a number of graduate qualities. It provides students with an opportunity to interact with each other, and members of a 'business', in a group project. It allows the students to apply theory learned to a 'live' case. It provides a platform for testing a range of communication media and requires students to manage themselves and the groups they work in.

Due to the diverse nature of our student audience (internal, external and overseas) role play for DMA is performed in a number of settings – face to face, via the web and using email or telephone.

DEVELOPING THE GRADUATE QUALITIES (GQs)

Body of Knowledge (GQ1)

The use of lectures as a method of teaching in higher education has long been the primary method of imparting knowledge to students. To cater for the diverse range and location of students studying at the UniSA the body of knowledge has to be disseminated in a number of ways and has been extended to include study packages (study guides, texts, readings) in hard copy and via electronic media. Students are not only required to demonstrate an understanding of the concepts and theories but to apply this knowledge to real situations.

Collaborative Work (GQ4)

Kreber (2001) cites the recommendations of Gross Davis (1993) and Knoop (1984) that case studies should be used in conjunction with group work.

Business graduates are likely to experience collaborative (group or team) work during their professional careers. The UniSA (1999d) recognizes that 'effective collaboration is determined as much by the ways [students] and their colleagues work with one another as by the kind of task [they] are working on'.

This collaborative project introduces the students to the dynamics of a team, the advantages and disadvantages of working together to solve a common problem and the requirements of businesses for project management and adherence to strict timelines. Group work is currently not available to external students in this course, although the authors are exploring suitable approaches and will introduce group work in the near future.

An initial lecture introduces the students to the concept of group work and students are encouraged in the first two weeks of tutorials to get to know each other so that groups can be formed no later than week 3. Because students at UniSA are offered a huge amount of choice in their degree program a large number of students will never meet more than a very small number of students in their 24 courses. Thus it is more common for students to meet a group of strangers in the first session. It is considered important therefore to provide an opportunity for students to get to know each other early in the semester to

facilitate the forming, storming and norming stages of a project once groups are identified. Simple problem solving exercises are used in tutorials to encourage students to participate.

Group work adds to the students' understanding of lifelong learning strategies as students learn techniques for managing difficult situations within the group whilst achieving the project goals and timelines set by the business. Within the group students are required to use both oral and written communication skills to make a contribution to solving the case-based problem. The intention of case studies is to develop the problem solving capabilities of the students by using the body of knowledge, concepts and skills relevant to the course (Kreber, 2001).

Once groups are established they are required to determine the goals of group, determine how each member can best contribute to the group's goals, identify any problems previously encountered in group work and strategies for avoiding problems, plan a project schedule, allocate tasks, establish good working practices, operate ethically within the group and with the case organization, communicate effectively with fellow group members and the organisation, accept responsibility for their actions, and the actions of the group, managing the group project to successful completion. At the end of the semester students are required to deliver a short presentation reflecting on their approach to the project and what they have learned as an individual and as a member of a group. Throughout the semester students are encouraged to document their approach to help them with the preparation of their presentation. A mark is awarded for the presentation but not for their written reflection.

Problem Solving (GQ3) and Effective Communication (GQ6)

The UniSA (1999c) identifies problem solving as '... not so much a set of skills to be applied but a way of approaching ... professional practice. It involves analysis – breaking down a problem into components that can be solved – and synthesis – putting together various options for an integrated solution'. The University requires students to build upon their previous experience and develop further their ability to solve problems of a simple and complex nature. The use of logical reasoning skills as well as intuitive and creative skills is required to present a solution to the issues or problems raised by the case study (Kreber, 2001). Students need to spend the time reading and assessing the problems in the case study to differentiate symptoms from underlying problems (Kreber, 2001). Using simple problem solving exercises throughout the tutorials, students are encouraged to develop their logical reasoning skills and ability to analyse problems by 'thinking outside the square'.

Good communication skill are highly valued by employers. UniSA (1999b) highlights that different skills are required for 'negotiating with colleagues, employers or clients; for persuading or informing others; for seeking cooperation or giving direction; for giving a talk or writing a manual; for receiving instructions or hearing concerns.' In developing effective communication skills students will develop an understanding of the different forms of communication, appreciate the importance of effective communication and be able to identify the types of communication required for different purposes and audiences (UniSA, 1999b).

Students are introduced to data modeling techniques via the lecture and tutorial. Through this process students examine the business processes of the organisation and use the techniques to document the business rules and information gathered. Students are assessed on their ability to produce complete, accurate and appropriate documentation for all stages of the project as well as design and implement an appropriate user guide to accompany the database developed.

Students are provided with different ways to gather information – face-to-face conversations, email, web discussions, telephone conversations (external students only), and business documents, procedures manuals and business processes presented in the case study. Using a range of media for role play encourages the more retiring students to contribute to the process. However, not all students make a contribution to discussions therefore the more conscientious students tend to

be more guarded in using the public forum. In instances where students feel they have a particularly good idea they are less likely to post this on a public discussion board, preferring to contact the case business directly.

Questions are directed to the business, not to the tutors, and responses are in line with the type, tone, relevance and quality of the questions received. Information gathering has been assessed by the quality of the questions asked and in how well the students produce a database that meets the needs of the users. When a mark has not been attached to the quality of questions asked a marked decline in quality of questions is seen, and in particular, a large number of irrelevant questions are received. In the early stages of the project students cannot always see the importance of their information gathering and choose to make assumptions.

Students are also presented with conflicting views from the partners in the business and have to learn how to respond to these conflicts. This approach is in line with the Gross Davis approach cited in Kreber (2001), which suggests that a good case study contains elements of conflict to assist students in the learning process. The student response to this approach was extremely varied. The more mature students naturally rose to the challenge, having faced similar situations in their working life. However, when the partners role played conflict the younger students, in particular, were shocked, and unsure how to proceed. Students commented that this was a completely new learning experience for them as they are normally given a package of information stating the question to be answered, the approach expected and an example of how to complete the problem set.

Once the students have gathered the appropriate information the next problem solving task they embark on is to determine the most appropriate software features for implementation, identify the potential and limitations of 4GL database software and finally develop a user-friendly database. Students are assessed on the usability as well as the logical and physical design of the database.

Ethical Action (GQ5), Internationalisation (GQ7) and Lifelong Learning GQ2)

Throughout the project students are expected to demonstrate ethical action with the business, with other students and in their approach to their University education. Certainly any students found guilty of copying would automatically be awarded a zero as a minimum penalty, but given this is group work, this rarely happens.

Internationalisation of students is not developed well within this course. Although we have a diverse group of students onshore, they are currently allowed to choose their own group members and tend to stay in their ethnic groups. It may be appropriate to allocate students to groups to address this issue. This would also simulate better, normal working life where staff do not generally choose who they will work with. Because of the diverse range of students and their availability this would also necessitate students learning to manage their availability and time more carefully, but is likely to lead to greater conflict within the groups.

Two approaches to delivering the practical component to internal students have been trialed – scheduled workshops (1999) and help desks (2000, 2001). In both cases the sessions were not compulsory but were available for students to ask questions relating to the self-directed learning they were programmed to have completed through the study schedule. Students' regularly attended workshops without prior preparation or alternatively, did not attend at all. Tutors spent most of their time working with a small percentage of conscientious, prepared students who tended to become frustrated by those students who expected the tutor to go through the work they had not prepared.

The introduction of compulsory workshops, at the behest of the students, has not alleviated the problems, as, although they are now attending, they are still not undertaking the appropriate preparation. Nor does this approach encourage students to develop lifelong learning qualities. Some students are not prepared to take responsibility for their learning unless the preparation has a mark attached to it. Candy

et al, (1994) identified that staff, students and graduates agree that open book examinations, assignments, clinical case studies, negotiated learning contracts and learning documents were the forms of assessment that were most likely to ensure effective, on-going learning since students were required to analyse and articulate the learning processes with the completion of the learning task. This appears to be reflected in the students' approach to the workshops conducted throughout this course. However, it needs to be recognised that the overhead on staff time increases with these approaches.

The world in which we live is constantly changing. UNESCO considers education should last the whole life of an individual, lead to the continual acquisition and update of knowledge, skills and attitudes, be self-fulfilling, acknowledge all available educational influences and be motivating for people to engage in self-directed learning (Candy et al, 1994). A graduate will require to continually develop their professional knowledge as the demands of their working life change. The introduction of lifelong learning into undergraduate courses attempts to develop the students' ability to identify and tackle new problems and to locate and use information in an effective manner. UniSA (1999a) identifies that in acquiring lifelong learning skills students will develop information literacy, understand how to manage their learning, gain confidence as a learner and value curiosity and a critical approach.

CONCLUSION

Graduate qualities develop out of the processes employed in the teaching of the course. In essence the teaching and learning strategies were implemented to develop a positive attitude towards the continual learning process and the ability to 'think outside the square'. The introduction of case studies and role playing in this course has stimulated the students to explore, to enquire, to question, to motivate, and to acquire skills that they will use in their professional life. Providing we attach a mark to the various stages of the project students generally deliver well. This raises an interesting question in terms of whether the students are demonstrating the graduate qualities if they only attach importance to something that gains them a mark.

Candy et al (1994) describe assessment as being a measure of how something has been learned and the use the student will be able to make of this knowledge. The methods of assessment used in this course attempt, with some success, to determine the extent to which the graduate qualities of body of knowledge, effective communication and problem solving have been attained. If students are to be encouraged to be lifelong learners they must be able to judge or evaluate the adequacy, completeness or appropriateness of their own learning, so whatever assessment practices are used must be comprehensible to the learners so that they can be internalized as criteria for critical self-evaluation' (Candy et al, 1994).

The course currently fails to achieve a good outcome in the area of project management. At the end of the course students reflect on their approach and identify a number of weakness in managing themselves, and in particular, their time. In the follow up course these problems recur.

The approach adopted provides an interesting learning forum for both staff and students, and students demonstrate effective problem solving, working collaboratively, effective communication and lifelong learning as well as the ability to operate effectively on a body of knowledge. However it needs to be recognised that this approach does have a high overhead on staff time and given the ever increasing numbers of students the staff are constantly exploring new ways of achieving the positive results with a lower overhead.

ONGOING RESEARCH

This research forms part of a wider research program being conducted by Sandra Barker and Ann Monday into the delivery of this software-based information systems course in the Administrative Management degree program.

APPENDIX 1

Objective	Graduate qualities	Learning outcomes	T&L strategies	Assessment activities
Work effectively in groups	Body of knowledge Lifelong learning Effective problem solver Work autonomously and collaboratively Ethical action and social responsibility Communicate effectively International perspectives	Form, storm, norm and perform as a group: Form group Determine goals of group Determine how each member can best contribute to the group's goals. Identify problems previously encountered in group work and strategies for avoiding problems. Plan a project schedule. Establish good working practices. Operate ethically within the group and with the case organization. Accept responsibility for ones actions, and the actions of the group. Manage group project.	Lecture Case study Tutorial: socialisation using small group activities	Assignment: Reflect on individual performance and performance as member of group Examination: Critically evaluate group performance with reference to good practice.
Use information-gathering techniques to determine details of the current system and requirements for its improvement	Body of knowledge Lifelong learning Effective problem solver Work autonomously and collaboratively Ethical action and social responsibility Communicate effectively International perspectives	Examine the case information. Conduct interviews with members of the case organization to clarify the problem. Examine business documents and procedures manuals as available Determine additional information needs. Establish goals of project.	Lecture, case study, role play: tutorial, web board, email	Assignment: Identify information needs of case organization.
Apply the tools and techniques of modeling and documenting the information system	Body of knowledge Lifelong learning Effective problem solver Work autonomously and collaboratively Communicate effectively	Use ERDs and normalization to model the business rules and information needs.	Lecture, case study, role play: tutorial, web board, email	Assignment: Use data modeling techniques to determine table structures of database Examination: Explain data modeling techniques with reference to lessons learned during implementation of the database
Design and document effective output, input and user interface for the system with continual reference to the objectives of the business	Body of knowledge Lifelong learning Effective problem solver Work autonomously and collaboratively Communicate effectively	Apply design theory and techniques for effective input output and interface Validate inputs Produce complete and appropriate documentation	Lecture, case study, role play: tutorial, web board, email, software help desk	Assignment: Design input, output and interface based on the requirements and table structures identified Examination: Explain input, output and interface design theory as implemented in the database produced Identify and explain validation and verification techniques used in the design of the database
Partially build a user friendly database	Body of knowledge Lifelong learning Effective problem solver Work autonomously and collaboratively Communicate effectively	Identify the potential and limitations of 4GL database software. Determine the most appropriate software features for implementation. Build a user-friendly database. Design and implement an appropriate user guide to accompany the database developed.	Lecture, case study, role play: tutorial, web board, email, software help desk	Assignment: Within a workgroup, and choosing the most appropriate software features, design and implement a small-scale database using Microsoft Access™. Critically evaluate the implications of designing and developing a database as an end-user developer

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