

The undergraduate entrepreneur. Engaging and enthusing design students about studying design management.

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Introduction

The importance of design management is often ignored, lost on, or resisted by undergraduate design students. This paper discusses the identification of some of the many factors contributing to this situation and the processes involved in developing an engaging, challenging and relevant course in design management to combat it. Detail will be given of the research methods used to assess the existing course, the development of tools to measure the revised course delivery and the structure and rationale behind delivering the course. A discussion of the delivery, learning tools, assessment, and student outcomes of the first delivery will be provided. Future possibilities for the course will also be addressed. Throughout the paper feedback collected from students of the course is italicized.

Background - Understanding the landscape

The School of Design Studies at the College of Fine Arts, University of New South Wales, Sydney, Australia offers both undergraduate and postgraduate courses where an integrated approach to the study of design ensures that students are exposed to a wide array of approaches to conceptualisation and implementation of the designed object, graphic or environment. Students undertake interdisciplinary study integrating a number of different design studios including object, graphics, textiles, ceramic, jewelry and environment / spatial design. Many of the students graduate into design positions within small to medium enterprises or start their own designer / maker based businesses. In order to prepare undergraduates in the Bachelor of Design Studies (BDes) for this, SDES2116 Design Practice, is offered in second semester each year. The course addresses the ‘organizational’ (Griffith, 2007) ¹role of the design manager.

¹ Griffith, S.J (2007) An informed future: Educating Design Managers for Global Practice. *International Conference on Managing Design in Global Environments*, Seoul, Republic of Korea, 30th November 2007, Korean Institute of Design Promotion, Seoul, Korea

The SDES2116 student cohort numbers around one hundred and twenty each delivery. It is comprised mainly of students studying a Bachelor of Design. Some students from Bachelor of Art Education / Design, Bachelor of Fine Arts and Bachelor of Arts programs and occasionally students from other degrees may select to take the course as an elective eg. Bachelors of Social Science, Architecture, Computing and Commerce. Students may come from any of the 4 years of their course and, as such, have different levels of maturity, experience and motivation.

'I am in my first year at cofa ... however doing this course in line with some of the other subjects was very helpful. It was challenging yet at the same time very rewarding.'

'I found this course really encouraging in terms of our general ability as students and as designers. I think this is something really important for students in third year. The course really emphasised that the information is out there, we just need to be aware of it, and learn to utilize it for our benefit. The real world isn't really as scary as it seems.'

A large percentage of our students are from other countries and intend to work in these countries when they complete their study. It was an important consideration in the course redesign to provide an international context. Readers and online resources included case studies and writings from global and local sources on topics such as legal issues of design, standards or government policy impacting on design. It was stipulated that designers must be aware of the specific sources and nuances of practice related information in the countries they will be practicing, producing and distributing their design.

Whilst many of our students voice no desire to run their own practice in the near future, some acknowledge the importance of understanding the mechanisms of practice and how these impact on their daily role as designers. Of the 2007 SDES2116 cohort, a survey of student learning goals taken in week one suggested 66% would like to run their own practice at some stage of their career, and 72% of those students would like to work for someone else first to gain practical experience before going out on their own.

'Lectures from other designers on their design practices ... have given me a more realistic view on getting what starting your business entails, because someday I hope to start my own business, and now I have an idea of what its going to be like.'

'It's the course for those who need a dose of reality about owning and running their own business. For some reason it doesn't make me angry that I probably won't ever own my own business, but more appreciative of those who do.'

The majority of undergraduates have had no experience working in a design position, however, most of them have had some experience working in a part time or casual position in a business. Usually retail or a service related industry. These experiences can be drawn upon and related to material they presented in lectures and tutorials, assisting to illustrate, practically, much of the theory presented.

'This course was great because we could use previous studies and experiences that are normally completely unrelated to our courses, and apply them usefully. This was enhanced further by working in groups as it broadened the pool of knowledge and experiences and ideas upon which to draw from.'

Old School – The Challenge

In late 2006, a review of the course was undertaken involving an anonymous survey of students who had completed SDES2116 in the 2005 and 2006 deliveries. It was designed to gather information on the existing course and act as a basis for comparison with the revised course. The survey included multiple choice and short answer questions on content, delivery (lectures and tutorials), activities, assessment tasks (summative and formative), student expectations and goals, student engagement, student perceptions of the course and the discipline and, lastly, workload implications. A second anonymous survey was designed for students to take at the beginning 2007 delivery to measure student concepts of what the course is about and how they see it fitting into their student and

professional lives. Both the first and second survey results were used to inform the redesign of SDES2116.

A review of the content and structure of the course from an academic perspective was undertaken simultaneously. On paper it looked fine, content was good, theory behind activities, exercises and assessments was sound, and the course well structured, but student feedback raised some challenging issues.

The four main issues were;

1. Doubting the relevance of the course to them. Many students reluctantly study this core course because they feel they have no need for it as they will ‘only be designing’ once they graduate.
2. Trouble relating to the material. A majority of students felt disengaged during the course because they could not relate to the content.
3. Too theoretical. Students wanted to know about ‘real designers’ and how design management and practice was relevant to them in their selected field.
4. Boring and bureaucratic. Students perceived design management and practice as dry, not interesting with no creativity involved.

‘extremely boring but also time consuming in a way that makes you dread [it]’

Addressing these issues and others raised by the students, whilst keeping the content and assessment necessary for the academic aims and outcomes for the course, created a challenge in course design.

The challenge became to:

1. Develop in students an understanding and appreciation of design management and practice as an integral function of design and designing.
2. Engage students from varied levels of experience and areas of interest and keep them engaged all semester.

3. Present design management and practice theory from the perspective of practitioners and professionals to demonstrate its importance to the students in their future careers.
4. Identify the skills and knowledge required by students to think like design managers and instill these in the cohort.
5. Design activities and assessments to support the achievement of the other four goals.

New School – The Vision

The five challenge points led to a vision to guide the revision of the course.

The vision was to create a course that engages participants and develops in them an overall understanding of the importance and place of design management in the context of a commercial design practice.

The aims of the course being to investigate;

- the moral and philosophical contexts for professional activity.
- design strategy and marketing strategy.
- production co-ordination & project management.
- preparation of reports and other written material.
- corporate identity, branding and positioning strategies.
- legal implications for design practice.
- intellectual property and product liability.
- design culture
- working in teams
- the broader question of general management, and
- the importance of the development of a design culture within organizations.

The desired student outcomes should be to;

- identify and understand the interdisciplinary nature of design management.
- demonstrate an understanding of the contextual relationship between design management and business practice.
- recognise and implement skills and techniques utilized in current design management practice.
- identify opportunities for design within society and compile a strategic business plan to exploit them.
- articulate strategies to manage the design process within a professional context.
- understand the social, political and legal structure of a design practice.
- identify policy, legislation, statutes, standards and regulations which may impact on design and design practice.
- review the different areas of Intellectual Property.
- work effectively and self - reflectively alone or within a team.
- identify when specialists from other professions should be consulted in the design management process.

Researching content and developing the course structure

To determine the content and structure of the course it was important to start with a clear understanding of design management and the roles of design managers. Reviewing existing literature, industry generated information, and informal discussions with design managers and practitioners, as well as drawing on my own experiences as a design manager and designer was the starting point. It was evident design managers effectively balance dual roles. The first is the role of a manager with respect to the interests of their organization. Topalian (2002)² identifies this as Business Familiarization and Business Management. For simplification, I call this role the ‘organizational’ design management role. The second is the role of managing the interests of their ‘client’, the commissioning organization of the design project(s) they are working on. This moves beyond project management but into issues such as branding, situational analysis, strategy development,

² Topalian, A (2002). *Promoting design leadership through design management skills development programs*. Design Management Journal, Design Management Institute, Boston; Vol 13, No 3; Summer 2002

implementation planning and measurement of project outcomes. I call this the ‘functional’ (Griffith, 2007)³ design management role. Though the ‘client’ may also be the organization the manager works within, the split role and subsequent sets of considerations remain. This would be the case for the assessment tasks for our SDES2116 cohort and as such it would be important for students to identify these dual roles and how they are linked in practice.

The next step would be to help students identify and understand the skill sets and knowledge of effective design managers. Throughout the course students would need to develop these along with the ability to identify knowledge they need and where to obtain it.

Existing literature, including documented industry expectations on the skill sets required of individuals who will fill the roles of design managers, academic and industry journals, job descriptions, numerous texts and discussions with multiple practitioners from various disciplines along with my own professional experiences were used to form two lists; Design Manager Skills and Design Manager Knowledge. (Fig.1) These lists assisted as reference points for developing content, activities and assessment.

³ Griffith, S.J (2007) An informed future: Educating Design Managers for Global Practice. *International Conference on Managing Design in Global Environments*, Seoul, Republic of Korea, 30th November 2007, Korean Institute of Design Promotion, Seoul, Korea

Design Manager Skills	Design Manager Knowledge
Administration	Production
Communication	Branding
Negotiation	Marketing
Research	Promotion
Problem Solving	Legal
Strategy Development	Innovation
Project Management	Commercialization
Human Relations	Intellectual Property
Team Building	Political
Leadership	Historical
Teamwork	Financial
Analysis	Budgets
Reflection	Standards
Planning	Ethics
Implementation	Cultural
Measurement	Economic
International Perspective	The Environment / Sustainability
Life-long learner	Codes of Practice
Appreciation of Design and it's associated processes (not necessarily a designer)	Industry Bodies
	Industry specific knowledge

Figure 1. Skill sets and knowledge of design managers. Griffith (2007) ⁴

⁴ Griffith. S, (2007) Designing Undergraduate and Postgraduate Design Management and Practice courses, *Design Management Conference – Design Challenge 07*, Jordanian Centre for Design, July 2007, Yamouk University, Jordan

Delivery Strategy

From a structural perspective we were limited by the fourteen week teaching term and the three hours of allocated contact time each week with students. Previously a one hour lecture and two hours tutorial were delivered each week. Student feed back had indicated that the two hour tutorial had been too long and that the lectures were too theory heavy because so much had to be covered in so little time. It was decided a revised format of two hours of lecture each week and one of tutorial, supported and enriched by a blended approach utilising an online environment for discussion, resource provision, assessment management and feedback would be more suitable.

A philosophy of a ‘deep and rich learning experience’ was chosen (Gibbs, 1992)⁵. Structuring the course material delivered in lectures and aligning the weekly tutorial tasks and the major assessments with the theory and guest lectures, readings and assessments assisted in achieving this.

In week one, in the first hour, students were introduced to the discipline of design management, the teaching staff, the structure, content and goals and expected outcomes of the course, and the assessment procedure. In the second hour they participated in a mass exercise to ‘break the ice’ and to illustrate the benefits effective teamwork. This exercise involved role playing and team work. It was mentioned by many of the students as one of the most memorable, engaging and useful exercises in the course. Teams are formed and assigned a team ‘manager’. All team managers are given the same instructions for a task their teams are to perform, building a tall, stable, aesthetic tower out of drinking straws and tape in 10 minutes. Each manager is given a different personality to assume in enacting their role. Student teams perform their task under manager instruction without knowing what type of manager they have. Team outcomes are viewed and experiences discussed at the end. The point was made that effective teams with good leadership produce good outcomes, setting the goal for team work during the semester.,

⁵ Gibbs, G. 1992, *Improving the Quality of Student Learning*. Technical and Educational Services Ltd, Bristol.

'I enjoyed the [activity] with the straws where we all had different kinds of leaders because the type of leader we had actually had an impact on our performance and peoples descriptions were accurate to how the person was supposed to act.'

'The team leadership activity and building of the tower ... was fun and clearly exemplified what it was trying to show'

'I enjoyed [the exercise] at the beginning of semester. It was a really good ice breaker and it was a fun competition ... it really made me understand the importance of a good strong, positive [team] attitude.'

The Lectures

In the next twelve weeks, theory was presented in the first hour's lecture. In the second hour, after a short break, either a practicing designer or an industry professional addressed the class. The guest designers were selected from different disciplinary areas and educational and career progression backgrounds. They were asked to reflect on their experiences as design practitioners and managers and on the path they had followed to where they are today. The Industry professionals came from specialized areas such as Intellectual Property Law, Business Development, Finance or Innovation backgrounds. These 'guest lectures' allowed the students the opportunity to interact with and learn directly from experiences of practitioners through question and answer sessions at the end of their presentations. Students learnt the benefits of consulting professionals from other disciplines when specific knowledge is required. Boud and Miller's (1996)⁶ animated learning principles were successfully applied here. Feedback on this new format was very positive. Students particularly responded to the guest lecturers and held lengthy on-line discussions on their presentations.

'All the guest lectures were really interesting. Not necessarily because they were the most engaging speakers, rather because they each presented a different lifestyle, a different work process and

⁶ Boud, D and Milller, N (1996). *Working with experience, animated learning*. Routledge, London.

practice, different values, different skills, and best of all, very different paths in getting to where they are now.'

'The guest [lecturers] ... were very interesting, informative and motivational.'

'The use of guest lecturers was interesting and stimulating because we saw real-life examples of what we were learning and we could ask them questions because they had the experience. It was much better than if we were asked to go and research an existing designer.'

The final presentations

In the 14th week of the course, both lectures and all tutorials are given over to team presentations. All students are expected to attend so they can learn from the work of their peers.

Tutorials

Tutorials were used for three main purposes.

Firstly to provide a face-to-face discussion forum for students and staff in regards to course material, lecture content, assignments and other points of interest.

Secondly, structured and varied activities were used to give practical application or context to theories delivered in lectures and online. These included role playing, worksheets, reflective exercises, visual and verbal presentation and scenarios. They were focused towards gaining the skills and knowledge needed for completion of the assessment tasks.

Thirdly they could be used to deliver feedback on student and team progress in the course and garner feedback from the students.

'The tutorial activities were always engaging and helpful and ... good for fostering teamwork and team spirit.'

'Class activities were ... fun and useful in producing our final project and no activity seemed unnecessary or boring.'

Course Resources

A number of course resources were developed to support the students. These include;

- online library resources.
- a comprehensive Reading List
- a reader with weekly readings relevant to the course and tutorial exercises.
- online provision of lectures before class.
- online discussion questions.
- online web references and links to important sources of information.
- worksheets to assist progress through specific complex tasks.

'Everything given to us was necessary to write our final business plan and to make us understand the theory behind a design business.'

Benefits of a blended approach

The decision to take a blended approach to complement and support the course was made for five key reasons.

Firstly it could provide a forum for discussion that could be conveniently used by both students and staff at any time over the duration of the course. The technology is a familiar and comfortable one for students who are used to platforms such as e-mail, SMS, ICQ, Facebook, MySpace, Skype and blogs as communication tools. Students had time to prepare responses and reflect on experiences at their own pace rather than trying to rush communication in a tutorial. This raised the quality and duration (sometimes over weeks) of the discussions and allowed cross cohort contribution, not just the assigned tutorial group. International and shy students, who traditionally do not participate freely in face-to-face

tutorial discussions, were much more active and confident in this online format. The tutors and I would often find students logged in and communicating late at night and on weekends.

'First time I've ever had to do an online component to a course and was impressed, especially with online discussions. I was able to hear other class's views on subjects and see what others found difficult about assessments.'

'Online discussion was interesting by posing open questions and making your own remark, so you could have a voice even if you don't speak up in class much and even if you think you're "wrong".'

'The discussion forums were really interesting, it is good to hear what other people thought of everything.'

Secondly it could provide a repository for lectures, information resources, assignments and other support material that could be easily accessed and updated. Initially I thought placing the lecture notes and presentations online may discourage students from attending lectures. Instead students started printing the material out before coming to class and instead of taking full notes, annotating the print out which allowed them to concentrate on the content and engage more deeply with it. Outlines and assignments could be accessed at any time if the hard copies were lost and support material such as web sites, podcasts, e-journals, readings, exhibitions, events etc could be added easily and in real time. This meant that if new material came to light between lectures students could access it before the next lecture. We found that as students progressed in their projects some would turn up new resources and share them with the cohort. After one blended delivery we had 23 new and useful additional references provided by students and another 18 by staff. There is great potential to add to this over further deliveries, building a very rich resource over time.

'Its great to have everything online as I can access the information on elearning anywhere in the world! Keep this course online!'

'The resources, and lectures available online are definitely a plus, because sometimes it is hard to review your notes from the lecture because you might miss some key points. Also the links were definitely helpful especially in the individual assignment.'

'The [links to] websites were great for up to date figures and recent changes to laws etc.'

Thirdly it provided an effective feedback platform. This feedback occurred on three levels: Students to Teaching Team, Teaching Team to Students and Students to Students. A large part of measuring the success of this revised course was to constantly gather timely feedback on what we were doing. This was done both formally and informally via the e-learning site. With a relatively large cohort it would be a tedious process to ask students each week in tutorial to do feedback forms on all the things we wanted to measure. Weekly discussions on the theory lecture and the guest lecturer were facilitated by the use of Blackboard Learning System Vista Enterprise. In these discussions we could gauge the student response to the information and its presentation. This direct feedback assisted us in improving future lectures and in briefing guest lecturers. We were also able to administer online the two questionnaires we had originally devised to measure the course. With a very healthy response rate of 68% this tool saved a lot of time information gathering. The questionnaires were open all semester so students could give feedback as they progressed and when they had time.

Staff could easily manage the provision of feedback to the whole cohort, tutorial groups, project teams and individuals. We could feedback quickly on the progress of projects, provide specific critique to individual teams or give direction via the discussion forums for the whole cohort to access. Students responded very positively to this as delays in feedback prevent them from progressing. Having timely feedback allowed them to move onto the next stages of their projects sooner. Assessment results and grades could be posted online with comments for students to access. The peer review process, allowed anonymous and direct feedback to team members by the other members on how they were performing. This was administered using I-peer to run rubrics.

'I-peer was good, as it meant I got to know how I was going.'

'Peer review helped me to be able to evaluate people objectively.'

The fourth benefit was easy coordination of teams. From our four tutorial groups we needed to form multiple teams of three students. This is a demanding task to manage manually. With the blended approach, students were able to register in their teams online and were assigned online team workspaces where they could exchange ideas and share their work outside of class time. This took a great administrative workload off the teaching team. Feedback could easily be sent out to the whole team the cohort or tutorial groups in one online message. It also made teamwork, a large component of the course, much more productive and valuable to the students.

'... my fantastic group experience...it has changed the way I view team work'

'Working in teams is challenging but rewarding. I found it quite hard. I was working with people I never had met before ... we all had different ideas, we didn't really know each others strengths and weaknesses so it was hard to work out who would do which tasks ... I got along well with my group members and we had some fun.'

'Having to organise the business plan in a group of people I didn't really know ... was ... good practice for me personally because I have a hard time trusting other people with work, and I think its helped me a lot'

The fifth benefit was the sense of community generated by the ability to communicate at any time about design management and related issues. Students from different tutorial groups could interact with each other and staff.

'Discussion forums were informative and productive, it was interesting to read other students feedback. It can also be used as a benchmark for my own studies.'

There were some teething problems using the blended approach. In some cases students who had not enrolled properly or who had overdue library books or fees were not given access to the university computer resources. This meant a delay in getting into their teams. The I-Peer peer review software was an unsupported beta version and some students had difficulty using it due to unsupported browsers. The problems were solved, but caused some frustration. We are looking at other peer review options for the future. Some students had never experienced online learning environments before. It took them some time to get used to the concept. Some of the architecture of the site could be simplified to make navigation easier. This will be done for the next delivery. The best approach to tackling course issues was to act quickly and online.

'The i-peer was initially a little confusing but now I can understand it and it is very useful and interesting to see what your teammates thought.'

'[The facilitator] was very efficient in answering any queries and problems we had online. I found it particularly helpful that she would send out links from time to time assisting us with any difficult parts of assignments. She very helpful in the classes, giving advice and feedback and making immediate responses.'

Assessment

There are three assessment tasks for the course centred around teams of students identifying a problem or opportunity which can be addresses using their design skills. Both summative and formative approaches are used. Some tasks are individual and some are group. All contribute to the final presentation and report. A high level of teamwork, peer review and reflection on effectiveness of the teams and the individuals working in them is involved in the activities and assessment of SDES 2116.

This aims to develop design management skills such as leadership, teamwork, negotiation, reflective practice, communication and problem solving.

Students work in teams of three both face to face and in an online environment to emulate how design professionals work as individuals and collaborators in teams. They have a number of research, analysis, planning, strategy development and implementation tasks to perform in order to complete the major assessment task of pitching a business plan to a hypothetical panel of investors to raise capital for a new design based business. This practical application of theory exercises skills and draws on knowledge and allows students to explore fields of practice they have specific interest in keeping them engaged and motivated. It also requires them to assess the context of their business, identify the specific knowledge they require to run it and apply skills such as written communication, analysis, problem solving, strategy development, project management and research. Students learn most design projects are complex and require effective teamwork to provide solutions.

Assessment is broken into three projects, each with a number of parts. Students need to attempt all parts of the project to pass the course.

Project 1. Is comprised of three tasks totaling sixty percent of the assessment marks.

The first task, 15%, is to form a team of three and identify an opportunity the team can capitalize on using their design skills. The team must describe in one page this opportunity or unmet need, the goods and services they would offer, the market they would be targeting and how their business concept would uniquely meet its needs.

On a second sheet of paper the team is asked to identify the roles and responsibilities of its members in executing the construction of a business plan, and how they propose to work together developing the project. This forms a 'contract' that can be used to measure individual performance. It is open and can be revised as the course progresses.

A special exercise, 'speed dating for designers', was developed to promote students forming teams outside their usual social networks. This helps them experience more realistic team dynamics as they would not necessarily be working with people they know socially or with whom they have a personal relationship. In such a scenario there is an increased need to negotiate, communicate in different ways and develop methods for managing the group activities. In their first tutorial, students are asked to find another student, introduce themselves, discuss their goals as a designer, their areas of design interest and their general philosophy, they do this for 4 minutes then change who they are talking to. Students will do this seven or eight times to meet a number of different people in their tutorial class. They then form their teams of three drawing together people they have met through the exercise who have aligned interests.

'[I enjoyed] the speed dating for designers tutorial. I'm generally pretty shy but this gave me a chance to get to know what other people in my class are into.'

'... we went around and talked to each other about what part of the industry we wanted to get into. [it was good] because there are a lot of people that you see every day but don't really know what they want to do. Its important that we do know what people want so that we can support each other in class and later in the industry'

The second task, 30%, is to prepare a written business plan to exploit the identified opportunity. Students are encouraged to produce a plan that communicates via both content and design. It should consider all areas of theory covered in lectures, tutorials and online activities and incorporate individual and team work executed over the semester. This exercise is designed to develop in students the ability to write in a professional, structured way. It encourages students to research their ideas and understand the planning processes involved in starting and running a business. Students become deeply engaged in their project as they can select an area specifically of interest to them.

'The business plan was good ... because you got to apply all the course topics to something you had thought up yourself and were interested in.'

'Developing our own company to do [a] business plan on helped make the course interesting because we were able to explore ideas we would possibly be able to pursue in the future. I found a lot of my real life experience in running a business applied.'

'I was able to apply the field that I am currently majoring in to the business plan, and so were my other team members.'

The third task, 15%, is to present a five minute pitch to gain funding from a hypothetical investor for their business. Students use the knowledge and materials they have developed over the semester through group and individual tasks. The time limit is strictly enforced. As are all assessment hand in dates to set a professional tone.

' [The course] was very professional and well organised and I like that deadlines were kept to.'

This exercise has a number of positive outcomes for students. It makes them think about how to condense a high volume of complex information into a short and engaging presentation. It affords them presentation practice and feedback. All team members must participate in the presentation, requiring negotiation and coordination over information dissemination. Students are encouraged to explore any medium they feel will enhance the presentation. All teams present on the same day in front of all the other teams. This allows the students to see the wide range of possibilities for design businesses and for giving presentations. There are a number of formative presentations and activities during tutorials throughout the semester to develop presentation skills and public presentation confidence of students.

In 2007 delivery we had a diverse array of pitches utilising all kinds of media such as video, dance, music, audience participation, role playing, You Tube, MySpace, Flash, Powerpoint, posters and Face

Book. Proposed businesses included vending machines for distributing designer t-shirts, a cooperative to cost effectively represent emerging designers at local markets, an events design company, a promotional goods design agency, a not-for-profit fair trade organization to assist third world communities to generate and distribute relevant design which can be manufactured locally for global markets utilizing existing materials, technologies and traditional skills, a bespoke jeweler and a typography foundry specializing in Asian fonts.

'One highlight of the course was the presentations at the end; although it was nerve-racking to do, it was very interesting to see other groups ideas.'

'The 5min presentations were great - got to view the breadth of other students work'

Project 2, 20%, is an individual task in the form of a Business Administration Report. Students negotiate within their team to research intellectual property, business registration or licensing and distribution considerations for their company. Information collected in each 1500 word report may be used in the compilation of the final group business plan. This exercise tests the individual student's ability to perform independent research in an unfamiliar area. Later the student reports back to their team and incorporates that research into the team business plan. This emulates division of tasks within a team environment and the importance of individual performance on the team outcome.

Project 3, 20% is designed to encourage students to actively prepare for and participate in tutorials, peer review and personal reflection along with discussion and other online activities.

In part one, the extent of individual participation in class and online are measured. A satisfactory or unsatisfactory grade is given. Each week students may be randomly chosen either individually or as members of teams to answer questions about the week's topic, to give prepared responses to pre-assigned tasks and/or participate in "on-the-spot" in-class problem solving. The weekly class activities are designed to support the materials delivered in the lectures and online. After participation in these it was expected that students could translate the theory into practice in their assessment tasks.

Part two involves peer review and personal reflection. In week 5 students undertake a peer assessment of how they and their group members worked together and reflect on the results in order to improve. In week 14 the process is repeated to test if there has been an improvement. Personal reflection on the course was done online via short answer and multiple choice questions.

Review of the feedback from the 2007 delivery of SDES2116 indicates it was well received with greatly increased levels of student satisfaction in all areas measured over 2006 delivery. There is still some room to improve particularly in making the online components run more smoothly and easier to access and navigate. Better alignment of tutorial activities and online discussion activities could be achieved along with more targeted use of the reader.

Some final comments from students in 2007 were;

'I found this course extremely valuable and would like to have it extended into 2 sessions as there is so much more to learn.'

'This course has really been helpful to me because it has given me skills beyond just design.'

'I'd never thought about the technical aspects of a business before this course so it was interesting to learn about it In order to understand it, I had to really dig deep and ask questions and research which was all beneficial in the end.'

'[This course is] very very useful, so thank the system it is mandatory. A vital link between this degree and the real world.'

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