

Deal Me In: Preparing Business Graduates for the Workforce

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Robust concepts in finance should prepare students for work as a result of them participating and experiencing real world decision making themselves by interpreting, understanding and interacting in simulated financial markets. By developing capstone units at undergraduate and postgraduate level that simulate financial markets and bring inter-disciplinary concepts together it is possible to demonstrate the importance of theory to students and its relationship to the world of work.

By emphasising the interaction between disciplinary knowledge and the development of graduate attributes in an applied learning environment, graduates learn to understand the importance of their university degree studies prior to entering the workforce. By developing attributes of research and inquiry, information literacy, ethical and professional understanding, personal and intellectual autonomy and communication they learn to understand the importance of developing their skills as ethical and responsible global citizens who work for the good of the business professions and the community.

This paper discusses the role of capstone units in curriculum development that meet the needs of students prior to graduation and the local/global benefits they take to an international workforce. It is based on evidence collected in a simulated treasury dealing room at a Group of Eight University¹ in Australia that researched the effectiveness of a simulated Treasury Dealing Room (now known as STARLab) in improving learning within the Finance discipline. It used a pre- and post-survey of students to establish their perceptions on learning effectiveness. It concluded that students believe that STARLab improves their opportunities to apply the theory they have learned; they learn more from computer laboratory sessions like STARLab than they do from lectures; group learning (as occurs in STARLab) is more effective than individual learning; their ability to monitor the effectiveness of their learning is improved by the STARLab unit and the unit improves their ability to develop alternative solutions to ethical problems in financial markets, and to evaluate these alternative solutions from a moral point perspective.

Student motivation to learn is believed to be enhanced by the high value they place on STARLab learning; their preparedness for participating in STARLab; the fact that initial levels of anxiety about trading appear to be quickly overcome and the resources are provided to help them learn. Students believe that the learning process has provided them with the opportunity to understand decision making in business and that working in teams in a pressure environment provides fulfilment as they seek to expand the profitability of their team.

Keywords: Capstone units, curriculum, education, financial markets, graduate attributes.

INTRODUCTION

Australia's economic and social future requires that business graduates value cultural differences, communicate easily across diverse cultures and possess the range of skills and knowledge required to conduct business globally (Marton, 1981). The development of graduate attributes, such as the ability to engage in a culture of communication and work that is increasingly global, is an important outcome of business degrees. "What is required in a workforce is not the acquisitions of knowledge, skills and dispositions per se, but the capability to an engagement through which knowledge, skills and dispositions are connected as a whole" (Su and Feng, (2008). This relates to employability, which can be defined as "having the skills and abilities to find employment, remain in employment or obtain new employment as, and when, required" (Thijssen, Van der Heijden and Rocco, 2008).

The West Committee Report (1998 p.4) to the Australian Vice-Chancellors' Committee (AVCC) in outlining the nature, purpose and value of universities commented that universities should develop intellectual independence in their graduates together with a set of cognitive and social capacities which support active participation of graduates in society (AVCC, 1997). It also identified specific attributes that first degree graduates should develop including 'the capacity for critical, conceptual and reflective thinking [and] high ethical standards in personal and professional life, underpinned by a capacity for self-directed learning' (AVCC, 1997). The term "self-directed" is taken to mean looking at all alternatives and then deciding on a course of action rather than actually knowing how to do it. The West Committee Report concluded that 'providing high quality learning experiences should be at the heart of university endeavour' (AVCC, 1997 p.2). Internationally this has been reinforced in the United Kingdom (NCIHE, 1997), New Zealand (the New Zealand Ministry of Education, 2006) and Australia (Bradley Review into Higher Education, 2008).

These reports confirm a university, government and employer focus on graduate capabilities (discipline specific knowledge and graduate attributes) and employability in a world where the development of skills related to lifelong learning are well recognised (Candy, Crebert and O'Leary, 1994). It suggests that higher education must engage in disembodied the student from their particular life experiences and place them into more abstract modes of thinking, transcending time and space to help them develop "thinking" skills (Giddens, (1990). Evidence of countries where an employability agenda is being adopted by the higher education system include Australia, New Zealand, Canada, Denmark, Europe, Finland, South Africa and the United States of America (Little, 2003).

GRADUATE ATTRIBUTES

Graduate attributes are not developed through repetition or "rote learning" because they are attributes that are developed by graduates in their decision making process in light of the circumstances prevailing at the time; each instance may be very different and may require a different action to solve that particular problem. These attitudinal and dispositional qualities are developed through other people and are seen as products of cultural, ethical and social circumstances that may be refined by knowledge and reflection. They are distinguished from discipline specific knowledge and technical skills that are traditionally associated with higher education (Hager, Holland and Beckett, 2002). Traditionally, in universities, disciplinary knowledge tended to be taught explicitly whereas graduate attributes were taught informally and implicitly even though university education is linked to the development of graduate attributes with a capacity for lifelong learning (Bath, Smith, Stein and Swann, 2004). A balance between the acquiring of disciplinary knowledge that forms the curriculum of

traditional higher education and an approach that values skills development as part of the teaching and learning process is a more desirable approach (Smith and Bath, 2006).

Graduate attributes are seen as meeting the needs of employers because they are considered to be flexible, transferable and applicable to a rapidly changing employment environment. In Australia, stakeholders (employers, government and professional bodies) now demand that generic skills and graduate capabilities be enshrined in visions about the purpose and practice of higher education evidencing the link between employment and higher education (Edwards and King, 2002)

Monash University in Australia, where I work, emphasises this approach in its graduate attributes policy by making an explicit claim about its students. “When they graduate they will be equipped to live, learn, work and contribute globally. They will have been inspired by our internationally-focused, research-led teaching and wish to use their talents to improve the world” (Monash Graduate Attributes Policy 2009) p.1). The Monash Graduate Attributes expand on these aspirations and reflect the vision Sir John Monash established in 1923. “Adopt as your fundamental creed that you will equip yourself for life, not solely for your own benefit but for the benefit of the whole community” (Serle, 1982). They form the foundation for the discipline-specific attributes that Monash students develop in preparation for their future as responsible and effective global citizens, critical and creative scholars who are equipped for self and the benefit of the community.

This suggests an increased emphasis on student-centred learning, requiring a reduction in the role of ‘lecturer’ and an increase in the role of ‘mentor’/‘coach’/‘program manager’. As a result, I have developed two units at undergraduate and postgraduate level that make the students do the “work” and decision making in a technological environment during class by developing a simulated treasury dealing room (now known as STARLab). It creates a rigorous market atmosphere in the classroom to enable students to understand how to apply theories learned in other units of their degree in a “real world” environment (disciplinary skills) and to explicitly develop the attributes that Monash University’s graduate attributes policy suggests its graduates possess. This is achieved by influencing, motivating and inspiring students to learn by empowering them to take responsibility for their individual and collective learning.

THE SIMULATED TEACHING AND RESEARCH LABORATORY (STARLab)

The key principle behind my pedagogical approach to learning and teaching is that robust concepts in finance should emerge for students as a result of their participation and experience with “real world” decision making. For students to successfully complete the unit they must develop skills of interpretation, comprehension of rapidly changing information, a strong understanding of team interaction and report writing. The unit also models the epistemological culture (method) of the finance discipline. The scholarship of discovery, integration, application and teaching is a focus of my approach to education (Boyer, 1990).

STARLab provides a learning environment that provides students with an opportunity to explicitly develop the combination of technical and analytics leading to the development of the graduate attributes that are enshrined in the University’s graduate attributes policy.

Students are empowered to learn, focus on analytical learning and support critical thinking rather than rote learning. In the Faculty of Business and Economics, international students now represent 54% of the university’s commencing international students. Most are from Asia where the tradition and culture of teaching is different to that of the western world. The ability to integrate the various cultures in a learning environment, where everyone can work and communicate actively together both inside and outside the classroom to solve common problems is a stimulating and enriching experience for the students in the context of

their understanding of global citizenship, lifelong learning and the linking of scholarship to practice.

STARLab creates an environment where no-one knows the actual financial outcome of student decisions in advance; hence both teacher and student are absorbed in the simulation throughout the trading period. Teamwork between bank participants (the student), the market (all students) and the teacher is vital to enable the simulation to work successfully and becomes a common educational goal. Students are not passive recipients of transmitted knowledge and they become aware of the need to develop their own responsibility for their continued learning. They are able to see the need to adapt to change and become lifelong learners. Students are able to recognise the importance and power of the theoretical foundations in finance, identify the validity of having a sound foundation to the development of their knowledge and critically evaluate those foundations and apply them in realistic situations.

Software (“Monash Trader”) was developed by me in collaboration with the Faculty of Information Technology (FIT) with undergraduate and postgraduate students over a two year period. Our students display their prices to everyone in a real time market to provide “price discovery” and complete “deals” by telephoning their preferred bank. All decision making is motivated by the students’ quest for financial profit within a risk/return profile they develop for themselves. Once deals are completed a position keeper inputs the transaction which is matched to the counterparty “real time”. If the transactions do not match they must telephone the other bank to determine and resolve the problem. They are responsible and accountable for their decisions and actions! Thirty minutes instruction is all that is required for students to learn how to use the software enabling them to focus on the educational goals. Technology is our slave!

In their decision making, students are required to draw on past units studied in disciplines such as banking, finance, accounting, economics, management and marketing so that they quickly recognise that their previous units are interrelated and relevant. The moral and ethical values of “real world” decision making is central to all activities.

Students operate their own bank in teams of three in their own “bank booth” so decisions and strategies are confidential to them. Communication with other banks is through “real time” prices displayed via computer screen and by telephone. This develops their critical thinking, numeracy and oral communication (English) skills. Each member of the team has their own role (dealer, risk manager and position keeper) and these roles are changed weekly. Students are expected to take responsibility for their own learning as they manage their own bank’s profit, balance sheet and associated risks. Students are encouraged to be innovative and recognise that mistakes made during trading are an opportunity to learn further as they reflect on their own practice. They are aware that it is the journey that is important, not just the profit outcome. Many concepts are taught through “riddles” which students must solve if they are to optimise their profit performance. As an example, we advise students that “we will trade with them any time, any place, subject to price”. It is not unusual for students to be in constant personal or email contact with me to try and create market positions before the market opens.

When the students solve one riddle they are provided with another to further “frustrate” and motivate them to expand their thinking further. In this context, the unit becomes “infectious” and engages students throughout the week as they seek to firstly understand how they can set the price with minimal risk and create an advantage for their bank for the next trading session. This creates an environment where students are continually thinking about their study as they seek to solve these riddles to gain a market advantage over others.

Each week, prior to trading, banks are required to submit their strategy in writing to the unit leader (based on an economic scenario). Following trading they must reflect on their actions and provide a written report to the unit leader (as Chief Executive Officer) outlining their performance and actions, including self appraisal on the positive and negative aspects of their actions. Trading reports are discussed in class each week, before trading commences, to provide feedback on the common problems revealed and suggestions to improve in the next trading report. Learning becomes cumulative. Students are encouraged to be innovative and develop their own models. Their last trading report is always a great improvement on the first report they completed, enabling them to see how their skills have developed over the semester. They are encouraged to bind their reports and take them to employment interviews as evidence of what they studied. Feedback from students, especially international students, is very positive in terms of how this approach assisted them to gain employment. The reports are also shown to industry practitioners for feedback to students and they provide high praise.

Peer assessment sheets are completed at the end of each module by students providing a mark and comment on the contribution of the other team members to ensure that the workload is fairly distributed within each team; otherwise an adjustment of marks for the reports is made in consultation with students. All reports are completed in business report format, preparing students for report writing in business. At the end of each trading session the whole class becomes involved in a “self regulatory” committee where market problems are discussed and resolved. This provides an opportunity for students to learn about self-regulation. Moral and ethical issues of market activity are often discussed and resolved by the committee if students have not conducted themselves in terms of the written code of conduct.

Assessment methods are continuous throughout the semester. Students are assessed on their professional approach to the money markets, with a focus on the qualities necessary for dealers in any efficient financial market; weekly trading reports assess critical analysis, creativity, report writing and comprehensibility and the level of profitability intensifies competition and encourages students to apply themselves. Before semester end students understand that the assessment is relevant to their life pursuits after graduation and this inspires and motivates them to be actively involved in their learning process.

One way of demonstrating value to students is the promotion of our educational offerings to industry. We take every opportunity to have market practitioners and role models visit the dealing room during trading sessions and promote the dealing room through the media when possible. Professional bankers and dignitaries such as the Governor of Victoria, the Chancellor of the University and the USA Eisenhower Fellow have visited during classes to observe and discuss activities with students. This provides confirmation to our students that what we are doing is both practical and relevant in terms of their future careers.

EVALUATION OF THE EFFECTIVENESS OF STARLab

The effectiveness of STARLab was demonstrated through a student survey (pilot study) (Lambert, Tant and Watson, 2008). The research instrument used was a simple pre-survey of student perceptions at the start of the STARLab capstone unit Money Market Dealing, followed by a post-survey of student perceptions at the end of the unit. Measurement was largely by a 5-point Likert scale, ranging from Strongly Agree to Strongly Disagree, although the ability to make free-format comments was also provided.

One question dealt with the preparedness of students for employment: “I am prepared for employment, and managing interest rate or foreign exchange risks, in the real world”. Ten questions dealt with perceptions of student-centred learning and the development and application of skills. Five questions focused on ethics.

THE SAMPLE SIZE

The sample was limited by the size of the STARLab, which handles only 45 students per class. The pre-survey involved 43 responses, the post-survey involved 39. This relatively small sample size places obvious limitations on the ability to prove statistical differences between pre- and post- survey results, but nevertheless some statistically significant differences were identified. It is now an ongoing study.

RESULTS

PREPARATION FOR EMPLOYMENT

While the percent who Agreed or Strongly Agreed they were prepared for employment increased from 34.9 percent in the pre-survey to 61.5 percent in the post-survey, the small sample size means this difference is only significant at the 10 percent level ($\chi^2 = 7.731$, $df = 4$, $p = 0.102$). Pre- and post- surveys are being continued to build a broader sample base.

Males and females had different views on their preparedness for employment in the pre-survey. Only 23.8 percent of females Agreed or Strongly Agreed they were prepared, compared to 42.9 percent of males ($\chi^2 = 23.582$, $df = 8$, $p = 0.003$). The reasons for this difference are unclear. In any case, by the end of the unit, this difference between males and females had successfully been eliminated with 62.6 percent of females Agreeing or Strongly Agreeing they were prepared and 65.0 percent of males ($\chi^2 = 23.582$, $df = 8$, $p = 0.003$).

STUDENT-CENTRED LEARNING AND THE DEVELOPMENT AND APPLICATION OF SKILLS

INSTRUCTOR-LED LEARNING.

The percent of students who Agreed or Strongly Agreed that learning was largely instructor-led fell from 46.5 percent in the pre-survey to 30.7 percent in the post-survey, but this change is not statistically significant ($\chi^2 = 5.152$, $df = 4$, $p = 0.272$). Generally students appear to be ambivalent on the issue of whether learning is instructor-led or student-centred. Continuing with the surveys in future semesters to build a broader sample base may help to clarify this.

Prior to the STARLab unit students also appear to be ambivalent on whether they have been given only limited opportunities to apply the theory they have learned (34.9 percent Agree or Strongly Agree, 35 percent Disagree or Strongly Disagree, and 30.2 percent are Neutral). STARLab appears to have a marked effect on student perceptions in this area. The number who Agree or Strongly Agree that opportunities have been limited falls from 34.9 percent in the pre-survey to 18.0 percent in the post-survey, and this difference is significant ($\chi^2 = 12.134$, $df = 4$, $p = 0.016$).

OPPORTUNITIES TO APPLY THEORY.

Generally students appear to agree that they learn more from tutorial/ computer laboratory problems such as those provided by STARLab than they do from lectures. In the pre-survey 50.0 percent Agreed or Strongly Agreed, and this rose to 64.1 percent in the post-

survey, although the difference is not statistically significant ($\chi^2 = 3.263$, $df = 4$, $p = 0.353$). Nevertheless this level of agreement clearly supports the STARLab approach to learning.

LEARNING IN TUTORIALS/COMPUTER LABORATORIES.

Students also appear to agree that learning from group exercises (the approach used in STARLab) is more effective than learning on their own. In the pre-survey 62.8 percent Agreed or Strongly Agreed, and in the post-survey this increased to 76.9 percent, although this difference is not significant ($\chi^2 = 6.405$, $df = 4$, $p = 0.171$). Again, this level of agreement supports the STARLab approach to learning.

GROUP LEARNING.

Responses to the questions on student motivation also provide strong support for the STARLab approach. In the pre-survey 97.7 percent Agreed or Strongly Agreed that the STARLab provided a valuable contribution to their learning and while this dropped to 89.7 percent in the post-survey, this difference was not significant ($\chi^2 = 5.288$, $df = 2$, $p = 0.071$). Those who committed more hours to the unit as reflected in the post-survey had stronger agreement on the value of the unit ($\chi^2 = 16.348$, $df = 8$, $p = 0.038$), which is consistent with what would be intuitively expected. A similar outcome is seen for student expectations for success in the STARLab tasks, as reflected by the question "I am well prepared for participating in a market which trades in interest rates or foreign exchange". In the pre-survey 51.2 percent Agreed or Strongly Agreed and this rose to 69.2 percent in the post-survey – a statistically significant improvement ($\chi^2 = 7.823$, $df = 3$, $p = 0.050$).

Finally the level of student anxiety about STARLab tasks, as represented by the question "I do not feel anxious about executing million dollar money market or foreign exchange trades", showed that only 37.2 percent Agreed or Strongly Agreed prior to studying the unit (reflecting a degree of student anxiety). While this would tend to reduce student motivation at the start of the unit, a statistically significant reduction in this anxiety ($\chi^2 = 7.823$, $df = 4$, $p = 0.050$) is achieved by the end of the unit, with Agreement and Strong Agreement up to 66.7 percent in the post-survey. Most pre-unit anxiety was reflected by female respondents, with only 28.5 percent Agreeing or Strongly Agreeing with the statement they were not anxious, compared to 42.9 percent of males ($\chi^2 = 23.18$, $df = 8$, $p = 0.003$). The reasons for this difference are unclear. (Most social science research suggests that gender differences on anxiety have largely disappeared in modern generations). In the post-survey, this difference had successfully been eliminated, with 62.6 percent of females and 75 percent of males Agreeing or Strongly Agreeing they were not anxious ($\chi^2 = 4.922$, $df = 8$, $p = 0.766$).

LEARNING ABOUT ETHICS

The questions on ethics also generated some interesting results. In the pre-survey students generally already believed they were able to recognise for themselves the ethical issues they faced in financial markets (73.8 percent of respondents Agreed or Strongly Agreed). While this increased to 94.9 percent in the post survey this difference was just short of being statistically significant at the 5% level ($\chi^2 = 7.690$, $df = 3$, $p = 0.053$).

However STARLab did have significant impacts on some of the other ethical questions. Only 54.8 percent of respondents Agreed or Strongly Agreed that they had the ability to develop alternative solutions to ethical problems in financial markets in the pre-survey, but this increased to 77 percent in the post-survey ($\chi^2 = 8.546$, $df = 3$, $p = 0.036$).

Conversely 92.1 percent of respondents Agreed or Strongly Agreed that they were able to evaluate solutions to ethical problems from a moral point of view in the pre-survey, but this dropped to 71.4 percent in the post-survey ($\chi^2 = 6.835$, $df = 2$, $p = 0.033$), presumably because students came to realize the complexity of some of the issues involved as they improved their learning about developing alternative solutions to these problems.

Students appear to believe that studying real life examples of ethical problems is the best way to learn ethics, both in the pre-survey and the post-survey, with around 75 percent of students Agreeing or Strongly Agreeing in both cases.

Students are ambivalent about whether profit is more important than ethics in financial trading (provided the method of obtaining the profit is legal). This is true in both the pre- and post-surveys. There is no significant difference between the two results ($\chi^2 = 3.901$, $df = 4$, $p = 0.420$), which tend to confirm the conclusions of (Kumar et al, 1991) that business course assumptions may lead students to conclude that unethical behaviour and decisions are required for business success.

However, gender differences are evident on this ethical dimension, both in the pre- and post-survey. In the pre-survey, only 23.8 percent of female respondents Agree or Strongly Agree that profit is more important than ethics compared to 42.9% of males ($\chi^2 = 25.944$, $df = 8$, $p = 0.001$). In the post-survey, the percent of females Agreeing or Strongly Agreeing falls to 12.5 percent, whereas the percent of males increases to 55.0% ($\chi^2 = 16.673$, $df = 6$, $p = 0.011$). The reason for these gender differences and changes is unclear.

The pre-survey identified three major themes among the expectations for the unit expressed by students. They included (i) practical knowledge/experience and applied learning (21 respondents, 50 percent) (ii) the development of trading skills (15 respondents, 36 percent), and (iii) gaining a feel for the 'real world' of a STARLab (13 respondents, 31 percent).

The post-survey revealed that 94.1 percent of students were satisfied that their expectations for the STARLab unit were fully met. While the number of comments was relatively low, common themes were aligned with the original expectations; the application of theory/knowledge (6 respondents, 15 percent) and gaining insights into what a real world STARLab would be like (4 respondents, 10 percent)— although one student acknowledged that full knowledge of the real world was not practicable within a university unit. Some responses were very positive indeed e.g. "This class is the best ever had", and "By far the best subject I have done at uni!"

Conclusions

STARLab is an attempt to improve student learning in the finance discipline. The research described in this paper suggests that after completing the STARLab unit, students believe it improves the opportunities they have to apply the theory they have learned.

Students also believe that they learn more from computer laboratory sessions like the STARLab than they do from lectures, and that group learning (as occurs in the STARLab) is more effective than individual learning. Their motivation to learn in the STARLab is enhanced by the high value they place on STARLab learning, and their preparedness for participating in the STARLab. Initial levels of anxiety about trading appear to be quickly overcome.

Students generally believe they are able to recognise ethical issues in financial markets for themselves, even before taking the STARLab unit, but the unit improves students' ability to develop alternative solutions to ethical problems, and to evaluate these alternative solutions from a moral point of view. Despite this, they remain ambivalent about the trade-offs between profit and ethics.

Further research is being undertaken to further explore some of the issues raised by the pilot study. A larger sample size may confirm more fully that the STARLab contributes towards students' preparedness for employment, and improves student-centredness in learning. There is certainly no doubt in my mind that the STARLab environment helps students appreciate the theoretical concepts they have previously learned by developing the attributes outlined in the University's graduate attributes policy. STARlab provides a significant contribution to students developing their own world view in the context of helping them become responsible and effective global citizens, critical and creative scholars who are equipped for self and the benefit of the community. It sends students down the path of valuing cultural differences, communicating easily across diverse cultures and helps them develop the range of skills and knowledge required to conduct business globally.

Visit website:

<http://www.buseco.monash.edu.au/aaf/research/starlab/>

ENDNOTES

¹ The Group of Eight (Go8) is a coalition of leading Australian universities, intensive in research and comprehensive in general and professional education. The Go8 exists to enhance the contribution of its member universities to the nation's social, economic, cultural and environmental well-being and prosperity; extend the contribution of its member universities to the generation and preservation of the world's stock of knowledge; strengthen Australia's capacity to engage in and benefit from global developments, respond to global and local challenges; expand opportunities for Australian students, regardless of background, to participate in higher education of world class (see <http://www.go8.edu.au>).

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