

## ***Evaluation: the Capstone experience***

Paddy Forde

*Curtin University of Technology, Perth, Western Australia*

*Multifaceted evaluation has the potential to handle equitably the complex interactions that permeate educational activities. Multiple indicators provide rich information that encourages holistic analysis from different viewpoints, yet, mining multiple data is perceived as pragmatically difficult. The development of Business Capstone 301 (Capstone) provided an opportunity to incorporate wide-ranging evaluation in a layered and repetitive process. The experiential nature of Capstone required students to accept responsibility for their learning, and academics to become facilitators rather than instructors. Academics needed reassurance that the whole Capstone experience was working. Without useful feedback facilitators found it difficult to decide whether they were attaining their goals. In the case of Capstone, multiple evaluations not only encouraged reliable interpretation, they provided academics with discussions that boosted confidence and pride in their Capstone involvement, and ensured Capstone's continual development.*

### **Background**

This paper describes an interesting observation that arose from the application of problem-based learning to a unit within Curtin Business School's (CBS) undergraduate course. Curriculum development and implementation of the Business Capstone 301 unit has provided a useful case study of collaborative development and, in particular, this paper focuses on the integration of different evaluation techniques.

Utilising a multi-disciplined business simulation as a device that enabled students to demonstrate their professional practice has proven to be an interesting and successful learning strategy. Indeed, Capstone provided a distinctive learning experience that clearly integrated activity with outcome. Students have found the Capstone experience interesting, challenging, engaging and satisfying. The program's success was a powerful example of academic development and implementation designed to meet the learning needs of modern business students. Student diversity and the ability to deliver Capstone across different learning environments are pillars of the Capstone experience. Consequently, Capstone's development has provided final year undergraduates with an enhanced and successful learning experience (Forde, 2006).

After a review of undergraduate course outcomes CBS decided to focus graduate abilities on: applying foundational business knowledge, utilising professional skills, and operating in multi-disciplinary environments. Capstone was designed to provide students with an opportunity to demonstrate these outcomes.

While CBS enjoyed a reputation of producing graduates that 'could hit the ground running' the staff were becoming concerned that the tendency to focus studies in one or two majors was not encouraging students to reflect on their overarching approach to business. Work placements could provide students with an insight into the pragmatic nature of business activities; however they were difficult to arrange for several hundreds of students. Also, employers were understandably restrained when it came to allowing undergraduate interns to make decisions that could significantly impact organisational wellbeing. Even so, staff felt that it was important that undergraduates had an opportunity to put theory into practice in an environment where they could safely test and develop their business acumen. In particular, CBS wanted students to demonstrate the application of their professional skills in a situation that was challenging and competitive because this was the most likely condition they would find themselves facing, once employed. In CBS, professional skills are communication, critical and creative thinking, team work, IT competence and information literacy.

Capstone student teams are required to operate a virtual \$100 million hi-tech company for eight (simulated) years in competition against four other companies. To improve authenticity, team member selection was deliberately diverse. Students were categorised according to study majors, country of origin, gender and age. Facilitators then diversified teams (before classes started) in an attempt to emulate a corporate experience. As a result, students found themselves outside the comfort zone of working with their study major colleagues. They were expected to work in a team of people who had different perspectives from their own. Additionally, Capstone workloads required all members to participate fully if the team was to have a chance of winning. Students were inundated with vast amounts of information and immediate time constraints. In other words, students had to work with people they did not know in a competitive situation with information overload and time pressure. The final ingredient was that students were to assume responsibility for making their team 'work'. While there were discussions on effective teamwork and template 'team contracts', students had the freedom to organise themselves and the incentive to ensure that all members participated effectively.

Therefore, Capstone stimulated student ownership of outcomes and provided an opportunity to demonstrate and fine-tune business acumen during their final semester. This problem-based curriculum placed students in a simulated corporate environment where they naturally focused on operational tasks. However, the curriculum design focused facilitator attention on the student's application of their professional skills. Although teamwork was emphasised, personal endeavour was important because the majority of marks was based on individual work. Assessment techniques included multiple choice testing, assignments, simulation performance, peer evaluations and presentations.

As a result, Capstone provided an authentic problem-based learning experience where students demonstrated the professional skills expected of competent business graduates. Students were encouraged to apply their business knowledge and fine-tune their professional skills as they strived to obtain competent business outcomes. A lecturer in the Capstone program stated:

*My involvement with Capstone has been interesting, stimulating and very enjoyable. What I enjoy most is seeing students I have taught over the years come to grips with a subject that allows them to show me (and mainly themselves) what they have learnt in their studies. It is an opportunity for them to go beyond the comfort zone of an academic discipline they may have become used to and experience true teamwork in a group with varying skills and backgrounds. In this way it simulates the real-life experience of embarking on a career where they will have to deal with people from a wide range of walks of life with different skills and ideas on how things should be done. (Bowyer, 2006)*

By the end of 2005, three semesters of Capstone had been delivered resulting in 287 students completing the Capstone unit, and nine facilitators had been trained.

## **Design**

Capstone's design incorporated educational concepts from experiential learning, constructivism and problem-based learning with the intention of providing students with an opportunity to apply and fine-tune their professional skills.

Dewey has argued that "observation is not enough. We have to understand the significance of what we see, hear, and touch. This significance consists of the consequences that will result when what is seen is acted upon." (Dewey, 1963:68) Learning based on experience (experiential learning) has been described as a basis "for examining and strengthening the critical linkages among education, work, and personal development." (Kolb, 1984:3-4) Indeed, activities that include new experiences are a particularly effective form of learning especially if they "are reflected upon, described and discussed in a group setting." (Ringer, 2002:181) Capstone was therefore designed to provide students with a pragmatic group experience in which they could apply their knowledge to the task of operating a virtual business.

Constructivism emphasises "the active role of the learner in building understanding and making sense of information" (Woolfolk, 2001:329) and placing students in situations where they are required to solve practical problems provides constructive opportunities. As a result, higher education has used problem-based learning in Australia, Europe,

Canada and the United States of America (Aldred, Aldred, Walsh, & Dick, 1997). In the Capstone context, students were provided access to four key aspects of problem-based learning: to develop reasoning skills; to enable contextual learning; to attune learning with the world of work; and to promote self-directed learning (Savin-Baden, 2000).

However, a judgement as to whether the learning experience provides students with expected outcomes is necessary if repetition is to be justified. In this regard, Anita Woolfolk defines “evaluation - decision-making about student performances and about appropriate teaching strategies; measurement - an evaluation expressed in quantitative (numerical) terms; and assessment - procedures used to obtain information about student performances.” (Woolfolk, 2001:523) In Capstone, evaluation enables a description of the perceived quality of the learning experience and provides assurance that an acceptable level of quality has been attained.

*Quality assurance processes are expected to include:*

- a. *criteria that explain achievement in relation to academic quality;*
- b. *reference points (i.e., level descriptors, standards and guidelines);*
- c. *review mechanisms such as self-assessment frameworks and reviews;*
- d. *outputs (i.e., reports, statistics, performance indicators); and.*
- e. *arrangements to promote and support quality improvements.*

*(Middlehurst & Campbell, 2004:103)*

In addition, a fair and just approach is important for equitable evaluation practice. Four issues have been identified as potential problems for equitable evaluation: “withholding the nature of the evaluation research from participants or involving them without their knowledge; exposing participants to acts which could harm them or diminish their self-esteem; invading the privacy of participants; and withholding benefits from the participants.” (House, 1988:258) If Capstone’s evaluation practice was to be continuously utilised it needed to be perceived as an equitable process that produced useful outcomes for all stakeholders.

Therefore, Capstone’s design provided a practical learning experience that encouraged student reflection as realistic business problems were tackled. An assessment and evaluation cycle was used to provide stakeholders with assurances that expected outcomes were attained.

## **Capstone’s assessment and evaluation cycle**

Student assessment processes enabled the collection of useful measurements. A competitive business simulation was used to evaluate team outcomes by assessing each team’s performance, their company report and final presentation. Although teamwork was properly recognised, an individual’s potential to achieve excellent results was not subjugated. A multiple-choice quiz, two assignments, peer reviews and personal journals were used in a manner that achieved systemic reflection.

*[For example, one assignment] was designed to promote meta-cognition (thinking about their thinking, actions and the results of these), which is an efficient learning strategy in developing critical thinking skills. Participants were to describe their thoughts about their collaboration, contributions and what they needed to do to improve their performances as an effective team member. They were expected to open their minds to new possibilities. (Scott, 2004:27)*

Assignment instructions always included preparation guides and marking criteria to ensure student understanding. This enabled facilitators and students to share the assessment expectations. Facilitator spreadsheets assisted the production of formative student feedback and streamlined result collation (thus reducing administrative workloads). Divisional scrutiny, academic discussion and student feedback also contributed to Capstone’s evaluation. All data was used to re-examine and review Capstone before the start of each semester.

A multilayered and repetitive evaluation cycle was designed into Capstone to provide facilitators with the confidence to realise continuous improvement and adaptation. In the case of Capstone, seventeen opportunities for participative reflection were built into the implementation and delivery process. Each semester consists of a continuous cycle of

learning and assessment activities (starting at 1 through to 17). Some activities are sequenced (e.g., opening review) while other activities are extended as required (i.e., usage of the professor's discussion board).

1. Review (and orientation) – before the start of semester facilitators meet to review the previous Capstone experience. Academics are encouraged to contribute ideas and suggestions for improvement. The review also enables forthcoming changes to be discussed and for new facilitators to complete Capstone orientation (orientation is compulsory for all new Capstone facilitators).
2. Professor discussion board – Capstone's online learning management system (LMS) provides a discussion board that enabled facilitators to post experiences and discuss topics of interest. This encourages communication, provides new facilitator's access to their colleagues and records useful insights (and review input).
3. Multiple-choice tests – a part of student assessment that provides indications of preparedness, early in the semester.
4. Team discussion board - Capstone's online LMS provides a private team discussion board that encourages good record keeping and provides an alternative to face to face communication. This resource provides teams with information that is useful in the preparation of company reports and facilitator's with an on-going view of team development and progress (as well as input for review).
5. Team meetings – these weekly classroom events enable teams to prepare their team decisions and allow facilitators on-going monitoring opportunities.
6. Individual journals - Capstone's online LMS provides students with a private journal in which to record reflections about their collaborative experiences. This resource accumulates data for the student 'collaborative assignment' and provides facilitator's with the ability to monitor individual perceptions of how they are managing in their teams (and also provides review input).
7. Simulation de-briefing – these weekly classroom events provide facilitator descriptions of team performances and for attention to be drawn to areas of interest or concern.
8. Class discussions – programmed events that encourage discussion of wide-ranging topics like teamwork and ethics. Facilitator reflections about the success of these events provide useful consideration for change.
9. Assignments – a part of student assessment these assignments provide indicators of student appreciation of the difficulty of attaining business outcomes and reflections about their collaboration within teams. The collaborative assignment provides facilitators with powerful indicators about Capstone team working.
10. Ad-hoc and planned facilitator/team discussions – provide facilitators continuous monitoring opportunities.
11. Community of facilitators – Capstone's academic culture encourages colleagues to be interested and involved with each other's facilitation. Therefore, team-teaching (to assist new facilitators) or guest teaching (to manage work-load clashes) is readily accepted. This atmosphere encourages discussion about individual and the groups teaching experiences within Capstone.
12. Simulation result – as a part of student assessment the simulation score indicates student ability to achieve acceptable results within Capstone. Summary descriptions provide facilitators with indicators about whether Capstone is correctly attuned to student capabilities.
13. Presentations – as a part of student assessment, team presentations provide an opportunity to celebrate team and individual outcomes. They also provide facilitators with an impression of Capstone's experiential value.
14. Student achievement – individual Capstone marks provide indicators of overall student performances.
15. Student feedback – Unit Experience Questionnaires and Evaluate responses provide valuable student perceptions about their Capstone experience.
16. Support material revision – reflecting about changes to Capstone material provides an opportunity to incorporate improvement and to refresh the learning experience.
17. Reports – preparing the Capstone report for the course controller encourages Capstone's unit controller to demonstrate reflective evaluation and to disseminate awareness across the division.

Rotating through these activities provides a multifaceted evaluation process that provides rich information based on different points of view and encourages a more comprehensive interpretation of the outcomes. By integrating the capture of useful data into normal Capstone delivery timelines, and by supporting student and academic usage of that data, the evaluation cycle is perceived to be an important component of the learning experience. Students use discussion board, journals and the various assignments to assist the completion of their assessment tasks. Academics use these sources and the other evaluation points to build confidence in their development and implementation of a

satisfying learning experience for all students.

In conclusion, Capstone provides business academics with an example of collaborative academic development and ongoing case studies that integrate multiple evaluations which enable students to demonstrate achievement of the learning outcomes.

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