

# Capstone courses in undergraduate business degrees

Final report 2013

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## Executive summary

We conducted this project to address a problem concerning the lack of knowledge about capstone courses. The aim of this project was to gather and disseminate good practice in the design of capstone courses, including the design of learning activities and assessment. Capstone courses are usually compulsory and offered in students' final year. They are intended to be the culmination of students' studies and designed to give them an opportunity to integrate their knowledge and skills and to prepare them for their transition to the workplace.

This project sought to increase the level of understanding of capstone courses within Australian business schools and to produce useful resources for staff teaching them. The main deliverables were *Capstone Courses in Undergraduate Business Degrees: A Good Practice Guide* and a website on capstone courses in undergraduate business degrees.

The project was conducted in four phases.

Phase 1 consisted of:

- a comprehensive audit of capstone courses offered in Australian business schools, based on course information provided on university websites;
- in-depth interviews with 25 lecturers teaching capstone courses in the partner universities;
- nine focus groups with students currently enrolled in capstone courses in partner universities;
- a focus group with the Australian Business Deans' Council;
- a survey of alumni from each partner university; and
- a review of the literature on capstone courses.

In Phase 2 the project team delivered a series of workshops in most states and territories. A total of 18 workshops were held in university business schools across Australia, and we have been invited to conduct more (after the formal end of the project). We also have two published articles, one under review, and three in development, which either report on the project findings, or on related issues.

Phase 3 involved the development of the Good Practice Guide on capstone courses, drawing on information gathered during phase 1. The Guide is comprehensive and contains information, guidance, case studies and ideas for introducing, designing, teaching and assessing capstone courses. Some of the topics it addresses include:

- What is a capstone course?
- Why offer a capstone course?
- Types and prevalence of capstone experiences
- Managing the change to capstones
- Planning a capstone course
- Learning and teaching activities

- Assessment

Phase 4 (to come) consists of a national, interdisciplinary forum on capstones to be held in October 2013. This became possible when the OLT invited the project team to use the unspent funds from the grant.

The Guide includes a range of short (2-3 page) case studies of capstone courses across a selection of business disciplines, with information about the aims of the course, the approach to teaching and learning, teaching and learning activities, assessment and course outcomes. It also covers some of the pedagogical theories that are useful in designing and delivering a capstone course. Copies of the Guide are being distributed to each Australian business school, and to the library at each university.

The website ([www.businesscapstones.edu.au](http://www.businesscapstones.edu.au)) has been designed around the content in the Guide. It provides a downloadable Guide (as a whole, or chapter by chapter), an overview of each chapter, and the capacity to add further case studies of actual capstone courses, in addition to those that we have already gathered.

The project has been relatively straightforward, with no major challenges. We have met our objectives, to the extent that these can be measured. We have produced a set of linked and highly accessible resources to help lecturers teach and administrators introduce or refresh capstones.

# Table of Contents

Acknowledgements.....	3
Executive summary.....	4
Chapter 1: About the Project.....	7
Chapter 2: Major Findings.....	13
Chapter 3: Dissemination.....	32
Chapter 4: Linkages.....	33
Chapter 5: Evaluation.....	35
References .....	37

# Chapter 1: About the Project

## 1.1 Reasons for the project

There were several reasons for undertaking this project. First, no broad-based studies of capstones have been conducted at a discipline, national or international level. Even in the business discipline, the introduction of Association to Advance Collegiate Schools of Business (AACSB) accreditation has not resulted in any systematic collection of data or any published output. Second, published studies on capstones generally focus on single courses, draw from small samples, cover more superficial features of course design and assessment or have a normative intent.

Thus, this project sought to systematically address the current limitations of capstone research, beginning with a necessarily broad, national snapshot of capstone courses across a single discipline to identify their extent and use, the type and patterns of offerings, and the broad content and approaches to teaching, learning and assessment. Business schools were chosen as the unit of analysis because the business discipline in Australia is undergoing changes in curricula due to the growing number of international accreditations. Driven by issues such as the need to demonstrate assurance of learning (AoL), national education standards and international accreditation processes (Zhu & McFarland, 2005) and calls from industry for 'work ready' graduates (BIHECC, 2007), capstone courses in Australian business degree programs are increasingly popular and provide a focus for systematic research into capstones.

## 1.2 Project outcomes

The aim of this project was to gather and disseminate good practice in the design of capstone courses, including the design of learning activities and assessment. Capstone courses are usually compulsory and offered in students' final year. They are intended to be the culmination of their studies and designed to give them an opportunity to integrate their knowledge and skills and to prepare them for their transition to the workplace.

Despite the popularity and potential significance of capstone courses, at the time this project was developed, there was little research about how they are best designed and implemented and few practically oriented resources to help lecturers develop or improve them. An initial scoping study conducted by the project leaders at Griffith University (van Acker et al, 2009) showed that a significant number of capstones in that University's business school were run along similar lines to other courses. Some staff teaching capstone courses did not understand their purpose and were treating them like any other course – one that simply happened to occur in students' final semester – with a text, standard lectures and tutorials, and large amounts of new content. Assessment often included a significant examination component that emphasised content mastery and/or a large group work component that did not allow individual assurance of learning to take place.

Anecdotal evidence from other universities also indicated that staff understanding of capstone courses was underdeveloped, with the result that many capstones were not realising their potential to integrate curriculum and consolidate professional socialisation and employability skills.

This project therefore sought to increase the level of understanding of capstone courses within Australian business schools and to produce useful resources for staff teaching them. The main deliverables were a Capstone Courses in Undergraduate Business Degrees: A Good Practice Guide and a website on capstone courses with, information, guidance, case studies and ideas for introducing, designing, teaching and assessing them.

As set out in the project evaluation framework, the desired outcomes of the project were that:

- staff at all levels (lecturers, course convenors, deans) in Australian business schools and, to a lesser extent, in other faculties, will have a better understanding of the nature, purpose and types of capstone courses;
- more teachers of capstone courses will design courses and learning activities and assess learning in ways that align with best practice and align with their university's assurance of learning processes;
- the understanding and conceptualisation of the final year experience and capstone courses will be advanced in the scholarship of teaching and learning; and
- partner universities will continue to work collaboratively to enhance teaching and learning.

### **1.3 Project approach and methodology**

The project was conducted in four phases – the fourth of which is still to occur.

**Phase 1** consisted of:

- a comprehensive audit of capstone courses offered in Australian Business Schools, based on course information provided on Australian university websites;
- in-depth interviews with the Associate Deans (Teaching and Learning) (ADT&Ls) at the five partner universities;
- in-depth interviews with 25 lecturers teaching capstone courses in the partner universities;
- nine focus groups with students currently enrolled in capstone courses in partner universities;
- a focus group with an Australian Business Deans' Council group of broadly representative ADT&Ls;
- a survey of alumni from each partner university; and
- a review of the literature on capstone courses.



In **Phase 2**, the project team delivered a series of workshops around Australia. Rather than conduct a final year forum as originally planned, we decided to disseminate our findings at the local level through workshops conducted in most States and Territories. In total, more than 240 people participated. The workshops also provided the opportunity to discuss the project's findings and to gather data and case studies for the Good Practice Guide.

**Phase 3** involved the development of the Good Practice Guide on capstone courses, drawing on information gathered during phase 1. Other outputs included publication of journal articles, presentations at national higher education conferences, and development of the website ([www.businesscapstones.edu.au](http://www.businesscapstones.edu.au)).

**Phase 4** consists of a national, interdisciplinary forum titled 'Capstones: The Time is Now!' on capstone courses 'across the disciplines' (i.e. not just in business,) to be held in October 2013 at Griffith University.

This possibility arose when there was some remaining funding and OLT invited the team to use it for further dissemination. Hence the originally-planned 'final year forum' will become a reality.

Key features of the Forum are:

- keynote speakers
  - Associate Professor Nicolette Lee, the OLT National Senior Teaching Fellow (Capstone curriculum across disciplines) and Associate Director, Tertiary Scholarship, Victoria University, Melbourne; and
  - Dr Annie Holdsworth, Capstone Project Leader, Faculty of Science, La Trobe University (and author of a major resource on business capstones);
- national call for papers and publicity via DVCs (Academic);
- around 20 paper and workshop presenters and panellists from both the host university and others, from a wide range of disciplines, all of whom have been invited to contribute a short paper to the project website; and
- 60 registrants to date (1 Sept 2013), including participants from other universities in Queensland, and interstate participants.

The Forum will thus:

- link with a key national senior teaching fellow's project;
- provide the opportunity for a national, interdisciplinary conversation about capstones;
- fulfil a key need expressed by those interviewed, to have more opportunities to access information about capstones;
- result in additional resources on the project website; and
- allow for further dissemination of project findings.

## 1.4 How this project uses and advances existing knowledge

This project was originally funded by the Australian Learning and Teaching Council Ltd (ALTC). Following the closure of the ALTC and transfer of its programs, the Australian Government Office for Learning and Teaching oversaw the project.

At the time the proposal for this project was submitted, the objectives of the project aligned with the ALTC's objective to 'identify, develop, disseminate and embed good practice in learning and teaching'. It fit within two priorities of the 'Priority Projects Program', namely 'Priority 1' relating to academic standards, assessment practices and reporting, and 'Priority 2', relating to curriculum renewal.

This project also addressed the findings of a major scoping study funded by the ALTC (ABDC, 2008) which identified major priorities for business education, including the need to a) build professionally relevant learning and industry engagement into the business curriculum, and b) to build and assess the development of generic skills across the business curriculum. These priorities are addressed in capstone courses because they are usually focused on professionally relevant learning, they often involve projects based on 'real life' scenarios faced by industry and convenors of capstone courses often involve industry practitioners as guest presenters or in assessing students' work. Capstone courses can also be used to confirm that students have mastered generic skills (van Acker et al, 2011).

The academic value of the study is that published studies on capstones generally focus on single courses (Bailey, Oliver & Townsend, 2007; Dunlap, 2005; Jervis & Hartley, 2005; Keller, Chan & Parker, 2010), draw from small samples (e.g. Udliis, 2008) cover more superficial features of course design and assessment (Hauhart & Grahe, 2010) or have a normative intent (e.g., Durel, 1993, Levine, 1998, Moore, 2006; Starr-Glass, 2010). This project drew on this existing literature, but extended and enhanced it. Relevant findings have been incorporated into the Good Practice Guide. The project has contributed to the scholarship of teaching and learning with the publication (and planned publication) of the following journal articles and conference papers:

- van Acker, E. and Bailey, J. (2011) 'Embedding Graduate Skills in Capstone Courses', *Asian Social Science*, 7 (4), 69-76 (special issue: graduate skills).
- French, E. (2011) 'Communities of Practice: Building Organisational Capability Through an Undergraduate Assurance of Learning Program'. *e-Journal of Business Education & Scholarship of Teaching*, 5 (2), 48-65.
- van Acker, E., Bailey, J., Wilson, K. and French, E. (forthcoming) 'Capping Them Off! Exploring and Explaining the Patterns in Undergraduate Capstone Courses in Australian Business Schools', *Higher Education Research and Development*.
- Wood, L., Psaros, J., Miskovich, A. and French, E. 'Learning Experiences for Transition to Work' (to be submitted to *Higher Education Research and Development*).
- Bailey, J., van Acker, E., Wilson, K., French, E. and Andrews, L. 'The Dilemmas of Teaching Capstone Courses' (to be submitted to *Studies in*

*Higher Education*, originally planned for January 2013 although it will now be October 2013.)

- Zanko, M., Turbill, J., Sykes, C., Gibbons, B., Moerman, L., Spedding, T (2012) 'Building a Matrix in the Student's Mind Through Embedding Cross-Disciplinary Innovative Capstone Courses.' (A paper presented at the Edulearn12 conference held in June 2012 in Barcelona, Spain).

Two other papers are in the planning stages. One from the Wollongong team prepared from the conference paper (above). Another, with Erica French, QUT, as first author, will make further use of the alumni data.

The project co-leaders conducted a well-attended symposium on capstone courses at the 2011 Higher Education Research and Development Society of Australasia ('HERDSA') held at the Gold Coast in July 2011.

They also presented a paper on the capstone audit at the 2012 Higher Education Research and Development Society of Australasia ('HERDSA') held in Hobart in July 2012.

## **1.5 Critical success factors and barriers**

From the perspective of members of the project team, including members from partner universities, the following factors contributed to the success of this project:

- A topical issue—there was a great deal of interest in capstone courses over the project period as increasing numbers of Australian business schools introduce them, for reasons cited above. Lecturers were looking for information and advice on how to develop and improve capstone courses, as evidenced by the good attendance at our workshops and the interest expressed in our Good Practice Guide.
- Involvement of diverse partner universities and reference group members—this project benefited from the input we gained from very varied partner universities (in terms of size, geography, and stage of development of their capstones), and from a project team comprising of teachers at the coalface, decision makers and managers, and those with experience and expertise in teaching and learning projects. This diversity helped us identify the various stakeholder groups and how we could best develop materials tailored to their needs and priorities.
- A focus on the ultimate objective—we kept coming back to the main purpose of the project which was to develop something that was 'useable'—that spoke to lecturers needs and gave them the information they need to help them design (or re-design) a capstone, without overloading them with unnecessary information.
- A well planned methodology and sensible timeframes that allowed for unforeseen events or delays.

- A very able and experienced project manager who oversaw the project, ensured deadlines were met and assisted with research and developing project outputs (to support lecturers who have many other commitments and time constraints).
- Judicious use of casual research assistance when necessary, for tasks such as editing, administering the alumni survey, and compiling the feedback from seminar participants.

While there were few barriers to this successful project, on reflection, the project team agreed that it was not always easy to engage with and elicit feedback and input from partner universities. While our two face to face meetings were highly valuable, it was sometimes difficult to get input about project deliverables via email. We recognise and understand that all project members had competing demands and it is difficult to think of a solution to this. Perhaps our expectations about how much people would be able to engage with and contribute to the project should have been more realistic.

The other issue is the challenge of producing both tangible project deliverables and journal articles in a limited time frame, given competing demands on academics' time. We did not write and publish as many articles as we had originally hoped to. Instead, we focused on producing a high quality Good Practice Guide and website, which took most of our time.

## **1.6 Broader application of project outcomes**

We are confident that our project outputs, the Good Practice Guide and website will be highly relevant and applicable to lecturers teaching capstone courses in business, regardless of the institution they work in or its location.

The principles and ideas in the Guide and website are also likely to be helpful and relevant to other higher education staff including decision makers within universities such as deans, associate deans, heads of department and program directors as well as staff developers and learning and teaching advisors. They may also be relevant to those designing capstone courses in other discipline areas and to those teaching capstone courses in postgraduate coursework degrees.

## Chapter 2: Major Findings

The multilayered approach to the project, described on p.8-9, enabled us to collect data from a range of sources and to triangulate our findings. The major findings are summarised below.

### 2.1 Website audit

The website audit identified capstone courses using definitions, criteria and typology from the literature review, including: their 'type' (whether magnet or mountaintop, according to Rowles et al. [2004]); the positioning of courses within a degree program; the relationship to degree majors; and the course content, especially evidence of the dual criteria of looking backwards and looking forward. Since not all business schools explicitly identified capstones, we scrutinised all final year course offerings to determine 'probable' capstone courses.

While limited conclusions can be drawn from often-incomplete course information on university websites, the audit allowed us to build up a picture of the prevalence of different types of capstones, and their patterns of offering.

#### Type and patterns of capstone offerings

A total of 127 undergraduate capstone courses were identified, offered by 34 of the 39 universities in this study. Thus 82 per cent of universities offered at least one course described as a capstone that was a core requirement for students. Of the remaining five universities, three did not offer any capstone courses, while two offered final year courses with some capstone-like features.<sup>1</sup>

A majority of business schools offered only magnet type capstones. A much smaller proportion offered only mountaintop type capstones and a similarly small proportion of universities offered a combination of both magnet and mountaintop type capstones (see Table 1).<sup>2</sup>

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<sup>1</sup> Of the 127 courses, 84 (66%) were specifically described as 'capstones'. While the remaining 43 courses (34%) were not explicitly designated as capstones, they met enough of the established criteria to warrant their categorisation as 'probable' capstones.

<sup>2</sup> Further enquiries showed that none of the professional bodies that approve business programs specifically requires a capstone; neither do international accrediting bodies.

**Table 1: Typology of capstone offerings in Australian university business schools**

Typology of Capstone course offerings	Number & percentage of business schools (N = 39)
Magnet capstone courses only	23 (59%)
Mountaintop capstone courses only	5 (13%)
Combination of mountaintop and magnet capstone courses	6 (15%)
Mandate	0 (0%)

\* Magnet = a capstone to a major

\* Mountaintop = a capstone to a degree program

\*\*Mandate = a capstone required by a regulatory or a practitioner body

Few schools offer magnet capstones in *all* of their business majors. Several schools offer a combination of magnet and mountaintop type capstones in *some* majors (magnets for some majors and a mountaintop for inter-disciplinary integration). No schools offer this combination for *all* of their majors (magnets for all majors *and* a mountaintop across majors). Table 2 summarises the patterns.

**Table 2: Patterns of magnet and mountaintop capstone course offerings**

Patterns of magnet and mountaintop capstone course offerings	No. & % of business schools (N=39)
Magnet capstones in <i>some</i> majors	20 (51%)
Magnet capstones in <i>all</i> majors (no mountaintops)	3 (8%)
Magnet capstones in <i>some</i> majors in combination with a mountaintop capstone	6 (15%)
Magnet capstones in <i>all</i> majors in combination with a mountaintop capstone	0 (0%)
Mountaintop capstones only	5 (13%)
No courses identified as capstones	5 (13%)

The audit found 57 capstone courses with sufficient publicly-available information to allow further analysis.

Key findings were:

1. *On paper, the backward looking function of capstones was more emphasised in the aims and objectives than the forward looking function.* Over half the course descriptions (54%) used words and phrases that referred to how the course integrates students' previously learned knowledge and skills. A much smaller proportion of course descriptions (12%) emphasised the aim of 'looking forward' to prepare students for the workplace.

2. *The majority of capstones courses, based on an examination of content, appeared to introduce limited (or no) new content, and were thus judged to be 'true capstones' in that respect.* But a significant minority, around a third, introduced significant amounts of new content, and are thus judged as unlikely to be capstones.

3. *Capstones generally avoided 'conventional' timetabling.* While information on how courses were timetabled was only available for a small proportion of courses, timetabling in the typical 'two hour lecture, one hour tutorial' format was relatively uncommon. Of the 57 course outlines containing timetabling information, only 30 per cent had this format. In a further 21 per cent, lectures were not offered every week. Nearly half of the courses did not include any lectures at all. Alternatives included seminars and workshops, simulation activities and/or weekly meetings between students and staff. Such timetabling arrangements, while not conclusive in themselves, suggest that the majority of capstones provide less 'lecturing' hours, consistent with their aim to integrate and apply knowledge.

Fifty eight capstone outlines provided information about assessment types, which is summarised and discussed in van Acker et al (forthcoming).

## **Discussion**

The university website audit resulted in four important findings about business school capstones.

1. *The undergraduate capstone course has been adopted widely across business disciplines.* More than four-fifths of Australian business schools require students to complete at least one capstone course in their final year of study. This indicates a sector-wide acceptance of the 'capstone experience' in business studies. In contrast, across all disciplines in Australian universities, only 2.7 per cent of later year students have a capstone experience (AUSSE, 2010: 25). One third of the business capstone courses were however not specifically acknowledged as such, suggesting that academic staff either do not know that their course is a capstone, or do not provide an accurate course description.

2. *The patterns of capstone offerings are very diverse.* Magnets were the most common capstone type, but a range of combinations of magnets and mountaintops was evident. This pattern of findings is unsurprising, given that magnets and mountaintops serve different functions. However, it raises the question of why capstone offerings across business schools vary so much. As universities were deemed unlikely to – and in fact did not – identify courses as ‘mandates’ on their websites, we used our interviews with ADT&Ls (reported below) to explore this issue.

3. *Many courses appeared not to conform to the main capstone features identified in the literature.* While the majority of capstones’ aim is ‘looking backwards’, only a small minority espoused ‘looking forward’. This suggests that the former function – reflecting on experiences and learning – may be at the forefront of lecturers’ minds, while the second is rarely acknowledged and thus may not be operationalised as effectively. While these courses demonstrated ‘integrative’ learning, therefore, they appeared to have a limited ‘transitional’ function. This issue has not surfaced in the literature on capstones; with little or no emphasis on ‘transition’ such courses would not be identified under the conventional definition of a ‘capstone’. Their existence, however, raises the issue of whether such courses can or should be considered as ‘true’ capstone courses.

4. *A significant proportion of business capstone courses introduced large amounts of new content.* By ‘crowding out’ the space to pursue capstones’ expressed aims, this is likely to reduce their effectiveness. Further, some capstones had assessment types that are not consistent with the overall objectives of capstones. The data overall suggest that some capstones do not conform to any ‘ideal type’: they are simply another course – we might call them ‘just another brick in the wall’ – a fact which requires explanation.

## **2.2 Interviews with Associate Deans (Teaching and Learning)**

The trajectory of capstone development in the five business schools we studied in depth (i.e. the project partner schools) is summarised in van Acker et al (forthcoming). The main findings incorporated the reasons for adopting them, the choice between magnets or mountaintops, and the reasons why the audit uncovered a significant minority of capstones that were not truly capstones.

### **Reasons for adopting capstones**

In summary, it appears that the widespread rise of capstones in Australian business schools results from a broad strategy arising from the intersection of the following factors:

1. *The pedagogical motivation to provide a ‘good student experience’ is all-important.* This was mentioned in various ways by all ADT&Ls and of course by many lecturers, using the types of arguments that are used in the capstone literature.



2. *International accreditation is an 'external driver', but does not mandate capstones and is therefore not a major driving factor.* Indeed, of the 11 Australian business schools with one or both forms of accreditation (AACSB and EQUIS), only one has magnet type capstones in *all* majors and none has mountaintop capstones. However, 12 universities without either form of accreditation have widespread capstone coverage, usually mountaintops. Thus, while accredited universities cited capstones as a useful way to achieve program outcomes and collect AoL data, international accreditation appears at the moment to be only a subsidiary factor in driving capstone introduction.

3. *Pressure has not come from practitioner bodies that accredit degrees.* The ADT&Ls we interviewed reported that no Australian professional body – such as the Australian Human Resource Institute, and Certified Practising Accountants Australia – which accredits their particular degrees requires capstones. Further enquiries revealed that the Australian Computer Society (ACS) does mandate capstones (Personal communication, Ruth Graham, ACS, February 2013), the only Australian professional body accrediting business degrees to have such a requirement.

### **Magnets and/or mountaintops?**

The interviews with ADT&Ls showed that the choice between magnet and mountaintop capstones appears to be guided by a mix of factors. Magnet type capstones are usually developed, at least initially, in an ad hoc fashion and are more prevalent, perhaps because magnets provide a path of least resistance in terms of development, since they do not require interdisciplinary and interdepartmental cooperation. Mountaintop style capstone courses may be difficult to develop due to the internal political issues surrounding their ownership, including the challenge they present to disciplinary and departmental boundaries. But schools with strong strategic motivations could overcome these problems.

### **Why are many capstones not 'true capstones'?**

The audit (and the interviews with lecturers and students) showed that many capstones appear had not been designed systematically and consciously in accordance with capstone course principles. None of the ADT&Ls claimed their schools had a set of 'true capstones', even where the school made capstones compulsory for all majors or degrees. One ADT&L admitted that 'it was assumed that [when] someone was given an actual capstone course, they would know what to do [but] it was never really acted upon, so naturally it [the interest in capstones] has drifted'. Another, in a school with two capstone courses, said that they contained 'certain traits which, after the event, course designers thought probably tick the box of being a capstone course'.

All ADT&Ls acknowledged the need for ongoing curriculum development to sharpen and further develop capstones. Capstones, therefore, were always ‘a work in progress’.

### **2.3 Interviews with lecturers**

We asked 25 lecturers at the five partner universities a set of questions based on concepts drawn from the literature on capstone courses, and from the learning and teaching literature more broadly. Interviews were recorded and transcribed, and then we analysed the main themes. Every course is unique and every lecturer has a distinctive approach based on their particular interests, teaching philosophies, experience and passions. We summarise the main findings below.

#### **The purposes of capstones**

Many lecturers gave answers about the purpose of capstones similar to standard definitions in the literature. They talked about pulling or drawing together what students have learned, about giving students opportunities to apply what they have learned, and to develop and practise skills that will help students transition into the workplace. It should be emphasised that most of those interviewed teach what the literature refers to as ‘magnet’ capstones; that is, capstones that synthesise the content of a particular major, rather than the whole degree. For lecturers of a newly developed ‘mountaintop’ capstone that involved students from *across* disciplines in a Bachelor of Commerce degree program, the purpose was the somewhat broader one of helping students to think beyond their own discipline area and to take a holistic view of where and how their discipline fits with other disciplines.

#### **Approaches to capstones**

There was considerable variety in the design of capstone courses and the learning activities and approaches used. Some looked like traditional third year courses which, although they were called capstones, did not have the typical features of one as defined in the literature. This was consistent with the website audit, which as indicated found about a third of capstones could not be considered as such, and with the interviews with ADT&Ls who described some of their capstones as ‘not true capstones’.

Those ‘non-capstone’ courses may have dealt with topics or skills that are important in a particular profession but, as these were new to students, the course covered substantial amounts of new content rather than synthesising what students had already learned. Thus these courses did not fit the standard ‘purpose’ of a capstone.

One convenor was honest about this:

*This unit was nominated as a capstone because we needed one but it's not really designed to integrate previous courses.*

The capstones which accorded more with what the literature defines as capstones attempted to avoid introducing new content and placed a heavy focus on the synthesis and application of knowledge.

### **The role of ‘new content’**

When we asked lecturers whether or not they introduced new material in their capstones, we received a range of answers. Some say they avoid this completely, focusing only on the application of material already covered:

*I don't introduce new content, but a lot of new contexts.*

*I tell the students, ‘I'm not going to teach you anything new’. This course is practical and you know everything you need to know at this point.*

Other lecturers said they introduced some new material, either in the form of new concepts or frameworks which provided a means of synthesising students' pre-existing knowledge, or concepts applied in different ways to how students have used them in the past. For example, a new framework was introduced in the mountaintop capstone framed around the UN Global Compact<sup>3</sup>, which most students had not previously encountered. It seems therefore that in practice (whatever the ‘ideal’) there is usually *some* ‘new content’ but the emphasis is on synthesis and application of existing content.

### **The challenges of ‘looking backward’**

One objective of capstone courses is to integrate the knowledge and skills students have previously acquired through the program. We asked lecturers how they knew what students had done in previous courses. In some cases, this was a simple and straightforward process because lecturers had taught a range of courses in the degree program and were familiar with the content covered. Others found out what students had learned from course outlines and talking to other lecturers. Several universities required that each program sets out in matrix form—sometimes called a ‘curriculum map’—what students were being taught in each course.

We also asked lecturers *how* they integrated knowledge and skills. Some said they do it explicitly by referring back to particular courses and recapping the main ideas.

*....the content centres around revising ‘major ideas’ that they should know well from other courses, but putting them in a much more applied context.*

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<sup>3</sup> The United Nations Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption.

In designing the mountaintop capstone course, it was decided that the capstone course would only incorporate content studied in first year courses. It was also decided that the capstone course would not revisit specific content or rules relating to concepts, but would try and critique concepts more broadly. For example, when dealing with corporate governance in the capstone course, the lecturer would not cover specific laws of corporate governance because these had been addressed in previous courses. Rather, the students would critique the notion of governance and examine what constituted good governance.

A number of lecturers talked about the challenges presented by integration, pointing out that it was not possible to revisit *everything* in a capstone course. They spoke of needing to make decisions about what and how to revisit content, and how to design learning and assessment tasks that call for integration.

Some lecturers observed that although students have covered particular content and concepts, they did not necessarily remember or fully understand them.

### **The challenges of ‘looking forward’**

Capstone courses are usually regarded playing an important role in preparing students to make a successful transition to work or further education. We asked lecturers to what extent ‘preparing students for their transition into the workplace’ is an objective of their course. Most, though not all, said it *is* one of the objectives and, in some cases, a very important one.

We also asked if and how the capstone course fitted with other programs or initiatives in the university designed to help students make a successful transition out. Responses varied from no awareness of any other initiatives, to a few lecturers who actively promoted services available to students to help with career planning and finding a job. In some cases this was done actively, in class time.

We also asked lecturers about the ways in which they prepare students for their transition into the workplace. For one lecturer, the concept of ‘preparing students for the workplace’ was problematic because what students need to know and do in the workplace can change rapidly: it can be difficult for lecturers to ‘really know’ what employers want. This lecturer emphasised affective issues:

*It’s about giving them confidence that they can tackle things, which is really important for their transition.*

A number of lecturers spoke about particular skills that are important in the profession or industry they are preparing students to enter. They emphasised the importance of those skills in the capstone course, such as the capacity of students to:

- write a key message quickly and succinctly;

- apply concepts, theories and frameworks in a practical way and to solve problems;
- use excel and to manage data on spreadsheets (for some disciplines);
- ‘think on your feet’;
- make decisions in a dynamic, changing environment; and
- ask the right questions to get the information needed to solve problems.

### **The influence of learning and teaching theories**

A lecturer’s own experience, preferences, ideas and exposure to teaching and learning theories strongly influenced how courses were designed. Examples of teaching and learning theories and approaches that lecturers drew on included:

- problem-based learning;
- experiential learning;
- project-based learning;
- action learning;
- fostering creativity;
- social constructivism; and
- reflective learning approaches.

While we did not wish to be prescriptive about the teaching and learning philosophy behind capstones, and the appropriate pedagogies, it was noticeable that the minority who espoused more developed theoretical perspectives of teaching capstones had greater constructive alignment between the various elements of their courses. Moreover, where we had data from student focus groups, the students were markedly positive about such courses. This led us to include an ‘Appendix’ in the Guide that canvassed several of the above approaches, each described in the context of a particular capstone course.

### **The nature of the student body**

Lecturers said that the nature of the student body often impacted on what they could and could not do in a capstone, influencing their choices of learning activities and assessment items. The number of students in classes has an obvious impact. Class sizes ranged from 20 students to 1 200 students. Lecturers reported that large numbers affect what is feasible as a learning activity or an assessment item. The diversity of students was also an issue, but lecturers said this was common to all courses, not just capstones.

### **The wider institutional picture**

A few convenors mentioned university requirements that had dictated or influenced aspects of the capstone course. Examples included:

- a school's assurance of learning processes which require that the capstone course include a new, complex regime of assessment;
- a strong emphasis on developing graduate qualities, attributes or capabilities and a requirement that course content and assessment be clearly linked to those attributes;
- a requirement that assessment be given by a particular week, specifications about the word length and number of assessment items, and the requirement that certain percentage of marks should come from examinations;
- large class sizes; and
- a decision that all courses in the school must have two hour lectures and one hour tutorials.

In particular, large class sizes coupled with rigid timetabling of two-hour mass lectures was argued by some lecturers to be antithetical to the purposes of capstones. Lecturers need to be quite gifted to run truly interactive large-scale, two-hour sessions that involve two or three hundred students and get the requisite involvement and participation.

All this is not to say that lecturers always found university or faculty agendas and policies constraining or negative. Some lecturers spoke positively about the focus of the university or school on improving learning, and its particular relevance to the capstone course. One faculty, for example, decided to emphasise socially innovative business through the degree program. All students take a core first year course on social innovation and this is 'bookended' by the capstone course which is also heavily focused on social innovation. Another university's strong focus on education for the 'real world' means there is strong support for a capstone course that mimics work in that profession and prepares students for their transition out.

### **Learning activities**

While there was a wide diversity of learning activities, there were some recurring patterns.

Consistent with the literature on capstones, *holistic 'big picture' projects* were a key learning activity. They included project briefs simulating professional practice, often involving an initial planning or proposal document. For example, in a *Property and Sustainable Development* capstone, students worked in inter-disciplinary teams to investigate an urban development and/or environmental management project, developing a project brief, an implementation plan and a final evaluative report.

*Projects for external organisations*, either external industry or community clients, were used in around 10 per cent of courses – probably reflecting the relative difficulty of organising them – and enabled students to engage with the realities and complexities of organisations. Examples included *Public Relations Campaign*, which

required students to prepare a response to a client brief, with the plan integrating research findings, objectives, strategy, tactics, evaluation and required resources. Projects provide a range of learning benefits for students: hands-on applying of knowledge and skills learned in their degree; preparing for their transition to professional practice; consolidating skills in collaboration, team work and communication; and fostering independent learning.

*Case studies* were popular as learning activities, and frequently formed the basis of assessment items. Lecturers said they gave students opportunities to solve ‘real life’ problems by applying content and theory they have already learned, and help prepare them for their transition into the workplace. For example, a *Strategic Management* capstone course used local and international cases to encourage students to evaluate complex business problems and to provide opportunities to formulate policies and strategies. Similarly, in *Strategic Marketing Management*, students analysed a case study to learn how various topics they have studied interact, and how marketing can meet the challenges of an evolving marketplace. Some lecturers use case studies from textbooks. Others said they found it difficult to find up-to-date case studies in their discipline area. A few lecturers had applied for grants to develop their own case studies.

A number of lecturers emphasised that they intentionally presented students with case studies that did not have a right or wrong answer. They tell students that their final answer is not as important as the way in which they get there—the research they conduct, the theory they apply and the argument they develop. Process as well as outcome is important, in their view.

A few lecturers adopted an explicit *problem-based learning (PBL)* approach. This puts responsibility on the learner to solve authentic problems that mirror real work demands. It lends itself to capstone courses because students usually have to draw on and integrate theory they have learned previously and independently research information in order to solve a problem. It can help prepare students for their transition to the real world, especially when the problems are similar to ones they are likely to face at work. Lecturers talked about the importance of making problems ‘messy’ and ‘ambiguous’, to reflect problems in the real world.

One of the lecturers makes this explicit in the course outline:

*This is not a teacher-led class exercise in which there is a right or wrong answer to every question and neatly prepared data on every issue, just as is the case in real life business policy analysis. The purpose is to learn how to deal with ambiguous business issues and practical problems such as locating relevant information and interpreting conflicting or missing data.*

There were mixed opinions about the value of *involving practitioners* in capstone courses, whether as guest lecturers, as interviewees providing information for assessment items, or in some other way. In some cases, practitioners played a really important role in their capstone course. In one lecturer's view, no single person has all the skills to do everything well, so he tried to bring 'the very best' in to classes where he could. Another lecturer noted that it is important to give students exposure to someone from industry who can talk about how theory works in practice. Lecturers spoke of some of the administrative challenges of organising practitioners' attendance. Some did not have time for 'guest lectures' in an already busy course and some said it was difficult to find people who are able and willing to be involved. A few lecturers have designed their courses to involve real world clients, with the lecturer adopting terminology that reflects professional practice; for example, lectures were 'workshops' and tutorials were 'boot camps'.

Only a small number of lecturers use *computer-based simulations*. One of the project partners had developed a 'mountaintop' based on a computer simulation that was developed in-house. A few lecturers used proprietary simulation programs to mimic 'the real world'; we found examples in marketing courses. The rationale of simulations is to mimic the business context as realistically and authentically as possible, requiring students to do the sorts of things they will do in the workplace, such as finding data, presenting information, formulating recommendations and making decisions. An inhibiting factor explaining the low take-up of computer simulations was cost. This was often a consideration, with per-student costs for effective programs often being prohibitive.

### **Differences between capstones and other courses**

Lecturers found teaching capstones different to teaching other courses in the following ways:

- The role of the teacher—the teacher is more like a facilitator and students are expected to be independent learners rather than 'passive recipients'.

*They need to take charge of their learning. They need to know what they don't know and then come and ask.*

*I do find it very different. Passive education is just not going to help our students really understand the nature of our discipline and what its practice means in the workplace.*

- The focus on getting students 'work ready'.

*The focus is always on getting them to be work ready. For example, if they don't meet the deadlines for submitting their briefs or submissions, we say that they would be in trouble in the workplace....so simple things like time management are emphasised, probably a little more than in other courses.*



- The nature of assessment—assessment was argued to be ‘different’ from other courses because it needs to reflect students’ knowledge of the courses leading up to the capstone course and because a range of generic skills needed to be assessed.
- The focus on integration and application of knowledge, rather than on new content—lecturers are used to delivering new content, so this aspect can be challenging.

*You can't rely on delivering new content (which for most lecturers means updating your powerpoints) nearly as much as in other courses....in the capstone, you have to focus much more on active learning strategies, much more on what the students do, rather than what you do. And that's really hard!*

*Lots of units are jam-packed with content. This unit was about trying to tease things out.*

- Dealing with content from other courses and disciplines—this was especially the case for teachers of cross-disciplinary capstone courses who are required to review and incorporate content from other disciplines which they are not familiar with. Even when dealing with a course matter that they know, different disciplines often look at the same course matter from a different angle or perspective.

*In this course, there's a certain amount of content that I'm not familiar with and I would have to defer questions to a colleague because I just don't know the answer.*

### **The enjoyable aspects of teaching capstones**

Most lecturers said they really enjoy teaching a capstone course, giving the following reasons:

- the level of interaction with students;
- the satisfaction of helping students become ‘work ready’, developing self-reliance, and seeing them transition from their student identity to their professional identity;
- feedback they get from former students that the course really did prepare them for what they’re now doing at work;
- wider perceived opportunities to experiment with different teaching methods; and
- the challenges of keeping up to date with the latest developments in practice in their fields.

### **Actual and required support**

Even within the same university, lecturers had different views about the amount of support available to help them teach a capstone course. Some lecturers thought there was a lot of support available if they chose to look for it and access it. Others said they felt very alone in designing and teaching the capstone course and had to work it out themselves through trial and error. Some lecturers gain support from a number of sources, such as communities of practice, colleagues from other universities, learning designers, and from their own teaching team. The developers of a cross-disciplinary capstone course had significant support from a teaching and learning advisor, an e-learning expert, and the library staff. The introduction of this new capstone course was mandated following a review and was led 'from the top' by a Dean. This meant the development of the course was well resourced.

The main support that lecturers asked for was short case studies of good capstones, and a list of 'the basics' of capstone design and delivery, written in accessible fashion. This guided the development of the Good Practice Guide.

### **Parting thoughts**

We asked lecturers if there was one useful or worthwhile thing they had learnt from teaching a capstone course that they would like to pass on. Some of their comments provide useful parting comments:

- Having support from the top is really important!
- Don't take on anything else the first time you teach a capstone course...you'll need all the time you can get.
- A capstone course requires lots of preparation. Having lots of time to prepare is really important.
- Persevere, even when students resist!

## **2.4 Focus groups with students**

Nine focus groups were conducted with students currently studying capstone courses in the five partner universities. Most focus groups were at the lead university. Key findings were:

- students were at times critical of some courses not being capstones;
- students' views triangulate with those of the research team; that is, where the research team decided the course was not capstone-like, this was also the view expressed by students; and
- students' experiences of capstones were mixed; they found them challenging and at times without the certainty of other courses but, where taught well, they appreciated the chance to integrate and apply their knowledge.

## 2.5 Focus group with Australian Business Deans Teaching and Learning Network

In September 2011, about half-way through the project, we held a workshop with a group of Associate Deans (Teaching and Learning) at the Gold Coast. This group meets regularly as part of the Australian Business Deans Council.

The purpose of the session was to disseminate some of the project findings, publicise the project, and seek input into project deliverables and dissemination strategies from the group.

The format of the workshop was as follows:

- a brief presentation about the project (attendees were also given a handout of the slides, a short version of the Capstone Audit Report and the project poster);
- written feedback was requested (completed by 6 individuals); and
- discussion of focus questions and report back.

### Major findings

The major findings (reported under the 'trigger questions' asked) were as follows.

#### *1. What was the tipping point for introducing capstone courses?*

- New faculty mission
- Redesign of prior integrating courses
- External accreditation
- Assurance of learning
- Feedback from industry/industry pressure
- A way of engaging with industry
- Desire to make program professionally relevant
- To give students a 'real' experience
- Student feedback/to improve the student experience.

#### *2. What are the 3 main carrots that seem to work in motivating academics to teach capstones?*

- Relief in workload
- Opportunity to do related research
- Best students do the capstone
- It's challenging/interesting/variable
- A parking spot
- It's run out of the Dean's unit
- It's an elite course and a highly sought after teaching experience.

*3. What are top 3 challenges in introducing capstone courses and what strategies work to meet them?*

*Challenges:*

- Integrating practical aspects/uni assessment rules
- Staff attitudes
- Costs
- Finding staff who are interested in taking a teaching focused/intensive role—it's a poisoned chalice for a research intensive uni
- Finding staff with the skills and right teaching style
- Expectations of staff about courses that 'don't have content'
- The onus/responsibility of the course
- Student apprehension
- Making space in the curriculum
- Coordination and communication
- Designing assessment.

*Strategies:*

- Sustained commitment from Dean/senior management
- Capable staff working in cross-disciplinary teams (for mountaintops)
- Very supportive teaching and learning unit and Associate Dean.

**4. What are the top 3 challenges in sustaining a good capstone course and what strategies work to meet them?**

*Challenges*

- Student satisfaction
- Cost of delivery
- Getting adequate resourcing
- Industry partnerships
- Maintaining staff energy
- Commitment from Dean and willingness to invest
- Finding a team of committed teachers
- Status in faculty
- Identifying meaningful projects/industry projects for the very large number of students.
- Keeping it real and fresh.

### *Strategies*

- Staff capability is key
- Continuous curriculum development and improvement.

### **5. To what extent is the introduction and/or development of capstones a priority for your Faculty/School?**

- Major priority
- Sporadic priority
- High because need to get AoL data integrated and with minimum fuss
- It's a goal but not receiving special treatment and resources
- Very high but could just be lip service—still very new
- Mixed priorities in various departments (some have compulsory capstones, others do not).

The workshop added to the project by confirming that the findings from the in-depth interviews with the ADT&Ls from the five partner universities were broadly representative. Additionally, there was a good deal of resonance between the challenges described by lecturers and those described by ADT&Ls.

### **2.6 Survey of alumni**

Around August/September 2011, we conducted an internet survey using the open-source software *LimeSurvey*, which was administered to business school alumni from each of five partner universities to this study. Participants had graduated with an undergraduate business degree during the preceding five years. Response rates were very low. Only one university was able to identify a response rate as 5.5% (57 respondents of 1,135 alumni contacted). For technological reasons the response rates of the other universities are not known, however, the overall frequencies for completed surveys were 57, 232, 39, 34 and 50, totalling 412 respondents from five universities. The low response rates can be explained by the online nature of the survey, the fact that alumni are thoroughly surveyed and many ignore requests for information, and the fact that only one reminder was sent. Fifty-two percent of respondents were female and 73 per cent were aged 25 years and under. Around half either studied Accounting, Finance or Financial Planning, with the others widely dispersed among other business areas.

Team members are currently analysing the results of the survey, and a full summary is not yet available. However, the findings to hand are consistent with other data gathered in the project. Thirty per cent of respondents rated case studies and/or problem-based learning activities as the most important in-class activity in preparing them for the workplace. Lectures rated poorly as preparation for the workplace,

with only 18 per cent of alumni finding them the most useful. Work placements were rated as the most important assessment item in preparing graduates for the workplace by a quarter of respondents, well above any other assessment item. (However, less than 10 per cent had taken part in a placement.) Oral presentations rated highly as preparation for the workplace, with 14 per cent rating them as the most important assessment item. They were rated more highly than written assessment tasks in preparing them for the workplace. Graduates considered that exams were the least valuable assessment item in preparing students for the workplace. Nearly half the respondents said exams were the least valuable assessment item in preparing students.

While analysis of the alumni survey data is limited to date, capstone courses encompass activities such as case studies, oral presentations, and work-relevant reports and exercises. These were activities that alumni rated highly in assisting their transition to the professional workforce. As noted by one respondent:

*Universities should be helping students to understand what professional roles mean, and what is encompassed by them. My capstone course on business case development has been the only activity where all areas of study have been reflected upon. A capstone course would refresh this information for job market entrants.*

## **2.7 Summary and recommendations**

Taken as a whole, the findings confirm widespread sector-wide, albeit patchy, adoption of the undergraduate capstone course in business. Diversity is the hallmark of approaches to capstones. The most concerning feature is the significant minority of ‘capstones that are not capstones’.

The lecturer interviews and student focus groups gave us a wide variety of data about approaches to designing, teaching and assessing capstones, and students’ perceptions of and reactions to capstones. The ADT&L interviews and the ABDC focus group deepened our understanding of why capstones developed, revealing that patterns of capstone offerings varied for both strategic and historical reasons.

Schools have taken different paths to capstone course introduction, some of these more systematic than others. However, capstones do not always fulfil their potential, and thus may obstruct students from realising theirs. Local teaching and learning regimes (Trowler and Cooper, 2002) and lack of understanding about capstones appear in some cases to have limited the development of ‘true’ capstones, resulting in another ‘conventional’ course. Staff development and ongoing strategic support are therefore paramount in ensuring that appropriate decisions are made at school, department and lecturer level, so that all capstone

courses meet their complex dual functions of integration (looking backwards) and transition (looking forward).

It was not part of our project brief to develop 'recommendations' as such. However, we have two main recommendations.

First, our study found that there are different paths to introducing capstone courses, some more planned and strategic than others. In addition, local teaching and learning regimes may limit the development of 'true' capstone course experiences. We therefore recommend that *curriculum change management processes give attention to the regular 'renewal' of capstone courses* (in the context of broader curriculum change), with initiatives that are both 'bottom up' (peer and learning support assistance) and 'top down' (support and guidance from school leaders regarding issues such as flexible timetabling).

Second, staff development in capstone pedagogy is often inadequate, meaning that inappropriate decisions are made about design, learning approaches and assessment. We therefore recommend that *more resources be provided to capstone teachers*. The project's main deliverable (Bailey, van Acker and Fyffe, 2012) is intended to remedy this deficiency.

## Chapter 3: Dissemination

The main outputs of this project that will be made available to the higher education sector are the Good Practice Guide on capstone courses and the business capstones website ([www.businesscapstones.edu.au](http://www.businesscapstones.edu.au)).

The Guide is very comprehensive and contains information, guidance, case studies and ideas for introducing, designing, teaching and assessing capstone courses. Some of the topics it addresses include:

- What is a capstone course?
- Why offer a capstone course?
- Types and prevalence of capstone experiences
- Managing the change to capstones
- Planning a capstone course
- Learning and teaching activities
- Assessment

The Guide's appendix contains approximately twelve 2-3 page case studies of capstone courses across a range of business disciplines, with information about the aims of the course, the approach to teaching and learning, teaching and learning activities, assessment and course outcomes. We included these in response to feedback from lecturers we interviewed and from workshop attendees, that people are particularly interested in case studies and examples of different assessment and activities in capstone courses.

This Guide has been professionally edited, designed and published. We will send multiple copies to the Deans of all Australian Business Schools for distribution to relevant staff. We will also attach a covering letter encouraging people to visit the website.

The business capstones website has been professionally developed and has been designed around the content in the Guide (although pared back, and written in a more web-friendly style). The Good Practice Guide is downloadable in pdf format and a clear icon and download button is on the homepage. The website is designed so that visitors can easily access the information they are most interested in and can download and print relevant portions of the Guide.

We will be emailing people who attended workshops, informing them that the website is live and the Good Practice Guide is available on the website.



## Chapter 4: Linkages

This project developed strong linkages between the partner universities involved—Griffith University, Macquarie University, Queensland University of Technology, University of Newcastle and the University of Wollongong. These were established and cemented through two face to face meetings in Brisbane—one at the beginning of the project and another in January 2012.

We also established linkages with business schools in all States and Territories through the workshops we ran from May to July in 2012. Workshops attracted 240 attendees from 19 universities. Project leaders Associate Professor Janis Bailey and Dr Liz van Acker facilitated most of the workshops, while others were run by project members from partner universities. These workshops brought together lecturers, administrators, associate deans and teaching and learning advisors from a selection of regional and urban universities, with different levels of understanding about capstone courses and at different stages of implementing them. Each workshop was tailored to the unique needs of those attending but usually involved some discussion about our project findings as well as opportunities to discuss issues and challenges relevant to those attending.

These workshops were designed to:

- build understanding of what capstone courses are, what they are meant to achieve and their potential benefits;
- improve learning and teaching practice by sharing some good practice principles and ideas on planning a capstone course, teaching and learning activities, and assessment, drawn from our research;
- provide a forum in which participants can discuss some of the specific issues and dilemmas they face with their capstones and how they might be resolved;
- give an opportunity for people to share their own best practice ideas and case studies which we might include in the Good Practice Guide;
- network with senior staff such as deans and associate deans in faculties, academic development units and the like, to promote the wider strategic benefits of capstones; and
- promote the Good Practice Guide and the Business Capstones Website.

All of the courses taught by the lecturers we spoke to are evaluated by students through the university's standard survey procedures. Many lecturers have made changes to their course, based on evaluations and feedback.

Some lecturers gather extra feedback from students, usually informally, by asking students how things are going, or if they have large classes, by asking tutors to check-in regularly with students.

One lecturer conducts a thorough debrief at the end of semester with supervisors and clients involved in the course. The feedback has influenced aspects of the course, particularly making it more relevant to industry and what happens in practice. Another lecturer conducted a focus group to evaluate the course.

Lecturers usually find, through evaluations, that students really enjoy the course, although they often find it difficult and challenging and they sometimes specifically mention not enjoying teamwork.

One lecturer said he knows students like the course because in all the years it has been running, students are offered a 10 minute break in the tutorials and they never take it. They keep working for the full two hours.

## Chapter 5: Evaluation

The external evaluator for this project was Mick Healey, Emeritus Professor at the University of Gloucestershire. The Griffith University project team met with Professor Healey at the beginning of the project and he helped us to develop an evaluation framework (based on a 'theory of change' approach; Hart et al. 2009) that describes:

- the current situation;
- enabling factors/resources;
- the desired outcomes;
- processes/activities needed (to reach outcomes); and
- longer term impact.

The framework also documents the sources of evidence used to measure the impact of the project. Developing this framework focused the project team on the purpose of the project and on the need to gather evidence of its impact and outcomes.

At our meeting with all partner universities at the end of the first year, Mick facilitated a discussion based on the evaluation framework, in which we considered what the project had achieved compared to what we thought it would or could achieve when we developed the framework. This discussion led us to slightly amend the evaluation framework.

With a project of this nature, designed to raise awareness and ultimately improve teaching and learning in capstone courses, it can be difficult to measure outcomes. And it may be months or years after our resources have been distributed, before the impact is discernable.

Our measurement of outcomes to date is based on two main sources of evaluative information: the workshop evaluations and feedback from the reference group. These suggest that the information from this project is highly relevant and will influence teaching and learning in capstone courses across the higher education sector.

We collected 192 evaluations from participants in our workshops who were asked to rank on a scale of 1 (strongly disagree) – 5 (strongly agree) the extent to which they agreed that the workshop covered content that is relevant to their work. The median response was 4.2. In other words, most people agreed that the content was relevant.

Participants were also asked to rank on a scale of 1 (strongly disagree) – 5 (strongly agree) the extent to which they agree that they learned strategies and ideas that will influence their teaching practice or their department's or faculty's strategies or their professional work in teaching and learning. The median response was 3.9, indicating that most people believed their work would be influenced by the ideas and strategies they learned at the workshop.

A summation from a key member of the reference group, Associate Professor Mark Freeman, also attests to the outcomes this project has achieved. Specifically, he observed a 'productive community of practice developing around the project participants'. He noted the success of the discussion the project leaders led at a national forum of the Australian Business Deans' Council Learning & Teaching Network and 'felt it was a good example of how business schools have collaborated in the project initially and then disseminated the findings with key colleagues in the business curriculum change business, namely associate deans.' He regarded our workshops as an 'appropriate point to launch out to other disciplines and share the project's findings and seek further insights'. Finally, he stated that 'when the project's formal research outcomes are published and added to these previous active dissemination efforts, I am sure the Capstone Project will leave its mark for some years to come.'

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