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Capstone courses: the challenges of enhancing student engagement

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This paper reports on an exploratory study of capstone courses taught in a university business school. A capstone course is the culmination of a student's studies, designed to integrate previously acquired knowledge and skills and to prepare students for employment. Capstone courses have diverse aims, preparing students for professional employment, cementing generic skills such as collaboration and teamwork, and developing professional identities amongst students. The capstone course project involved auditing capstone courses and interviewing course convenors, using a number of themes drawn from the literature. While several themes emerged in this study, this paper addresses only one of the issues: the challenge of improving student engagement. While capstone courses potentially should deeply engage students, and many students were engaged, a number of course convenors reported the reverse. The findings demonstrate the importance of promoting active participation in classes by encouraging 'communities of practice' that deliver 'student focused' teaching.

Keywords: student engagement, capstone courses

Introduction

In 2008 an exploratory study was undertaken of capstone courses taught in the Griffith Business School (GBS). This study examined the perceptions of students and academic staff regarding the nature of capstone courses and issues surrounding their content, mode of delivery and the nature of the student learning experience. One theme that emerged that is highly relevant to the conference theme is that of student engagement. While capstone courses potentially should deeply engage students, and many students were engaged, a number of course convenors reported the reverse. This paper will endeavour to identify the causes, effects and possible solutions to the lack of student engagement.

What is a capstone course?

A capstone is 'a top or crowning stone of a wall' or, more metaphorically, a 'crowning touch'. A capstone course is thus the culmination of a student's studies, designed to integrate previously acquired knowledge and skills rather than to teach new knowledge and skills. Capstone courses/subjects, usually taken in students' last year or semester of study, are used to consolidate, extend and apply previous learning (Bailey, Oliver and Townsend, 2007; Moore, 2004; Rowles, Koch, Hundley & Hamilton, 2004). They also provide a vehicle for professional socialisation and the development of professional identity to assist students' transition to employment (Dunlap, 2005; Kain, 1999; Lizzio & Wilson, 2004; McKinney, Saxe & Cobb, 1998). International accreditation of business schools has given a new impetus to the development of capstones. One such accreditor, the American Association of Collegiate Schools of Business (AACSB), emphasises capstones as a means of assuring learning (AACSB, 2007). Australian employers of business graduates require students to have applied generic skills (Crebert et al., 2004; Payne et al., 2002; Redmond, 1998), which can be consolidated in capstones. Capstone courses can vary markedly; there is no single model of a capstone, and thus there should be 'no overly prescriptive plan for capstone experiences' (Rowles, Koch, Hundley and Hamilton, 2004:13). However, there is little literature about how capstones in business schools can contribute to the development of generic skills, to assurance of learning and/or to professional socialisation and identity (exceptions are Holmes, 2001; Angot, Malloch & Kleymann, 2008), nor precisely how the 'curriculum mapping' processes required by AACSB (AACSB, 2007; Martell, 2007) can 'constructively align' learning activities on the one hand, and the objectives of the degree on the other (Biggs, 2004). Thus there is no accessible practical guidance regarding the pedagogy of capstone courses in business programs, nor about how curricula need to be constructed throughout the degree/major to make the capstone experience an optimal learning experience for students. This study was therefore undertaken as a preliminary step in a broader study of business school capstone courses.

Methodology

Following on a previous study of the student experience in one of the capstone courses (Bailey, Oliver & Townsend, 2007), this study aimed to 'audit' as many courses as possible within the GBS as part of an action learning project designed to facilitate dialogue amongst those teaching the courses about the courses' content and their learning and teaching strategies. A list of capstone courses was developed using the School's program catalogue, and by asking program directors within the GBS whether any capstone courses were in place within their programs. We identified 15 capstone courses. We then developed a matrix to explore the content and delivery style of the courses, using a 'checklist' of issues that has been raised in the literature on capstones. The cells of the matrix were completed with 'yes' or 'no' and brief explanatory notes on how these courses fitted into the 'capstone mould'. Data were also collected from 11 course convenors and seven program directors using semi-structured interviews that drew upon the 'checklist' of issues in the matrix. The semi-structured nature of the interviews facilitated the collection of comparative data. The complete findings of the study are reported in van Acker, Bailey, Farrelly & Hibbins (2009). This paper explores some of the findings that relate to a major theme of this conference, namely 'student engagement'.

Lack of student engagement – causes

Student engagement is crucial in any University course and can enable students to engage in deep learning and develop professional identities. Although many students within capstone courses were actively engaged, the lack of engagement of some students was an issue which was raised in a number of interviews:

“...by the time they get to third year... they just basically want their piece of paper – they’re not really really into this stuff.”

“...we retain students who find it difficult but we’re encouraged to retain them ... it’s too complex and we don’t have the resources and the support to actually do that with them.”

As the quotes above indicate, many course convenors contend that the cause of disengagement may be due to either a lack of interest or a lack of ability. These two issues are addressed below.

Lack of interest and lack of ability

Some course convenors asserted that the lack of engagement was due to an intrinsic lack of interest from some students who simply wanted to get ‘their piece of paper’. One respondent commented that many students had to work full-time to fund their education and often were unavailable for meetings outside of class or tutorial hours. This suggests that some students are missing out on the fully rounded university experience.

Another issue was how to deliver to a diverse group of students:

“...with students with a lot of experience, students with no experience, young and mature students, international students and local students, it’s really a big big stretch.”

Evidently, there is a fine balance between pitching a class which is too complex on the one hand or too simplistic on the other. The consequence of either is that at least some students will lose interest or become disengaged.

Ethnically and linguistically diverse student body

Related to the previous point, another important issue is diversity in ethnic and linguistic backgrounds of students. Although the English language proficiency of some international students is below the required standard, others who have the required standard of English experience difficulties understanding colloquial language and idioms used by Australian lecturers and they sometimes experience difficulty interpreting questions (Choi, 1997: 265, Robertson et al, 2000: 95). This means that the meaning of sentences and important points may escape some students. Hence they become disengaged.

Students from different cultural backgrounds prefer different learning styles. Research comparing students from Australia, Taiwan and Hong Kong found that, on Kolb’s Learning Styles Inventory:

“Taiwanese and Hong Kong students have generally more abstract (thinking) and reflective (watching) learning styles, while Australian students have more

concrete (feeling) and active (doing) learning styles (Sanyal: 56, citing Auyeung and Sands, 1997)."

Sanyal states that as learning styles vary among different cultural groups 'teaching practices appropriate in one setting or with one group of students may need to be modified for them to be effective elsewhere.' (*ibid*, 2003:55) In courses where there is a high concentration of international students teaching and learning practices should be adapted to reflect the diversity of the student body.

Understanding the capstone 'model'

One aim of capstone courses is to bridge the gap between education and employment. Students should be motivated in class by the anticipation of moving into paid employment. However, in some instances this does not seem to be the case. One reason for this may be that convenors themselves are unclear about what a 'capstone' should offer. Some convenors made comments such as:

"I'm not really sure if I have the information from Griffith about what I should know about capstone courses ...but that would be good, just to know what they are expecting."

Most convenors agreed broadly on the purpose of a capstone course, however, the courses examined varied enormously in terms of structure, content and assessment methods. The level of variation may be a reflection of the fact that there was no clear set of guidelines about what should be included in a capstone course. This in turn may have impacted on students' understanding and appreciation of the capstone course's objectives. A greater emphasis on the purpose of capstone courses may lead to greater student engagement.

Lack of student engagement – effects

The lack of student engagement in capstone courses means that many students do not benefit fully from what the courses have to offer. Although in some cases students are responsible for their lack of engagement (due to a lack of interest), in other cases it is due to other factors. A lack of student engagement means that, in some classes, students tend to interact less and spirited group discussions are infrequent. In some cases, course convenors develop negative attitudes towards those students who are not engaging fully in class, out of a belief that they lack interest. This may be unfounded in some cases; for example where students do not understand the material. Some convenors referred to a 'tail' of students, who did not participate actively in lectures or tutorials. This 'tail' could perhaps be reduced, or even eliminated with the restructuring of capstone courses. The following section discusses ways of increasing student engagement in capstone courses.

Lack of student engagement – solutions

A number of factors influence the low levels of student engagement among some students. The suggested solutions are not exhaustive, but may provide a starting point.

Making explicit the purpose of capstone courses

Capstone courses cannot fulfil their objectives when those involved in their development and delivery are unsure about those objectives, or how they should be achieved. A set of guidelines from the GBS for course convenors is therefore needed, summarising the elements

which ‘typically’ form part of capstone courses – at the same time recognising the diversity of possible practices. Majors offered by the GBS were restructured in 2005; however there does not appear to have been any subsequent process for reviewing them. As capstones form the ‘crowning point’, it is necessary for departments to systematically review the goals, objectives, content, assessment items and pedagogical strategies used in the various courses in the majors, so that capstone course convenors are clear about the ‘wall’ for which capstones are the ‘crowning point’.

Active participation

Active participation is critical to ensuring that students become and remain engaged in courses. Active participation within capstone courses can be promoted by encouraging ‘Communities of Practice’, to negotiate the relationship between students and teachers, shifting it away from ‘teacher-focused’ to ‘student-focused’ teaching (Brew, 2003:11). Communities of practice mean that ‘research and teaching are both viewed as activities where individuals and groups negotiate meanings, building knowledge within a social context’ (*ibid.*). Students’ and teachers’ activities are not seen as separate; students act as legitimate participants in the academic community of practice. Brew argues that this type of system encourages active learning, creative thinking and lifelong learning (*ibid.*:14). Some course convenors promoted communities of practice by developing applied student projects, as authentically as possible, focusing on the problems facing modern organisations, and encouraging students to combine academic insights with empirical data gained from organisations’ websites and personnel.

Work-integrated learning (WIL)

One objective of capstone courses is to prepare students to take up professional jobs. Capstone courses focus strongly on ‘work readiness’. There is a strong push within Griffith University for Work-integrated Learning (WIL), with the Strategic Plan (2009–2013) promising that ‘Griffith will offer a signature learning experience by providing students with identifiable work-integrated learning opportunities in all of its programs’.

McKinney, Saxe & Cobb’s (1998) research found that out-of-class experiences, such as internships, help students become more certain about their career choice (*ibid.*: 4). Such programmes increase students’ motivation, improve long-term retention of material and lead to a greater sense of accomplishment (Parilla and Hesser, 1998:310). This indicates that the introduction of WIL can lead to an increase in student engagement through increased motivation.

The importance of WIL was identified by a number of convenors. One respondent argued that internships could form part of a capstone course:

“We’re trying to actually get more students to go out and spend time in industry... the logical extension from capstone courses is work integrated learning, where they actually go out and do some sort of internship.”

At present, none of the GBS capstone courses offer WIL opportunities, although several of the majors do have a WIL component, which is usually optional. However, student respondents noted the value of practical exercises for future employment. This mirrors research which has shown that graduates support a greater practical element in undergraduate courses, including work placements and more input from industry. Research also emphasises the value of oral presentations, project work and case studies (Crebert et al., 2004:7-8).

An examination into the introduction of work placement or internships is required (although in some cases this is simply not feasible, for example due to large class sizes). There should be a greater emphasis on practical exercises which simulate activities graduates may be required to undertake in the workplace. It is important to ensure that students are aware of the significance of course content to their future employment prospects. When students can see a strong link between education and employment opportunities they are more likely to remain engaged.

Links with industry

Convenors in many cases made contact with industry professionals, but more contact is needed (perhaps via departmental advisory bodies) to determine which specific skills are required by a particular industry. From the viewpoint of both seasoned industry practitioners and graduates, it is clear that students must be ‘work ready’ when they graduate, and that capstone courses can contribute to this.

One method of ensuring that links between university and the workplace are fostered and strengthened is by using guest lecturers and presenters from industry. Several convenors already did this. One convenor used a guest speaker almost every week, integrated into the program in some way; for instance, by presenting the practical application of strategy at a ‘macro’ level, and by giving examples of workplace practices that students then applied in ‘micro’ skills exercises. Other convenors highlighted the difficulties of fostering industry linkages, particularly with majors having large numbers of students:

“...we would really like to be able to get students involved in these big projects, to give them a feel of the magnitude of what they’re up against and how these things are broken down ...but...it’s just not possible at this stage.”

“...it’d be great if we could have several industry people coming in – even in a team teaching environment ... if we had one university lecturer and maybe two industry practitioners – both with very different viewpoints and have an interactive session.”

The introduction of guest presenters would provide networking opportunities for students and contribute to professional socialisation.

Professional socialisation and the development of what Lizzio & Wilson (2004) term ‘professional capability’ is much less developed in business education than it is in other areas of professional education such as nursing, teaching and psychology. The literature – with some exceptions (see for example Holmes, 2001; Angot et al., 2008) – is similarly undeveloped. Capstone courses can provide this very necessary bridge and thus ensure that students are fully engaged in the learning process. However, effective ways to develop professional capability in the business education setting must be developed for this to occur.

Dealing with student diversity

A recurring theme in the interviews was the diversity of the student body, particularly in relation to learning styles. Payne, Whitfield & Flynn (2002) refer to the difficulties in delivering courses where there are diverse students, all of whom have different learning preferences. They suggest that teaching should be more student-centred, focusing on skills development and student diversity (Payne et al., 2002:69). This is particularly relevant in the

GBS due to the high concentration of international students (around 45%, but much higher in some degrees).

Course convenors agreed that because of cultural differences, local students responded better to visual learning styles, while some international students preferred an auditory style:

“... I wouldn’t like to pigeon hole them, but typically I would say that some of the international – and particularly the Asian – students are too shy to interact in class, so... it doesn’t really help them to have that kind of format.”

“...in terms of diverse learning styles – there’s the international students – some of whom are extremely, extremely intellectually capable, it’s just the English – their English level it doesn’t match the intellectual demands of this course.”

The comments above indicate that course convenors are aware of the different learning styles. Consequently, courses should be developed to reflect this diversity. The range of assessment items currently offered by capstone courses is very diverse, including written examinations, oral presentations, reports, case studies, group exercises, skills exercises and simulations. Variety in assessment items and different forms of delivering material in lectures and tutorials is required. These strategies will help ensure that all students have the opportunity to excel in areas where they are most talented and could help increase the level of student engagement, as students of all capabilities could feel a sense of accomplishment.

Student collaboration and teamwork

It is generally agreed that student collaboration and teamwork are very valuable components of a capstone course, and indeed any course. Graduates state that teamwork, collaborative learning and being given responsibility were the most important factors in aiding effective learning (Crebert et al., 2004:7-8).

Most capstone courses in GBS do include some element of teamwork, with all but two courses awarding some marks for group work. Despite the ubiquity of teamwork, some convenors referred to problems which occur when students are unwilling to work in teams:

“...we always have difficulty with group assignments...it functions well for maybe 85% of the course, and then there’s always groups that are completely dysfunctional and you have to pick up the pieces for them afterwards...”

Problems with teamwork seem to occur in most courses, but convenors recognise that it is an important element of a capstone course. Clark (2005) argues that ‘real industry projects and teamwork can enhance student learning and commitment’ (Clarke, 2005:21). Enhancing student commitment is fundamental in ensuring that students remain engaged in the learning process. Teamwork can also ensure that students who have difficulty with more conventional methods of learning, for example lectures, have an opportunity to demonstrate other skills. As mentioned earlier, students enrolled in capstone courses come from very diverse linguistic and cultural backgrounds. The use of teamwork exercises to bridge the gap between different cultures can help improve understanding between students. It may assist students who are unfamiliar with Australian norms and practices integrate more fully. This should work best where students feel confident working in diverse groups

Resourcing and administrative issues

A final cluster of issues was around administrative and resourcing issues. Because of space constraints, only the two most important issues will be discussed. Firstly, class sizes can be large, with the lecture/tutorial format being used for all capstones in majors with large student numbers; however, student course evaluations were generally much better where numbers were smaller and a more personal relationship could develop between lecturer and students, and more formative feedback delivered. However, this is a resourcing issue with significant ramifications. Secondly, there were mixed views about the need for students to have completed certain courses before advancing to the capstone. This needs further examination. Most course outlines indicated that some pre-requisite courses should be completed before enrolling in the capstone course, but the average was only two courses (majors have eight courses). Course outlines often signalled that capstone courses should be completed in the student's final semester of their final year. Some convenors held that students who do not have the required level of knowledge often gain little from these courses, and reduce the quality of the course for other students in the class. However, others argued the assessment and curriculum could be structured so that students could pool their learnings.

Conclusion

The paper is exploratory in nature. Given the pressures for accreditation in Australian business schools and the significance of capstones, the study has identified significant gaps in the literature regarding the pedagogy of capstone courses in business programs. As a preliminary national website audit identified 25 Australian universities with capstones in their business degrees, there is a need for further research to develop 'good practice' principles, practices and resources for teaching capstones, ensuring that the curriculum and assessment practices are designed to fulfil the goals and objectives of the specialisation; and assuring that learning has taken place in accordance with the goals and objectives of the specialisation. Drawing data from a number of universities and, in particular, collecting systematic data about the student experience of capstone courses – as well as teaching strategies – would create a broad database upon which such 'good practice' materials could be developed.

In particular, based on limited data from one university, this paper has suggested a number of changes in the delivery of capstone courses in order to improve student engagement. The paper has argued that student engagement is influenced by a number of factors. A lack of clarity on what should be included in capstone courses has also meant that staff and students alike may not fully understand the purpose of capstone courses. The paper has suggested a variety of solutions to address the lack of student engagement, including full engagement with the notion of 'community of practice', the introduction of WIL and/or practical or simulation exercises, the need to cater for the diversity of learning styles amongst the student body, and resourcing and enrolment issues. These issues should be explored and tested in future research.

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