Embedding Inquiry Based Learning within the Management Accounting Curriculum

Department of Accounting and Finance, University of Portsmouth

1. The students and the curriculum

Level: 2

Department: Accounting and Finance

Numbers: 150

2. The teaching and learning aims

Management accounting as a discipline is an integral part of business operations with activities and processes relating to planning, decision making and control being fundamental to the management process. Yet the traditional “text book” materials and lecture approach in teaching “techniques” does little to bring the subject to life or encourage students to see the relevance in adapting these to the real world scenarios.

The emphasis of this unit should be to develop understanding and evaluation skills regarding the concepts and techniques of management accounting as they contribute to operational planning, control and decision making. The unit aims to provide students with a range of underpinning tools and techniques and help them in developing their ability to apply them to business problems. There is also a need to develop an understanding of the behavioural, social and historical context within which the techniques have matured.
and appreciate the skills required of a management accountant (both hard and soft skills) in today's business environment.

Due to this lack of alignment between what we want from our students as management accountants and our teaching strategy the project identified a number of key changes which had the following aims:

- To encourage deeper learning and reduce surface learning. Much of the literature indicates that students studying accounting tend to adopt a surface learning approach. The literature suggests that using case studies and similar resources will encourage those higher cognitive skills and motivate students to acquire new knowledge and develop their own learning (Cullen et al, 2004).
- To improve engagement and student satisfaction with the unit. It is hoped that improved motivation will result in an increase in student attendance, participation and overall satisfaction. Brew (2006) suggests that inquiry based learning can increase student engagement and motivation.
- To enhance the relevance of the unit content and application to “real life” business decision making. Milne et al (2001) note how problem based learning approaches and the use of case materials “appear to be particularly suited to bridging the gap between tertiary education and life as a professional”.
- To develop generic, transferable skills to improve students' confidence and employability. The use of case studies and simulation exercises to apply technical content to "real life" business decision making should provide opportunities for the development of generic, transferable skills in readiness for the employment market they will shortly be joining. As Ballentine et al (2003) note “case studies can be used to develop generic skills in addition to those delivered implicitly when teaching technical accounting skills”.

3. The inquiry/ inquiries

The main inquiry based activity centred on case studies. Students are issued with the case study at the start of the unit and are required to present on various issues to the company in a series of management board meeting simulations which take place throughout the year. A management board meeting consists of three roles:

- Role 1: chairing and managing the meeting including leading a Question and Answer session
- Role 2: Presenting a Management Information Report to the Board on a particular business issue
- Role 3: Presenting a research report on a particular issue

Students work in groups and rotate roles during the year. For each board meeting students are asked to present on a different business issue and research on a different area. As an example at the first board meeting: role 1 had to manage the meeting, prepare questions on issues they wanted addressing and challenge the presenters through a Q and A session; role 2 had to present a Management Information Report on the profitability of the business analysed by outlet and comment on the issues facing the company and role 3 had to research the area of pricing and present a critique of academic literature. Key to the learning process was time set aside during the weekly classes for groups to analyse the case study and discuss their findings with the tutor. This was an important part of the learning process as tutors were able to facilitate this learning through directed questioning and referring groups to additional resources.

To aid motivation and enable students to demonstrate deeper learning on an individual basis, the case studies also formed the basis of the final closed book exam at the end of the year.

4. The assessment

The unit is assessed by coursework (30%) and examination (70%). The latter is a requirement from the professional accounting bodies. The examination is 3 hours in duration and questions are linked to the case
study scenario aimed at assessing students’ underpinning knowledge of theory and techniques, their ability to apply that theory appropriately to the business situation through appropriate analysis and evaluation and their ability to discuss and critique current thinking on particular topics/theories.

The coursework assessment consists of 20% relating to the work undertaken on the case study for the 3 board meetings and 10% for performance in short weekly MCQ tests undertaken across the year aimed at testing students on work studied the previous week.

The marks for the assessment in the board meetings were awarded in a number of categories including theoretical content, analysis and evaluation, written presentation and verbal presentation.

5. The ‘process support’

A range of process support activities and resources were used. 22 x 2 hour sessions were facilitated by experienced lecturers. Each lecturer remained with their own group of students throughout the entire academic year. The following resources were provided:

- A handbook/workbook was provided for each semester written by the tutors and tailored to the unit which provided notes on underpinning theory, worked examples, class activities and self study exercises for students to work on outside of the class time. The handbook also included selected academic journal articles, professional accounting body research and professional magazine articles. The unit content was also referenced in to the core text.

- A PowerPoint session was provided to each of the tutors to assist in facilitating the sessions which included theoretical content, worked examples, class discussion points and student activities. These resources were loaded up on to the university web based site. Other resources were also loaded up to the web site including reading material, links to websites, pod casts.

- Students were encouraged to work in groups on problems and time was set aside in the sessions for students to work on the case studies facilitated by the tutors.

- Students were given a series of questions to prepare for the following week based on that week’s theory.

- Students undertook individual weekly MCQ’s which were immediately peer marked and feedback provided by the tutor.

- Students undertook the 3 board meetings and submitted their reports in groups during the year and tutors provided detailed written feedback, verbal feedback and a breakdown of marks after each assignment.

- The unit has also included several structured revision sessions offered to students prior to their final exams.

6. The information resources and strategies

- A detailed handbook (noted above) was provided which provided underpinning theory, learning activities and selected papers for reading. Students brought the handbook along to every session and this assisted with consistency across the 4 lecturers. This also provided details of the unit and scheme of work and included self study work which students were expected to undertake each week.
A resource pack was provided to tutors with worked examples, PowerPoint slides, and suggested discussion notes. Again this assisted with consistency across the sessions.

Additional resources were loaded on to the University web site e.g. links to web sites, additional reports, and solutions to exercises.

Exemplars of students work were also posted to the site throughout the year.

Students studied one case study in semester 1 resulting in 2 board meetings, week 6 and week 12 of semester 1. Students studied a second case study in the second semester resulting in the final board meeting in week 7 of semester 2.

After each board meeting students were provided with a written feedback of their assessment detailing marks and comments across a range of performance areas e.g. evaluation, business issues, written and verbal feedback etc. This was accompanied by verbal feedback.

Revision materials were also programmed in towards the end of the unit.

7. The tutoring/facilitation approach

**Fig 2: Aligning the learning environment to promote deep learning & transferable skills** – In groups the students studied a case study in preparation for a series of board meetings. Each meeting comprised of 3 roles; role 1, chairing & managing the meeting (including Q & A); role 2, reporting on business situation & evaluating solutions & role 3, researching current thinking & applying to business situation.

The weekly 2 hour sessions were in groups of up to 30 students supported by the same lecturer throughout the year.

A session typically consisted of a range of activities:

- Review of prepared work, lecturer feedback on solutions
- New topic introduced with lecturer demonstrating worked examples, approaches
- Student individual activities aimed at reinforcing the new concepts
- Class discussions using Q and A to reinforce points and check learning
- Weekly MCQ aimed at testing underpinning knowledge/providing immediate feedback, peer marked to benchmark their performance
• Group work focused on case study scenario and problems

Active participation was encouraged during these sessions through class discussion, group work and independent learning activities.

Time was also set aside for students to reflect back on the development of their generic skills as they progressed through the course. It was reinforced at various stages that the unit was not just about technical management accounting knowledge but also about their ability to communicate through written reports and verbal presentation and discussions. Students were asked twice during the course to reflect on the development of their own skills and to assess themselves across a range of skills on a 1 to 5 scale.

Fig 3: Amended learning cycle - Sessions based on 2 hour workshop focusing on business case study

8. The learning technology

Hard copies of materials were the main source of materials. In addition the web based site was used to direct students to additional materials e.g. research articles, web links, podcasts, additional learning materials.

9. The learning spaces

The 2 hour sessions took place in classrooms where tables and desks could be moved to facilitate different activities e.g. group work, board meeting layouts.

10. What really worked

This section considers what really worked in relation to the project’s aims.

Aim 1: To encourage deeper learning and reduce surface learning.

Aim 2: To improve engagement and student satisfaction with the unit.

Biggs Study Process Questionnaire (SPQ) was administered at the start of semester 1 and start of semester 2. Literature cites the use of Biggs Study Process Questionnaire (SPQ) as an effective way of determining
students’ approaches to learning including surface/deep learning. Initial findings indicate that there has been an increase in the deep learning approach with a particular improvement in male students.

Attendance has been much higher than previous years – 84% attendance level versus 59% same period the previous year. Compared to other units that the students attend this year it has the highest levels of attendance. Tutors and students have both commented on a strong preference for the new delivery approach over the traditional approach (see below).

**Replacing traditional lecture/seminar with more interactive 2 hour session**

The traditional 1 hour lecture and 1 hour seminar approach was replaced with a more interactive 2 hour workshop environment. It is considered that this approach has worked well with both students and tutors finding the sessions far more useful and productive.

Student feedback:

“Lectures and seminars are taught the same, take more surface level approach. These are more workshop based, learn differently, work through things”

“... with lecture and seminar you have to get back into the subject “(i.e. lecture usually one day and seminar another day i.e. gap between)

“I felt that I liked the 2 hour sessions, that aren’t in big lecture theatre, more interactive, more incentive to listen and learn because in lecture theatres I fade out....

“The learning we do as we go, asking questions as we go, in general more interactive learning makes me care about it more”

“I found the two hour workshop much more productive than 1 hour of seminar and 1 hour of lecture.”

Tutor feedback:

“Much prefer the 2 hours with the group of 30 students, much better than presenting to a sea of faces in the lecture theatre, impersonal...”

“Don’t have to force the lecture to fit the 1 hour like we used to, can make much better use of the time interacting with students..”

“Less teacher talk, more student activity that must be better all round...”

**The main assessment – Problem Based Case studies with 3 assessed Board meetings with reports, presentations and Question and Answer sessions**

It is considered that these worked very well and tutors noted how impressed they were with the students’ professionalism and commercialism. An individual board meeting consisted of 3 groups (4 to 5 students in each group) with around 12 to 15 students participating at any one time. Each group undertook a role which rotated across the 3 Boards. As the questioning was undertaken by one of the groups, the tutors’ role in this process was purely one of observation. Students managed the whole process themselves. The Board meetings related to the case studies which students worked on, partly in class and significantly outside of class. Students were presented with the case study scenario, problems the company were facing and had to present a written report accompanied by a presentation. This was aimed at simulating a typical management meeting. The case studies also link to the end of year examination.
Student feedback:

“I have enjoyed them (board meetings) and I think that I remember the work that I did for them better than for a normal set of coursework. I am hoping to be able to draw from the things I have written for them and learned in the exam”.

“Management board meetings – yes learning from it, some are, some not getting so involved. Anyone actively producing work will learn from it”. (This comment also refers to the issue of “free-riders” in the group).

“If exam question comes up and it says business is having some problems I’ll think, right, there’s all the different things I need to look at. I know I need to think about these different areas.......if he doesn’t that’s his problem” (re free rider)

With reference to learning more as they progress through the year feedback was positive:

“Last year was to cram before the exam but that was an epic fail and this year I have been learning continually throughout the year and it is going much better.”

This dialogue relates to a conversation between 4 students during a focus group when they were considering their approaches to learning and discussing their ability to tackle an unexpected exam tomorrow.

Student 1: “I think if you were to sit down tomorrow with this. I think people would have a go at it and do better than say if you were to sit a F...R..... exam (another unit on their course) tomorrow”

Student 2: “Yes, less reliance on cramming it in than other subjects, I don’t know why..”

Student 3: “Well yes I think that does mean we are learning better…..”

Student 4: “…yes if someone said draw me up a cash flow statement (re F... R.... unit) you might get a few bits right but if someone said draw me up a budget you’d know how to go about it”

With reference to improved learning:

“I think this links best with my having to understand something to be able to repeat it, the board room explanations are a part of this understanding aiding to understanding why things are done the way they are”.

A further area that worked well in relation to the case studies and board meeting activities was the opportunities to observe each other in the other roles during these board meetings knowing that they would be undertaking a similar role (albeit with a different problem and scenario) as they rotated. For example, one of the 3 roles required students to research academic/professional papers on a particular problem area, write a report and present this back to the board followed by a Q and A session form the Chair. Throughout this process there were opportunities for the students to consider each others’ format and content of reports, presentation styles, approaches and responses to questions etc.

Student feedback:

“You can see how well everyone has improved”

“We watched other so could see their mistakes, think about how they did better and think how we would do better.”
"...I care more about the presentations because I don't want to look stupid. Watching other people you can see when a presentation is good, you can see where you can then improve”.

“Even something as subtle as all three groups working together to support each other within the hour (referring to the Board meeting lasting an hour) feels like nice extended group working. There is no reason for us to not support each other as we are all assessed separately so my feeling is that its best to make the whole hour go as nicely for all as it can.” (referring to 3 groups in 3 roles being assessed separately in a one hour board meeting)

“Thought feedback (board meetings) was very good and could learn a lot from it. Can take it forward and learn from it. I think it was very good”

The weekly short tests

In order to encourage ongoing reflection and review of their own studies, students undertook a short test each week on the previous week’s subject area. Tutors provided feedback on the answers as students’ peer marked each others.

The average result of these tests also contributes to 10% of their overall unit assessment. Students have done well in these tests with an average mark of 74%.

Student feedback:

“I like the MCQ’s every week, it’s a great way to see how much I have retained from the previous week"  

"Marking other people’s paper, seeing their marks, makes you think about how you are doing. MCQ helps you study what is being taught, see how you are doing and feedback helps you see what you need to do.”

Aim 3: To enhance the relevance of the unit content and application to “real life” business decision making.

Aim 4: To develop generic, transferable skills to improve students’ confidence and employability.

This unit relates to management accounting and the intention was to try to improve students’ understanding of, not just the techniques used in management accounting, but also the application to business decision making, control and planning. It was hoped that problem based learning approaches and the use of case materials and the simulation activities would assist with this. Students had mixed views on whether the board meetings themselves were close to “real life” although they all appeared to enjoy them.

This dialogue relates to a conversation between 4 students during a focus group that encapsulates their thoughts on whether the board meeting simulations helped them feel closer to the “real world”.

Student 1: "But when you walk in you know it’s still not a real world business meeting".

Student 2: “But I think you might be thinking real world is going to be something completely different to what you have seen in there and I don’t necessarily think it is”

Student 1 "Ok... it is similar”.

Student 3: “I don’t feel like it is completely real but I get what I need to get from it like watching the presentations and asking each other questions. I get enough from it, it feels real enough ...”
Student 4: “Well, I have worked before and we used to have meetings and it is similar to what we have done in the board meetings so it gives a feel for what to expect in a real life situation”

In terms of other benefits from the simulation activity:

Student 5: “...Better prepared for work e.g. going into meeting, presentation, can practice here safely”

Student 6: “Doing this, you think, yes I can do it”

Another key link in the application of the theory to the real world was also the approach of the staff delivering the unit. As one student said:

“Staff teaching makes it more practical, try to link to real world, helps studying, not so abstract and theoretical, as you study coursework and lecture notes helps to link to real world”

In terms of generic skills, students perceived a positive improvement in personal skills. Students were asked to rate themselves at start of the course and five months later across a range of 15 generic skills linked to those expected of a good management accountant in the workplace. Overall this indicated an average perceived improvement of 21% on their self scoring with the top two being:

- Strategic and forward looking (37% improvement on self scoring)
- Ability to work in a team (34% improvement on self scoring)

Student feedback on improved skills:

“Presentation skills and confidence definitely. For me learning to write more formal reports is good as all of my reports were fairly bullet point or informal in the past”.

“Organisational, Public Speaking, Writing Reports”

11. Things to build on and/or do differently next time around

Students’ perception of a “jump” from 1st to 2nd year in terms of breadth and depth of work

As a general observation, students in the second year perceive there is a significant “jump” between the level and quantity of work from the first to second year across the entire curriculum. At the start of the year students were asked, on average, how many weekly hours of independent self study they had undertaken outside of the classroom during the first year. Responses indicate a mean of 6 hours per week with 37% of students indicating they did less than 4 hours per week and 77% indicating they did less than 9 hours per week of independent study outside the classroom. In comparison, students were asked the same question half way through the second year regarding their current levels of independent self study outside of the classroom. The mean was 12.5 hours per week with 6% stating they did less than 6 hours per week, 31% less than 9 hours and 66% less than 14 hours.

This is a degree wide issue and the project team feels there is a need for a greater emphasis at level 1 on deeper learning approaches compared to the traditional technique based units.

Group work and “free-riders”

Students commented on cases of “free-riders” and as can be seen from the quotes below this created some conflict and de-motivation.
For next year the timings need to be considered and it may also be necessary to consider the inclusion of some sort of group log.

Student feedback:

“There has been, it feels, too much group coursework in year 2, I am personally not a fan, it is not like working in a team in a work environment, it’s always down to the stronger team members to carry the weaker ones and to totally carry the ones that won’t do anything unless made to.”

Commenting on the de-motivational impact of free-riders - Does free riding de-motivate? “Absolutely. Just gets you angry and frustrated. OPMAN (this unit) is quite good because there is 20 minutes or so at end to catch up on group work. . . . (compared to other units) ”

“....the timings on the board meetings have caused some problems. Having them after holidays is very difficult as it’s impossible to meet up over the breaks.”

Need for increased use of short form problem based learning exercises during weekly sessions and more of a blended learning approach

Tutor feedback indicates that there is still a feeling of too much “teacher talk” in the classroom. Whilst the longitudinal style problem based case studies are considered a real success, there is a need for more short form problem based activities taking place within the classroom. It is thought that this can be achieved by using a more blended learning approach with some of the theoretical content being moved to an online form with the use of slides accompanied by lecturers’ voiceovers, podcasts, more demonstration of worked example accessible online and additional reading material etc. Students will then need to be encouraged to review these resources prior to class in order to build on the deeper learning approaches within the sessions. It is thought this may be achieved by linking short form problem based case studies to the weekly tests.

12. Advice to others doing a similar project

The amount of work involved should not be underestimated. Almost all the resources had to be built from scratch e.g. case studies, assessment approaches, mark schemes, handbooks. There was almost no reliance on any standard texts as we found the standard texts tended to approach the syllabus as a series of unitised techniques with very little link between them and the real world and this was exactly what we were trying to avoid.

Students expressed some degree of concern when presented with the first problem based case study as effectively they had a blank sheet of paper to approach the problem. Some were surprised by, what they perceived as, our lack of guidance, link to theory etc. It was therefore important that experienced lecturers could facilitate appropriately and encourage the students. We visibly saw the students’ confidence grow as they continued to approach this type of activity which was satisfying for both the lecturers and the students.

We had hoped to be able to develop more e learning resources during this academic year. However, very early on, we had to accept that this change was a 2 stage process. Stage 1 was to overhaul the delivery approach to the unit, embed the inquiry based approach through the case studies and assessment approach and develop initial resources. Stage 2 is to make more effective use of the time in the classroom with the students by developing better e learning resources and developing a strategy to ensure students’ use these resources appropriately.
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