



The use of phased on-line summative assessment on a first year undergraduate accounting module

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OVERVIEW

Assessment serves a variety of purposes and includes evaluation, feedback, motivation and student learning. In order to test a wide range of intended learning outcomes, diversity of assessment practice can be expected in the delivery of HE courses but all too often is ignored. However, information and communication technologies (ICT) are beginning to have a profound effect on the academic activities of university faculty and the University of Glamorgan has recognized the need for developing learning and teaching through the use of blended learning which enhances current learning opportunities using supporting technologies. The university sees blended learning as a key factor in the development of effective learning and teaching for both staff and students.

This case study focuses on the theme of “**assessment and first year experience**” and reports the results of a pilot study with students studying a compulsory first year Financial Accounting module where a series of phased on-line summative assessments using Question Mark Perception (QMP) were introduced to the assessment regime. The positive results obtained from a questionnaire instrument issued to students, and the findings of focus group interviews with students, on the use of ICT in phased assessment is reported.

INFORMATION ABOUT THE CLASS, MODULE OR PROGRAMME

- **Context** - Post-1992 university situated in South Wales
- **Learners** - 60 first year accounting and finance undergraduates (33 male and 27 female) were enrolled on the module at the beginning of the academic year. All the students had achieved at least 220 points at ‘A’ level although very few of them had studied accounting to this level. The majority of students were of normal school leaving age (mean 19.8) and were of the following ethnicity: 46 UK/Irish; 6 African; 3 Asian; 5 Chinese. None of the students had prior experience of on-line assessments as their experience from school or college before entering university has been very one of traditional assessments such as essay and examinations.
- **Discipline and focus** - Compulsory first year accounting module - AF1S01 Financial Accounting, assessed by 30% coursework and 70% exam. The coursework element comprised 5 on-line tests phased over the year and attempted under controlled conditions in an IT lab and 1 in class paper based test. The paper based test required the students to consolidate their knowledge and apply it to a mini case study question. The final assessment mark is a weighted average of 70% of the best 4 on-line tests plus 30% of the paper-based test.
- **Duration of the module** - Delivered over 24 weeks over the academic year. Weekly class contact consists of a 2-hour workshop and a 1-hour lecture.

DESCRIPTION OF THE CASE

Question Mark Perception (QMP) was used to develop 5 phased on-line summative assessments. The package is an assessment management system which enables educators and trainers to author, schedule, deliver, and report on surveys, quizzes, tests and exams. It is a mature product which can be blended with traditional or on-line teaching methods



and is compatible with the university's current learning systems and integrates well with our current VLE (BlackBoard).

At the commencement of the module students were issued with a lecture programme which highlighted the dates of their on-line summative assessments and the topic areas to be tested on each date (see extract below).

Week Beginning	Activity	Topics
23/10/06	QMP Test 1	Topic 1 - Accounting and the Accounting Equation Topic 2 - Double-entry book keeping
27/11/06	QMP Test 2	Topic 3 - Trial Balance and the Financial Statements Topic 4 - Sales Day Book and Sales Ledger Topic 5 - Purchase Day Book and Purchase Ledger Topic 6 - Cash Book and The Journal
08/01/07	QMP Test 3	Topic 7 - Accruals and Prepayments - The Matching Concept Topic 8 - Depreciation and the Disposal of Fixed Assets Topic 9 - Bad Debts and Provision for Doubtful Debts Topic 10 - Bank Reconciliation Statements
29/01/07	Paper Based Test	Topics 1 - 9
26/02/07	QMP Test 4	Topic 11 - Errors and Suspense Accounts Topic 12 - Incomplete Records Topic 13 - Types of Business Organisations Accounting for VAT
26/03/07	QMP Test 5	Topic 14 - Company accounts Topic 15 - Company finance Topic 16 - Cashflow statements Topic 17 - Interpretation of accounts Topic 18 - Partnerships

Students were given the option of taking the tests on-line or paper based - two students opted for the paper based version. Prior to each test, hard copies of test papers were prepared as a backup, should there be any technical issues which would prevent on-line delivery of the assessment.

Each test was prepared from a bank of questions relating to each topic area being tested and comprised multiple choice, multiple responses, true/false, yes/no and text match questions. Typically, students were given 30 questions from a bank of 75. The tests were closed-closed, time-constrained (50 minutes) and sat under exam conditions in an on-campus computer lab during the students' workshop sessions on pre-determined days during the academic year.



Multiple deliveries of the tests were required to accommodate the 3 groups of 20 students but all tests were undertaken during the same weeks, albeit at different times. Access to the tests was limited to specific times during the weeks and also password protected.

Questions were randomly generated for each test paper and the answer options on the multiple choice and multiple response type questions were “shuffled”. This resulted in students receiving a unique set of questions each time thereby restricting the opportunity for collusion during and after each session. The students were made aware of these features at the beginning of the year and at the beginning of each test.

The relative difficulty of each test was addressed by the design of the assessments. Each combination of test comprised an equal number of questions testing topic specific knowledge and an equal distribution of difficulty levels - easy, medium and difficult. The chance of any test being significantly more difficult than any other was removed.

Performance scores were made available to the students immediately upon completion of their tests and access to reports regarding their test performance, question choices and answer scoring from the QMP server was available to them after all 3 groups had completed.

RATIONALE IN TERMS OF EDUCATIONAL IDEAS

In previous years student performance on the coursework element, which comprised a single case study, varied considerably and a large proportion of students were through a lack of basic understanding and application of the principles of accounting. Engagement in the learning and teaching process, evidenced by poor attendance and participation in tutorial sessions, was generally superficial.

Assessment serves a variety of purposes and includes evaluation, feedback and motivation and has a fundamental affect on students’ learning (Rowntree, 1987; Boud, 1988; Nicol and Macfarlane-Dick, 2003; QAA, 2006) and is recognised by Yorke (2004) as a key factor that links closely to student retention in HE. A change in assessment practice (Brown, Bull and Pendlebury, 1997) was therefore considered to be the most appropriate way of improving students’ learning and encouraging students to engage with the module and the learning process

In order to develop the students’ independence and self-regulation in learning at this initial, but crucial stage of their higher education, the use of continuous assessment is recognised as an important and powerful assessment practice which supports high-quality learning and teaching. “Recent advances in ICT are having a large impact on the delivery of student learning in HE” (Nicol, 2006) with traditional paper-based methods of formative and summative assessments increasingly being replaced by, or complemented with, the innovative use of ICT which engages the students and helps them to learn (McDowell, 2002).

The introduction on the course of frequent testing of topic areas will require students to learn the material and apply their knowledge and the developmental / cumulative nature of the tests will not only test new material but will also reinforce material previously learned and tested. The regular and timely feedback provided to students will promote their learning and improve their performance and will provide the tutors with feedback on their effectiveness and success at promoting learning (Vos, 2000).

The changes introduced to the assessment practice were implemented to meet the following aims:

- To measure **students’ development** by highlighting, at an early stage, those students that are struggling in order to provide appropriate support where needed.
- To provide students with **timely feedback** on their progress in ways that enable them to learn better and to facilitate the self- reflective process that impacts on their personal development programme.



- To facilitate **high quality learning** through the provision of effective feedback to enable students to advance their learning and be actively involved in their own learning.
- To facilitate **high quality teaching** by allowing tutors to reflect on the effectiveness of their teaching and assessment strategy which should lead to the enhancement of the teaching/learning experience for both students and tutors.

KEY ASSESSMENT PRINCIPLES

With reference to the key principles of assessment design (Gibbs and Simpson; 2004 and Nicol and Macfarlane-Dick, 2006), in the process of creating a series of on-line tests a variation of the key assessment principles was formulated which the authors' term the "Referee" process:

Requirement - Students need to know what is required of them, i.e. what they will be studying, when they will be assessed, what they will be assessed on and how the assessment will be undertaken. This provides them with a framework for planning their study time in preparation for assessment.

Evaluation - The evaluation of students' work provides a mark which measures student's performance and which can be used to inform progress or outcome decisions and also allows the tutor to identify any students who are experiencing difficulties so that remedial action can be taken. It is important, therefore, for assessment to be timetabled appropriately for the maximum benefit to be obtained.

Feedback - Timely and constructive feedback provides students with information that can remedy deficiencies, promote their learning and improve their future performance.

Expectations - Students' future expectations can change as a result of reflecting on their progress to date. Learning, according to Kolb (1976, 1984), is a process whereby knowledge is created through the transformation of experience and where, through, reflection,

Reflection - students link concrete experience to theoretical understanding. This process serves as a framework to guide future action and helps students advance from being passive learners to becoming active doers (Goby and Lewis, 2000).

Engagement - Engagement is a reflection of a student's commitment and motivation which is inevitably linked to performance, success and progression. Effective assessment, fair evaluation, timely and constructive feedback and reflection play an important part in encouraging the students to engage in their studies.

Enhancement - The "referee" process allows tutors to reflect on the effectiveness of the assessment strategy which should lead to the enhancement of the teaching/learning experience for both students and tutors.

EVALUATION

Questionnaire Feedback from Students

A questionnaire instrument was distributed at the end of the 4th test - 52 students sat the test and 47 usable questionnaires were completed and returned yielding a response rate of 85%. The results of the questions relating to students' attitude to on-line phased assessment are produced in Table 1 (see appendix).



Over 70% of students either agreed or strongly agreed with all the statements relating to their preference for, use of and motivational aspects of phased assessment. Also, good performance does not adversely affect their motivation to work hard for the next test with 72% of students either disagreeing or strongly disagreeing with the final statement. 93% of students agreed that the immediate reporting of results is valuable and just over half of the students were happy with a mixed assessment regime of on-line and paper-based assessment. It can be concluded from these results that the majority of students are comfortable with on-line, phased assessment which appears to have a motivational affect on their learning.

Focus Group Interviews

Focus groups were conducted with groups of between eight and ten students. In total 3 groups were held with a total of 28 students representing the three separate tutorial groups of the cohort. All interviews were recorded and transcribed verbatim. A number of themes emerged from the interviews and have been itemised according to the “referee” process mentioned above and matched (in parenthesis), where applicable, with the key principles identified by Gibbs and Simpson (2004) and Nicol and Macfarlane-Dick (2006)

Requirements - (Engage students actively in identifying or formulating criteria)

Some students expressed concern at the lack of guidance provided with some assessments but felt they could engage with the on-line phased tests as it was made clear to them what was expected.

“A lot of the time, we were given a piece of coursework, but we don’t know what it was supposed to look like in the end, but with these exams [test] at least you know what’s expected of you”.

(Group 2, Student 2)

“We were just given a sentence and we are then expected to write like thousands and thousands of words just from a sentence. I prefer the multiple-choice tests”.

(Group 2, Student 7)

Evaluation - (Distribute students’ effort evenly across topics and weeks)

Most of the students agreed that the tests made their learning easier by allocating their study time appropriately throughout the year.

“I think it is easier to do a test every now and then because you are revising throughout the year, so when it comes to your last final exams you will find it a lot easier because you would have done the work all through the year.”

(Group 1, Student 4)

“It’s not like an exam, you are doing them bit by bit so it just sinks in like as you are going along. I think the workload is ok, cos it’s spread out over the year it’s not like one big revision in the end. It’s much easier”.

(Group 3, Student 8)

Feedback - (Deliver feedback that helps students self-correct)

Students considered the feedback they receive to be timely and useful in the learning process when compared to other modules.

“Yeah, the instant feedback is good cos normally you have to wait for weeks for feedback. I mean they give you a deadline to hand in the work but they don’t give you the mark back for ages.”.



(Group 2, Student 7)

“From the feedback you know what you have to learn”.

(Group 2, Student 7)

Expectations and reflection - (Facilitate opportunities for self-assessment and reflection)

It was evident from the many comments obtained that the phased on-line tests facilitated opportunities for self-assessment and reflection.

“You can tell what you have studied and understand from the mark you got for each topic. Cos then if you got high marks you sort of understand it but you have low marks you know you have to work harder on that sort of topic to get better grades”.

(Group 2, Student 1)

“With these exams [tests] at least you know how and where you are and what you are capable of doing so by the end of the year, you know you can revise on the stuff that you are no good at”.

(Group 2, Student 4)

Engagement - (Encourage positive motivational beliefs and self-esteem)

It was important to establish the effect, if any, the tests had on student motivation.

“For the other modules we tend to concentrate on that one big assessment so we don’t really have time to revise. You just have to finish that big coursework so you learn the stuff you do in the coursework but you haven’t got time to learn anything else in that module whereas this one we learn more”.

(Group 3, Student 8)

“Say, if you revise a topic and do a test and have a bad mark then you know you have to go back to revise that topic... They make you learn more throughout the year rather than doing it at the end”.

(Group 2, Student 7)

“Yeah, if you take the test away I don’t think I will keep doing the same things to be honest with you. I wouldn’t work through the year to the same extent”.

(Group 2, Student 2)

“For this module, because we got these tests, it makes you revise, you constantly revise because you know you got those tests. But for other modules you know you only have one big assessment and that’s it, you can’t be bothered to revise”.

(Group 3, Student 4)

Enhancement

Generally, students were very positive about the on-line phased tests and recognised the benefits of engagement, self-assessment and reflection, feedback, motivation and time management afforded by this mode of assessment. However, it is interesting to see that students are very aware that they need a variety of assessments and that this method of testing does not lend itself to all subject areas and all levels of the course. Students can see that some subjects still require them to practice their writing skills using essay, while there are also benefits in paper tests.



CONCLUSION

The principles and processes described above have allowed the students and tutors to reflect on the assessment process. Whilst the tutors did not anticipate the outcome of the research they are pleased with the positive response from students on the introduction of a phased on-line assessment approach. The effective construction of the assessments and the blending of the assessment regime into the teaching of the course have been identified. There is clear evidence that this method of assessment is acceptable to students and has had a positive impact on their motivation to learn and their engagement in the module and has equipped them to monitor and manage their own learning throughout the year. The final quote emphasises the importance of 'getting it right'.

'I think it's good for the first year though, the idea of the first year is to ease you into Uni life and I think these tests help you integrate the work easier than bombarding you with big assessments and exams...'
(Group 1, Student 3)

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APPENDIX

Table 1 - Students' attitude to on-line phased assessment

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I prefer to be assessed on-line rather than by traditional methods	18	17	6	4	2
I prefer on-line assessments to be phased and test small areas of the syllabus rather than one test that covers many topics.	28	11	5	2	1
I am happy with a mixed approach to assessment, i.e. on-line tests plus a paper based test	7	22	14	3	1
Phased assessment improves my learning	16	27	2	1	1
Phased assessment encourages me to work consistently throughout the year	20	20	3	4	0
I find the immediate reporting of my test result valuable	25	19	3	0	0
If I do badly in one test it motivates me to work harder for the next test	16	21	8	2	0
If I do well in a test I don't work so hard for the next one	0	4	9	25	9