

**Discipline/Course/Subject Area:**

Marketing

**Institution:**

Glasgow Caledonian University

**Start date:**

2005-06

**Impact:**

The practice was introduced:

across a level 1 core module

across level ....of a degree programme

across CBS / two or more subject groups

across the institution as a whole

The practice was adopted by:

the department, other departments in the institution and in other institutions

**No. of students affected:**

c900

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**Others involved:**

## Title of Practice – Moving large scale, simultaneous, summative assessment online (Marketing Fundamentals)

### Abstract

Marketing Fundamentals is a level 1 module with c900 students over 2 semesters. Forty percent of the summative assessment is in the form of a multiple choice question (MCQ) exam. Previous optical scanning of paper submissions had been found to be inaccurate, and manual marking was time consuming. This case study describes how the MCQ exam was implemented online through the Blackboard virtual learning environment in January 2006 and again in May 2006, and outlines the issues involved. It describes how aspects such as security of computers, special invigilator instructions and procedures were resolved. On evaluation, students responded very positively to taking the exam online and particularly liked receiving their marks immediately.

### Description of Implementation

#### In what context did the new assessment practice happen?

The Marketing Fundamentals first year core module is studied by c900 students each academic year with c450 taking the module each semester.

#### What was the rationale for introducing the practice?

The objective test has always been created in the Blackboard VLE but printed out for students to answer under examination conditions using an answer grid designed for marking by an optical scanner.

#### Problems identified:

- In practice marking by the optical scanner has not proved to be effective, and manual marking and processing of marks has had to be used.
- Marking multiple choice exam papers manually was very time consuming for staff.
- Students had to wait some time before receiving their final grades

It was hoped that delivering the exam online would save staff time and allow students to be informed of their grades much more quickly.

#### How was the practice implemented?

Assessment of students taking this module comprises two elements:

1. Firstly, **course work** undertaken during the 12 week teaching semester. This is a group project to test students' depth of knowledge and understanding in a relatively narrow area of the curriculum.
2. Secondly, students undertake an **end-of-module examination** comprising an objective test of multiple choice questions (40%) to test the breadth of students' understanding and knowledge across the whole curriculum.

Trial online assessments had been undertaken in session 2004-05 which had identified many of the technical and operational requirements for establishing and running an online exam in GCU. The Director of Learning Resources and Director of Quality were consulted, and following their agreement, a team comprising representatives from the Exams Office, Learning Services and Academic Staff was formed to undertake a pilot of the Marketing Fundamentals exam online in January 2006.

The team worked throughout semester A preparing and testing arrangements e.g. accommodation, security, invigilation, technical support needs. The key issue came down to the technology and whether it would be able to withstand simultaneous access by c450 users. Key issues included the following:

- Since this was a first in GCU, paper copies of the exam were also available in all examination venues.
- Students were informed that if any problems arose, no students would be penalised in terms of time, and the assessment would be undertaken on paper as before.
- The exam was held in 23 computing labs across GCU with technical support available on each floor.
- In the first 5-10 minutes of the exam, technical problems arose with all students experiencing difficulties in taking the assessment online. Most required repeated attempts to begin or continue with the online assessment.
- After 15-20 minutes a decision was taken to switch to paper where students were still having difficulties. As this message was conveyed and the number of online participants was reduced, those students still attempting to undertake the online exam found they were able to continue.
- Invigilators were encouraged to give a full account of practice in their rooms to inform future plans.
- 258 students (60%) undertook the marketing fundamentals exam online with the remaining 40% having to complete their exam on paper. No students were penalised for time, with all having as much as they needed to complete the exam. Extra time was not required by the majority of students

#### Evaluation

A full evaluation of the online exam experience has been undertaken, which included an analysis of students' grades and comparison with grades achieved by students in previous sessions when the exam was undertaken on paper. Here we found no significant difference in the failure rate of those taking the assessment online or on paper and the mean of those taking the assessment online or on paper.

We did however find that the mean score for students in Sem A 2005-06 (53%) was higher than in Sem A 2004-05 (48%) which might suggest that overall students' performance was not adversely affected by the technical difficulties experienced. Invigilators comments were scrutinised, some common issues were identified for future reference and where individual students had been identified as having additional difficulties, this was noted.

Student feedback on their experience was also gathered by survey (55% response) and 2 independently held focus group interviews, one comprising students who completed online and one of students who completed on paper. Feedback indicates that:

- while students who had to complete on paper were less positive, most students liked undertaking their exam online and particularly appreciated the immediate feedback on their performance.
- surprisingly, most students did not find computer based assessment more stressful. Many reported that they found the experience and environment more relaxing.
- there is a very small minority of students however, who reported that they 'hate computers.'
- if technical problems could be resolved, results show that most students, including those who had to complete on paper, would like to take computer based assessment in future.

In undertaking a technical evaluation, senior Blackboard representatives were consulted who stated that the VLE can support simultaneous access by c400 users provided all equipment is configured to do so. In discussion with GCU technical representatives, Blackboard have offered a consultancy service to run a performance audit followed by a simulation of 400 concurrent users accessing the Blackboard system in GCU. At time of writing this had not yet been done. Provided any required changes were made to the GCU system this would enable future large scale simultaneous assessments to be undertaken successfully in GCU.

The May 2006 exam was split into two groups of 150 students and proceeded without any technical or other problems. In this case only 4 labs and 8 invigilators were required, but due to quality related issues two different exam papers had to be created. Although support costs were reduced therefore, there was an increased time cost for tutors.

#### Plans for 2006/07

Since the Blackboard system has not yet been configured for large scale use and there are 450 students taking the module in semester A 2006/7, it has been decided to use paper versions this time to avoid running 4 separate exams. When the configuration has taken place, this will be re-considered. In the future, the use of EVS (electronic voting system) technology is also being considered for the exam and a pilot of this, initially in a formative mode, is currently being planned.

## Perceived Benefits

### *For students...*

- Immediate feedback of marks on performance was the most significant benefit as perceived by students
- For some, less stressful than traditional exams as the environment felt more informal
- For some, easier to complete online and change answers before submitting

### *For teaching/support staff...*

- It saves time compared with manual marking

## Issues/Challenges

### *For students...*

- For a small minority who do not like computers, the experience is stressful
- At present only marks are given to students, ie they do not receive qualitative feedback

### *For teaching/support staff...*

- On Blackboard it is time consuming to make up papers, even with publisher's question banks.
- If student numbers are limited to 150 in each exam venue, the number of MCQ exam papers has to be increased if the same set cannot be re-used, particularly where the groups cannot sit the exam simultaneously
- Fewer invigilators required if larger computer rooms were available

## Enablers that Help/helped the Practice to Work

- Support from the Exams Office and C&IT staff

## Points of Advice

- If using Blackboard, ensure it is configured correctly. Otherwise, do not exceed 175 simultaneous users on the exam.
- Involve the Exams Office and C&IT staff right from the beginning if this type of assessment has not been carried out before.
- C&IT staff need to resolve issues regarding security of computers, eg access to other sites, before the exam takes place
- The Exams Office needs to devise special instructions for invigilators. It is advisable that one invigilator in each exam venue is familiar with the VLE being used.
- It is less staff intensive if large computer rooms or wireless enabled spaces can be used

## Possible Improvements/Enhancements (suggested by the case study provider)

- Qualitative feedback could be developed to enhance the quantitative results. This would be particularly helpful for students who intend to continue studying this subject at Level 2.

## Further Reading

### Relevant publications by those doing case-study:

### Relevant/influential/related publications in the research literature suggested by the case study provider:

- McKenna C, Bull J (2000) "Quality assurance of computer – assisted assessment: practical and strategic issues" *Quality Assurance in Education* Vol 8 No 1 pp24-32
- Rovai A P (2000) "Online and traditional assessments: what is the difference? *The Internet and Higher Education* Vol 2 No 3 pp141-151
- Netskills "Aligning Online Assessment" <http://materials.netskills.ac.uk/>

This instructor-led training module is aimed at those who are either currently delivering or are preparing to deliver assessment online. The module covers analysis and evaluation of differing types of online assessment with the aim of aligning each to desired learning .