



# Using Technology in Assessment: A Case Study

Tshepo Batane  
University of Botswana

## OVERVIEW

This case study reports on a study of one course which used technology as an intervention in assessment. The course had always used paper-based Multiple-Choice questions for the final exam. This was a large class therefore there were several problems encountered with this mode of assessment especially in terms of providing essential feedback to students on their work and monitoring students during the exam so that they do not cheat. The study is interesting in that the intervention did not right away produce positive results in students' academic performance. However, it was strongly believed that these results were a true reflection of students' understanding of the course and the intervention assisted to crack down on one of the biggest problems that have always plagued the university which is students' cheating during exams. Eradicating students' cheating would make students take more responsibility for their learning and assist instructors provide needed feedback on students' work. This study relates to Theme 2: Great designs for assessment.

<b>University</b>	University of Botswana
<b>Department</b>	Theology and Religious Studies
<b>Module</b>	Introduction to Logic
<b>Overview</b>	<p>The focus of the class is to introduce students to Logic which is a basic tool for both academic and everyday life. The class met four times a week for duration of one hour at a time. In total, the class met for 14 weeks.</p> <p>The modes of assessment for this course were as follows: A. Progressive assessment (40%) B. Mid-semester Test (20%) C. Final Examination (40%)</p> <p>Progressive assessment was required from time to time and took different forms, these included: multiple choice quizzes, short answer questions and short essays. The instructor provided extensive feedback on these tests to assist students. The tests also helped the instructor to identify problems in the course that needed to be attended to as the semester progressed. The mid-semester test was in the form of a regular class test. The test was of a problem solving nature where students were given logical problems and asked to solve the problem using the rules of logic that were taught in class. The test was given in Week seven which is at the middle of the semester. The instructor graded the papers and gave feedback to the students on their performance. For those students who did not do well, there was no make-up test to compliment that mainly because of the size of the class. The final exam was administered at the end of the semester; this was in form of Multiple Choice and was offered through WebCT. The focus of this case study is on this final exam and why the</p>



	<p>instructor decided to administer it through WebCT.</p> <p>At the beginning of the semester the instructor put this course in WebCT while the class continued with the regular face to face meeting. The purpose of WebCT was to post various course material and information to supplement face to face learning. Discussion topics were also posted on WebCT for students to deliberate on various issues concerning course content.</p>
<b>Drivers for change</b>	<p>This was a large class of 384 students and It was very difficult to carefully monitor this group when administering exams thus making it easy for students to copy from each other. This was of great concern because it meant most students did not own the material they provided in the exams, therefore, even if the answers were right they did not know why they were so.</p> <p>Carefully assessing each student and providing useful feedback was very difficult to do.</p> <p>The main method used for assessment in this class was paper-based multiple choice which is summative in nature and does not provide sufficient feedback to the students.</p> <p>Sometimes students claimed to have taken the exam while there was no record of that and the instructor had a tough time proving whether they were right or wrong.</p> <p>Students reluctant to participate in class discussions</p> <p>Students often performed averagely in the final exam</p>
<b>Intervention</b>	<p>To alleviate problems associated with the paper-based exams, WebCT was used to administer the final exam. This form of technology was also used to find out if it will make any difference in students' performance.</p> <p>A database of questions was created in WebCT and all the questions were of equivalent value. Useful feedback was provided for the answers to explain why a particular choice was right or wrong. The settings in WebCT were adjusted such that 20 questions would be randomly selected for each student. This meant students sitting next to each other would get different questions at a time or for the same questions get different options as the right answer. Students were allowed 40minutes to take the exam.</p> <p>As a security measure, the instructor set the proctor password so that students would use a unique password to access the exam. Various IP addresses were also used for the machines. Since this was a large class and could not all fit in the lab to take the exam at the same time they had to be divided into groups of 30 students. The instructor was present during the exam the whole time and there was also a technician available in the lab to attend to any technical issue that may arise</p>



<b>Evaluation</b>	<p><b>Benefits to staff</b></p> <p>The exam went smoothly with no technical problems. WebCT graded the papers and released the scores to the students immediately, saving staff huge amounts of time to dedicate to other worthy activities.</p> <p>The students' chances of copying from each other were greatly reduced because of the randomization of the question, a small number taking the exam at a time and security measures in the machines. This increased the instructor's confidence in the validity of the students' responses and being able to gauge the level of students' understanding of the course.</p> <p>The instructor reported that with WebCT it was very easy to track which students did not take the exam, therefore, students could not claim to have taken the exam, while they did not.</p> <p><b>Benefits to students</b></p> <p>Students did not have to wait for the instructor to finish marking the papers to get their scores; WebCT graded the papers immediately and released the scores.</p> <p>Feedback from the answers was very valuable in that it was a learning experience in itself, it assisted students assess their own performance and identify areas where they had problems.</p> <p>The results revealed that students performed poorly in this exam compared to paper-based ones. The interpretation of the situation was that most students in this class were used to cheating by copying from their classmates so they always came to the exam not fully prepared. Students came to this exam hoping to be able to cheat like they always did, however, when they came in, they found that there were built-in security measures in the exam which made it difficult for them to copy and this greatly affected their performance. The poor academic performance of students in this exam was viewed as motivation for students to know that cheating in the exam will no longer be easy; therefore, they needed to study hard and take charge of their own learning. When they get a grade it should be a true reflection of their effort so that they would not how to improve on that.</p> <p>Student' poor performance was also due to the fact that some students were intimidated by the online testing environment and an investigation revealed that these were students who never accessed the course in WebCT, therefore they were not very familiar with the system. This was an encouragement for the students to take the online version of the course very seriously because there were other important learning activities online that contribute immensely to their learning.</p> <p><b>Benefits to the institution</b></p> <p>Administering assessments and putting various course materials online was very cost effective for the institution in that it helped to save a lot in printing resources.</p> <p>In terms of quality assurance this mode of assessment was effective in</p>
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	<p>curbing student cheating which is an area of concern in the institution and a great threat to the quality of learning in the school and the credibility of its products.</p> <p><b>Barriers to effective wide-scale implementation</b></p> <p>Looking at the amount of time this one class needed to take the exam, it raises concerns what would happen if more classes decided to use the same method. This would put great pressure on the already limited resources on campus and calls for a significant increase in the resources.</p>
	<p><b>Activities</b></p>
<p><b>Principle 1</b> (Useful feedback)</p>	<p>The multiple choice answers were given useful feedback why a particular choice was wrong or right. This helped students not only to know that an answer was wrong, but why it was wrong.</p>
<p><b>Principle 2</b> (Self assessment and reflection)</p>	<p>Students reflect on their answers in light of feedback from the instructor.</p> <p>Students assess they own work and judge their performance and identify where they need to improve.</p>
<p><b>Chickering and Grimsley Principles</b></p> <p><b>Principle 4</b> (Encourage contact)</p>	<p>Students use online communication tools to keep in contact with the instructor when they need help</p> <p>Students use the communication tools to discuss class related topics</p>
<p><b>Principle 5</b> (Gives prompt feedback)</p>	<p>WebCT graded students' papers immediately and released the feedback and scores</p>
<p><b>Principle 6</b> (Emphasize time on task)</p>	<p>Students had to complete the exam within the stipulated time then their session expires. This encouraged them to work fast and finish the task on time.</p>
<p><b>My own principle of assessment</b> (Authenticity)</p>	<p>From the constructivist point of view assessment should be as authentic as possible. Big classes such as the one in this study are challenging in assessing students work and providing useful feedback, however, assessment could be structured in such a way that it is short, contextualized in a real life situation and a rubric provided so that students could assess their own responses in light of the rubric and judge not only for correctness of the answer but its practicality in a real life situation. With a clearly articulated rubric, Teaching Assistants can help in grading students' papers.</p>



## REFERENCES

- Bocij, P. & Greasley, A. (1999) Can computer-based testing achieve quality and efficiency in assessment? *International Journal of Educational Technology*, 1(1), 17 pages.  
Available online: <http://www.ao.uiuc.edu/ijet/v1n1/bocij/index.html>
- Cassidy, J.,C. (2001a) Integrating technology instruction in pre-professional training programs. *Trainer's Forum*, 19(3), 1-2; 8-10.
- Cassidy, J.C., and Gridley, B.E (2005). The effects of online formative and summative assessment on test anxiety and performance. *The Journal of Technology, Learning, and Assessment*. 4(1) October 2005
- Mogey, N. & Wart, H. (1999) The use of computers in the assessment of student learning. Learning Technology Dissemination Initiative. Available online:  
<http://www.icbl.hw.ac.uk/ltidi/implementing-it/using.htm>
- Wheeler, S. (2000). Instructional design in distance education through telematics. *Quarterly Review of Distance Education*, 1(1), 31-44.



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