

## Chapter 10

# Assessing the use of Blackboard for Course Delivery in an Engineering Programme

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### ABSTRACT

*The purpose of the study covered in this chapter was to evaluate the preferences of mechanical engineering students at the University of Botswana regarding course delivery, with special consideration for Blackboard technology. The study was carried out during three consecutive years (from 2007/2008 to 2009/10 academic years) for one course in the mechanical engineering degree programme. A questionnaire was administered to three cohorts of third year mechanical engineering students; a total of 101 students participated in the study. As the results of this study were encouraging, it is recommended that more courses in the programme should migrate to a blended mode of instruction delivery using Blackboard or any other approved learning management system.*

### INTRODUCTION

As modern engineering changes and expands into new practice areas, educators are constantly challenged to revise the curriculum as well as the technology for its delivery. One of the recent changes in engineering education is the utilization

of e-learning technologies. Such technologies can serve as a response to current learning needs aimed at promoting lifelong and student-centred learning as well as integrated teaching and learning. To that extent, the students' preferences of the course delivery and their acceptance of online education as a major and viable component of higher education, becomes a critical issue that must be considered.

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The University of Botswana (UB) in its strategic plan deliberately adopted the use of Information Communications Technology (ICT) in the delivery of its academic programmes especially at undergraduate levels. The rationale for the development and integration of educational technologies in teaching and learning at UB was to fast track two priority areas in the University's 5-year strategic plan, namely: 'expanding access and participation' (Priority Area 1) and 'enriching quality academic programmes' (Priority Area 2) through the infusion of ICT in teaching and learning. It is envisioned that the use of ICT based techniques will expand access and also enrich quality of academic programmes. To support ICT for instruction purposes UB has committed resources for the development and improvement of the learning and teaching environment. For example, technology-enhanced classrooms, smart classrooms and video conferencing facilities were installed and WebCT/Blackboard eLearning platform, proprietary software, as opposed to free and open software, was introduced. Additional and new technical and support staff were employed and lecturers were empowered through in-service training, for example, short courses, seminars, workshops and conferences (Molelu & Uys, 2003; Giannini-Gachago, et al., 2005; Uys, et al., 2004).

In the last 6 years, adoption of e-learning at UB seems to be encouraging as shown by both the increasing numbers of online courses and emerging vibrant e-learning community. For example, over 300 online courses have been created using Blackboard, including 65 online courses created at the Faculty of Engineering and Technology (Motshegwe, 2009). There are, however, several issues and questions that need to be addressed to enhance quality and promote sustainability of online courses. These include, but are not limited to, students and staff's perception of the technology; capital and running cost provision; system maintenance and availability; quality, standards and benchmarking; copyright; archiving and curation of materials and reward for developing online courses.

There are three principal areas in any staff-student interaction namely the instructor, student and technology. Studies have been carried out on the perception of lecturers to the adoption and use of e-learning facilities (Mapoka & Eyitayo, 2005; Shemi & Mgaya, 2003). The technology consists of the software, hardware and the learning environment and has a dynamic process of review and upgrade. Studies on students' perception of e-learning platform are scanty. However some authors (Batane & Mafote, 2007; Van der Merwe & Giannini-Gachago, 2005; Oladiran & Uziak, 2009; Uziak, 2009) have reported on students' perspective of eLearning. The current chapter is a continuation of the study by Uziak (2009) and focuses on students' preferences of course delivery. It is envisioned that this work would enhance curriculum innovations and course delivery options. Specifically, the objectives of this study were to:

- Evaluate the learning experiences of the Mechanical engineering students who used Blackboard technology at the University of Botswana.
- Assess students' preferences in terms of methods of course delivery.
- Assess the effectiveness and benefits of Blackboard technology on students learning.

## **E-LEARNING TECHNOLOGY**

Online learning constitutes learning via the Internet, intranet and extranet. The levels of sophistication of online learning vary depending on the knowledge of the instructor and audience. A basic online learning program includes the text and graphics of the course, exercises, tests, and record keeping, such as test scores and bookmarks. However, there are also "all-in-one" software packages, which enable several functions apart from providing students with course materials. The most popular ones are WebCT

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