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Chapter VIII

Moving Beyond Objective Testing in Online Assessment

Helen S. Ashton, Heriot-Watt University, UK

Cliff E. Beevers, Heriot-Watt University, UK

Colin D. Milligan, Heriot-Watt University, UK

David K. Schofield, Heriot-Watt University, UK

Ruth C. Thomas, Heriot-Watt University, UK

Martin A. Youngson, Heriot-Watt University, UK

Abstract

Computer-aided assessment (CAA) is traditionally seen as an efficient approach to testing large numbers of students by utilizing objective questions with the emphasis firmly on measurement. This chapter describes the development of a system that also seeks to contribute to improving student learning by enhancing the quality, sophistication, and authenticity of the assessments delivered. The system supports students and tutors through the learning process by providing diagnostic and directed feedback to learners and a clear measurement of their true ability to the teacher. The chapter also looks at current work focused on developing assessment systems that can assess higher order skills and begin to blur the boundary between learning and assessment.

Introduction

Online assessment has captured the imagination of many as the panacea for testing large numbers of students in a reliable, consistent fashion in which marks are immediately available for analysis and publication. Typically, this type of online assessment takes the form of objective testing, utilizing multiple choice and multiple response questions, offering scalability and time saving solutions with large groups of students. However, this focus has diverted attention away from many of the key benefits that online assessment offers to learning.

The experience of the authors in online assessment has been radically different in that from the outset, the focus has been on supporting student learning. This focus has led to using online assessment in diagnostic, formative, and summative modes; supporting independent learning; encouraging reflection; and involving both student and teacher in the process.

This chapter describes the experiences of the authors through a range of projects over the last two decades in which CAA has been used to support learning and deliver assessment to students in both tertiary and secondary education in the UK. In the long term, online assessment can play a positive role in enhancing the quality of learning by (a) providing diagnostic and directed feedback to learners, (b) supporting students and teachers through the learning process, (c) increasing the interactivity of the learning experience, (d) enhancing the quality and authenticity of the assessment delivered, (e) helping to identify misconceptions, and (f) helping teachers and lecturers grade the students they teach.

This chapter presents a case study of a series of CAA projects that, from their inception, have been different from the norm.

Background

Using a computer to aid the assessment of student performance has been an option for several decades. Various groups pioneered the delivery of CAA in higher education in the UK and internationally since the mid-1980s, as reviewed elsewhere (Ashton, Beevers, & Bull, 2004). Within the UK, early projects and tools include the Computer-Aided Learning in Mathematics (CALM) Project at Heriot-Watt University (Beevers, Foster, & McGuire, 1989; Beevers, McGuire, Stirling, & Wild, 1995; Beevers, Youngson, McGuire, Wild, & Fiddes, 1999), Ceilidh CourseMaster computer science programming software at Nottingham University (Benford, Burke, Foxley, Gutteridge, & Zin, 1993), and various language tools, such as LUISA (Leeds University Italian Software). Since those early days, the tools of CAA have advanced dramatically. Systems are now capable of supplying a range of question types well beyond the multiplechoice format, incorporating images, multimedia, and animation. In many universities CAA is used for both formative and summative assessment in a variety of disciplines (Bull & McKenna, 2003).