

Chapter X

Computer–Based Assessment for Academic Evaluation

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ABSTRACT

As student numbers and lecturer workloads increase, traditional methods of assessment make it rather difficult to undertake effective assessment and provide students with in-depth, relevant, specific, and speedy feedback. It is thus incumbent on tertiary academic institutions, more especially distance education providers, to consider alternative ways, means, and strategies towards the incorporation of computer-based assessment (CBA) methods. This automation can be easily realised by the ever-growing field of computer-aided assessment (CAA) software that is currently permeating the educational landscape of the world. While some individuals may argue that CBA software has been proven in only limited situations and that it is very costly to develop, it nevertheless remains a viable alternative technology that is beginning to challenge many traditional and out-dated modes of assessment. In this chapter the rationale for developing CBA has been discussed and thereafter pertinent issues around the types of CBA, advantages of CBA, proprietary, and non proprietary software have been analysed. The chapter concludes by firstly, highlighting strategic planning issues for consideration in engaging computer based assessment and secondly it provides modalities for future research directions within the arena of computer based assessment. These two components are key in designing ICT strategies for continuous academic evaluation.

INTRODUCTION

The growing call for the massification of higher education has led to commensurate increases in student numbers, class sizes, and lecturer workloads. In this regard, traditional methods make it progressively more difficult to undertake effective assessments and provide students with detailed, speedy, and effective feedback. Thus it appears only logical that academic institutions proceed to consider ways of automating their assessment methods, either fully or at least in part. The automation can be easily realised by adopting a well-structured and balanced computer aided assessment strategy using various proprietary and nonproprietary open source “computer automated assessment” (CAA) software that is readily and freely available. Though CAA software has been proven in some limited situations, it remains a technology with vast potential for refocusing and overhauling the current trends and practices of student assessment especially in an era dominated by globalisation and the information revolution. In this chapter, the pedagogical rationale has been outlined and thereafter an in-depth discourse has been provided as to the guiding principles for the incorporation of computer automated assessment into university teaching and learning.

Although computer automated assessment (CAA) is often touted as an antidote to the rising lecturer workload, there are various other reasons for the use of CAA within teaching and learning at higher education institutions. Whilst the key application of CAA is often argued as being in formative assessment, CAA often lends itself to various other forms of assessment such as summative evaluation, diagnostic testing, adaptive testing, portfolio assessment, group-based assessment, project assessment, and so on.

WHAT IS COMPUTER-BASED ASSESSMENT?

There are many terms, acronyms, concepts, and labels that are constantly being bundled around within the framework of computer based assessment. Acronyms such as computer assisted assessment (CAA); computer automated assessment (CAA); e-assessment (EA), online assessment (OLA), and computer based assessment (CBA) are often used within the vocabulary of individuals describing CAA. Although all of these terms refer in some way or another to the use of computers in assessment, Hogg (1997) underscores the need to distinguish if not differentiate between these concepts as each of them have fundamental differences. Hogg (1997) thus concludes that these terms cannot be used interchangeably as they will lead to inconsistency when referring to CAA. King (1994) also supports Hogg (1997) by stating that there must be a clear understanding of the various terminologies that are used interchangeably within the field of CAA as there are philosophical differences that are inherent in each of them. For example, King (1994) feels that there needs to be a clear distinction between CAA and CBA. King (1994, p. 213) argues that “CAA usually covers the use of computers in marking and administering optical mark reading cards while CBA on the other hand refers to the use of computers for the entire assessment process including delivery of the assessment, administration, management of the assessment, and the provision of feedback.”

There is overwhelming consensus amongst educationists that computers can help with assessment in many ways; however, this article is limited to the consideration of “online assessment” of students. Online assessment specifically refers to the interaction between the learner and the computer within the bounds of assessment. Furthermore, this chapter given an in-depth looks into adaptation of ‘online assessment’ tools for

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