A Sandbox Approach to Online Exam Administration

Stu Westin, College of Business Administration, University of Rhode Island, Kingston, RI, USA

ABSTRACT

This paper describes eTAP (electronic Test Administration Platform), an innovative software system that is designed to facilitate the administration of Web-based tests and exams. The purpose of the paper is to share the success of the approach, and to promote its further development and use in the e-learning milieu. The eTAP system has been developed by the author for use in their own multi-section, Web-based course in response to the author’s perceived needs in this setting. The software addresses issues of monitoring and attendance, academic honesty (e-cheating), and activity logging in the electronic testing environment. The testing platform provided by eTAP uses a software sandbox approach to exam integrity. That is, once the program is started, the user is limited to specific sanctioned computer functionality and is restricted to a well-defined, relevant region of the Web.

Keywords: Academic Integrity, Cheating Mitigation, e-Cheating, e-Learning, Online Examinations, Software Sandbox

INTRODUCTION AND BACKGROUND

This paper describes a software platform that is designed to support the administration of online examinations in a Web-based course environment. A primary focus of the software system is reduction of the opportunity to commit acts of cheating. The current section of the paper establishes the context and nomenclature by briefly describing the environments and accompanying challenges in which electronic exams are administered today. The ideas presented herein are based on the relevant literature on the topics. The discussion will be primarily from the perspective of university-level education, but many of the concepts can be applied to other education and testing settings.

Web-Based e-Learning Support Systems

The term e-learning has often been used as a general term to denote IT-supported or technology enhanced learning (Dror, 2008; Markus, 2009; McGill & Klobas, 2009; Monahan, McArdle, & Bertolotto, 2008). We will adopt a similar generic definition of the term in this paper. The roots of e-learning are in the stand-alone, computer-based training programs of the mid 1980s and in the CD-ROM-based distance education efforts of the early 1990s (Markus, 2009; Monahan et al., 2008). Today’s e-learning

DOI: 10.4018/ijopcd.2012100104
systems are primarily Web-based (Downes, 2005; Markus, 2009; Monahan et al., 2008; Roqueta, 2008). These e-learning systems use the Internet for course delivery and for exam administration in fully online and in blended learning courses.

As the read-only Web of the 1990s evolved into the dynamic, interactive Web 2.0 that we enjoy today, so did the demands and expectations of the users of these technologies evolve (Downes, 2005; Markus, 2009; Monahan et al., 2008). The composition of e-learning systems has similarly changed to meet these modern expectations (Downes, 2005; Markus, 2009; Roqueta, 2008). E-learning in higher education today is usually supported by software platforms known as learning management systems (LMS). These Web-based systems are now ubiquitous on both virtual and brick-and-mortar campuses. Familiar examples are Blackboard, Angel, Sakai, and Moodle. LMSs are usually adopted and implemented by the institution at large and are made available to faculty to support online and blended courses. Some argue that LMSs represent the greatest impact that information technology has had on higher education in recent years (McGill & Klobas, 2009).

A full description of the features and functions of LMS platforms is beyond the scope of this paper. It should be noted, however, that LMSs represent the second generation of Web-based e-learning support platforms, supplanting the earlier course management systems (CMS) (Roqueta, 2008). The difference in these systems is primarily one of focus. The emphasis of a CMS is on the course, specifically the delivery of the course. The emphasis of an LMS, on the other hand, is on learning and on meeting the particular needs of the individual learner (Roqueta, 2008).

Unlike CMSs, learning management systems bring the participatory Web 2.0 approach to the e-learning environment through such features as collaborative authoring of Wikis and blogs, support for social networking, synchronous discussion forums, support for RSS and Flash, tools to develop and play podcasts, and the like. These capabilities lead to increased flexibility, interactivity, synchronicity, customization, involvement, and (hopefully) engagement (Lin, Chen, & Chen, 2011; Shen & Wu, 2011; Struck, Kynaslahti, Lipponen, Vesterinen, & Vahtivuori-Hanninen, 2011). This environment, sometimes referred to as e-learning 2.0 (Downes, 2005; Smith & Reed, 2010; Wang & Chiu, 2011), is clearly more in tune with the wants and expectations of today’s learners because students today often view education through the same lens as they view work and play (Downes, 2005).

From the users’ side, all interaction with a CMS/LMS is carried out through a standard Web browser client. This is true for both students and instructors. A user’s security, privacy, and identity are all maintained through a standard extranet model of access. That is, each user has their own private account that is protected by a username and password.

There remains yet one more type of Web-based e-learning support platform that is often overlooked in the literature, but is relevant to this discussion. These are performance-based training and testing systems that are designed around very specific skill sets. We will hereunder refer to these through the moniker TTS (training and testing systems). In contrast with learning management systems, TTSs are usually offered by academic publishers and are adopted by individual instructors for use in specific university courses. They can be used independently, or in conjunction with an institutional CMS/LMS. The systems come prepackaged with course content which is often mapped to traditional course texts offered by the publisher.

A common focus of TTSs aimed at the higher-education market is one of business software skills, such as the use of the MS Office suite of products. Considering the Excel product, for example, a TTS lesson would provide interactive, detailed training on the features, functions, and uses of the spreadsheet software in a business setting. This training would be carried out in a simulated spreadsheet environment, wherein the student is required to carry out specific keyboard or mouse actions to complete the lesson at hand. This format
A Peer Tutoring-Based Concept Mapping Approach to Improving Students' Learning Achievements and Attitudes for a Social Studies Course
www.igi-global.com/article/a-peer-tutoring-based-concept-mapping-approach-to-improving-students-learning-achievements-and-attitudes-for-a-social-studies-course/190842?camid=4v1a

CRS: A Course Recommender System
www.igi-global.com/chapter/crs/183528?camid=4v1a