INFORMATION SCIENCE PUBLISHING
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ITB11494

This chapter appears in the book, *Online Assessment and Measurement: Case Studies from Higher Education, K-12 and Corporate* edited by Scott Howell and Mary Hricko and David D. Williams, © 2006, Idea Group Inc.

Chapter XVI

Assessment Elements in Web-Based Training

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Abstract

Web-based training is a field that advances rapidly. Rapid advancement leads to the development of industry standards and best practices. This case study will review some of those practices related to assessment design and evaluation and how each was applied to a U.S. Army Web-based training product. These best practices include adaptive learning, immediate and meaningful feedback, and assessment security. In addition, the problems that the army faced and the solutions that the development company designed will also be discussed. Towards the end of the case study, the results of the validation will be examined. The case study concludes with a look at future trends that may become best practices.

Introduction

As technology rapidly advances, so does the training medium. In the early days of computer-based training, distance learning merely consisted of simple text on a Web page. The content was generally followed by some type of knowledge-level assessment. This assessment consisted of multiple choice, true/false, and/or matching questions. Computer-based training and the assessment methods have advanced with the addition of audio, video, and other media forms. Now training can be scenario-based and offer learners multiple ways to experience the courseware. Scenario-based training can be considered a simulation. A *simulation* places the student in a real-

world situation that poses problems to the student that he or she must solve. As such, assessments can measure the performance of the learner without being limited to traditional knowledge-level questions. The objective of this case study is to discuss some of the ways in which Imedia.it incorporated certain elements into the 97B10 project for the U.S. Army. This chapter includes a literature review, background project information, problems encountered, implemented solutions, validation results, and future trends.

Literature Review

This section of the case study is intended to define the terms and provide background information about several of the educational theories and models that Imedia.it incorporates into its Web-based training (WBT) products. At the end of this section, I provide a brief overview of the training that I discuss at length.

Adaptive Learning

Training "is intended to build on individual knowledge, skills, and attitudes to meet present or future work requirements" (Rothwell & Sredl, 2000, p. 48). In most training facilities and classrooms, one would likely find everyone being taught exactly the same way. Teachers predominately teach to the average, middle-of-the-road learners. However, learners differ in many ways. "Whether it is in appearance, learning style, multiple intelligence, prior experience, personal preference, or social/emotional development, students differ" (Gregory & Kuzmich, 2004, p. 2). So if educators know this information, why do they continue to teach in this way? Some may wonder what other options are available. One possible option is adaptive learning. Adaptive learning addresses the differences of each learner. Adaptive learning, as applied to the training referred to in this case study, starts with a preassessment of the learner and resultant placement in a skill-level group. Everyone has his or her own strong and weak areas of ability. "Students need to be placed in groups that maximize their instructional time based on their performance levels" (Gregory & Chapman, 2002, p. 70). These different skill-level groups address the same content, but at different learning levels. This differentiation allows for "modification in content, process, and product based on the needs of the student" (Auld et al., 2000, p. 3).

Feedback

Proponents of constructivism, Stolovitch and Keeps state, "Knowledge cannot simply be imprinted onto an individual's mind; rather each individual constructs meaning in interaction with the specific environment" (1999, p. 886). It is believed that the student will construct knowledge based on his or her experience (Smith & Ragan,