FastTest advantages over eLearning systems

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ASSESSMENT SYSTEMS

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eLearning platforms typically provide rudimentary methods for testing examinees. However, because such platforms were not designed specifically for testing, they are incapable of many professional level aspects of testing, and are often only appropriate for small-scale applications. This paper reviews some of the reasons.

eLearning Platforms

The use of web applications for managing online instruction has revolutionized the eLearning industry. Web-based systems for eLearning are designed to provide a powerful way to organize educational content and materials, support discussion forums, deliver assignments, manage class lists, and calculate grades. As these systems are designed for such purposes, the functionality provided is typically quite excellent.

But while these eLearning platforms typically include some functionality for examinations, users must remember that the platforms are designed for *classroom use*. That is, they are not designed for anything more than small-scale exams at a classroom level, especially since assessment only represents a small fraction of their intended functionality. So while the testing functionality serves it purpose at classroom level, it is quite inferior to systems that were actually designed for testing. This is especially true for exams that occur on a large scale (hundreds of examinees or more) or require a professional level of sophistication namely things like item response theory (IRT) or computerized adaptive testing (CAT).

The following list provides some of the important pieces that are missing from testing modules of eLearning systems, or are inadequate for large-scale or professional test development.

- No item banking
- No role-based security for exams
- No support for IRT/CAT
- No detailed score reporting
- No collaborative workspace

- Inferior statistical analysis (no reliability, still uses obsolete disc)
- Typically less security (no lockdown)

Systems with complete testing capability are rare, and can only be designed by experts with a Ph.D. in the science of assessment, **psychometrics**, in concert with expert software engineers. *FastTest* is an excellent example of such a system.   This paper reviews some of the shortcomings of eLearning platforms from the list above, and contrasts them to professional-level systems.

No item banking

Item banking refers to the use of a database approach for developing items and using them in tests. All items are stored in **item banks**. Tests are then constructed by selecting items from banks. An item does not need to be entered each time it is used in a test, as it already exists in the bank, and therefore simply needs to be pulled. Entering items each time they are used is not only extremely inefficient, it is not able to track the item development process, or record on which tests the item was used. In addition, important information is not stored for each item, such as statistics, keywords, reference information author, and date created.
Professional testing systems, on the other hand, provide extensive item banking functionality. Items are stored in a flexible folder system, and associated with a wide range of important information.

No role-based security for exams

eLearning platforms typically have roles for the educational side (instructor, teaching assistant, viewer, student) but lack roles specific for the test development process,

such as item writer, item reviewer, bank manager, and test builder. Professional testing systems such as *FastTest* provide such role-based security for managing test-related personnel.

No support for IRT/CAT

IRT is the modern paradigm for developing, scoring, and analyzing exams, providing solutions to many of the problems in its predecessor, classical test theory. CAT is the test delivery method of the 21st century, where exam difficulty is tailored to the ability of the examinee. This provides numerous benefits (see other White Paper), the most important of which is that tests are typically only half as long.

Both IRT and CAT require a massive amount of psychometric expertise, and are therefore rarely available in software that is not professionally designed by a psychometrician. *FastTest* is the only publicly available testing system capable of fully adaptive tests based on IRT.

No detailed score reporting

An important part of testing is the feedback given to examinees. Professional testing systems typically provide customizable and individualized score reports. Users can design the score report to look any way they like. Moreover, detailed results such as subscores and scaled scoring can be utilized. This is not the case in many eLearning platforms.

No collaborative workspace

The combination of item banking and role-based security provides a collaborative workspace for a wide range test development personnel to efficiently develop test content according to best practices in psychometrics. eLearning systems obviously provide a collaborative space for the virtual classroom, but not for the development of defensible tests.

Inferior statistical analysis

Statistical analysis of test data is absolutely essential for evaluating item and test quality. No statistical analysis means that items of poor quality are not identified or removed, and there is no information regarding reliability or validity. Because systems developed for testing usually include expertise from psychometricians, they obviously provide more sophisticated statistical analysis.

Testing systems should at the very least provide these statistics for each item: the proportion of examinees endorsing each response, the point-biserial correlation for each response, and the overall item mean and point biserial. In addition, they must provide test-level statistics, the most important of which is internal consistency reliability. eLearning systems will often be lacking important statistics, or provide obsolete versions (e.g., the top-bottom discrimination index).

Organizations that put forth a professional effort on exams will also typically utilize external statistical analysis programs such as *Iteman* or *Xcalibre*. A testing system should also be able to easily export raw response data for use in such software.

Less security

Professional testing systems place an emphasis on security in test delivery, as this is an important component of validity arguments. They therefore provide some sort of login, key, or password system for an examinee to begin a test. A browser lockdown system is also quite useful. Both of these pieces should be available in the testing platform. If security is an issue for an organization, live or remote proctoring is obviously important, but this is outside the test delivery software.

About *FastTest*

FastTest is a comprehensive web-based system designed to help manage the entire test development and delivery process. It covers all major aspects of examinations:

- Item banking
- Item review
- Test assembly
- Cutscore setting (Angoff)
- Paper-based delivery
- Web-based delivery
- Score reporting
- Results management
- Psychometric analysis

For more information, please visit www.assess.com or contact sales@assess.com.