IJAE
Vol. 117, n. 2 (Supplement): 20, 2012
ITALIAN JOURNAL OF ANATOMY AND EMBRYOLOGY

Quizzicalc, a web-based application for the automated management of multiple-choice testing

Giuseppe Bertini

Department of Neurological, Neuropsychological, Morphological, and Motor Sciences, Section of Anatomy and Histology, University of Verona, Verona, Italy

Tests based on multiple-choice quizzes are widely recognized as the most efficient, consistent, and objective written form of assessment of student proficiency in completing academic courses. In addition to evaluating knowledge of the treated subject per se, a carefully formulated multiple-choice question allows to probe the student's ability to focus attention, to use logics, and to efficiently integrate information from different areas of the discipline.

Creating a database of questions of appropriate size, picking items to administer in a given exam, printing out forms, collecting and scoring the responses given by the students form a non-trivial workload that clearly benefits from specialized software. Here I present Quizzicalc, a dedicated, web-based application currently available as a beta release at http://www.quizzicalc.com, aimed at automating most aspects of the process

Compared to conventional software packages installed on single personal computers, web-based applications offer several distinct advantages. The program does not require installation and is platform independent, as it runs in any modern browser; any number of users can access the application at the same time, which makes it possible to collaborate and share resources among colleagues.

At the core of the application is the ability to create groups of lecturers (e.g. members of a school, an institute, a department, etc.) and support staff who have access to a shared, private workspace where all activities take place.

Common Quizzicalc procedures can be grouped in 3 major domains: 1) the student database, with facilities to quickly upload large lists of names, keep track of course enrollments and taken exams; 2) the multiple-choice question database, with each item composed of one question and an arbitrary number of answers, each characterized by an arbitrary score, which allows for the simplest scoring scheme (1 point for the correct answer, 0 points for any other choice) as well as for more fine-grained strategies (e.g. fractional or negative points, ranking of error severity, etc.); questions are categorized by discipline (e.g. anatomy, histology, embriology) and topic (e.g. "anatomy" might include topics "cardiovascular", "digestive", "nervous", etc.); 3) the exam engine, the most complex component of the application, which allows to manually or randomly select questions, shuffle the order of questions and choices, print PDF forms to be assigned to students, and assist in the scoring of the results.

Keywords: Teaching, multiple-choice tests, software, web.