

**Title:** Developing a web-based item bank

**Authors:** S. Ayhan Caliskan<sup>\*</sup>, H. Ibrahim Durak<sup>\*</sup>, Sila Elif Torun<sup>\*</sup>, O. Surel Karabilgin<sup>\*</sup>

<sup>\*</sup> *Ege University Faculty of Medicine, Department of Medical Education, Izmir, Turkey*

**The context and setting:** The undergraduate medical curriculum of Ege University, Izmir, Turkey consists of three pre-clinical and three clinical years. One of the evaluation methods used to assess the 1,800 students is multiple choice questions (MCQs). 175 written examinations are conducted per year, requiring more than 10,000 MCQ items. There is no secure web-based item bank in any of the 52 medical institutions in Turkey. Access to other international item banks is limited by language and costs.

**Why the idea or change was necessary:** The Medical Education Department realized the need for a secure web-based item bank that meets local needs. The current system is deficient in quality of the examination items and contributions by the faculty. Repetitive use of questions in different tests compromising the validity of some assessments is common. There is also no monitoring method to align the teaching content and the items used to assess students' knowledge of the content.

**What was done:** A project to develop a custom-designed secure and web-based software for item banking for the medical school was initiated for the first time in Turkey. Software features included: web-based item submission protocols, item review procedures, algorithms for selecting items to build an exam, the ability to perform item/exam analyses and report scores. A key feature of this approach is that every faculty member had an individual account to enable us to monitor item writing and to match test content with the curriculum. The software is able to link content of lectures to the test questions and to differentiate them into text-only or text with figures. Software processes the items into the following categories: pending, approved, used in exam, sent back to review.

This software was piloted with 14 faculty members from four different departments. Three workshops were designed and conducted to discuss MCQ item writing rules and item submission guidelines. Information regarding the quality of workshops and the utility of the software was gathered using a self report questionnaire. Responses to the questionnaire items were based on a 9 point Likert scale (1=strongly disagree – 9=strongly agree). The majority of the participants (n=11) submitted MCQs to the software following the workshops.

**Evaluation of the results:** The workshops were positively endorsed by the faculty. Faculty members strongly agreed that both the workshop duration (mean=7.8, SD=1.3) and the organization/infrastructure were appropriate (mean=8.6, SD=0.6). In addition, they emphasized that their knowledge (mean=8.8, SD=0.6) and skills (mean=8.1, SD=1.0) about writing MCQs improved as a function of attending the workshop. Overall, they found the software was very practical and user-friendly. Faculty participants suggested expanding these workshops throughout the medical school. After the workshops, participants submitted 57 MCQs to the software. Based on item writing guidelines, the majority (79%, n=45) were found to be technically acceptable. Given the success of the workshops, and the need for high-quality test material, the medical school is planning to use the submitted items in a pilot examination in the next academic year.