ASKUP: THE DEVELOPMENT OF A HIGH-EFFICIENCY LEARNING APPLICATION TO STIMULATE AND SHARE LEARNER-GENERATED QUESTIONS

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Technology Demonstration

BACKGROUND

There has been increasing interest in the use of online medical tools to supplement, or replace, traditional methods of face-to-face teaching. Most online material consists of recorded videos or PowerPoint lectures, which are unlikely to be more effective than traditional lectures. Many online courses do not take advantage of findings from the science of learning, which emphasize fewer lectures, active learning, working on real-life problems, and creating and answering questions. We sought to develop an online application that employs these evidence-based learning techniques to enhance learning. We aimed to encourage the creation and dissemination of learner-generated questions, which have been shown to enhance lecture and reading comprehension for question-writers. In addition, sharing these questions allow other learners to engage in practice testing, a highly efficient technique for learning.

METHODS

We formed a collaboration between investigators at Beth Israel Deaconess Medical Center and engineers in the Teaching and Learning Technologies (TLT) program at Harvard University. Harvard College students majoring in computer science were recruited as programmers through the TLT Student Developer Program, in which students are paired with developers to create tools to transform teaching and learning within the Harvard community. Ruby on Rails was used as the programming language, and we employed Agile software development methodology as a framework to produce incremental improvements to the application based on user feedback.

RESULTS

We created AskUp (askup.net), a free, open-source web application that encourages learners to generate their own question and answer sets after any educational event (lecture, reading, video, patient encounter). Questions are stored in a question bank and can be shared with peers, who will have an opportunity to answer the questions. We piloted the application at Harvard Medical School and received useful student feedback that we incorporated in the latest version of our software. Our project also received a Spark Grant from the Harvard Initiative on Learning and Teaching.

CONCLUSIONS

With collaborations from various institutions within the Harvard campus, we created an online web application that uses evidence-based techniques to encourage active learning. Unlike most online modules—which are created by experts, time-intensive and costly to design, and difficult to maintain—AskUp is free to use and can easily be expanded to cover a myriad of topics at minimal cost. Future trials will explore the efficacy of using AskUp in various settings including college and undergraduate and graduate medical education.