

Study habits in medical school: Can we get students to AskUp?

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Background: Research shows that we are remarkably poor at gauging how to make learning most effective. For instance, lectures are the principal mode of teaching in universities and medical schools throughout the world, yet little learning actually takes place during most lectures (Brown et al. 2014). In addition, the most common studying techniques--reviewing lecture notes or re-reading a passage--are remarkably ineffective. Learning requires the use of reflection, generation, and elaboration, processes which are not commonly used during a typical lecture or reading assignment.

The constructivist theory of learning argues that learners need to build their own frameworks of understanding, and link these new structures to what they already know (Dennick 2012). Generative learning strategy suggests that learners understand and remember new material best when they reconstruct presented material in a new, personally meaningful way (Wittrock 1990). One way of leveraging these techniques is through the creation of learner-generated questions, which have been shown to be highly effective tools for learning. Learner-generated questions improve reading comprehension, as compared to re-reading a passage (Rosenshie et al. 1996, Weinstein et al. 2010), and improve lecture comprehension, as compared to reviewing lecture materials (King 1992). In one study, the gains in lecture comprehension were maintained ten days after the intervention, suggesting that asking questions changed how learners processed lecture material (King 1991).

We are developing AskUp (askup.net), an free, open-source online application that employs these well-tested, evidence-based techniques to improve learning. AskUp allows learners to generate their own question and answer sets after any educational event, including a classroom lecture, reading assignment, online video, or patient encounter in the hospital. AskUp requires learners to reflect about the event they experienced in order to generate questions based on that material. Generating questions forces learners to identify the main points of the lecture/reading/video/patient case, and how those ideas relate to things they have learned in the past. These learner-generated questions can be shared with other learners participating in the same course, giving them an opportunity to answer questions that their peers have created. Studies have shown that answering questions is also a highly efficient tool for learning. Answering questions after a lecture improves comprehension and memory, as compared to reading a text or reviewing lecture notes (Brown et al. 2014). Thus, the creation of a question-answer set will not only help the question-writer, but his peers as well.

This pilot study seeks to analyze the study strategies that medical students currently use to study for their class exams. We will introduce students to evidence-based effective study

strategies, and highlight AskUp as one option to study using questions. We will then observe whether discussion of effective study strategies changed the way that students studied for their exams.

Methods: First year HMS students participating in the Integrated Human Physiology class will be invited to take anonymous, online surveys about study strategies used after each of their three exams. After the first exam, we will discuss effective, evidence-based study strategies to the class, and introduce AskUp as one way to study with questions. Students will be invited to register at AskUp to create and answer their own questions. We will collect anonymous data on how many students logged into AskUp, entered questions, answered questions. The types and quality of the anonymous questions created will also be analyzed.