



Message from the Associate Executive Director

Question Writing Enhances Learning



J. Anthony Parker, M.D., Ph.D.
Associate Executive Director,
ABNM

Testing is often considered to be useful only for knowledge evaluation; however, testing is also a valuable mnemonic enhancer (https://abnm_wordpress_uploads.s3.amazonaws.com/wordpress/wp-content/uploads/2015-2_SNMMI_Newsline_1.pdf). It is one form of what the cognitive psychologist call retrieval practice. Retrieval practice has been shown to be considerably more important than rereading or restudy for acquisition of durable knowledge.

Question writing is often considered to be a task needed for making an exam. However, the question writing experience also had educational value for the writers. A major responsibility for the Board members is writing questions for the in-training, the certification, and the maintenance of certification exams. It becomes quickly apparent to new Board members that question writing is also valuable for learning. The question writer needs to recall an important aspect of nuclear medicine, transform it into a question, and then check references to make sure the question is scientifically valid. Exam questions written by one member are reviewed by other members. Going over the questions as a group not only improves the questions, but the sharing of information also is another educational exercise. In cognitive psychology terminology, question writing enhances learning through a process called reflection. Reflection involves retrieval of information from memory, followed by elaboration. Elaboration of a concept can be expressing it in your own terms, explaining it to someone

else, thinking about it in a new context, or writing a question using the concept. Elaboration connects the recalled concept to other information so that it becomes more durable.

Question writing can be used for resident teaching. It is a good way to structure a journal club. Each participant writes a question before the journal club. The reflection involved in writing the question enhances learning about the topic of the question. Each participant becomes the expert for that piece of information, as opposed to a single person being the journal club leader. A journal club can start by reviewing the participants' questions as a group. Participants other than the writer each answer the question; like testing, answering the question is retrieval practice for every one in the group. Seeing how others interpret or misinterpret a question shows how the question might be confusing and helps teach the writer to write better questions. A Journal club based on participant question writing provides two good forms of learning enhancement, reflection writing a question and retrieval practice answering other participant's questions.

A revolution is taking place in educations. Kahn Academy has had a great success. Massive open online courses (MOOCs) are not replacing college, but certainly are finding their place in the educational landscape. Gamification has had some exciting successes (www.fold.it), and there is interest in gamification in education. Crowdsourcing is popular for avoiding speed traps, but crowdsourcing has also been effectively applied to education.

A medical student education electronic resource (osmosis.org) has been quite successful. It has many educational tools including question banks that cover the major medical school courses. In addition to other tools, it facilitates question writing and test making, particularly single question or few questions tests. It provides push notifications to students for question repetition on their mobile devices. Students can write question related to the course material, and their classmates can use those questions for studying. Peer-to-peer teaching, which is recognized as a powerful teaching method, is combined with crowdsourcing of question writing and answering.

Crowdsourcing of question writing has the advantage of relevance for the participants. The topics that need reinforcement are identified by peers. Peers also identify the scope and content of the material that needs to be studied. Each time a question is answered, the question is rated. Peers grading of the value of the questions gives feedback to the question writers and identifies good questions for others.

As the ABNM and the American Board of Medical Specialties think about the future of MOC assessment, we need to be aware of the revolution in education and consider how methods that have proved to be useful in other applications can best be applied to MOC and MOC assessment. We welcome suggestions and the help of Diplomates.