A LEARNER-CENTERED APPROACH TO INTERACTIVE DIAGRAMS: GUIDING DESIGN THROUGH EVALUATION

Michael Parker, MD and Nurit Bloom, EdM
Harvard Medical School, Boston, MA
michael_parker@hms.harvard.edu

Educational technologies often fail to adequately take learners' needs into account. This deficiency results in interfaces that are difficult to use and/or do not present the content clearly. While some of these pitfalls can be avoided by adhering to fundamental design principles, user testing is the only way to ensure high quality and educationally sound products. This presentation demonstrates how user testing can inform the design of Web-based learning tools and maximize educational impact and efficacy.

Over 32 weeks, 50-1st year Harvard Medical Students (HMS) evaluated interactive diagrams aimed at teaching physiology concepts. The diagrams are Web-based animations and simulations that clarify difficult concepts by providing enhanced visualizations and models where students experiment by altering parameters. Delivered via the HMS Web site, the diagrams are integrated with the physiology and pathophysiology courses. Student comments have been overwhelmingly positive, but popularity does not guarantee efficacy and formalized feedback was desired to ensure the effectiveness of the diagrams.

During one-on-one sessions with the evaluator, students answered a written pre-test questionnaire, used two diagrams in conjunction with supporting text and then answered a written post-test questionnaire and oral interview questions. Emphasis was placed on collecting data on ease of use and on effectiveness of the diagrams as a teaching tool.

The data on student use, questionnaire performance, and student suggestions were analyzed, reported and translated into suggestions for improvement. Diagrams were redesigned based on the reported results and recommendations. This presentation displays the data along with the pre- and post-evaluation versions of the diagrams.