Training Medical Students to Solve Complex Diagnostic Problems Using Web-Based Learning Environments

By
Dr. Eric G. Poitras, Negar Fazeli,
Laura Naismith, & Susanne Lajoie

Medical instructors have limited resources and time to provide realistic problems for students to solve in real-life settings and situations. Recent developments in the field of web-based learning environments in the medical domain have led to a renewed interest from instructors to implement virtual simulations that bridge the gap between the classroom and hospital. MedU and BioWorld serve as both training and research platforms, allowing instructors to assign cases to students who need to practice further and scenarios that are rarely encountered in day-to-day practice. In doing so, students and novice physicians are able to practice in diagnosing a range of virtual patient cases that exhibit different symptoms and diseases in a safe environment. Tools embedded in the software allow users to highlight relevant symptoms from patient cases, order lab-tests to appraise vital signs and functions, search topics in a digital library, request hints from a virtual expert physician, and receive supportive feedback. This presentation will review the research conducted by members of the Advanced Instructional Systems and Technologies (ASSIST) laboratory in the Department of Educational Psychology at the University of Utah (http://www.assistuofu.com). Learning analytics and data mining techniques allows researchers to discover patterns in user interactions stored in the MedU and BioWorld server databases. The findings have implications in providing sustained, on-going, and intensive instruction that is practical and directly related to classroom practice and student learning.