DEMONSTRATION OF MEDULATOR: AN INTEGRATED ONLINE CASE-BASED LEARNING TOOL

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Introduction:
Medantic Technology (MT) has developed an online Case-Based Learning (CBL) program, called Medulator™ (for “Medical Simulator”), which incorporates innovative pedagogical principles supported by contemporary Cognitive Psychology research, including Analogical Reasoning. Analogical Reasoning (the ability to solve unfamiliar cases by retrieving solutions to similar known cases) has been shown to improve students’ deep structural memory formation and analytical skills for certain types of problems. Studies of the effectiveness of Medulator’s pedagogical approach are on-going. Demonstration attendees will benefit from seeing Medulator’s distinctive teaching and performance assessment capabilities when deciding to buy or build CBL software or incorporate CBL software into their curricula.

Abstract:
Examples of computerized CBL (or “patient simulation”) programs are plentiful. We believe our CBL platform is unique in its teaching and assessment approaches. Medulator was developed under the U.S. Department of Defense’s Small Business Innovation Research (SBIR) grant program as a multimedia Web-based patient case simulation application which simulates realistic patient encounters with healthcare providers. In teaching mode, a digital learning surround includes context-specific teaching points, expert feedback on student actions, streaming didactics, and hyperlinked references. A pure assessment mode is also available as is a remote case authoring tool with an intelligent agent.

Uniquely, Medulator’s formative assessment includes evaluations of students’ Analogical Reasoning skills, using what we’ve termed an Analogy Transfer Evaluation (ATE). ATE measures students’ ability to recognize structural case characteristics (symptomatology, physical exam findings, test results, etc.) which are similar (analogous) between previously completed cases (diagnosis known) and target cases (new, unfamiliar cases, diagnosis unknown). ATE is designed to foster and assess students’ Analogical Reasoning skills when faced with unknown cases which are structurally familiar.

Also unique to Medulator is a student-generated Case Summary utility, which has been shown through research to increase Diagnostic Accuracy and reduce the number of Treatment attempts needed to achieve a positive patient outcome in Medulator cases. Exhaustive performance statistics are collected in each case session through click tracking and response capture, and are then reported for remedial instruction. Also, because Medulator is Web-based and distributed, storing all session data in a central database, it offers comparison to peer averages for major performance indicators.

In online surveys of research subjects using Medulator, a high degree of student satisfaction and perceived value has been achieved. Medulator’s teaching and performance assessment and reporting capabilities will be demonstrated.