Unfolding Clinical Cases As Interactive Podcasts: Modeling Advanced Reasoning and Heuristics

Gregory A. DeBourgh
University of San Francisco
United States
debourhgg@usfca.edu

Abstract: This paper describes a university’s experience using interactive unfolding clinical case studies in science curricula to facilitate students’ acquisition of advanced skills in reasoning, problem solving, and reflective learning. The instructional design employs multimedia case “evidence” (images, graphics, video, audio prompts) to engage learners in actively constructing an understanding of both content and heuristic process knowledge. Podcasting software is used to enable access to audio and video files that enhance the reality and variability of case studies that are “solved” by collaborative student study groups. The instructional strategy fosters communities of learners, embeds opportunities for feedback and self-assessment during learning, and prompts learners to interact with complex, dynamic variables to develop skills in reasoning. Operational aspects of initiating and refining use of podcasting to support interactive unfolding clinical case studies are described.

To amplify learning and extend the skill-building impact of clinical case studies as an instructional modality, interactive podcasting is used as a vehicle to connect students in a collaborative group to respond to progressive or unfolding “master case studies”. The clinical case studies engage students in learning about the complexities of various medical pathologies and the dynamic variables that impact management of patient care in acute settings. The unfolding clinical cases are introduced as multimedia podcasts, served through the university’s web portal using iTunes University “click, synch, learn” software (Apple, 2007). Students subscribe to the iTunes course podcast and download (to either their portable MP3 player or their computer) a master case folder which includes the primary case study data, heuristic template worksheets, and text and audio prompts that stimulate thinking about the interaction of variables and promote a focus on intended therapeutic outcomes. Having case audio and video files available as a podcast enables them to study anywhere and at anytime. A narrated PowerPoint introduces a “master case”, which is a prototype clinical syndrome that represents pathology of a major body system and associated priorities of care management. These master case scenarios provide the initial structure for study of each clinical syndrome. As the semester progresses, the master case is unfolded or progressed with data that reveal increasing complexity and dynamic variables. Subsequent data for each unfolding case are uploaded to the specific “case gallery” folder. These data may include text, graphics, images, and video and audio clips that manifest the patient’s active symptoms, patient response to interventions, physiological parameters such as vital signs, laboratory results, audio clips of physiologic sounds (e.g. lung and heart sounds, bowel sounds), and patient interview data (recorded interactions and responses to nurse and physician inquires).

The presenter will describe the instructional strategy of unfolding online clinical case studies, the integration of heuristic modelling, and the relationships to developing student skills in advanced reasoning. The use of advanced organizers will be described as tools that model the heuristics for advanced reasoning skill development and promote the precepts of reflective learning as described by Schon (1987) and extended by Killion and Todnem (1991). Examples of interactive multimedia podcast elements will be demonstrated with strategies to encourage student work in self-selected “collaborative consultation groups” to interact with the unfolding case study and participate in peer-review of findings on the course threaded-message board. Operational aspects of preparing, monitoring, and evaluating the effectiveness of this instructional modality will be reviewed, with a brief description of descriptive research in progress. Preliminary data indicate that students are not intimidated by the technology, have strong preferences for mobile learning options and self-determination of when and where they choose to study, and enjoy the collaborative aspects of working together to prepare the case study assignments.
