

# FACILITATING MENTAL HEALTH TRAINING THROUGH TECHNOLOGY

## 2005 COMPUTERWORLD HONORS CASE STUDY

### EDUCATION & ACADEMIA

ER PSYCH IS AN ONLINE CASE STUDY TEMPLATE THAT ALLOWS MENTAL HEALTH WORKERS TO PRACTICE THE TECHNIQUES OF EMERGENCY PSYCHIATRIC EVALUATION, DIAGNOSIS AND TREATMENT. THE SYSTEM WORKS WELL WITH NEARLY ANY MANAGEMENT SYSTEM, IS READLY MODIFIABLE THROUGH STRAIGHTFORWARD TEXT FILES, AND EXTENSIBLE TO OTHER CASE STUDY CONTENT. [20055290]

### SUMMARY

An online case study template that allows mental health workers to practice the techniques of emergency psychiatric evaluation, diagnosis and treatment, ER Psych was built as a reusable learning object, capable of full functionality in any management system, modifiable through straightforward text files, and extensible to other case study content.

### APPLICATION

This project was developed to provide online medical case studies, initially in the area of Emergency Room Psychiatry. What makes this particular model special is that it was specifically designed to be reused by medical personnel with no expertise in the applied technologies.

The idea was to produce a flexible case study framework that would self-generate each time it was accessed, based on a simple set of text documents. This provides a painless and affordable means to edit the content and structure of existing case studies, as well as to create new case studies, requiring only the resources of subject matter experts, not the resources of technical developers and designers.

The case study framework supports the specific concepts of differential diagnosis and final diagnosis, patient history and examination results, selection of labs and tests, cost-of-treatment analysis, and treatment plan decision-making. The module sets the stage with an opening video, progresses through lab tests and diagnostic analyses, augments various decision points with appropriate ethical considerations, and concludes with an end of module quiz which triggers remote communication to provide continuing medical education credits and a completion certificate.

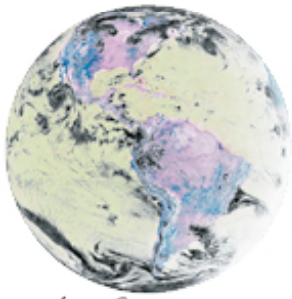
This project directly addresses issues associated with both the cost and quality of developing useful web-based case studies. Because the framework was developed so that technical developers are not needed to create new case studies, or to modify existing case studies, the majority of costs associated with developing online case studies were absorbed up front. Further case studies will require only the relatively minor costs of content development and product enhancement requests. Adding custom content requires nothing more than creating a simple text file and updating the index file the module uses to populate its menu.

The code driving the framework was purposefully designed to allow new features to be retrofitted to previous versions of the case study. This means that new feature development costs can be spread out across several iterations, even across several clients, and then applied to all existing case studies. This provides a workable means for the provision of affordable high-quality distance education.

### BENEFITS

Mental health workers, and all medical personnel, need continuous training in new techniques for diagnosis and remediation; knowledge in the health professions changes at least as fast, if not faster, than the rest of the workforce. Distribution of this training in an online format offers the potential for near real-time update of information delivered directly to the point of need, in a hospital, or to a point of convenience, in a home. Rather than require workers to travel to off-site seminars and learn new ways of providing services, online training offers local education, expanding the moment of knowledge to asynchronous expedience and extending the reach of knowledge to rural geographies.

### IMPORTANCE



*A Search for New Horizons*



Robert Carrigan,  
Chairman of the Chairmen's Committee

Ron Milton,  
Vice-Chairman of the Chairmen's  
Committee

Dan Morrow,  
Chief Historian

The key contributions of information technology to the project lie in the use of XML to structure the case study data and the use of web services (via a Cold Fusion component) to provide a communication mechanism. Without XML, the content and structure of the case study would remain locked in the Flash module, unable to be modified or reused except by experienced Flash developers. Without messaging capabilities, the interactions of learners with the case study itself would remain locked in the Flash module, the experiences trapped in a silent digital cave.

## **ORIGINALITY**

ER Psych evolved out our work with reusable learning objects. Beginning in 2001, we made a conscious effort to design content in modular packages that are portable (to multiple learning management systems) and modifiable (for content updating). In 2002, we added feedback loops to the objects in order to provide instructional events for learners. As the objects became more sophisticated, we began using XML-driven templates in 2003 to allow non-programmers access to the base content for editing and new object creation. ER Psych includes structural control of the module in the XML, and adds a communication element whereby the object communicates to and from external systems. None of these individual characteristics is singularly original; however, the integration of all the aspects is to some extent unique.

## **SUCCESS**

ER Psych launches in January, 2005. Initially, the project is designed to serve the needs of several thousand Texas-based emergency room personnel and students at UT Southwestern Medical Center in Dallas. The extension of this case study format to additional areas is currently under review by the National Institute of Health for funding in 2005. Future development plans for the module include the formalization of inherent game-like qualities (diagnostic results posted to a common scoreboard) to increase personal incentives, and the integration of P2P communication (instant message an expert—a student who has previously completed the module—for advice) to foster community development.

## **DIFFICULTY**

The base concept, an online case study, faced little opposition: the case study format is well-established in and favored by the medical community; and UT Southwestern Medical Center at Dallas enjoyed previous success providing online courses via the UT TeleCampus. However, the concept of a reusable case study template offered significant design and technical challenges. The key learning components of any case study had to be defined before they could be genericized and transformed into XML constructs, and this definition took significantly longer than anyone associated with the project had projected. The requirement that the finished product run in any learning management system required close adherence to evolving specifications from the IMSProject and SCORM. At present, ER Psych runs as a stand-alone (non-SCORM) object inside the Blackboard learning management system, accepting user identification from Blackboard-specific variables and outputting user outcomes to a Cold Fusion Component which in turn communicates with a certificate database tracking application.