2007 NIEHS WETP TRAINERS' EXCHANGE
Workshop Session Summaries

Section 1. Session Title and Presenters' Contact Information

Session Title	A Simulation-based Intelligent Tutoring System for WMD emergency medical services incident management
Presenter	James Ong
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Section 2. Workshop Summary – Summarizes the workshop session including: topic, objective, format, and training method. Should not be more than two paragraphs.

The purpose of these workshop was to provide an introduction to simulation-based intelligent tutoring systems. We presented and demonstrated a training system developed during an ongoing Phase I Small Business Innovation Research project that places the student in the role of a medical branch director responding to a chlorine explosion at a water plan. Before the simulation, the student receives a briefing that describes the student's role, the recent events of the incident that have occurred so far, and background information about the weather, geography, medical and emergency response resources of the city, county, and neighboring counties. During the simulation, the student listens to simulated radio traffic from the dispatch, EMS units, incident commander, and other simulated characters. The student can "speak" over the radio by selecting choices from a hierarchically-organized menu. The student can also refer to a map of the city and reference materials to help them assess the constantly evolving situation accurately. After the simulation, the software presents an automatically-constructed debriefing, or after-action review, that describes each correct and incorrect action taken by the student and the reason why the action was correct or incorrect. At the end of the presentation, we distributed a questionnaire to elicit feedback on the system. We also presented background information about intelligent tutoring systems and related systems that teach military command, control, and tactical decision-making.

Section 3. Methods – Briefly describe the training method(s) used, the advantages and disadvantages of the approach, and the recommended evaluation technique to determine effectiveness.

The training software combines two training methods: Scenario-based training simulations and intelligent tutoring systems. Scenario-based simulations challenge students to assess situations, make decisions, and experience the effects of their actions in realistically-complex situations. Intelligent tutoring systems emulate expert instructors by monitoring and automatically evaluating student performance during simulations to provide detailed, instructional feedback. Advantages of these approaches include realism of the training experiences, and automated evaluation of student performance. Disadvantages include the complexity of developing these systems. The challenge is to develop scenario development tools, methods and templates that can simplify the development of these systems while retaining the sophistication needed to achieve training realism and effectiveness.

Section 4. Main Points – Lists key points raised during the workshop by the session presenter, as well as main points resulting from the session discussion. If appropriate, these should be broken into two distinct sections (see sample below): "key lessons" and "responses from participants."

Key Lessons:
Simulation-based intelligent tutoring system show promise as an effective training technique for teaching incident management knowledge and skills.

Responses from Participants:
The prototype system and approach appear very promising and compare favorably with existing training methods. Some participants asked questions about the simulation's ability to respond realistically to the student's actions and decisions. They said that it would be very valuable if training organizations could tailor the scenarios to reflect their specific situations and processes.

Section 5. References – If relevant, please list reference materials (including articles, reports, training materials, etc.) that may be useful to those who wish to learn more about the session topic and discussion.

www.stottlerhenke.com/solutions/training

Section 6. Workshop Handouts/ Resources – Please provide the title of any handouts or resources, including power point presentations, used in the workshop. Be sure to include electronic files of these handouts and resources, clearly labeled with the presenter's name and the session title.

Slides - WMD Incident Management Simulation and Tutor
Handout - Feedback Form - Chemical Incident Management Training Simulation