

Immersion MSHA Project Statement of Work

There is an urgent need for supervisor training in the nation's coal mining industry. A large percentage of the current supervisory workforce is nearing retirement, which will leave the industry with a critical shortage of trained supervisors. Mine supervisors are the key individuals in maintaining a mine's safety and health program. Additionally, the growing need for energy and the inherent hazards in the industry make mine supervisors essential for ensuring future coal supplies. Currently mine supervisory training lacks comprehensiveness and does not adequately address the complexity of supervisory tasks.

The goal of this project is to develop a systematic and effective training strategy for mine supervisors based on state-of-the-art instructional design principles, processes, and learning technologies. Specifically, the goal of this project is to examine the extensive and validated mine supervisor Job Task Analysis (JTA) developed by the Mine Safety and Health Administration (MSHA) in cooperation with the U.S. Navy, and transition this JTA to an effective and efficient training strategy for mine supervisors. To achieve this goal, a team of faculty (Dr. Nada Dabbagh and Dr. Kevin Clark) and 6-8 graduate students from the Instructional Technology program at George Mason University (GMU) will perform the following tasks during the 2005/2006 academic year: (1) conduct a comprehensive performance and needs analysis of the current state of mine supervisor training, (2) conduct a cognitive task analysis of the JTA to determine the cognitive domain type and level of the supervisory tasks, (3) develop an appropriate training strategy and delivery approach, and (4) develop a prototype that models this strategy.

More specifically, year 1 objectives include:

- Conducting a performance and needs analyses, learner analysis, and cognitive task analysis to map the JTA tasks to a learning taxonomy.
- Identifying an overall design strategy and implementation approach and develop a prototype example on a specific cluster of JTA tasks or a first level design document.

Deliverables for year 1 include:

- (1) Performance analysis report
- (2) Needs analysis report
- (3) Learner analysis report
- (4) Cognitive task analysis
- (5) First level design document (includes a model prototype)

While the scope of this project is to primarily address the training need for current and new coal supervisors, MSHA anticipates that this data-driven training strategy will be utilized to address the training needs of all mine supervisors. MSHA also anticipates that States, mining associations, mining schools, private contractors, and individual mine operators will also benefit from this training strategy. It is envisioned that the eventual full-scale implementation of this training strategy will result in improved mine productivity; reduction of maintenance costs; and an improved safety record of the nation's mines.