

# Highly interactive training helps workers in dangerous jobs avoid deadly mistakes

January 26 2011

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Hands-on safety training for workers in highly hazardous jobs is most effective at improving safe work behavior, according to psychologists who analyzed close to 40 years of research. However, less engaging training can be just as effective in preparing workers to avoid accidents when jobs are less dangerous.

More interactive types of safety training may help employees become more aware of the threats they face on the job and avoid making deadly mistakes, according to the findings in the January issue of the [Journal of Applied Psychology](#), which is published by the American Psychological Association.

Researchers analyzed results from 113 safety training studies conducted since the passage of the Occupational Safety and Health Administration Act in 1971. The analysis included a total sample of 24,694 workers in 16 countries. The researchers used the Bureau of Labor Statistics' Occupational Injury and Illness Classification System to sort hazards into hierarchical categories that reflected the increasing potential for severe illness, injury or death. The hazards ranged from simple falls to fires, explosions and physical assaults.

At jobs where the likelihood of death or injury was highest, the findings showed that more engaging training (e.g., behavioral modeling, simulation and hands-on training) was considerably more effective than less engaging training (such as lectures, films, reading materials and videos) for both learning about and demonstrating safety on the job.

Less engaging training was just as effective in regard to improving these outcomes when the risk for death or injury was low.

"The primary psychological mechanism we can offer as an explanation for these results is something called the 'dread factor,'" said the study's lead author, Michael Burke, PhD, of Tulane University. "In a more interactive training environment, the trainees are faced more acutely with the possible dangers of their job and they are, in turn, more motivated to learn about such dangers and how to avoid them."

For example, when hazardous events and exposures are extreme (e.g., fires, explosions, exposure to toxic chemicals or radiation), the action, dialogue and considerable reflection that takes place in more interactive training would be expected to create a sense of dread and realization of the dangers of the job.

This analysis offers practical implications for employers who may be hesitant to invest in the more expensive interactive training programs.

"Distance learning and electronic learning may appear to be more cost effective. But our findings point to the value of investing in more hands-on training to help prevent the enormous financial and human costs associated with disasters like the Upper Big Branch mine explosion," said Burke. "Our findings also show that the less expensive, and less interactive, training may be a good fit for workers who are not facing particularly hazardous situations on the job."

**More information:** "The Dread Factor: How Hazards and Safety Training Influence Learning and Performance." Michael J. Burke, PhD, Tulane University; Rommel O. Salvador, PhD, University of Washington Tacoma; Kristin Smith-Crowe, PhD, University of Utah; Suzanne Chan-Serafin, PhD, University of New South Wales; Alexis Smith, PhD, and Shirley Sonesh, Tulane University. *Journal of Applied Psychology*, Vol.

96, No.1.

Provided by American Psychological Association

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