

Training partnerships that improve your outcomes.

Each company, classroom, and trainer is different. Although we all work toward the same safety and health goal — to achieve zero harm — each organization has different needs and levels of expertise in instructional design, technology, and evaluation. One size doesn't fit all.

Learning Laboratories provide new opportunities to customize training, adapt new training resources, and receive (or share) expertise with other safety-conscious mining practitioners. Through Learning Laboratories, each industry partner receives materials and guidance to help them continuously improve their training effectiveness.

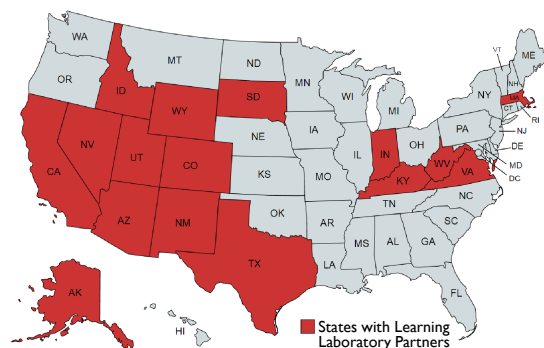


Industry-academic partnerships form the core of this initiative. Through these partnerships, our program has trained over 12,000 miners to date, leading to *measurable improvements* in safety and health outcomes.

As a partner in the Learning Laboratories program, you will have access to three critical resources:

- **Trainer Mentorship.** Program mentors will work with your team to identify and address training needs.
- **Training Resources.** A continuum of training resources provides targeted materials to address your trainers' teaching skills and technical capabilities.
- **Integrated Evaluation.** An evaluation framework will help you measure outcomes to identify training successes and areas for further improvement.

Join a growing network of industry partners to improve your training, augment your safety culture, and measurably improve safety and health on your worksites.



Learning Laboratory partners include a growing list of over 30 companies in 16 U.S. states.



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Learning Laboratories

An Evidence-Based Training and Mentorship Program to Improve Safety and Health Outcomes



 THE UNIVERSITY OF ARIZONA

Western Mining Safety & Health
Training Resource Center



Learning Laboratories provide training mentorship and resources that improve outcomes.

Trainer Mentorship



Miners deserve trainers who can teach them to effectively recognize hazards, limit occupational exposures, and manage risk cooperatively with mine operators. The Learning Laboratories **Trainer Mentorship Program** provides feedback, support, and coaching for trainers that is customized to their backgrounds and needs. Mentors work one-on-one with each trainer to implement new resources, technologies, and evaluation approaches.

Our **Trainer Mentorship Program** is designed to continuously assess and augment trainer capabilities, providing guidance such as

- Knowledge of MSHA Part 46 / 48 requirements
- Support on training plans and instructional design
- Assistance with new classroom technologies
- Feedback that is objective and constructive
- Methods to assess safety and health outcomes



Mentors will help trainers deploy active learning methods and improve evaluation strategies.

Training Resources



A **Continuum of Training Resources** was designed to meet a range of trainer skill levels and technologies available in the classroom. While many trainers are eager to use sophisticated materials in their classes, many do not yet have the instructional skills or technologies to do so. Our goal is to *incrementally build up* capabilities based on present skill level, available technology, and company needs.



Resources range from simple tabletop exercises to sophisticated computer games and VR.

The **Continuum of Training Resources** includes training materials developed by the Western Mining Safety & Health Training Resource Center, as well as products by NIOSH and contributing industry partners. The following types of resources are represented, ranging from traditional to advanced:

- Slide-based training modules
- Card games & tabletop activities
- Hybrid games that combine tabletop activities with apps
- Multi-user mobile apps / games
- Computer-based exercises
- Computer-based serious games
- Synthetic learning environments
- Immersive virtual environments



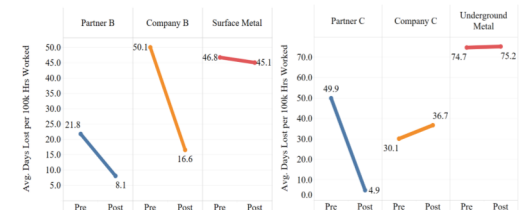
Integrated Evaluation

Effective training programs are supported by evaluation plans that address all four levels of Kirkpatrick's Model: Reaction, Learning, Behavior, and Results. Our program's **Integrated Evaluation Tools** include a variety of data collection instruments and cloud-based analytics tools that address all four levels, with emphasis on human performance (Behavior) and safety and health outcomes (Results).



Our program evaluates both the trainer *and* the learner to inform safety and health outcomes

Does this program work? Yes! Operators have observed measurable improvements in outcomes, including reductions in both the frequency and severity of workplace injuries. For example, a partnering worksite reported post-intervention **decreases of 23.6% and 72.5%** in average injuries and days lost per 100,000 hours worked, respectively. This outcome compares favorably to the 100% increase and 27.7% decrease in those measures at the operator's worksites which were not using our training program. In terms of days lost, we observed an average **60% improvement** across all operators using our program, versus a 3.6% improvement for the mine industry as a whole over the same period.



Participating mine sites see measurable reductions in average days lost per hours worked.

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