

TELL ME A STORY: USING NARRATIVE TO TEACH SAFETY TO SKILLED BLUE-COLLAR WORKERS

By

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ABSTRACT

Miners, like many skilled blue-collar workers, are not traditional learners. They have not generally been successful in classroom-type settings, preferring to learn on the job in a hands-on environment. U.S. miners are required to have annual safety training, but they rarely view this positively. In fact, it has been called “safety jail” by many of them, who regard it as a time to get a little extra sleep. The challenge then, was to find a way to develop *effective* safety training for these people, particularly in view of the fact that their work is among the most dangerous of all occupations.

Miners are born story tellers. They share “near-miss” stories, stories about master miners they have known, and stories about how things used to be. These stories not only pass along information about what will happen if a miner fails to respect the mining environment, they also instruct listeners in the culture of mining and the values it embraces. Stories, it seems, are a way to get safety messages to miners, especially inexperienced ones, and using older, wiser miners in these stories is an obvious choice. This paper will discuss how the training videos created to get safety messages to miners were developed, how “master miners” and story lines were chosen, and how the resulting videos have been received in the mining industry.

INTRODUCTION

The Spokane Research Laboratory (SRL), a division of the National Institute for Occupational Safety and Health (NIOSH), has been conducting stakeholder meetings within the mining industry for a number of years. Participants at these meetings are asked to identify problems for researchers to consider in their work. One of the issues that was identified repeatedly over the years was the need for high-quality, effective training materials that could be used for both training new miners and annual refresher training. In 1998, a project was funded at SRL to develop and evaluate effective safety training for the mining industry.

APPROACH

Miners are not traditional learners. As adult learners, they fit the pattern defined by Knowles (Knowles, Holton, & Swanson, 1998), in that they—

- Need to know why they need to learn something,
- Need training to be self-directed,
- Need their training to relate to prior experience,
- Must be ready to learn,
- Must be motivated to learn.

Wlodowski (1985) further suggests that adults are motivated to learn if they believe they will be successful, if they think they have a choice in whether to learn, if they believe they are learning something valuable, and if they are enjoying the experience. The key to meeting these needs, it seemed, was to look closely at the mining culture for clues as to how to make learning fun, interesting, and relevant.

While it is true that U.S. miners are required to spend time in training classes, this does not guarantee that they will pay attention or learn anything. The approach used in this project was to first put together a group of industry safety professionals who would act as a technical advisory group. Membership in this group was loose and changed as the topics for training materials changed. A list of “critical issues” was developed, which included such things as handling explosives, installing ground supports, and working around mobile equipment. These issues provided the content for the training, but the truly critical piece was to design the method by which the topics would be introduced.

The idea of using narratives, or story-telling, as a teaching technique in this project developed gradually. Research has shown that stories can be very powerful. Slater says they—

have substantial potential to influence behavior. It is difficult to consider another communication genre that can communicate beliefs, model behavior, teach skills, provide behavioral cues, and simulate consequences of behaviors over time in as compelling and involving a fashion. (Slater, 2002)

Trying to change another person’s behavior (one of the primary objectives of safety training) without

obtaining their buy-in is an impossible task. Simmons believes that stories are “the oldest tool of influence in human history” (Simmons, 2001, p. xvii) and that they can provide the trainer an effective way to “connect people to what is important and to help them make sense of their world” (p. 29). In other words, stories provide the learner with that critical “why should I care?” element. Lave and Wenger (1991) have taken this idea even further by stating that true learning does not take place in isolation, but rather in a social environment, with all of the interactions that would accompany it. While we may associate story-telling with entertaining children, MacDonald (1993) argues that “The adult’s sense of story is fully developed, the attention span is long, and adults prove eager listeners if you will take the time to seek out...tales we need to hear” (p. 57). It is clear the current research on adult learning theory supports story-telling as an effective strategy in training miners.



Miners are story-tellers. One need only spend time with them to observe how they interact with each other through story-telling. The stories they share may provide information about “near misses” they have had, about master miners they have worked with, or about someone they knew who made an error in judgment and paid dearly for it. The role of the stories is complex, but Billett explains it like this: “Developing learners’ conceptual understanding of why things are done a certain way, and what would happen if they were not, is a key role...” (Billett, 1994, p. 14). Henry Cole has researched the role of story-

telling and its relationship to training. He states, “A universal problem in education is the matter of translating socially relevant information into information that is personally relevant” (Cole, 1997, p. 334). U.S. laws pertaining to (U.S. Code of Federal Regulations, 1977) requires that miners be trained in health and safety. This is the social relevance that Cole makes reference to. The challenge is to comply with the law and at the same time provide training that is personally relevant to them. Only then will their time be well spent, and their behavior changed.

Video was the format chosen for development of training materials. While it could be argued that other media, such as DVD or CD’s, were more flexible, an informal survey of mining industry customers revealed that these media were not widely used, but that the video format was common. The digitally shot footage that would be used to create the videos could also be the raw material for eventually creating DVD’s and CD’s, and so left those options open for the future. A commercial production studio was hired to provide the technical expertise that would assure that the footage was the highest quality possible. The project relied heavily on a collaborative relationship with the mining industry. Operating mines provided locations, miners to act in the videos, equipment and other props for the video shoots. Scripts were developed at SRL and provided to mine safety professionals who checked them for accuracy and thoroughness. Once the shooting began on a project, the miners who were involved were given minimal coaching on what to say, but rather were given the freedom to tell the stories as they wanted.

When the project first started, researchers were concerned that miners would be unwilling to participate or cooperate. This certainly was not the case. The videos were not released until they had been thoroughly reviewed by the technical advisory team, but when it came time to premier them, the location was generally in the towns near the mines where the videos were shot and the miners involved were invited as honored guests. Each “actor” was given his own copy of the video, as well as a portrait. They were encouraged to invite friends and family members to the premier and to celebrate a job well done.

As the videos began to come out, a lively competition developed among the mines and miners to see who was chosen to be in the next one. The surprising dilemma was not reluctance on the part of the industry to participate, but rather to find a way to be fair and to include as many miners as possible.

To date, eight videos have been produced by SRL. Two of them, *Hidden Scars* (and *You Are My Sunshine* (are documentary-style stories of a fatal accident and a major mining disaster, respectively. The other six provide training on specific areas of mining using story-telling to assist learning. These videos include—

1. Handling Explosives in Underground Mines (Cullen, 1998).
2. Preventing Rock Falls in Underground Mines (Miller, 1999).
3. Miner Mike Saves the Day (Cullen, 2000).
4. Hazards in Motion (Cullen, 2001a).
5. Zen and the Art of Rock Bolting (Cullen, 2001b).
6. Aggregate Training for the Safety Impaired (Cullen, 2003).

In each of these videos, older, wiser miners observe younger, inexperienced miners performing unsafe acts and mentor them by either telling them stories about why this is not a good idea, or by introducing them to other expert miners who show them the proper way to do things. Camm and Cullen (2002) suggest that mentoring, or the master-apprentice relationship, is the primary method used in the mining industry to train new workers. These videos, particularly *Zen and the Art of Rock Bolting*, use this mentoring technique to take advantage of the credibility and legitimacy that the expert miners have earned.



RESULTS

The videos have been very well received in the mining industry. NIOSH has distributed over 7000 copies of the eight videos, with new requests coming in daily. Sheer demand, however, is not the best indicator of effectiveness, so a formal evaluative process was established to gather data on whether these videos really did make a positive difference in training. An independent team of researchers was contracted to gather evaluative data on the first five videos produced and to analyze these data for information that would provide guidance for the research project under which the videos were created (Fein and Isaacson, 2001).

Five major themes emerged from the evaluative study. Safety professionals in the mining industry generally viewed the videos very positively and were eager for more. Specifically, their comments included—

1. Quality. The videos were judged to be excellent both with respect to quality of footage and content.

2. Credibility. The videos were all shot in real mines, using real miners and real situations that trainees can identify with. It was also mentioned that the videos showed respect to miners and did not talk down to them.
3. Content. The videos present a lot of information, but do it in a way that miners can relate to and learn from.
4. Effectiveness. Themes presented in the videos are important to both new and experienced miners, and because the videos are entertaining to watch, trainees pay attention to the messages in them.
5. Engaging nature. The videos use stories to make the information personally relevant to trainees. The videos were not viewed as boring, and the humor and pathos included helped touch the hearts of the trainees.

CONCLUSIONS

Mining will continue to be a dangerous occupation, particularly as easily won minerals are mined out. At the same time, the mining workforce in the United States is aging. It is critical to the continuity of the industry that new workers be properly trained. The videos produced at SRL have become valuable tools for safety trainers. Their use of story-telling, credible experts, and realistic locations and situations have made them both popular and useful in the industry's goal to produce needed minerals as safely as possible.

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