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MANAGING AN EFFECTIVE TRAINING PROGRAM

A GUIDE TO SAFETY TRAINING



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INTRODUCTION

EHS training offers a number of immediate benefits to companies, such as bringing new and current employees up-to-speed on the proper ways to use equipment while protecting themselves in the process, as well as remaining in compliance with various industry regulations. And yet, while the benefits of training are tangible, developing the right kind of program can be elusive. Finding new workers by itself is challenging, and employees are changing jobs much more frequently than before. So how do you properly train both long-time employees who think they've seen it all along with the Millennials who have to be convinced that safety training will be worth their time?

In this special eBook guide to safety training, we'll look at some of the innovative ways EHS managers have developed to best prepare and train their workforce in safety best practices. We'll examine new training techniques, such as microlearning and blended learning, that allow workers to feel more engaged in the training process while learning at their own pace. And you'll discover why training doesn't have to be just "one more thing to do" but can deliver real-world returns on time and investment.



During his career **Dave Blanchard** has led the editorial management of many of Informa's best-known brands, including IndustryWeek, Logistics Today (now Material Handling & Logistics), Supply Chain Technology News, Business Finance and EHS Today. With over 25 years of experience, Dave literally wrote the book on supply chain management, *Supply Chain Management Best Practices* (John Wiley & Sons, 2010), and was part of the team that helped launch and promote National Forklift Safety Day. He is a frequent speaker and moderator at major trade shows and conferences. He is a graduate of Northern Illinois University.



BLENDED LEARNING: A NEW TRAINING METHOD FOR TODAY'S LEARNER

If you struggle with training your workforce effectively, it might be time to investigate alternative education methods.

BY JEFF SANFORD, *Director of Consulting and Ergonomics Engineer, Humantech*



Put your hand up if you love sitting in a conference room for a multi-day training session. Anyone...? No? Regardless of how entertaining a trainer is, how snazzy a PowerPoint slide deck looks, how interested the crowd is in receiving the information, and how relevant the topic, adults are just not wired to learn solely by sitting in a classroom. Still, an element of 'seat-time' is required. This, along with industries doing more with less, has created an environment ripe for change when it comes to educating employees.

So, how do you create an effective training experience rich with content and interested participants? As a result of new research and historical data, training methods are evolving, with a huge push towards incorporating hands-on activities.

According to Karen O'Leonard, author of *The Corporate Learning Factbook*, the amount of classroom-based, instructor-led training in U.S. companies has recently dropped below 50 percent, accompanied by a rise in virtual classroom events and online self-study.

Today, there are many learning management systems (LMS) available in both industry and in public-school systems across the U.S. These LMS provide online learning to people of all ages. Distance learning—the education of students who may not always be physically present at a school—is not new. In fact, it dates as far back as 1840 when Sir Isaac Pitman, a British educator, famous for developing the most widely used form of shorthand, taught his system to students via the mail. Proven to be a successful form of learning, this delivery method spread to The University of London and was referred to as the "People's University" by novelist Charles Dickens because it provided access to education to students from afar and those who couldn't afford schooling.

Fast forward to today – most, if not all, universities and public schools offer distance learning. In fact, kids as young as ten-years-old can take classes online and self-pace their learning in an environment suitable to them. History proves it works and industry has gradually followed suit.

However, research from the Center for Creative Leadership shows that even when online training is well designed, it is effective only about 20 percent of the time.

So, now what? Let's look at the two concepts below, draw out the positives of each, and combine them into a concept called Blended Learning.

INSTRUCTOR-LED ADVANTAGES

With in-person training, a knowledgeable subject matter expert engages the students on a specific topic. He or she can be flexible with the agenda to ensure the material presented is understood. The instructor can stress a point, clarify a thought, or change the presentation altogether if needed. Computer-based training

cannot do that. Humans can be flexible in every situation and just a quick safety/ergonomic reference: that is the main reason our industrial workers have not all been replaced by robots! Hence, a good instructor is trained to read and react to the crowd.

The trainer also can interact directly with attendees on an individual basis and address questions on the spot. Fielding questions in a group setting creates learner-to-learner interactions (learning and communicating among peers) because it's highly likely that more than one attendee has the same question.

Lastly, instructors can lead hands-on activities. These individual or group practice sessions are the best way for adults to grasp a concept. We learn by doing (aka kinesthetic learning); this is especially effective when we can practice what we learn prior to implementation.

ONLINE LEARNING ADVANTAGES

Without a doubt, the main advantages of this method of delivery are the time and money saved during the education process. There is no need to coordinate multiple people's calendars (and a conference room) for multiple days. That in and of itself is a win-win! Securing event space, the cost of meals and the time away from "work" can add up to a pretty nickel. If you have ever been tasked with this administrative duty, you know what I'm talking about. Offering an on-demand training option can alleviate those burdens for both the administrator and the learner. The time savings for the trainee alone is evident—often a two to three-day training course can be reduced to four hours of online content.

Inside the e-learning model, the learners move at their own pace, and if needed, can watch a module more than once. To keep the learner engaged throughout the course, content developers include quizzes, matching games, multiple-choice questions, interactive content and video. Combined, these generate an effective learning experience.

Because this method of learning can reach anyone with access to a computer, be delivered in multiple languages, and reach a broad audience efficiently, the cost benefit outweighs that of instructor-led training. The consistency of the message with e-learning also ensures each learner is receiving the same information, every time – undoubtedly creating a more effective way to share the vision of your company.

BEST OF BOTH WORLDS?

After laying out the pros and cons of each method, it becomes apparent that both have issues the other can solve. Perhaps blending the two together yields the ideal training solution. By now, you may have heard of the approach called the Blended Learning model.

Blending Learning is best described using the Flipped Classroom concept. In school years past, teachers lectured as we sat at our desks, and homework was assigned at the end of each day. I recall sitting at the kitchen table hurrying to complete the assignments so I could go do the things I really wanted to. Today, with the use of connected devices, educators leverage technology to push the content to be completed at home via web-based platforms, leaving the classroom time for completing and reviewing the homework. This allows students to learn outside of the classroom and the subject matter expert (teacher) available to assist them during the hands-on practice of those new skills in the classroom. This immediate feedback and coaching strengthens the participants' confidence and ability to perform.

Because of mounting research findings, this concept is being embraced by industry because the hands-on application aligns with principles of adult learning: learn by doing, affected by experience, problem-based, and learn what is practical. If you are struggling with educating your workforce efficiently and effectively, it might be time to investigate alternative educating methods. By many accounts, Blended Learning provides the best of the digital world and the human touch.

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HOW TO SELECT THE BEST TRAINING OPTION FOR YOUR ORGANIZATION

Companies with a training and engagement program find it easier to retain their employees and keep their customers happy.

BY NORMAN FORD,
VP of Operation, Global
Compliance Solutions,
Skillsoft

Comprehensive on-the-job training is fundamental to the success of every business regardless of industry. In the environmental, health and safety (EHS) field, safety professionals, risk managers and environmental specialists join organizations with a high level of training specific to their role. However, once they are on board, it's their job to build a formal process of continuing training and ensure the skills across the company are updated.

EHS directors and training managers are often faced with a skills gap when new techniques or technologies are made available, requiring expensive outside hiring or partnerships with third-party firms to fill the gaps. To proactively meet the changing demands of EHS, organizational leaders can work with human resources to establish a formalized process and tools for ongoing training and employee engagement.

There are three primary benefits organizations can receive from a formalized training program:

- close any opening skills gaps
- maintain cross-organization rules and commitments and
- sustain an engaged workforce.

An inability to manage these three objectives can result in cross-departmental breakdowns and negatively impact customer service. Therefore, employees need to receive the appropriate, updated skills to do their jobs efficiently. In EHS, this includes distributing annual updates on compliance and regulatory information to the company. Disconnects between old and new training eventually lead to situations where tenured employees practice legacy techniques which run counter to those practiced by newer hires and recent graduates.

HOW TO SELECT THE BEST TRAINING OPTION FOR YOUR ORGANIZATION

Innovation also is essential to the organization, and it affects the service it provides to customers and its industry reputation. Companies staffed by creative, innovative and well-trained workers develop new and more successful offerings.

As the workforce grows, particularly for organizations that stretch across multiple offices or include remote workers, employees must be aware of changes in corporate policies. Commitments such as corporate responsibility, non-discrimination, environmentalism and wellness are the backbone of the organization and need to be communicated to new employees, or rolled out consistently to all. When employees can do training at any time and location, whether in the office or on a flight to see an international customer, not only are training goals met, business efficiency increases as well.

WORKFORCE ON THE MOVE

Today's workforce is increasingly transient, and employees are opting to stay at a single company for shorter periods of time. Previous generations typically worked in an organization or two for the duration of their careers; however, the competitive and dynamic career landscape today has employees on the lookout for new opportunities with higher frequency.

Improved benefits and salary are common reasons why many companies lose valued employees, but they often overlook the impact of proper training and meaningful engagement. It is imperative for organizations to give employees a clear understanding of the skills and experience they need to grow and move to the next level.

Mentorship and training play a critical role in their advancement. However, junior or entry-level employees are not the only ones that can use training. Executives and managers also need ongoing instruction on how to improve their leadership, customer relationship management and innovative thinking skills, among others. It's unrealistic to expect that a single person, no matter how gifted they are in some areas, naturally has the "full package" of skills and expertise.

The training techniques should be carefully considered and implemented based on what will be successful to employees, the organization as a whole and ultimately customers. The most common and useful modes of training today include video, printed materials, e-books and audiobooks.

Learners want to access training or learning content in multiple modalities. There are many different types of learners with varying preferences for visual, audio, or other ways to best absorb lessons. By providing content in a few different ways, managers can accommodate all employee learning styles.

Also, material needs to be measurable. Organizations will understandably put many resources into developing and rolling out

training and should expect (or be able to measure) a quantifiable return on investment through improved productivity or innovation. By using a learning management system (LMS) that measures each employee's progress or through quizzes and assignments set by managers, companies can track the ROI of training.

ENGAGING THE WORKFORCE

Furthermore, organizations must develop content in a way that is engaging and makes employees want to learn. It is essential to demonstrate the value of the skill and then present the course in an eye-catching way. The current trend is the consumerization of enterprise technology, meaning that employees are demanding the same quality interaction with workplace technology as they experience on their iPhone or personal computer at home. Content should be made "bite-sized," so employees can learn in between meetings or during their morning commute. Gamification techniques are also popular and break up the monotony of old school, long-form videos in "talking head" format.

Finally, in some cases, in-person knowledge based training can be inefficient or impractical. In the EHS field, it is very important that employees, no matter their location or language, receive the same consistent training. This is important for the individual employees and most important for the company. For knowledge-based training, having an instructor come to every office or teach an annual course just isn't practical. In this digital age, organizations are encouraged to invest in technology that can help improve productivity. When a "hands-on" element of the training warrants it, managers and supervisors are often best suited for that role.

Through the development of an ongoing training and learner engagement program, departments and firms are more likely to retain their employees, promote innovation and see measurable customer success—all with the aim of ultimately increasing business profitability. By carefully understanding the skills gaps and goals of the organization, an EHS learning program can be relatively easy to deploy and demonstrate calculable achievement.

Norman Ford is vice president of operation, global compliance solutions for Skillsoft. He was previously vice president of e-learning products and services for GoTrain Corp. and was a founding member of the company. Prior to that he served as manager of technical assistance and qualification for Lockheed Martin Energy Systems, where he was responsible for the development of training requirements and procedures and provided corporate subject matter expertise in EHS regulations and other compliance issues.

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CONSTRUCTION SAFETY: DOES SAFETY LEADERSHIP TRAINING MAKE SENSE FOR YOUR BUSINESS?



The key to reducing fatalities and injuries in construction is safety leadership from business owners, project managers and supervisors.

BY DR. LINDA M. GOLDENHAR AND JIM MADDUX

As we all know, construction work is responsible for hundreds of fatalities and thousands of work-related injuries and illnesses each year. As the head of the OSHA Directorate of Construction, Jim Maddux dealt with a number of preventable, deadly incidents:

➤ **A foreman operating a backhoe sends a worker into an unguarded trench.** The water-soaked soil collapses, killing the worker before emergency crews can rescue him.

➤ **A contractor is working on Super Bowl Sunday, rushing to meet a deadline. One crew is purging gas lines for the new electric generation plant.** Nearby, gas space heaters are keeping workers warm. Workers are welding and performing other spark-producing work. The explosion kills six workers and destroys the facility before it produces its first kilowatt.

➤ **A parking garage is being built using prefabricated**

panels. Grout wasn't properly installed at the ground floor. The project manager, foremen and a dedicated inspector either didn't notice or didn't say anything about it. Four workers die when the structure collapses.

To help prevent incidents like these and others, construction owners and general contractors increasingly are looking for contractors and subcontractors with outstanding safety programs.

Many construction contractors, especially larger ones, who have implemented formal safety and health management systems to deal with the hazardous nature of the work, report success in reducing hazards, injuries and fatalities. Typical of these structured programs is the recognition that safety leadership from management – including business owners, project managers and supervisors – is key to that success.

Construction contractors, the building trade unions and safety researchers also are recognizing there's another key to success: the importance of having foremen, lead workers and other front-line supervisors practice safety leadership skills on the job site. Because these individuals are responsible for effectively communicating the company's safety policies and procedures to workers, they are the linchpin to safety program success.

SAFETY CLIMATE

Research tells us that worker perceptions of how well safety policies, procedures and practices are implemented on the job site, also called Safety Climate, is key to improving safety outcomes. Foremen and lead workers play a key role in creating a strong job site safety climate by being good safety role-models and effectively communicating safety expectations during their daily interactions with workers.

Practicing safety leadership skills has shown the potential to help construction firms improve their safety and health programs and reduce the human and economic consequences of workplace incidents. Unfortunately, there is a shortage of safety leadership skills training in the construction industry that could help employers reach their safety goals.

CONSTRUCTION SAFETY: DOES SAFETY LEADERSHIP TRAINING MAKE SENSE FOR YOUR BUSINESS?

To help address the gap, CPWR - The Center for Construction Research and Training developed The Foundations for Safety Leadership (FSL), a safety leadership training module designed to enhance foreman and lead workers' understanding of the importance of safety leadership and skills to put them into practice.

There were two key drivers that led CPWR to recognize the need for such training. First were findings from a 2012 McGraw Hill (now Dodge Data Analytics)/CPWR survey showing that many construction companies, regardless of size, require their newly promoted foremen to take the OSHA 30-hour course to learn leadership skills, which up to now has not been part of the course. The second was discovered at a 2013 CPWR/National Institute of Occupational Safety and Health (NIOSH) workshop. Seventy stakeholders from the construction industry worked together and concluded there were eight key leading indicators of a positive safety climate in construction, one of which was site supervisor safety leadership.

The FSL module, which was approved for use by OSHA earlier this year, is the result of a rigorous development process. Under the direction of Dr. Linda M. Goldenhar, director of Research and Evaluation at CPWR and researchers from the University of Colorado Boulder and the Center for Health, Work & Environment at the Colorado School of Public Health with expertise in leadership, a multi-disciplinary curriculum development team was convened that included OSHA 10- and 30-hour outreach trainers, construction workers, safety and health professionals from small and large companies, representatives of building trade unions, consultants and government officials.

FIVE LEADERSHIP SKILLS

The curriculum development team agreed on five safety leadership skills that they believe all foremen and lead workers' need to practice if they want to be effective safety leaders, which are:

There are many benefits that can come from foremen and lead workers put these skills into practice including:

- Increased morale
- Increased teamwork
- Positive safety climate
- Reduced hazards
- Better quality work
- Reduced family and co-worker suffering
- Better business reputation
- More productive workforce
- Reduced insurance premiums
- Fewer injuries and illnesses
- Fewer work stoppages to conduct incident investigations

5 Skills and Actions of an Effective Safety LEADER	
Leadership Skills	Good Leadership Actions
Leads by Example	<ul style="list-style-type: none"> • Establishes safety expectations as a core value • Shares safety vision with team members • Demonstrates a positive attitude about safety • "Walks the Talk" • Leads up!
Engages and Empowers Team Members	<ul style="list-style-type: none"> • Engages, encourages and empowers team members to identify and act upon unsafe situations by... <ul style="list-style-type: none"> ➢ Reporting hazards and safety concerns ➢ Providing solutions ➢ Reporting near misses ➢ Stopping work if necessary
Actively Listens and Practices 3-Way Communication	<ul style="list-style-type: none"> • Actively listens to hear what team members are saying • Practices 3-way communication by having person repeat the message they heard
Develops Team Members Through Teaching, Coaching and Feedback	<ul style="list-style-type: none"> • Respectfully teaches and coaches workers • Watches the learner fix the hazardous situation or perform the task to make sure it's done correctly • Focuses on potential consequences rather than on the team member • Uses the FIST principle: Facts, Impact, Suggestions, Timely
Recognizes Team Members for a Job Well Done	<ul style="list-style-type: none"> • Privately and/or publicly acknowledges team members for going above and beyond when it comes to safety

The potential benefits of using the Foundations for Safety Leadership module greatly outweigh the small costs of conducting the training; there is no cost to downloading the materials from CPWR <https://www.cpwrr.com/foundations-safety-leadership-fsl>. In fact, in addition to providing the FSL training to all current and newly promoted foremen and lead workers, others also may benefit from the course materials, including higher-level managers, project engineers and human resources professionals.

"After the training, we had one issue where something probably would have gone not corrected, except for the fact that one of the workers brought it up to the foreman and the foreman gave them exact explicit direction on how to correct it, and it got done right away, said Richard Coakley, corporate safety director, Gaston Electrical Co.

For contractors, providing safety leadership training to employees can improve the safety program, reduce the human and business consequences of workplace incidents and show a commitment to construction safety.

"I think the crew is more willing to bring up items to the foreman... I know that we have had guys bring stuff up that matters, and we've actually made changes on site or brought it to the attention of people who can make changes because of what our guys are bringing up," said Ray Grosshans, president of Panel Masters

Leadership training allows foremen and lead workers to learn ways to handle safety responsibilities more effectively, engage work crews in safety matters and improve success as a lead worker or foreman.

CONSTRUCTION SAFETY: DOES SAFETY LEADERSHIP TRAINING MAKE SENSE FOR YOUR BUSINESS?

As one foreman said: “The biggest thing I took out of it – and it’s something that I’ve always done but never took it as seriously as I do now – is that three-way communicating. Instead of just giving somebody some information, sending them off blindly to do the job and then getting mad ‘cause they didn’t do it right, they can explain to you exactly what you said to them. If they didn’t get it the first time, you can talk about it, have an opportunity to get it right. And it also makes them feel like they’re part of the planning.”

“I pulled everybody together at lunch and told them what my lead did for going above and beyond for safety, pulling [a worker off a lift] because he didn’t have fall protection,” noted another foreman/lead worker. “That gave him reassurance that what he did was right and gave him props. Everybody else recognized that at the same time. We get to do that more as people are being more aware of their surroundings and the dangers around them.”

The construction industry has said loud and clear that it wants its foremen and lead workers to have the skills needed to be effective job site safety leaders. As one trainer noted, “During my introduction, I ask what is MISSING from the OSHA 30. Everyone’s eyes light up when I say: ‘How to communicate effectively. How to lead.’ Everyone gets it. During [a training session] we had a fantastic conversation about three-way communication, and how to make it natural and not offensive, and how to ask clarifying questions as a way to achieve the same goal. Everybody got something out of it, including this experienced trainer.”

(Author’s Note: Funding for the Foundations for Safety Leadership (FSL) training module came from CPWR - The Center for Construction Research and Training, as part of their five-year cooperative agreement with NIOSH. The FSL curriculum including Power Point presentation, animated videos, instructor guides and student materials are free to anyone who wants to use them. You can download them from the CPWR web site at <https://www.cpwr.com/foundations-safety-leadership-fsl>. If you want additional information about the module or have questions, please contact Dr. Linda M. Goldenhar at lgoldenhar@cpwr.com.)

About the Authors: Jim Maddux retired from OSHA in 2016, where he was director of the OSHA Directorate of Construction. Before being appointed to the construction position in 2010, Maddux held several leadership positions at OSHA, including director of the Office of Physical Hazards, the Office of Maritime, the Office of Biological Hazards and acting deputy director for the Directorate of Standards and Guidance. Maddux has been a project director, author and contributor to numerous OSHA standards, guidance, enforcement and outreach projects. Topics include cranes, communication tower safety, personal protective equipment, pandemic influenza, injury and illness recordkeeping, ergonomics, motor vehicle safety, hearing conservation and maritime safety issues. He was a major contributor to the OSHA/NIOSH/CPWR fall prevention campaign and stand-down. Maddux has a bachelor’s degree in economics, an associate degree in computer information systems and an associate degree in chemistry. He provides consulting, training, curriculum development, public speaking and executive coaching services to public and private sector clients.

Dr. Linda M. Goldenhar received her PhD in Public Health and began her career in occupational safety and health as a research psychologist at NIOSH. While there, she focused her research on a variety of construction-related issues including tradeswomen’s safety and health concerns, worker perceptions of the ideal amount of overtime and others. Goldenhar currently is the director of Research and Evaluation at CPWR, where she is the lead investigator on project creating leadership training for frontline foremen and supervisors (Foundations for Safety Leadership (FSL)) and also the lead on CPWR’s Safety Climate efforts. She has published over 65 peer-reviewed publications, numerous articles in trade magazines and written book chapters and manuals. She has presented her work at many national and international academic and construction-specific conferences.

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MICROLEARNING'S BIG IMPACT ON SAFETY TRAINING

Providing safety training in short bursts may help workers retain critical safety knowledge and procedures.

BY NORMAN FORD, *Global Director for Instructional Systems, DuPont Sustainable Solutions (DSS)*

“*Conjunction Junction, what’s your function?*” is a phrase recognized by many American adults whose childhood spanned any part of the 1970s. This phrase was part of an initiative to weave the educational program “Schoolhouse Rock” into children’s Saturday morning television entertainment. Because of these efforts, almost 40 years later many adults who heard that phrase in their childhood can today not only recall what conjunctions are, but also how to use them in the English language and even cite some examples.

This is an excellent example of the effectiveness of what commonly is known as microlearning. While the brevity and catchy tune associated with “Conjunction Junction” are key elements

to the success and longevity of this learning, the concept behind “Conjunction Junction” also is an example of a theoretically sound application of educational psychology. There has been a growing amount of attention paid to the concept of microlearning recently, particularly as it relates to safety training. What makes it different? What makes it effective? How does it stand up to educational psychology?

DIFFERENCE

What makes microlearning different is how it offers a reconsideration of the traditional method and medium of training. More traditional training, especially on-boarding of new employees,



often is seen as an intensive, one-time immersion into the safety, skills and culture of an organization. While this type of induction training likely is to remain, it is becoming apparent that there can be more effective ways to train, reinforce or adjust skills. Microlearning delivers training in approximately two-minute “bursts.” These bursts may encompass an individual skill or be part of a series of skills or knowledge.

EFFECTIVENESS

The “Schoolhouse Rock” approach to microlearning was effective because it incorporated key elements to capture the audience’s attention and be memorable. The designers of these programs sought to deliver instruction:

- In a manner familiar to the learner,
- In a medium the learner equated with pleasure and entertainment and
- In a short time frame, so the key learning points would not be diminished.

This same approach is equally effective for workplace safety training. Traditional training primarily exists in three different methods: instructor-led training (ILT), eLearning and on-the-job training (OJT). Each of these methods greatly has benefited from advancements in technology and lower costs for video and kinetic graphic design, which have enabled microlearning opportunities to become much more available and effective.

The ease with which engaging, high-quality video can be created and streamed enables it to be seamlessly integrated within a training session. These advances also make new tools available for microlearning that can be used outside the training room, such as apps and QR codes for smartphones.

Organizations now are able to put information in front of workers quickly and conveniently. Important training can now be offered “just in time,” “just in place” and “just enough.” In other words, it can be made available to employees at the most opportune time when it can be most effective, at the ideal location where it is most pertinent and relevant and at a level of detail that easily is digestible and understandable. This enables companies to provide prescriptive training in advance of a potential problem.

To illustrate how such prescriptive training can occur, consider a high-rise construction worker on the job in a city that experiences significant temperature fluctuations. The worker wears a safety harness when working on the upper floors of the new building. In cooler weather when he or she wears more

clothing, the safety harness is adjusted to fit differently than when the weather is warmer and workers wear less clothing. But the worker may not always readjust the safety harness so it fits properly. With this in mind, the construction company can distribute a microlearning video to workers before a significant change in the weather is forecast to occur with the goal of training employees about proper procedures for using a safety harness.

EDUCATIONAL PSYCHOLOGY

Bloom’s Taxonomy is something college students who studied psychology can recall. The model includes three domains where learning occurs: cognitive, psychomotor and affective. In the cognitive domain, there are six levels of function: knowledge, comprehension, application, analysis, synthesis and evaluation/judgment. Most employers want their workforces not only to know what to do and understand it at a comprehension level, but to be able to apply the new learning or skill to the job.

From a cognitive perspective, microlearning offers several benefits in the learning environment. Microlearning promotes small skill and awareness-level learning, enhancing comprehension of specialized, individual tasks that either are stand-alone, or part of a larger topic. For example, a training seminar on personal protective equipment frequently is a significant, two-day session. Clearly, microlearning would be ineffective for training workers about such a comprehensive subject. However, microlearning can be very effective for the specific subject of hearing protection, even enabling an organization to target and customize the microlearning to a specific work environment within an organization.

Further, microlearning enhances retention of training that is offered to workers. The biggest fear among trainers is that workers will forget important material soon after a session. Microlearning assists with learning sustainment by making an abstract point concrete for learners and demonstrating how a procedure that is taught applies to a worker’s daily job. Take, for example, asbestos awareness training.

Two hours of such training is required every year in certain industries. Utilizing microlearning enables the training to occur at intervals throughout the year and show how asbestos awareness applies directly to a worker’s daily responsibilities. By adding questions for the employee to answer at the end of each microlearning opportunity that occurs during the year, it also assists in reactivation of knowledge gained.



Lastly, microlearning can be a powerful tool to address the affective domain. This area of learning is correlated with retention and cultural norming. The combination of knowledge and skill transfer, coupled with cultural branding, increases the effectiveness of each. Learning is reinforced and associated with an organization's cultural goals, thereby connecting it with and providing context within the desired environment. Microlearning offers companies an opportunity to promote corporate messaging and cultural priorities into each microlearning opportunity.

EFFECTIVENESS OF MICROLEARNING

Microlearning has shown to be effective, particularly in preventing routine task injuries. Walmart has developed a mobile app for its warehouse workers that includes brief videos focused on how to safely do basic tasks on the job, such as driving a forklift or positioning ladders. The number of injuries fell by almost half during a six-month trial period among 5,000 workers ("Corporate Training Gets an Upgrade for the Facebook Generation," *Fortune*, 12/28/16). This is a great example of the effectiveness of the application of cognitive knowledge and skill transfer, but how can microlearning be applied to the affective domain by incorporating a company's branding and cultural attitudes toward safety.

While working with Norfolk Southern railroad, DuPont was engaged to deliver a risk awareness/safety training program that uses a specific, individual risk assessment process for hazardous work. While this safety initiative was successful in giving workers a new tool for reducing risk, there was a concern that the initiative would not be sustainable. The solution was to develop a series of safety messages that combined the new approach to risk awareness and assessment with common tasks that had a history of causing injury. These safety messages were two minutes or less in length and highlighted proper techniques (lifting, climbing, situational awareness, PPE, etc.) while also reinforcing Norfolk Southern's safety brand, "I am Coming Home." As a result, Norfolk Southern achieved a reinforcement of their safety culture, their risk assessment approach and specific skills and procedures refreshers, all within a two-minute microlearning experience.

Microlearning increasingly is becoming a widely-utilized element of training and continuing education among organizations. It is important, however, not to view microlearning simply as an individual "chapter" of a larger training curriculum, but as a powerful tool that enables better engagement and retention of focused subject matter. Its ease of use and ability to target specific employees who have specific responsibilities at specific locations opens new avenues of training beyond the traditional seminar to promote year-round learning opportunities, which significantly can improve an organization's safety performance.

Dr. George Haber, Ph.D., is the global director for instructional systems at DuPont Sustainable Solutions (DSS).

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IDENTIFY, RECORD, DEVELOP: TRAINING AND ENGAGING YOUR WORKERS

In order to initiate an effective safety program, managers must apply critical thinking principles to engage and train the workforce.

BY SCOTT FALKOWITZ, OHST, CHST,

Manager, Client Services & Process Improvement Leader, Predictive Solutions



Training and engagement are two key components to any well-rounded safety program. While they're different, bringing them together in a synergistic way can work in your favor to drive sustainable success.

We know we have to train our employees in an array of topics. Some examples include internal policies and procedures, new tools/process features and functionality, job hazard recognition and gauging, client-specific requirements and varying aspects of compliance. But, the question is, who decides on what topic to train and when? Is it a random choice, one for the safety department, or a derivative of feedback solicited from the people who frequently engage in the work?

The more we include our workforce in decisions that directly affects it, the more likely it will be to embrace the concepts and promote it throughout the ranks.

LET'S LOOK AT THREE EXAMPLES OF HOW WE MIGHT FACILITATE THIS CONCEPT:

Example 1 – Your organization has a manufacturing process that includes moving product via conveyor belts throughout the facility. In areas where equipment could pose pinch points or the risk of entanglement, guards need to be placed to protect the workers, especially under seven feet. This is a common occurrence in a lot of places and often action isn't taken until an injury occurs or a monetary penalty is levied.

Raise the topic in a safety meeting or a toolbox talk with the people that work or could be exposed in the affected area. Explain to them why this is important and that you would like them involved in this initiative. Tour the affected area and train the workers to identify all of the guarding concerns in a given area, which then can be compiled on paper. Have them offer

solutions on how a guard could be developed without impacting the use of the machine. Once the guards are developed, based on employee concerns and identified recommendations, have them present the initiative to the rest of the plant; why it's important, what the solutions were and how they effectively could be used. In this case, we trained them how to identify and engaged them in documenting, finding solutions and communicating to their coworkers.

Example 2 – You work for a construction company that specializes in water main repair. This work is conducted underground and in unstable soil conditions. You're aware that trench access occasionally occurs for those "quick fixes" without using trench boxes or sloping practices, despite company policy and OSHA regulations. In this case, it's a multitiered approach, and supervision really has to step up and back this initiative. The fatality rate for excavation work is 112 percent higher than the rate for general construction, according to OSHA.

If they are allowing this to happen, we need to cover the basics through ensuring that management understands the risks from a practical and legal perspective. This may require training.

From there, once you're sure a consistent message is supported, develop an action group comprised of supervisors and field workers to develop a daily excavation checklist and pilot it on site. This helps employees identify hazards, record them and develop solutions.

Remember that it's possible in almost any scenario that there is no skill deficiency at the management level. They very well may know what they should be doing but make a choice to act otherwise, which is why it's imperative that a management-down approach is required.

Once the program is established, a cut sheet of important items can be developed to convey to the workforce. Whether they were trained or not, this is a good time to review the requirements. This can be co-presented by members of the action group.

Subsequent follow up can be conducted by members of the action group to ensure that changes to field operations are maintained. This provides an opportunity to support training and engagement at all organizational levels.

Example 3 – Your company has put together an observation program where employees are asked to conduct assessments, but the problem you've noticed is that you're really not seeing the improvement for which you hoped. This too requires a multifaceted approach with vast opportunity for improvement.

Conducting observations requires planning and a well-thought-out inspection strategy. I always ask the question "If you hired me tomorrow, what would you expect me to look at?" Workers can be trained on the things to look for relative to the inspection strategy. This should be comprised of issues that have been uncovered in recent observations – what we call observation intelligence – as well as where our historical losses tell us we have had problems.

After the "what," the next part is "how." We want to make sure that we observe to identify both positive and at-risk conditions and behaviors. From there, we coach to recognize and improve. This example illustrates how we can engage employees not only in inspection, but development of the strategy for success as well as training them how to have a value-added conversation and avoid the "safety cop" approach. Coaching is key in the observation process and offers individual opportunities to shape the culture of the organization.

By applying principles of critical thinking, you've effectively (1) had people participate in risk assessment, (2) engaged them in finding a solution and (3) trained them and had them train others in the entire process.

There are so many more opportunities we could identify if we just stopped for a short period of time in advance of the work. It's these opportunities that often are missed that could be used to not only identify risks but build the culture of an organization and the confidence of the employees to do what's right for themselves, their coworkers and their company as well.

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