ELEARNINGNEWS ARTICLE

Year 7 - number 248 Wednesday 24 May 2023

Enhancing occupational safety training through simulations

Effective occupational safety training pushes the user to take an active approach to problems. The use of simulations in training can be a very useful tool

Occupational safety training is essential to ensure the health and well-being of employees and to prevent accidents and injuries in the workplace. The primary objective of this training is to provide workers with the knowledge and skills needed to identify potential hazards, adopt safe behaviors and respond appropriately in emergency situations. **Complying with safety regulations requires selecting and training personnel for specific roles**, identifying any external figures to cooperate in risk management, and setting company values toward injury prevention and proper performance of any type of work.

In recent years, eLearning has revolutionized the field of training, and offered new opportunities, including for improving the effectiveness of occupational safety training programs. **With eLearning, employees can access training materials flexibly, using devices such as computers, tablets or smartphones, and learn at their own pace**. This online learning mode has demonstrated numerous advantages over traditional classroom training methods.

Knowing how simulations can enhance occupational safety training is helpful in **designing an effective eLearning course**. The key word is **immersive experience**, which serves to propel learners into active learning.

The power of simulations in training

Training staff is a task that can be performed in many ways. The choice of which ones to use and how to use them depends first on the object of study; then, on the characteristics of the subjects who are to learn; and finally, on the conditions under which they can do so. There is no doubt that the mode in eLearning has expanded this possibility considerably.

Simulations, in particular, are powerful tools that make it possible to deal with realistic situations and actively interact with them. In training, simulations reproduce real work contexts, enabling employees to acquire practical skills in a safe and controlled environment.

A simulation is an interactive representation of one or more realistic scenarios, offered to users for active and purposeful participation in real time. These simulations can be presented on gradually more complex work situations, such as a workplace accident or fire emergency, which require the application of specific skills to handle the situation appropriately.

How simulations improve learning

There are numerous advantages for learning over traditional training approaches. First, **simulations allow theoretical knowledge to be applied in practical contexts**. This promotes deeper and more meaningful learning as learners face realistic challenges and make decisions that directly affect the outcome of the simulation. During an emergency, knowing immediately what to do is as important as knowing why to do it. The goal is to shorten the distance between knowledge and its implementation.

Second**, simulations provide a safe environment to experiment and make mistakes without negative consequences**. Learners can learn from mistakes made during simulation, receive immediate feedback, and hone their skills without risking their own safety or that of others.

In addition, **simulations offer a high level of engagement and motivation**. Being an interactive experience, simulations capture learners' attention and stimulate them to actively engage in the learning process. This promotes greater engagement and retention of the information learned.

Simulations find particularly effective application in occupational safety training. Through these, employees can face realistic workplace accident scenarios and practice appropriate emergency procedures.

Types of simulations for occupational safety training

Several types of simulations are available for occupational safety training.

- **Live simulations**
- **Remote simulations**

Live simulations are learning experiences that take place in real time, replicating real situations in the work setting. These involve actors or instructors acting as part of a scenario, while participants assume the role of employees involved in the simulated event.

Live simulations offer a high level of realism, allowing participants to directly experience the dynamics and emotions of real work situations. Fire evacuations; simulations of industrial accidents, including chemical spills; simulations of safety inspections. These are some examples of live simulations.

This mode allows active interaction with the actors or instructors, responding to their actions and making decisions in real time. The result is to provide participants with immediate feedback, suitable for obtaining an evaluation of actions taken and to and correcting any errors. In addition, these in-person activities allow for collaborative learning, involving multiple participants simultaneously and promoting collaborative learning and knowledge sharing.

Remote simulations take place online or using **virtual reality technologies**, allowing participants to participate in simulations from anywhere, without the need to be physically present in a given work environment. these simulations can be made more vivid and immersive with the use of virtual reality. These types of simulations can involve prerecorded scenarios or interactive virtual simulations. The main advantage of remote simulations is the ubiquity of fruition and its reproducibility.

Implementation of simulations in eLearning

Integrating simulations into eLearning training requires careful design of the course delivered. To improve the benefit on occupational safety courses, it is suggested to follow some of the following criteria

- **Realistic scenarios**
- **Interactivity**
- **Feedback and corrections**

Simulations should be based on realistic scenarios that reflect typical work situations and potential safety hazards. This has some consequences: first, it will be necessary to involve occupational safety experts. Second, **it is useful to create industry- and processing-specific courses**. The more detail one can go into once generic topics are addressed, the better. This also involves the need to collect data on work situations and past accidents. **This data can be used to improve course design**.

Simulations need to involve users actively and interactively: it is important that they are empowered to have to make decisions-even under stressful conditions-to solve problems and to decide how and when to use safety equipment.

It is important to incorporate feedback and corrections into simulations. Learners should receive immediate feedback on their actions and decisions during the simulation so that they can correct any mistakes and learn from their mistakes.

Assessments such as tests and quizzes on acquired knowledge can be integrated at the end of the simulation or can be an integral part of the simulation itself.

Results and benefits of simulations in occupational safety training

The use of simulations in occupational safety training can lead to a number of benefits for the enterprise and the employees themselves.

- **Improved user engagement and learning**
- **Reduction in workplace accidents**
- **Improved incident response capabilities**

Simulations provide an engaging and interactive learning experience, which promotes greater user engagement. Compared with traditional training methods, such as lectures or readings, simulations allow employees to directly experience work situations and make decisions in real time. This promotes greater attention, active participation and more effective learning.

Simulations can play a key role in helping to achieve this goal. By allowing employees to practice in controlled risk situations, simulations help improve safety skills, risk awareness and the ability to adopt safe behaviors.

In the event of a workplace accident, promptness and the ability to respond in a timely manner are critical to minimizing harm and ensuring employee safety. Simulations provide practice in emergency procedures and improve the preparedness of safety officers and first responders.

Challenges and considerations in creating workplace safety simulations.

It is important to be aware of the challenges and considerations associated with creating and implementing simulations.

Simulations for workplace safety must be tailored to specific business needs, taking into account the organization's specific processes, procedures and risks. Each industry or work environment may have unique characteristics that require special attention when creating simulations.

Measuring the effectiveness of simulations is a crucial aspect of evaluating the success of occupational safety training. the use of appropriate indicators and the collection of meaningful data is appropriate for this purpose.

Learning objectives should be clear and evaluation measures should be adequate to assess learning. Collecting feedback from users and assessing user satisfaction can also provide valuable insights into the effectiveness of simulations.