

# 50 **Electrical** years **Business**

Blend your workplace

**electrical**  
**safety training**





# Consider blended learning as applied to electrical safety training

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Many people refer to workplace electrical safety training as “arc flash training”, but workplace electrical safety training goes far beyond teaching workers about electrical hazards and should focus on instructing them on how to work safely.

No matter what you call this type of instruction, employers are required to provide adequate electrical safety training to their entire workforce. Our goal in satisfying this regulatory requirement should be to deliver practical knowledge that can be immediately applied the very next time any worker is exposed to an electrical hazard.

This paper will discuss the use of a blended learning model using e-learning technology and leveraging instructor-led sessions to deliver more practical workplace electrical safety training.

## Working in tandem

The concept of blended learning as it is being used today dates back to the late 1990s. I’ve seen a significant upswing in acceptance since the emergence of this hybrid form of learning, as several universities and colleges across Canada and the U.S. have adopted these systems.

Blended learning requires the use of self-paced digital media, for which (in this discussion) I refer to as *e-learning* (also referred to as CBT or online training). The e-learning is completed by the worker as a prerequisite to additional face-to-face instructor-led sessions.

When blending these two forms of training, employers have the opportunity to customize the instructor-led session based on data collected from the e-learning assessment.

The training required for workplace electrical safety should be determined by the worker’s risk of exposure to electrical hazards and status of electrical safety competency. Qualified electrical workers require more electrical safety training than non-electrical workers (also referred to as unqualified electrical workers). Employers should define worker roles and responsibilities as part of an electrical safety program, then determine what constitutes adequate training for each worker.

When the employer’s electrical safety program is aligned with Occupational Health & Safety Management Systems, a training matrix should be established to document qualification and training requirements by worker role.

Every worker is exposed to electrical hazards at most workplaces, although the risk of this exposure resulting in an injury is often very low. E-learning as a stand-alone training solution can be effective for non-electrical workers as it requires very little downtime, is cost effective and constitutes as effective due diligence for employers. In the majority of cases, non-electrical workers require only awareness-level training for workplace electrical safety, as well as content related to their specific scope of work in operating electrical equipment.

To provide more practical knowledge for qualified electrical workers, we can use a

blended learning system. Employers must first understand the required curriculum and identify the generalized content versus practical application knowledge, then separate the information in a blended learning system.

Workplace electrical safety training requires a significant amount of generalized knowledge, including:

- scope
- definitions
- terminology
- electrical hazard identification
- understanding potential harm
- risk assessment procedure
- applicable codes, regulations and standards

Examples of practical knowledge include the application of electrical safety theory within a work flow process, such as developing and executing electrically safe work procedures for energized electrical work tasks, applying appropriate preventive and protective control measures, completing arc flash and shock hazard analysis, completing an electrical hazard risk assessment and selecting electrical-specific PPE, and tools and equipment appropriate for the task.

The utilization of e-learning as part of a blended learning system for workplace electrical safety training can be used to efficiently deliver the electrical safety theory (generalized content knowledge), which is used as a prerequisite to better prepare the worker for face-to-face time with an instructor.

Instructors benefit from a more-educated student with fresh subject matter knowledge. The bricks-and-mortar classroom time can be better spent with an instructor who has more time to focus on the application of the subject matter using physical learning aids, exercises and practical application instruction. Workers with more practical knowledge are better able to apply the preventive and protective control measures in the field from the applicable best practice standards.

### **Blended learning overcomes employer challenges**

One of the challenges facing industry is the cost for training. The actual cost to employers far outweighs the pure training costs when you factor in demobilization of workers, wages, loss of 'productive' time and travel costs. E-learning allows for self-paced learning that can be spread over several days or weeks leading up to an instructor-led session. Provided the face-to-face time is best spent building on the prerequisite knowledge, employers don't need to reduce the amount of electrical safety training due to budgetary constraints.

Blended learning using an effective prerequisite allows workers to absorb and understand more of the instructor-delivered curriculum. Employers can provide more than one day-worth of workplace electrical safety training without requiring the worker to spend an equivalent amount of time in a bricks-and-mortar classroom.

Another challenge for employers are site-specific electrical hazards that are inadequately addressed by off-the-shelf workplace electrical safety training courses. The use of a blended learning model for training allows workers to spend more of the valuable face-to-face time with an instructor covering their site-/industry-specific training needs and get their questions answered. This time can also be spent reviewing the employer's electrical safety program, related policies, safe work procedures and emergency response program.

Blended learning systems can be used to increase the effectiveness of workplace electrical safety training. There are many benefits to consider, including lower costs for training, more practical application knowledge

for qualified electrical workers and less time spent in a bricks-and-mortar classroom. Employers considering blended learning should research all of the available e-learning and instructor-led training options available.

To optimize the potential success of any electrical safety training, competency validation on-the-job is recommended. Training can be defined as knowledge transfer and, by itself, doesn't validate any electrical worker as being 'competent'. Employers should follow up on all forms of electrical safety training and use an electrical safety competency validation process to ensure the workers are applying the knowledge provided using preferred training methods. **EB**

*Jim Pollard is the owner of Unlimited PPE Inc. (www.arctested.com) and a member of several committees related to electrical safety, including CSA Z462, ULC-S801, ULC Live Working and CSC/IEC TC78. Unlimited PPE Inc. represents the Oberon Company in Canada and promotes ESPS Electrical Safety Program Solutions Inc. You can reach Jim at (905) 573-0300.*