TPC

5 key advantages of electrical troubleshooting simulation training

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INTRODUCTION

A persistent lack of skilled workers to take on crucial duties, such as electrical troubleshooting, is a serious challenge in industrial settings. In circumstances where hiring staff who already possess the necessary skill sets and training isn't always an option, how can facilities effectively develop crucial knowledge and abilities in their employees?

Simulation training serves as a uniquely valuable resource across many industries, including the skilled trades, maintenance technicians, and other applications involving high-powered electrical equipment.

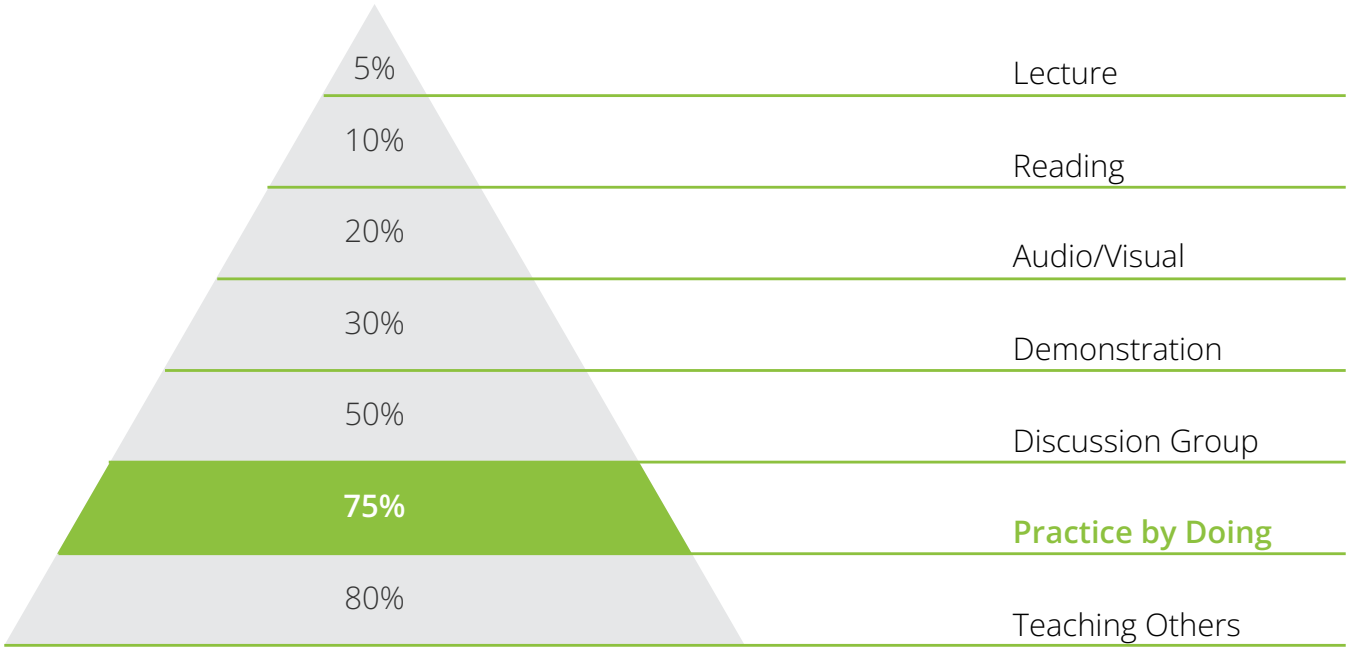
For electrical troubleshooting training in particular, choosing to teach through simulations will help the trainee avoid potential injury through electrical safety errors. At the same time, it encourages them to safely practice solving faults as they build the competencies required for understanding how to solve faults and adopt best practices in their facility. Simulations also avoid the need to shut down a production line or facility to provide safe training opportunities — something that's especially beneficial for multi-shift operations.

FUNDAMENTAL BENEFITS OF SIMULATION TRAINING

The workforce skills gap continues to present problems for a variety of employers, with especially serious potential consequences for companies that operate in industrial settings. Research conducted by Deloitte and The National Association of Manufacturers found the manufacturing skills gap could lead to **2.1 million unfilled jobs** in that sector by 2030, costing the U.S. economy as much as $1 trillion.

Simulations play a key role in the robust training process that empowers staff to address common electrical faults. The active training opportunities provided by simulations leverage a foundational layer of the learning pyramid: the "practice by doing" concept. The pyramid indicates an especially high retention rate (estimated around 75%) for training based on active processes.

The Troubleshooting Fundamentals Learning Lab introduces a five-step troubleshooting approach—**observe, define, identify, test,** and **replace**. The Learning Labs and simulations promote the development of comprehensive knowledge and practical skills in a safe environment before taking on actual tasks in their facility.

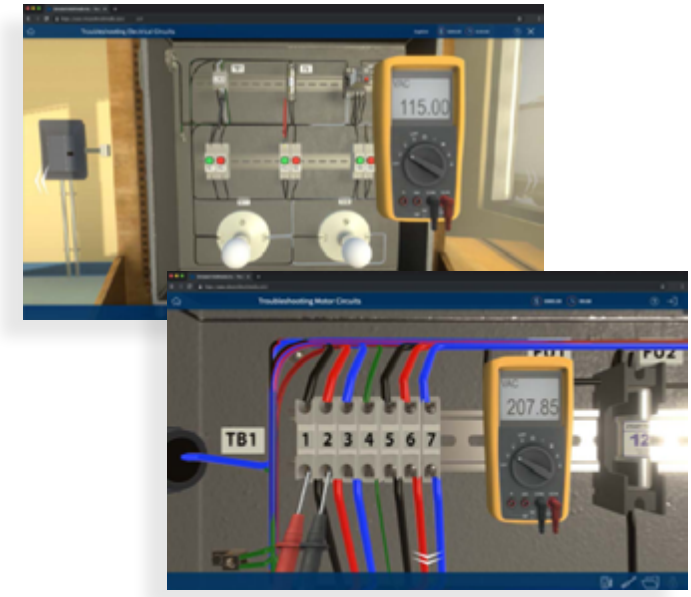


KEY ADVANTAGE NO. 1: REDUCED DOWNTIME

Incorporating simulations into an electrical troubleshooting training program supports effective learning that can be consistently applied in a safe and efficient manner, without needing access to the facility in which trainees work. Additionally, cloud-based simulations offer regular, instantaneously available updates to training modules, ensuring learning opportunities remain targeted and effective.

This leads to three key advantages in terms of downtime:

1. **Facilities do not need to shut down for hands-on training:** By leveraging highly accurate and detailed simulations instead of actual assets for training, facilities can continue to operate at 100% capacity.
2. **Staff receive training that emphasizes safety, accuracy, and efficiency:** Workers learn not only how to address faults in an electrical system, but to do so effectively.
3. **Learners can train asynchronously:** There is no need to bring a group of learners together for training or for their other duties to halt during a session.

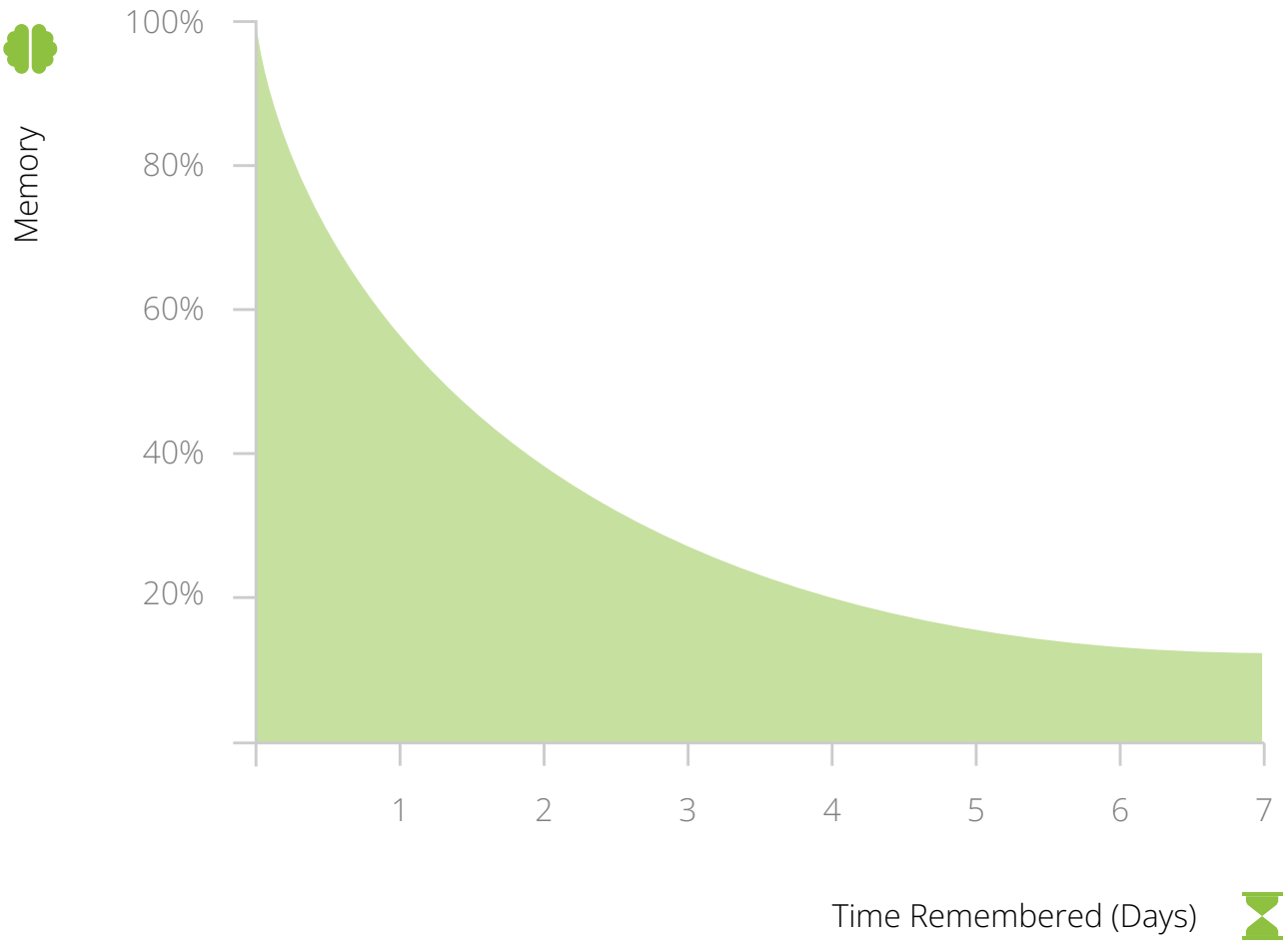


KEY ADVANTAGE NO. 2: INCREASED SKILLS

Simulations build a foundation of enduring knowledge through repeated opportunities for practical, hands-on learning.

The availability of simulations makes it simple to train and retrain whenever necessary, providing another key advantage. The forgetting curve memory model, the accuracy of which is **supported by research** from the National Institutes of Health, indicates a drop-off in retention of learned information over time. The loss of knowledge from an initial educational experience without reinforcement is especially notable.

When retraining opportunities are easily accessible, the staff is better able to complete a refresher course. The result is more skilled, safe, and knowledgeable workers.



KEY ADVANTAGE NO. 3: ADVANCED DEVELOPMENT

Simulations play a key role in training programs by offering progressively more involved scenarios, where the faults encountered grow in number and complexity as trainees progress through the course.

This learning strategy reinforces basic skills while helping trainees develop a more complete understanding of their duties. Eventually, learners train on multi-fault scenarios that effectively simulate the most complex work that they would be expected to complete in their role.

Cloud-based simulations, along with the associated Learning Lab exercises and training modules that make up a complete course, can be updated as soon as changes and new material are available. This further supports staff development in ensuring they stay up to date with current best practices for electrical troubleshooting. There is no need to wait for data to arrive on physical media or engage in a lengthy update process — updates are easy and developed with a sense of urgency whenever needed.

KEY ADVANTAGE NO. 4: OPERATIONAL SAVINGS

Unfilled positions can lead to significant costs and negative outcomes for facilities, from supplying overtime pay for current staff to less efficient operations overall. When there aren't enough staff members with the required knowledge and training to address electrical faults, entire production lines can come to a standstill.

Incorporating simulations into a training program supports savings through a practical and engaging learning experience that emphasizes safety, efficiency, and competency.

The TPC Training cost calculator, included as part of the trainee scoring system, shares valuable context around the price of repair work itself and encourages the lowest-cost solutions to fully and completely correct an issue without placing employees or assets at risk. Reducing downtime, increasing productivity, and ensuring electrical troubleshooting is completed in a safe yet efficient manner can all lead to opportunities for savings.

KEY ADVANTAGE NO. 5: IMPROVED WORK-FORCE UTILIZATION

It can be especially difficult for facilities to fill skilled roles that require specific knowledge and abilities. The labor market has entered a unique period in which jobseekers have a substantial amount of leverage. When combined with a lower-than-average level of technical skill, the hiring process in some industries can get even more complicated.

Simulations can help to address this persistent skills gap in the workforce and simplify the hiring process by using the platform to test candidates and reduce the skills gap.

A carefully designed, regularly updated and comprehensive approach to training builds valuable knowledge and skills in staff members. With the right simulation training solution in place, workers become informed and competent technicians with the ability to resolve a variety of electrical faults.

CONCLUSION

Simulation training offers significant benefits across business operations, from cost savings to a reliable pathway for developing key skills and strong safety principles in employees.

With the net gain that simulations offer as an enhancement to other learning methodologies, teams experience increased knowledge retention through practice and exposing trainees to conditions very similar to those they'll encounter in their daily duties. The results mean that team members are better equipped to practice safe behaviors and assess and correct faults accurately and quickly.

Learn more about how TPC can support your company's **electrical troubleshooting needs** with training that effectively incorporates simulations and get in touch with us today to take the next step forward.