POWER Engineering

Workforce Training for a New Generation

By Russ Garrity, Director, Business Development, Energy Services, General Physics Corp.

It is well documented that many power company workers are more than 55 years old and rapidly approaching retirement. While the recent economic downturn has delayed the retirement of many older workers, this trend is unlikely to last. In 2011, the first of the Baby Boom generation will turn 65 and this retirement trend will continue until the last Baby Boomers reach retirement age. By 2030, one in five Americans will reach the retirement age, according to the Social Security Administration.

As younger workers begin careers in the power industry, it is important to understand the need to change the way we create and deliver training programs. Previous practices of instructor-led and on-the-job training should be modified to better meet the needs of Generation X, Generation Y, the millennials and other demographics. To address the training needs of these younger workers, leading power companies are incorporating social media, collaboration, gaming for learning and other new technologies within their training programs. The vast majority of these newer training interventions leverage technology and the internet to accomplish training objectives more effectively.

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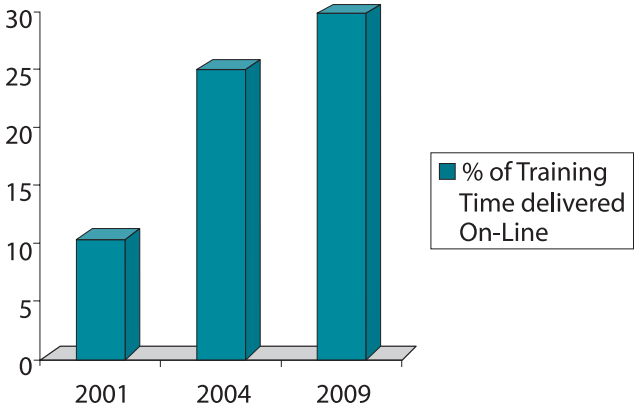
According to the Bersin and Associates *2010 Factbook*, the amount of "formal" training provided across learning and development (L&D) organizations has steadily decreased since 2008. Higher costs, difficulty in scheduling, and lean workforces are the primary drivers of this trend. Fortunately, the amount of "informal" training for workers is quickly rising at the same time. Leading L&D organizations are accomplishing more by incorporating mentoring, coaching and social networking into their training approaches. In fact, Bersin and Associates data shows the use of blogs, wikis and communities of practice for training either increased in popularity (or remained consistently popular) over the past two years.

According to Jim Sutton, technical trainer at Mirant, "today's younger learners have grown up within a social media environment. They respond well to these types of new learning tools and our goal as trainers is to effectively use these platforms to our advantage." Sutton has used various social media networks (for example, Linked In) for many years and is an active participant in blogs, chats and wikis to promote his own personal training.

There are many ways that technology and the Internet are being used to effectively enhance employee development. For example, shorter, on-line webinars are quickly supplementing the instructor-led training (ILT) classes that power companies have relied upon for years. ILT has been a staple of power industry training programs and no one believes that ILT will disappear any time soon. However, the trends show that ILT has become far more difficult to schedule due to streamlined workforces, 24/7 hour work cycles and rapidly changing job roles. As a result, leading L&D organizations are converting portions of their ILT offerings to a "webinar" or "virtual" environment.



According to Bersin and Associates, on-line training delivery has now increased to 33 percent of a learner's total training hours. Portions of many traditional ILT classes are being replaced with "virtual ILT" (VILT) in one of many different formats (for example, live remote instructors and/or video-taped presentations). This type of VILT courseware usually involves on-line pre-work and/or post-work activities to help increase effectiveness and lower delivery costs. A common theme in this type of VILT delivery is that it requires a rigorous design and delivery approach. Further analysis of the data shows that companies using VILT tools increased from 45 percent in 2008 to 59 percent in 2009. Regardless of the delivery method, using a learning management system (LMS) or learning content management system (LCMS) to assign, track and report on these training interventions remains critically important.

One example of this transformation can be seen at Kansas City Power and Light. Over the past two years, Tom Miller, plant manager for the combustion turbine fleet, has significantly expanded his use of on-line training courses and LMS software to support his Frame 5, Frame 7B, Frame 7EA and Siemens 501D5A gas turbine based plants. Tom said "having cost effective fundamental and site specific training available in a 24/7 environment has expanded our ability to train our employees. We are a small department with 10 sites to operate and maintain." The sites are spread out across Missouri, Kansas and Mississippi and the LMS helps to bridge that distance.

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"Going forward, we are actively looking at ways to add VILT to our programs in many different areas," he said.

Another area where technology and the internet are impacting training involves "gaming for learning" (also known as simulation). Younger workers have grown up with video games of all types and they are very comfortable with these technologies. A logical extension for the power industry is using simulation tools provided on-line through an LMS to expand the knowledge and skills of both current and prospective control room operators.

For over 15 years, Western Services Corp. (WSC) has provided all types of power plant simulators to power industry clients around the globe. In the past, these types of simulators could take a year or more to design and build, and the price prevented many companies from purchasing a customized, high fidelity simulator. Fortunately, recent advancements are allowing more clients to access simulation over the web. According to Bill Tessmer of WSC, his company is making substantial investments to provide simulator training capability over the internet. "We have proven that our software technology has made web based training easily accessible and cost effective for the power industry," he said.

WSC's "3KeyStudent" provides the platform to conduct web based training scenarios. Lesson Plan development is achieved using their graphic design package that addresses process and instrumentation and control model configurations, simulator initial conditions, typical training scenarios and several other aspects. Some training modes can include a "tell-all mentor" or be operated in a "life-like test" mode.

Bill Clancy at Dominion Energy is looking forward to these types of changes. Bill currently uses simulation to train the maintenance operators (MOs) and lead maintenance operators (LMOs) at various combined cycle power plants across the Dominion fleet. Clancy said "simulation plays a key role in qualifying and training our employees." Simulation allows trainers to slow down the training process and help learners to better understand each individual process (and then integrated plant operations).

"The simulators are also very forgiving," he said, "since you don't have to worry about damaging any equipment during the training process."

General Physics Corp. is already capitalizing on these training trends that leverage technology and the internet for next generation workers. According to Joe Nasal, senior vice president, "we piloted the next generation of 'GPiLEARN' (called GPiLEARN Connect) at our 2010 User Group Conference in Austin, Texas. About 100 power industry clients attended the conference, and the feedback on our vision was overwhelmingly positive." In 2011, the GPiLEARN Connect software will include numerous rich learning features such as technical webinars, VILT courses, ask-the-expert blogs, communities of practice and on-line simulation exercises for power plant operators.

The power industry learners of tomorrow are already adept at multi-tasking, they are comfortable texting (or talking) at the same time and they are checking their Facebook messages and contributing to blogs. The world is a fast-paced, multi-tasking environment and savvy power companies will find a way to promote lifelong learning using technology driven tools that are familiar to their younger workers. pe