

Top Five Trends in Simulation Training (Jan 08)

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There is a new generation entering the workforce, one that craves continual interaction, visual information and multisensory stimulation in learning environments. Known as Generation Y, this group grew up with video games and came of age during the communications technology era. As a result, they are accustomed to absorbing new information through interactive multidimensional methods. That's why the Fortune 500, military and government organizations have turned to visually rich simulations as a way to captivate and train this group of multi-taskers.

Behind these realistic training scenarios is powerful technology. Much like an artist needs a paintbrush to create a masterpiece, scenario developers need technology tools to create highly realistic simulations. With the emergence of more sophisticated software, 2008 promises to be an eventful year on the simulation front, particularly as different organizations start using more sophisticated training scenarios. To kick off the new year, here are the top five trends — from advances in artificial intelligence to new types of training scenarios — that are shaping the simulated learning environments of tomorrow.

1. Highly realistic training scenarios aren't just for soldiers anymore.

Until recently, training simulations were too costly for organizations outside of the defense community to obtain. However, as the technology for developing training scenarios becomes more widely adopted and affordable, simulations are becoming a popular training tool in the domains of emergency management, homeland security and border patrol. For example, developers of training scenarios can now leverage weather data to simulate weather conditions that police and rescue workers will encounter when dealing with an emergency situation. Simulations can even be used to study the potential impact that disbanding a local gang would have on a community, or for determining evacuation procedures for a building that hasn't even been erected yet.

2. Training games are becoming more realistic than games designed for entertainment.

Serious games do more than entertain. They help employees, soldiers and emergency response workers develop the skills they need to further their professional development. For example, artificial intelligence tools, originally designed for the development of video games, also are used to create immersive training simulations for the military. Using AI software, developers create more dynamic and lifelike training scenarios that enable trainees to interact with virtual people in real-world contexts.

Traditionally, the entertainment industry was years ahead of the serious games market when it came to developing realistic scenarios and special effects. But the need for simulations to involve intelligent characters who move and act like real people — particularly within the military — is prompting developers to use highly sophisticated development tools. This heightened reality will see more developers of serious games turn to more sophisticated AI software, which will help create more complex and realistic scenarios.

3. New types of training scenarios are driving new simulation technology.

A new type of training that combines reality with virtual environments is coming to the spotlight. Now used primarily for soldier training, these scenarios involve a blend of live-action role-playing, simulated environments and scenarios, and virtual effects. During a live flight training exercise, for example, trainers can use virtual radars to simulate enemy aircraft. This puts trainees, flying real aircraft, in the same type of high-stress environment they are likely to encounter in an actual combat situation. This is particularly beneficial because flight training with multiple aircraft can be quite expensive. By combining virtual information with live flight training, trainers can push a pilot's skills to the limit.

Because there will be a demand to create exercises crafted around particular missions and environments, live training will create a need for adaptable software that allows users to quickly and easily modify synthetic environments to meet their specific requirements.

4. Joint missions are driving the development of interoperable solutions.

Geographical boundaries have been lifted with advances in computing and communications. Distributed mission operations, which enable military personnel from around the globe to train together in a virtual world for combat missions, are now being used to collaboratively train and develop procedures. But for these types of simulations to be successful, different computer systems have to communicate with each other. Interoperability standards, like HLA 1516, DIS and CIGI, are making it possible for all the components in a simulation system to work together.

In the years to come, interoperability standards will become more refined and U.S. Department of Defense projects will increasingly require specially certified interoperability solutions. As a result, more developers of simulations will adopt open standards as the primary means of communications protocols between applications. As these standards become more widely integrated into technology and adopted by the industry, we expect to see data and applications being repurposed and combined in innovative and revolutionary ways. Tomorrow's applications will be able to leverage all past development in new simulation contexts. Furthermore, simulations created within newer departments, such as the Department of Homeland Security, will be interoperable with legacy systems.

5. There is a greater focus on the end-user experience.

In order to captivate today's generation of young military recruits, organizations are raising the bar for realism and demanding scenarios that are rich in features and highly accurate. With improvements in visualization technologies and the increasing sophistication of artificial intelligence tools, the end result is an enhanced training experience with extremely realistic scenarios. This means that trainees sitting in a stationary seat actually feel like they are flying a military aircraft or are bobbing up and down at sea in a large vessel. It's common for trainee pilots to come out of training sessions drenched in sweat because they've forgotten they are not really dealing with an emergency landing or fending off enemy forces.

Conclusion: Effective training and powerful technology go hand in hand

A generational shift is happening across the workforce. The video game generation no longer consists of kids and young adults having fun at home, but now includes first responders, office employees and soldiers at work. Through simulations that leverage powerful technology, CLOs can effectively engage and captivate this group of young people, who have come to expect more than textbooks when it comes to training. With advances in technology, training scenarios will continue to advance in the years to come, creating even more effective opportunities and outcomes for interactive learning

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