



SIMULATION

Slowly Proving Their Worth

By Michael Laff

Three experts weigh in on the future of simulations in training.



Not too long ago training sessions meant sitting in an old hotel conference room listening to a facilitator read from tired PowerPoint slides. When the session was complete, participants completed satisfaction surveys and filed out.

Today, number 2 pencils and multiple choice bubble sheets are out. Vivid, engaging simulations are in. The old training modules are gradually receding from the stage, giving way to simulations so real they could substitute for the actual experience.

With the emergence of simulation as a tool to train employees to learn tactical or even intangible skills, there remain some holdouts who shudder at the cost of the design and development of simulation or blanch at the thought of allowing employees to play “games” at the office. Old conventions die hard.

For many institutions, particularly the United States military and the medical field, simulations are standard methods of training. For more conservative employers, leaders still must overcome their resistance to the concept. *T+D* asked three simulation experts—Clark Aldrich, an author, e-learning and simulation designer, and leader of Connecticut-based SimuLearn; Clark Quinn, a learning technology designer, founder of Walnut Creek, California-based Quinnovation, and author; and Brad Sugars, founder of Las Vegas-based ActionCOACH, and developer of a board game that is a simulation on running a business—to weigh in on the progress of simulations and their rate of adoption in the workplace.



Have employers finally discarded the notion that simulations are not work-related or valuable as a training tool?

Sugars: No, unfortunately most employers still fail to see the value of simulations. It's not difficult to understand why. Simulations frequently take more time than conventional training, and they usually don't seem to be directly related to the learning task at hand. If you're using a high-rope exercise to teach people to take risks, for example, it's a challenge for many people to see how that can contribute to increased sales, better ideas, and more effective employees.

Teaching that lesson is a slow process because so many businesses won't even try it, and also because it's difficult to quantify the results. It may take months before a particular training session moves the sales or productivity needle, and it's impossible to determine the causes of those changes with absolute certainty. Evangelizing simulations, then, remains an uphill battle.

Aldrich: Many employers are waiting for the trainers to show commitment. They don't want trainers to say, "Well, I think we will evaluate simulations in theory, then attend some conference presentations and read some articles, run pilots with seven people of whom three will drop out, do evaluations of the four people who finished the

pilots, and then pilot a second group with 12 people."

Instead training professionals should say, "We want to work to solve the organization's greatest challenges. We have established the content that will best support the organizational goals. And oh, by the way, we will use simulations as an important tool. We can get started in two weeks."

Quinn: Let's get some terminology clear first. Technically, a simulation is just a model of a system. When you put that simulation in an initial state and ask the learner to take it to a goal state (typically wrapped in a story), it's a scenario. When you tune that experience until you achieve engagement, it's a game.

Note that I'm ignoring the dressed up "quiz show" type modules, which aren't of interest. They have a role, but we overuse them. However, the term "game" is problematic even while the intention is pure. Employers have discarded their resistance to simulations, not realizing that what they really are welcoming are scenarios and that they should be welcoming games. So, while employers recognize the value, you'll have to call them "immersive learning simulations."

What are the overall strengths and weaknesses of various simulations now being used for training?

Quinn: Immersive learning simulations provide deep and meaningful practice for complex decisions. Next to mentored live practice, they're the most powerful way to equip learners when real change is needed.

When the elements combine to create a contextualized, immersive, compelling learning experience that challenges the learner to acquire and integrate knowledge into tangible skills—that's a strength. The weaknesses happen when you tend to focus on really flashy tools such as three-dimensional scrolling environments without ensuring that the environment supports the necessary learning objectives. Additional weaknesses arise during

implementation. Learning simulations often are not done well because many are under-designed and overproduced. You can't just throw educators and entertainers into a room together and expect good outcomes. You've got to really understand how the elements of effective practice and engaging experiences align.

Aldrich: The issue isn't between simulations, but whether to build a simulation competency or not, and whether to move up the skill chain or not. Branching stories should be used for new employee training and sales people. Customized mini-games should be used to distribute a few key messages and to change business priorities. Practiceware should be used when there is a high need for transfer of content to the real world and for the formal development of skills, such as leadership, project management, stewardship, and innovation.

Interactive spreadsheets should be used for high potential managers graduating to budgeting or cross-sector responsibilities.

Sugars: The most effective simulations involve game playing rather than role-playing. The weakness of the traditional approach of having a role playing script is that it can "teach" a specific set of scenarios but it leaves participants scratching their heads if they're faced with a situation that wasn't in the script.

Games, in contrast, allow for spontaneity, creativity, learning by doing and shared experiences, and perhaps most importantly, the consequences of doing the wrong thing. That's why games have been used as team building exercises for so many years. Now the challenge is to learn how to use games for other types of training.

Some simulations have been criticized for being simple content dumps. How are the best versions able to transform content into active learning?

Aldrich: Simulations work best when there are three levels of content: the interface, which captures the five to 15

different actions available at any given time; the result, which tends to be a balanced scorecard of three or four goals; and finally, the system, which is influenced by actions and in turn actually produces the result.

It is the system that often produces the counterintuitive result. For example, if a riptide is pulling out into the ocean, the action is swimming and the result is getting to shore. But because of ocean currents, the best way to get results is not by swimming toward the shore against the riptide but by swimming at a right angle to the riptide first, and then swimming to shore.

Most traditional content is linear, and so it often fails on all three of these levels: actions, system, and results. It is also, by the way, why most training fails.

Sugars: Again, the key is to turn the lessons you want to convey into a game. It can be a board game, an online game, or a live group experience, but it should have some entertainment value, a team element to allow collaboration and competition, and a clear link to the lessons to be learned.

One healthcare company wanted to teach its field representatives how to incorporate a new sales guide into their daily routine. They developed a customized game whereby 12 teams developed hypothetical business plans for a fictitious dialysis center. Game elements included humorous clues, a huge three-dimensional mockup of the sales guide that was wheeled into the room on a trolley, and props ranging from lab coats to stethoscopes. Every member of the winning team also received \$250, which provided an incentive for participants to take the game seriously.

Quinn: They get there by focusing on something other than knowledge. What will distinguish organizations in the near future will be people's ability to make important decisions.

Jeroen van Merriënboer, the creator of Four-Component Instructional Design, tells us we need to separate out knowledge from the complex decisions for which knowledge is needed. Sid Meier, a renowned game designer, tells us that "games are a series of

2006 Simulation Survey Results

How do you define a simulation learning experience?

	2006	2005
Virtual reality	19%	16%
Step-by-step animated guide	8%	8%
Scenarios with questions and decision trees overlaying animation	19%	17%
Online role play with photos and videos	14%	11%
Software training: screen shots with interactive requests	35%	34%
Other	6%	14%

Does your organization plan to increase the use of simulation tools for instructional purposes in the next two years?

	2006	2005
Yes	67%	68%
No	5%	4%
Not sure	29%	28%

Source: *Learning Circuits*

interesting decisions." If you can embed important decisions in a setting that makes them interesting, you're creating a powerful active learning environment.

By focusing on decisions, making the contextual practice of those decisions meaningful, raising the level of a challenge by making the alternatives to the right answer represent misconceptions, and having the consequences of those decisions play out, you can systematically transform content into active learning.

According to recent *Learning Circuits* survey results, 60 percent of simulation content is developed in house. Why is this so?

Quinn: I think the primary driver is a misperception that it's too expensive, but it's not as expensive as everyone thinks. There are two components to getting a learning simulation built: design and production. Design teams mistakenly believe that they can do

the design in isolation. However, unless you understand the alignment you tend to get either dull learning simulations or window-dressed knowledge dumps.

Design teams also believe, mistakenly, that production is too expensive. So they do it in house, instead of having the design documented to the point where an outside production consultant develops it for them at a reasonable cost.

In situations where you do have the understanding and the right blend of resources including graphics, audio, programming, instructional design, and domain expertise, you can pull it off. But unless you know what you're doing, it's easy to go awry.

Aldrich: It is a short-term budget hoarding strategy, instead of a strategy optimized for long-term training growth. In any new area, a group should look outside for talent and experience and, often most importantly, speed.

This outside influence should have deep experience, and can be in the form of consultants, new hires, or vendors. Then after a few successful projects are completed, the organization should slowly bring these skills in house.

Sugars: There are several reasons. First, it is obvious that handing simulation development over to an in-house training team generally costs less than hiring an outside consultant. Second, internal trainers inevitably have a better understanding of what the organization needs to learn, particularly in the case of complex subjects such as determining return-on-investment as the basis for deciding what business projects will be funded. Trying to teach an outsider about topics like that is a real gamble. There is simply no substitute for internal expertise.

Finally, an outside trainer generally doesn't develop a simulation that is specific to the client but instead tries to fit an existing simulation into the organization. The results are often disappointing and therefore discourage the use of third-party training developers.

What has to occur for more organizations to embrace simulation? Is it lower cost for use and development or greater cultural acceptance of the format?

Quinn: Neither. I think it'll be greater awareness that the costs aren't as high as believed, greater awareness of the learning impact, and greater awareness of what it takes to do it right. It's not that the costs need to be lower. I'm not sure they can be. You don't have to develop a full PC game that costs millions. There are huge opportunities for learning interactions that affect the bottom line and can be done on roughly the scale of current e-learning budgets.

Further, it's not the cultural acceptance of learning simulations (as long as you don't say the 'g' word). There's still not enough appreciation of how powerful they can be. And finally I don't think people are aware of what

it means to do it right, to blend design and production wisely to get meaningful learning interactions, and to get real cognitive engagement, not just sizzle.

Sugars: Both. Cost is obviously a major concern in all areas of a business, including training and simulation, and the need to customize most simulations for the specific business scenario makes cost a factor that is difficult to control.

The other part of the equation really depends on educating companies about why simulations can be more effective than traditional training. Case studies in trade journals can help, along with presentations about successful simulations at conferences and research that examines the effectiveness of simulations. Several studies have shown that simulation improves learning, but this area of research is in its infancy and needs time to mature.

Aldrich: When members of the old guard in training are fired, and new people are brought in, we see simulation adoption. I am at a point where the first thing I want to say to participants during a conference presentation is, "If you have been in the industry for more than three years, you might as well leave, because you are not going to be a simulation leader."

The old guard has an almost insurmountable fear of total commitment to success. Most can't remove their researcher-engineer-social scientist-process hat for the necessary new garb of entrepreneur and driver of business results. But some of the more promising up-and-coming leaders will succeed.

Is there an aspect of training for a particular skill or task that could be simulated but is not? If so, what element is it?

Sugars: Because every business has different needs, it is logical to assume that there are skills or tasks that have not yet been simulated. The real question is whether there is anything that does not lend itself to simulation-based training. I would argue that

simulations can be applied to almost any aspect of business learning, given the right trainer and the right exercise.

In a sense, computer simulations such as *Sim City*, *Roller Coaster Tycoon*, and *MS Flight Simulator* have paved the way for broader use of simulation training in business by making more people familiar with the concept. It's up to the trainers to leverage that familiarity to deliver solid business results.

Aldrich: Every nontechnical skill that is valued by an organization requires simulations as part of the development program, although they also might need coaches and self-reflective tools such as blogs as well. The irony is that the skills necessary for the success of an organization—such as leadership, project management, stewardship, and innovation—are the most necessary for implementing simulations and are currently missing from most organizations today.

Quinn: I believe you can design a game for any learning objective, but I reserve the right to raise the objective high enough. Let's add one more category to knowledge and decision making: attitude change. We've got the quiz-show stuff for knowledge, and learning simulations for decision making. I believe attitude change can be addressed in learning simulations, too. None of these are panaceas; they're practice, and they have to go along with the other components of learning like examples and reflection.

What I don't see is people focusing enough on high-level skills. I want organizations to start thinking about what major changes are required to make decisions that will influence their bottom line, and then use these tools to implement those changes. **T+D**

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