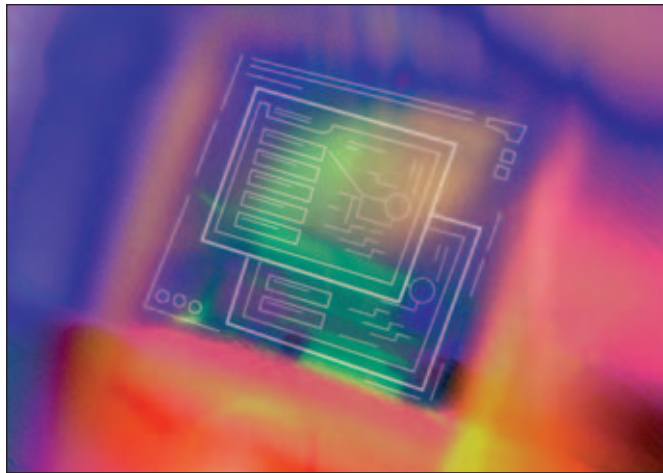


A Conversation with Clark Aldrich



Clark Aldrich is an internationally acclaimed e-Learning analyst, consultant, and designer. He is the lead designer of SimuLearn's Virtual Leader, which was awarded Best Online Product of the Year by Training Media Review, T+D Magazine, 2004.

(www.simulearn.net) Clark is author of hundreds of articles, keynote presentations, reports, and columns, as well as the book **Simulations and the Future of Learning**.

Clark's most recent book is **Learning by Doing: A Comprehensive Guide to Simulations, Computer Games, and Pedagogy in e-Learning and Other Educational Experiences**. In it, he provides an overview of different types of simulations and explores how training professionals can determine the right type of educational simulation for the right situation. He spoke with Ramona Materi of Ingenia Training about educational simulations and the corporate world.

By Ramona Materi

RM: Let's start with some definitions. In the corporate world, what is a simulation? What is a game? What is the difference between them?

CA: For me, the question of what is game and what is simulation is almost always misleading. In both designing and evaluating educational programs I like to think of the two as neither different nor incompatible but as different independent elements. I believe a good program should have simulation elements and game elements, and on top of that, pedagogical elements too.

The simulation elements mimic reality and give you consequences. If you and I are watching a videotape of a situation or a re-enactment of a situation and we are taking pointers from it, then that is a non-interactive simulation. Another part of a simulation is the interface and the way that you interact with the simulation, which

hopefully also mimics some form of reality and allows you to control the situation.

Then there are game elements. Game elements are what make you motivated to engage and spend more time with an educational experience. This can be as simple as keeping track of high scores. It can also be playing a hero—you could be the CEO, or the person who saves the situation. Or you could be playing a well-known game format like Wheel of Fortune or Monopoly.

The third factor, often underappreciated in this context, is the pedagogical component—the information that keeps you from getting lost. This can include charts and tips and even tie-backs to why the material is important.

The way all of these three come together is what makes an educational simulation. You can go overboard on any of

these pieces. I have sat in on classes where they had a very elaborate Hollywood Squares set. What they actually taught was a fairly small amount of content around a huge game interface. You can also have an incredibly dense and powerful simulation, but have it be so intense that students get lost, or just find it too hard and not rewarding enough.

RM: What kinds of games do you see most commonly in corporations today?

CA: In corporate and academic America, Canada, India, and Europe, firms that are using educational simulations are using one of four categories.

A lot of organizations use *branching stories*—you watch a video tape or read some text or see some pictures, often from a first person perspective, and then you have a multiple choice option of what to do next. From that question, you branch off in

another direction and get some feedback on the decision you made. From there, you get a little more of the story and then another multiple choice option. You work through a large branching structure that way. The branching stories work really well for new employees, especially in high turnover environments, like banks or grocery stores or call centres.

A second common type of simulation is the *interactive spreadsheet model*, which tends to be aimed squarely at business school types. In these situations you're given a series of allocation-based decisions. Say you have a million dollars, and you have to allocate it across several buckets: one bucket is R&D, one is sales and one is manufacturing improvement. You make the allocation, see the results play out in what are typically dense graphs, and then have another allocation decision. These could come every quarter, or every year, or every day. There is an underlying spreadsheet that drives the results. These simulations have a real business school/logistics supply chain management quality to them.

The third kind of simulation is a *game-based model* where someone will take a game based genre—Who Wants to Be a Millionaire or Solitaire, for example—and put linear content into it. They'll then deploy it by the web or in a classroom. This type of program works well to make boring content a lot more fun and engaging—participants can earn scores, play with 'money', and win prizes.

The fourth kind of simulation is the *virtual products and virtual labs*. These tend to be online and web based in most cases. Virtual products are pretty accurate reproductions of actual products—perhaps online versions of a tape recorder or a VCR or a camera. Then there are virtual labs. General Motors uses labs for training their dealers; the car comes in and it's smoking. You have to take the mouse and click to the tool and then you actually click on the circuit board. You have to put the voltage meter on the exact spot where you would in a real car.

These four types of simulations are used and well understood. But, in general, I

think educational simulations are underrepresented in most corporations today.

RM: *You've written some very interesting books on this topic, Simulations and the Future of Learning and Learning by Doing: A Comprehensive Guide to Simulations, Computer Games, and Pedagogy in e-Learning and Other Educational Experiences. What are the key messages of these books?*

CA: *Simulations and the Future of Learning* is a very extensive case study about the development of one simulation product which, I might add, was later called the "best online training product of the year" by Training Media Review, as announced in T+D magazine in 2004. This was really a full simulation—and when I say full simulation I am talking about stuff that looks like a computer game—highly interactive, 3D graphics and deep artificial intelligence. The book explores how different, how much harder, and ultimately how much more powerful it is than creating any other type of content. The book gets philosophical. What happens when you set out to simulate leadership? How useful—or

not—is all the traditional leadership material when you actually start creating complex systems and an interface? We had to research a lot of material and then put it together in a whole new way.

Learning by Doing is a much

broader book. It looks at all the different types of simulations I mentioned earlier and looks at the right places to use them. The reader can see that some of these usages yield immediate benefits.

Learning by Doing also looks at tangents, like flight simulators. People talk a lot about flight simulators as the model for corporate training, so I thought I'd spend a bit of time seeing real flight simulators and talking to the designers. I also talked to people who design computer games for a living and asked them what goes into the design of computer games. The book also looks at role plays, those conducted without technology and also those that have added technology in a way that makes them more effective and powerful. And then I spent

time looking at some very deep educational simulations that have been created recently that really do push the boundaries and model new types of content. The book looks at both the creation and deployment of all of these.

By looking at a large collection of different types of simulations, we can explore lessons learned from each of them. The book also defines each type of simulation, and identifies where you would want to use each of these different approaches. And that's really important because the conversations today around simulations are so clumsy.

RM: *What are some of the challenges of trying to introduce games and simulations into the corporate environment?*

CA: Game elements are a really funny thing, because most sponsors of a program do not want to pay for the creation of game elements. Nor do they want to pay for their employees to engage with material that has a lot of game elements. But game elements can work very well—the spoonful of sugar that makes the medicine go down. A lot of very smart designers will put in game elements in order to make a better program, but not necessarily admit that they're game elements to their sponsors.

Even more misunderstood is the reality that the best educational simulations produce a significant amount of frustration. Frustration is a good thing. The real tragedy is that a lot of people in corporations don't like to be frustrated, especially in the context of a training program. They complain to their manager, "I don't know what to do next. What's wrong with the program?"

I have created and witnessed enough programs that I can now respond, "Work through your frustration. Think about the situation. At some point, hopefully in less than an hour, there will be that 'aha' moment when suddenly you'll know exactly what to do. That's the feeling you get when a new mental muscle is being formed, and you will have that ability for a very long time." It's that frustration and resolution that is the real way that you know the simulation is working. The more powerful learning moments will cause us to sweat a little bit.

RM: *What can e-Learning designers learn from the commercial games developers? There is a tremendous amount of technique that game designers have discovered and deployed very successfully that I believe all*

"...there will be that 'aha' moment when suddenly you'll know exactly what to do."

learning designers and educational course designers should be thinking about.

Probably the most important technique is the amount of interactivity. The feedback loop on a computer game is probably about eight seconds. You do something (and doing nothing is doing something), and then very quickly something else happens. And then it scales up. The second level of feedback is probably about two minutes and the next is about 10 minutes, in terms of your control of the situation. So, that level of interactivity is absolutely critical in engaging content for understanding.

The corollary to that, and this is true of computer games and education experiences, is if it's a

good experience we'll spend a lot more time failing than we will succeeding. Don't get me wrong. Succeeding is good and I like it as much as anyone else, but the process of succeeding—if you play a game perfectly—is often a pretty boring experience. The fun about a game is where you make a mistake and see the reaction. So a lot of game designers spend more time thinking about failure—making failure entertaining while at the same time something you don't necessarily want to repeat. Simulation designers have to think much more about failure than success, which is a new way of thinking for most of us.

RM: What advice do you have for instructional designers who want to develop simulations? Where do they start?

CA: Trying to develop one of the four types that we talked about earlier is a very good entry point. Unlike the huge investment required for computer games, these types are all pretty simple and people can do them to varying degrees using the tools and skills they already have.

There are also trainers who are really good at using virtual classrooms to do role plays. Ten years ago people would have thought it absurd to use virtual classroom software to do a role play because the whole point of a role play is to be face to face and reading body language, etc. What's happened in the last ten years is that most managers, even a lot of sales people, spend more of their time working with a team

that's distributed, not centralized. Funnily enough the skill of managing by voice alone and not having body language to rely on has become more important for both managers and sales people. So—suddenly—role plays involving face to face are becoming less accurate than what would happen via virtual classroom technology.

There are also different things that people can do to make programs a lot better, using the skills they already have.

One great technique, and we're seeing more of this, is using online content to create material to support a day-long or multi-day role play. Let's say we're a large consulting company and we want to train 30 or 40 experienced or new

consultants. We can now use the web to deploy the emails, the video of the make-believe CEO, the annual report and so forth and create the shared experience base of content about a mythical company. We

no longer have to use paper, or have people co-located. We can then give an assignment to consultants to learn about the company via the web and have them prepare a report on what they should do. We can do all this using skills that we already have, such as web design.

As with simulations in general, there are different levels of risk and reward. But the biggest risk these days truly is doing nothing. The next generation is here, and they are our customers. The next generation is increasingly pragmatic. They crave interaction and personalization. They are highly visual. They are problem solvers. Often they are averse to reading. They want more material in less time. And, hardly worth mentioning anymore, they are very computer-savvy. Our old approaches are not going to work. The good news is that with these new approaches, we will become more powerful in the enterprise than we ever have been in the past.

“...Probably the most important technique is the amount of interactivity.”

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