LEARNING BY DOING

A Comprehensive Guide to Simulations, Computer Games, and Pedagogy in e-Learning and Other Educational Experiences

Clark Aldrich
PRAISE FOR SIMULATIONS
AND THE FUTURE OF LEARNING
BY CLARK ALDRICH

“****” (out of four)—Training Media Review
“. . . Riveting.”—Training & Development magazine
“Two polygonal thumbs up.”—Slashdot.net
“Advice to Chief Learning Officers: Read Simulations and the Future of Learning”—CLO magazine
“If this is the future of learning, then I want to be there. Go, Aldrich!”—Training magazine
“Clark Aldrich . . . has written a book that will revolutionize e-learning in both education and industry.”—Human Resource Development Quarterly, 15(2).
About This Book

Why is this topic important?

The interest in simulations at corporate, government, military, and academic levels has grown year over year. In part, this is because students are increasingly pragmatic, craving interaction and personalization, highly visual problem solvers, averse to reading, and computer-savvy. Meanwhile computer games, leveraging new technology, continue to set expectations and impact our culture and even skill sets. Finally, early examples of simulations are creating massive increases in the productivity of and knowledge transfer to students and employees.

Yet confusion over different types, in fact different genres, of simulations persists, dragging down effective short-term action and long-term strategies. Computer game advocates are both exciting us and muddying the conversation. This book provides critical differentiation between simulation types today and critical success factors for all simulations going into the future.

What can you achieve with this book?

This book, based on hundreds of new interviews with practitioners, as well as new analysis of best practices and trends, will help anyone better plan, manage, and execute simulation deliverables. This includes today’s four proven models, as well as the emerging, more computer-game-like next generation simulations. It will also help strategists understand simulations in a greater context, build consensus among stakeholders, and understand where the field is going.

How is this book organized?

In Section One, Building and Buying the Right Simulations in Corporations and Higher Education Today, we will look at the computer-based simulations
that are proven and established. If you are conservative and want something predictable, here is where you go. We will highlight their appropriate uses and defining components.

In Section Two, The Broader Opportunities of Simulations, we will discuss why these first models are not sufficient, either in capturing others’ views of current simulations or in sufficiently providing an evolutionary foundation to next generation sims. We will formally examine three content types, linear, cyclical, and systems. And we will begin to tease apart the conflicting elements of simulations, games, and pedagogy.

Then we will look at other types of tangential simulations, including non-technology simulations at one extreme and computer games and military flight simulators at another.

In Section Three, Next Gen Sims, we will look at innovative simulations that are breaking new ground. We will look at role models that contain lessons learned that will become increasingly dominant in the decade to come and at some of the challenges these models have highlighted and overcome.

In Section Four, Managing the Simulation Process, we will look at the planning and implementations of all different types of sims in the real world. This includes the identification and balancing of simulation, game, and pedagogical elements, as well as their deployment and measurement. To paraphrase an old programming axiom, the creation of the core of the simulation takes the first 90 percent of the project. Building sufficient support material takes the other 90 percent.

Finally, in the Appendices, we will shoot the breeze about what the impact of the Next Gen Sims could have on all of education.
About Pfeiffer

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Essential resources for training and HR professionals
LEARNING BY DOING

A Comprehensive Guide to Simulations, Computer Games, and Pedagogy in e-Learning and Other Educational Experiences

Clark Aldrich
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To Slater and Lisa
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FIVE BLIND PEOPLE were walking down a path. They stumbled upon something that none of them had ever experienced before, an educational simulation. They each tried to describe it to the others.

“It is a class. People sit down and learn important ideas,” said the first.

“I don’t think so.” said the second. “It’s a computer game. It moves quickly, it involves a mouse, and requires my complete attention.”

“No,” said the third, “It can be used with a class, but it’s more like a book. It can be sold anywhere in the world. It is scalable—hundreds of thousands can engage it at the same time.”

“What are you talking about?” asked the fourth. “It is like a pill. It is a compact package of intellectual property that improves quality of life.”

“I beg to differ,” said the fifth. “It is more like a gym. It requires the users to work hard and sweat and put in hours to tone themselves.”

Tragically, a consensus was never reached. At just that moment, an elephant came running down the path, trampling them all.

‘SPLAINING SIMULATIONS

I spent over two years leading a team determined to build a concept car of simulation-based education. That journey resulted in SimuLearn’s Virtual Leader, which was honored in 2004 with the award of Best Online Product of the Year by Training Media Review and Training & Development magazine. And the inward journey of the development of the simulation was the centerpiece of the book, Simulations and the Future of Learning (Pfeiffer, 2004).

After that, I came out of my self-imposed exile and re-engaged the outside world. Part of that engagement was exposing Virtual Leader to others. More importantly, part of that was trying to help in the creation and success of other educational simulation-based initiatives.

This second part was harder than it sounds. I found a lot of frustration on the part of enterprises looking at using simulations in their curricula. Case studies were simply not comparable with each other. Advocates
used overly fuzzy, academic, and optimistic terms. e-Learning “gurus,” like eight-year-olds, were demanding attention without actually saying anything. Conversations between different people from different parts of an organization, or the dreaded research communities, almost inevitably seized up and became intractable.

I directly worked on a few dozen simulation projects. I consulted for about a hundred others. I also talked to thousands of designers and implementers, customers and associates. (I could rely on very few second-hand sources for help with client projects, or for this book. Most of the quotes here have been taken from one-on-one interviews.)

I realized that most people had very different and often conflicting views of educational simulations. Often, what seemed like one conversation about simulations was actually fragments of dozens of different ones.

The vendor community was partially to blame. They also had similar confusions, but that did not stop them from blaring out half-truths and hyperboles like, “learning by doing,” “a safe environment to practice skills,” or “a flight simulator for business skills.”

There was a lot of frustration.

And yet. . . .

And yet something wonderful was happening.

There were some great, and historically important, educational simulation models being implemented. There was incredible value being delivered. People were learning in different ways than ten, even five years ago. And these new ways were working.

Mostly in isolation, and mostly misunderstood in a greater context, but designers were building structures to significantly augment education.

This book is a summary of what I have learned. Where Simulations and the Future of Learning was a map of a small town, complete with sewers and brothels, Learning by Doing is an atlas of the world (and maybe the moon). Where Simulations and the Future of Learning focused in on the almost completely misunderstood deep simulation aspect of an educational experience, Learning by Doing looks at both more accessible simulation models and the game and pedagogical elements of all simulations (Figure F.1).

One request from my clients is to understand the tapestry of simulations available today, to understand when, where, and why they make sense. That is here. Short-term planners and implementers of simulations will be more confident and capable and can avoid costly mistakes by reading this book.

A second goal is to understand next generation educational simulations. Many increasingly want to know what kinds of educational content should, can, and will be created within our planning horizon.
That is especially exciting. This field is wide open, ready to be influenced. At least a handful of people reading this book will, through their work, define the future of learning, just as absolutely as Shakespeare defined drama, Eastman defined photography, the Beatles defined modern music, Ford defined automobiles, Hitchcock defined modern cinema, and Beethoven defined, well, Beethoven.

Regardless of your interest, commitment, or resources, however, everyone who is involved in education will get something from this book. Because even if you never plan to use, build, or procure a simulation, the techniques here will improve any educational experience or program.

We are at a time in the history of education when everything can change. Our minds can be as well-developed and nurtured as our bodies. Productivity and the corresponding standards of living can be raised to the next level. The work of a few people will echo through the ages, changing the very wealth of nations.

It won’t be easy. And the bumps in the road ahead are, ah, non-trivial. But it will happen. And the perspectives in this book, mine and mostly others, will help.

**Clark Aldrich**

*February 2005*