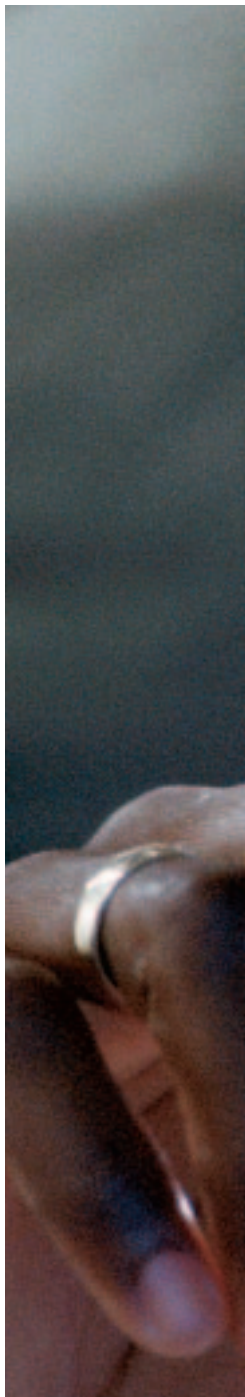
The Value of Performance

Your business might be at risk due to training that may not deliver all of the skills that your employees need and assessments that may not always test whether they have acquired these skills. Simulations can play an important role in reducing this risk.

We all learn by making mistakes. There are many examples from our lives that verify the common sense of this powerful yet simple truism. Reflecting on our childhood, we know that falling is a natural part of learning how to take our first steps or how ride a bicycle. Many of us also remember the many missed, served, pitched and teed-up balls that were necessary before we finally hit them. In this cycle of falling and missing, we finally walked, stayed on our bicycles and successfully hit those balls. At those moments we replaced the feeling of failure with a new self-assessed accomplishment. We learned!

As we grew older, something happened to our perception of that natural process. The risks (or fear) of failure and its consequences became higher. It is one thing to pay the price of a skinned knee or bruised ego, but quite another to risk the displeasure of a client or direct report or to accept responsibility for the failure of a mission-critical system. While the risks are higher, the truism of learning by making mistakes is still valid; thus, we have to fail to succeed. This has left us with a dilemma. How do we maintain the necessary risk of failure within a learning environment so that it produces a properly trained employee whose new skills add value and minimize risk to the organization? This is best illustrated in Figure 1.

If the learning environment only focuses on background information, knowledge of terms and new concepts, the learner is likely to learn that basic information successfully. However, this basic knowledge may not be sufficient to enable the learner to successfully carry out the on-the-job tasks that require more than basic knowledge. Thus, the possibility of making real errors in the business environment is high. On the other hand, if the learning environment allows the learner to experience and learn from failures within a variety of situations similar to what they would experience in the "real world" of their job, the possibility of having similar failures in their business environment is low. This is the realm of simulations—a safe place to fail.



Simulations

James J. L'Allier, Ph.D.

Organizations are beginning to recognize the power of simulations and are making them a part of their training strategies. One of these organizations is Walgreens. The business problem that Walgreens faced was how to provide pharmacy managers, who are technically trained as pharmacists, with the management skills needed to effectively run a pharmacy operation and to learn those skills as quickly as possible. According to Anne Marie Laures, corporate manager, Training Services, "The parameters that were set down for the training solution were simple. It had to be on target, and it had to be real. In other words, it had to represent the critical mistakes that people were making that had an impact on the business." Their solution was "Rx for Management," a simulation co-developed by Walgreens and Cognitive Arts.

Figure 1: Possibility for Learners to Make Mistakes

Learning Environment	If the possibility of making mistakes in this environment is LOW…	If the possibility of making mistakes in this environment is HIGH…
Business Environment	…then the possibility of making mistakes in this environment is HIGH.	…then the possibility of making mistakes in this environment is LOW.

What happens when the first-come-first-serve protocol of a busy pharmacy doesn't fit the situation? Using video-based simulations of various customer situations, the pharmacy manager must weigh complex factors in making management decisions. For example, a client comes to the counter to have a prescription filled for pain medication. The individual that the customer sees first is the pharmacy technician. The client has just come from an outpatient clinic, has just had surgery and is in pain. Does the pharmacy technician tell this individual that, given the current order queue, the prescription will be ready in 45 minutes? If an exception is made, how will the other customers, who are patiently waiting for their orders, feel? Should the pharmacy manager intervene or trust the experience level and judgment skills of the pharmacy technician? The risks could be the loss of not only the customer in pain, but also other customers who might feel slighted. There is also the risk that the relationship with the pharmacy technician may be damaged. As in the real world, there are no simple answers in this simulation. According to Laures, "The real benefit of a simulation is that the learner gets to fail in private."

Having a manager gain experience in a simulation is daunting enough, but what about more complex skills? Can simulations teach skills that normally come from years of experience, for example, the skill of leadership? There is probably no bigger risk factor in any organization than poor leadership. In its "Virtual Leader" program, SimuLearn has created an environment where the learner can take safe "risks." Using five animated AI (Artificial Intelligent) characters that have personalities, points of view, allies and agendas, the learner joins this group as its leader and is tasked with having them work together toward a common business goal. As their leader, it is the learner's job to apply the principles of power, tension and ideas that get the group to focus on the right work. The learner's success or failure in this task is immediately apparent by how individuals in the group verbally respond, how they adjust their body language and in the action or inaction that they may or may not take. For example, the learner, as the group leader, is trying to fund the new call center initiative, but it means re-allocating budget from another department. If the learner doesn't understand the relationships, agendas and individuals in the group or how to read their body language, he may fail in the task. Some in the group will start playing with their pens, someone else may stop talking, and others may fold their arms and push away from the table. If the learner reads the situation correctly, he immediately knows that the meeting is deteriorating and the business goal is in danger of not being achieved. How do simulations like this prepare you for the real world—for example, in the area of sales?

Mike Ulven, senior national account executive for Coca-Cola, and a user of the "Virtual Leader" simulation, said, "It helps you appreciate the diversity of thought in complex sales situations. In most situations, we are selling to a team, and the simulation helps me get better ideas as to timing, the agendas of the various individuals and spotting body language. The real challenge is to internalize the concepts behind the leadership model. The simulation is a place to practice this model before you use it in the real world." In comparing this to traditional seminar-based methods, Ulven added, "A lot of training programs are information-based. You complete the program, get a certificate, put the books on your shelf, and in a year you forget the stuff. This (the simulation) is about behavioral change. You practice what you have learned in a game environment to the point that it becomes a part of your own behavior."

Another company that believes in the power of simulations as a safe place to practice what has been learned is Steelcase, a leader in manufac-

in practice:

IBM: Learning Through Simulations

Emily Hollis

With 3,288 patents in 2002 alone–a total greater than the 12 largest IT companies combined–it's no surprise that IBM Corp. delivers innovative learning solutions backed up by scientific research. Nancy Lewis, director of IBM Management Development and Center for Advanced Learning, leads the management development for IBM's 30,000 managers worldwide. According to Lewis, research shows that adults learn best by solving problems, which is why IBM chose to include simulations as part of its four-tier training model.

"The learning model is a holistic view based on what we have been able to glean from scientific research on how adults learn," said Lewis. "The model breaks up learning into a hierarchy, a set of tiers that are iterative and build on one another."

In the four-tier learning model, the first tier represents information transfer, sharing best concepts, best practices and theories on a particular subject. The second tier tests for understanding and allows for the practice or application of skills and knowledge learned in tier one. The third tier is built upon collaborative learning, including an apprenticeship and mentorship model. And the fourth tier covers higher-level learning proficiencies. Through its four tiers of learning, IBM takes a blended approach and offers a rich and robust learning program for its employees.

Simulations are only part of that program, and IBM's simulations come in at the second tier, which is highly interactive and immersive, according to Lewis. "The way we approach simulation is to meet the objectives of tier two, to give people the ability to test their understanding and competency and to allow them to practice," she said.

According to Lewis, IBM has been designing and using simulations for more than five years. There are two types of simulations used at the company, one called QuickCase and another that is more sophisticated. QuickCase presents learners with a scenario and then lets them know whether their responses were the best or not. "It's succinct and to the point," said Lewis.

IBM's other simulations are more complex. Lewis explained how the coaching simulation might work: "You can imagine that with coaching there's not one right way to do it. It's very iterative based upon the response that you get," she explained. "So with this simulation you are immersed in a very intense situation through the simulation in eight 20-minute coaching scenarios that can branch into different areas based on how the coaching is being done."

IBM's four-tier model applies across all disciplines in the company, from functional training to technical training, but Lewis said that the proven success for IBM has been its management development training. Following a virtual classroom experience that introduces them to the program, new managers go through a number of QuickViews and simulations on various topics. Then, when they meet face-to-face, they have already completed the fundamentals, allowing them to use valuable classroom time to work on higher-level proficiencies. "When you get them together face-to-face, they know the concepts, they know the best practices—they've even practiced it themselves with simulation," said Lewis.

IBM measures the value of its simulations and Web-based learning in a number of ways. For example, Harvard did a study for IBM, asking learners whether they would prefer using the Web and simulators for their management training or going to the classroom. Prior to taking part in the training, Lewis said, all of the respondents answered that they preferred the classroom. But following the new manager program, students responded differently. "They said after being through this blended four-tier approach, they would never suffer through a traditional face-to-face experience again," said Lewis.

Ultimately though, learning initiatives and technologies need to be justified. While many organizations use e-learning, Web-based training and simulations to save delivery and travel costs, Lewis said that it is the effectiveness of the learning approach that drives IBM's use of simulations. "It's not that IBM doesn't want to save delivery costs," she said," but the only reason why we did this was about learning effectiveness. It was to create a more effective learning approach."

As evidence of the effectiveness of the approach, Lewis cites the fact that after completing the new manager program, many of the managers go back to the simulations for performance support. "People go to these things to help them in their day-to-day jobs," she explained. "So they don't only use the simulator as part of a learning program, but they use the simulator as an object unto itself."

turing innovative office furniture systems. Faced with an upgrade of its SAP system, Steelcase immediately rejected its previous classroom training methodology, which involved working with subject-matter experts to understand what screens to grab, what text to use with the screens and what sequence the learner should use to move through the material. This method was not only time-consuming, but more importunately, it had not been very effective for Steelcase's 2,000 SAP users. Steelcase found out that the real learning took place on the job with actual use of the SAP system, which was dangerous because this mission-critical environment was live, and there was no corrective feedback to making mistakes. This is when Steelcase decided to turn to OutStart to create more than 70 custom, Steelcase-specific SAP simulations that not only reduced the length of the traditional classroom-based courses by 50 percent, but also provided guided practice in actual tasks that employees would perform on the job with the real SAP system. By using the OutStart SoftSim simulations, Steelcase's SAP users were able to practice their "on-the-job" skills and receive corrective feedback. This had a significant impact on retention of skills, as evidenced in the reduction of calls to the SAP help desk. According to Scott Vinkemulder, Steelcase's SAP training team leader, "Moving all of our 2,000 users to the new version of SAP would have been nearly impossible without SimSoft."

Walgreens, Coca-Cola and Steelcase have learned the power of simulation as an instructional tool, but simulations have another use as part of an overall training strategy. Not only are simulations great places for practicing skills, they are also environments that can provide valuable assessment information, which can help minimize the risk that your learner's skills may be inadequate before they touch that mission-critical system.

There is a truism in training: "As you teach so should you test." In other words, if you are assessing basic information, knowledge of terms, concepts, etc., you can use the traditional multiple-choice, matching and sequence type of assessment items and feel comfortable that you are getting an accurate measure of the learners' knowledge. But, if you are assessing for competency in specific skills, these traditional assessment types may not be enough. This is where simulations can be used. By placing the

individual in a simulation that contains a set of problems that require the use of new skills, the performance of the learner in this simulation will be a stronger indicator that she actually has the skills. This can be seen in Figure 2. If you stay on the left side of the quadrant, you lower the risk to the business.

A number of organizations that create assessments understand this important relationship and are including simulations as part of their assessments. One of these organizations is Cisco Systems. According to Dr. Peg Maddocks, director, Internet Learning Solutions Group, "Too many people were coming into our tests with memory and recall information from a study guide that allowed them to pass the test. What was lacking was a demonstration that they had the understanding and skills." Cisco now includes simulation items in its Cisco Certified Network Associate (CCNA) and Cisco Certified Network Professional (CCNP) certification exams and its security exams and is planning to add more over time.

A typical simulation looks something like this: The individual is asked to change the host name on "Lab_A" to "Router_A." He is given 15 minutes to do the task, which consists of knowing the router commands, their syntax and how and when they are to be applied. Just as in a live environment, the individual has to move around a router interface and enter the appropriate configuration data. "In this type of simulation you have to do several complex and interrelated tasks. This separates out those people who know what to do from those that are not quite ready," said Maddocks.

The use of simulations in assessments also cuts down on cheating. "People steal tests," Maddocks said. "Go to eBay to see how many people are offering to sell test answers. Because simulations require actual skills, they cut down on the amount of cheating. When some individuals come to a simulation, they stop the exam and walk out."

Searching on Google for "certification exam answers," I found the following testimonial from a site that sells answers to a wide range of certification exams. Andrew of France said of an ERP certification exam, "I have passed all the tests with the help of your great guides. Those questions I met in my exam Were (sic) all in your study guide. I couldn't believe it. I can't imagine how I could pass them without your help. Thanks for your very good service." Simulations in assessments prevent this kind of behavior and keep the Andrews of the world away from our mission-critical systems.

Instructional and assessment environments that use simulations offer insurance to the organization by providing "virtual" spaces within which individuals can learn and practice skills and where they can also be assessed. Anyone can learn facts and concepts, but in today's fast-paced and high-stakes business climate, something more may be required. We need people who can take the skills that they gain from training and apply them directly to business problems. Coupled with this, we also need to have assurances that our employees possess the skills before we ask them to address those problems. If we don't understand this relationship to simulations, we are prone to error.

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In the area of research, there are two types of errors. The first type is accepting as true a hypothesis that is false: The learner has the skills, but the test says that he doesn't. The second is accepting as false a hypothesis that is true:

Figure 2: Assessment Fidelity Related to Learner Competence

Fidelity of Assessments to Real-World Tasks	If fidelity to real-world tasks is HIGH…	If fidelity to real-world tasks is LOW…
Learner Competence on Real-World Tasks	…then competency on real-world tasks is HIGH.	…then competency on real-world tasks is LOW.

The learner does not have the skills, but the test says that she does. Without simulations as part of your overall training and assessment strategy, the organization is exposed to the risks and consequences of both types of errors.

What are the consequences of not including simulations? Here is a scenario to ponder:

Your new mission-critical ERP HR module is ready to go on line. While waiting for the CEO to arrive for the "Enter" key-pressing ceremony, you strike up a conversation with Andrew. He is a transfer from your French operation and has been assigned as the software technician who will be operating this state-of-the-art HR system that will allow you to effectively manage your company's human capital. You ask him what kind of training he has had. He tells you that he attended a five-day seminar that did not include any hands-on experience. Andrew also proudly informs you that he passed the vendor's multiple-choice certification exam with a score of 95 percent. He even has a certificate to prove it. The CEO arrives to press the "Enter" key to start this mission-critical system.

You have a career decision to make. ■

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