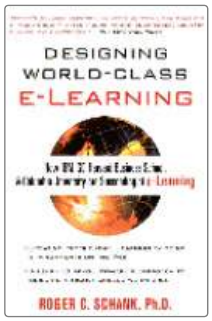

Book

Designing World-Class E-Learning

How IBM, GE, Harvard Business School & Columbia University Are

Roger C. Schank, Ph.D.
McGraw-Hill, 2002
Buy the book

Beyond technology: how to create e-learning that meshes with the way people really learn.

Recommendation

E-learning expert Roger C. Schank describes the secrets of a good e-learning program. He emphasizes using e-learning to train in-house employees, although his methods could work in any setting. Schank clearly establishes the basic principle that makes e-learning work: learning by doing. He outlines methods using scenarios and simulations that permit the learner to put new ideas into practice immediately. He's a little too fond of failing and trying over as a learning method, when one might learn just as well by studying others' failures and successes. However, he supports his approach with education-based examples that demonstrate how children learn, along with an inside look at IBM and GE programs. Visuals in the book show the computer screen in a teaching mode as displayed to the user, so you see how your e-learning material should look, whether on a Web site or on a local intranet. *getAbstract.com* recommends this solid hands-on instruction manual for training and development managers, and for those who are building e-learning experiences.

In this summary, you will learn

- The principles of effective e-learning
- How to avoid common mistakes in setting up an e-learning system
- How to design an e-learning system based on the concept of learning by doing

Take-Aways

- E-learning is less expensive than other forms of teaching many people at once, since once you set up the system, any number of people can learn from it.
- Include learning by doing in your package, since this is how people learn naturally.
- Learning is meaningful when it helps people reach their goals.
- Learning arises from having expectations and failing to meet them; people learn to correct what they did wrong, so they can fulfill their own expectations in the future.

- Don't try to teach too much, since learners will suffer from information overload and won't learn.
- Break down any learning into sets of skills or "scriptlets," and teach those.
- Don't depend on rote memorization; have employees learn by performing the tasks.
- Use research and interviews to create realistic scenarios based on what people actually do in your company.
- Provide training in a timely manner - when people need the help to perform.
- Keep learners interested by making learning relevant, fun and practical.

Summary

The Value of E-Learning

E-learning can be effective, economical and convenient, in that it permits learning any time. It is thrifty, because once you build a training program, you can deliver it continually to any number of learners over a long time. However, effective e-learning is more than just throwing your training manual up on a Web site. To make e-learning work, incorporate natural learning principles based on how things are actually done.

"E-Learning is cheaper, not because it allows you to put your training manual on a Web page, but because it allows many students to experience training that was built once and then continually delivered."

Learning by doing is critical; that's how humans learn and that's how human memory processes work. People learn by doing and then by finding out if what they just did is wrong or right. That's why people become more effective in a particular role as they become more experienced. Thus, the best way for an employee to learn is by working on a job requiring the skills you have prioritized. Through practice, the employee will eventually learn.

The downside of learning by doing is that it can be dangerous and expensive. When you put an inexperienced employee in a job, he or she can make costly mistakes, such as damaging an expensive piece of equipment. Also, employees may not learn all they need to know through simple random learning. Thus, training programs can be a more cost-effective alternative. However, the traditional educational model - short-term memorization of information that may not come up in everyday life - does not provide good training. Solid training focuses on knowledge about real experiences. The basic principles of good learning are:

"Effective e-learning requires real experience...We learn best from reality."

- Make learning engaging, or people won't learn.
- Create simulated situations where learners can practice what you want to teach them.
- Use real experience as a guide, since humans learn best from reality.
- Set up an e-learning experience so it looks and feels precisely like the job you want the learner to do.

Using the Learning by Doing Principle

Learning by doing works; it is how children learn. A child asks for a cookie, but if she doesn't ask properly, she doesn't get it. Thus, she learns the right way to get it. This basic principle of learning applies in all other areas of life. The key to learning anything is having a goal. People want to learn to achieve their goals. They are open to correcting their mistakes or accepting advice about differing approaches, so they can reach their own destinations. For learning to be effective, the goals must reflect the learner's real wishes, not the trainer's.

"There is no substitute for natural learning by doing."

Harness your employees' goals to create good e-learning experiences with the learning-by-doing approach. Since employees' goals are anchored in better job performance and in the personal, career and financial rewards that result from good performance, use your training program to help them achieve their goals.

Avoid the traditional educational model. Unfortunately, many companies fall right into the usual patterns. They bring in guest lecturers, create detailed manuals and set up internal universities that offer structured courses. Such programs don't work because they ignore two central principles of learning. First, learners have to internalize procedures they can use to improve their work performance, which means they have to try new methods and gain help if they fail. Second, to remember a new technique, they have to practice it. Learning builds on the peoples' expectations and even on their failures when their expectations aren't met.

"The best way to teach an employee is to let him or her work on a job that requires the skills you're trying to teach, and eventually that employee will pick them up."

Thus, when you design a learning program, allow learners to have experiences they can relate to past experiences, and then provide opportunities to practice, practice, practice. This hands-on approach works because learning by doing teaches non-conscious knowledge, whereas learning through "being told information" teaches only conscious knowledge. Non-conscious knowledge is what helps you do something naturally. Even high-level executives benefit from training. To make it work, people have to be motivated to learn and they have to perceive that simulation will help.

The four steps to creating an effective e-learning course are:

1. Start by developing training for a job that is based on clearly defined and repeatable skills, since these jobs are most amenable to being taught through e-learning.
2. Decide on your most important training need. Find a model in your organization who has already done what you want others to learn. If someone hasn't done this job yet, get the process working first, before you try to set up a training program.
3. Find the best subject matter experts in your company, people who can provide the information you need for your e-learning program.
4. Collect stories from employees and use their stories to create real-world simulations and scenarios. When employees role play these scenes they can practice making action choices. This provides an arena to make mistakes safely. Use text, animation, video clips and other techniques to create dramatic reality-based scenarios.

"First and foremost: When learning isn't engaging, it's not learning."

Learning from Other Companies' E-Experience

Since a growing number of companies have used e-learning, their experiences provide many lessons about what works and what doesn't.

"Good education means having real human goals and educational goals aligned. Students have to really want to learn what you want to teach."

For example, IBM used the GROW (setting Goals, doing a Reality check, identifying Options, and determining What to do) coaching model developed by former race car driver Sir John Whitmore to create simulations for employees to undergo before they entered a classroom training program. Managers and executives experienced four scenarios based on the four phases of the model. To illustrate the scenarios, IBM used photos and a series of pro and con options. Learners could make choices and then check the outcomes for each choice. IBM found that e-learning is a good method for pre-training before learners go into the classroom.

Additional e-learning programs used by A.G. Edwards, Wal-Mart and even Enron demonstrated these major principles for what makes a good e-learning program.

- To keep learners interested, show how difficult content, such as complex financial products, can be applied in real-world situations drawn from the

learners' jobs.

"The goal of effective e-learning must be to re-create as well as possible the breadth of experience an employee needs in an intense, danger-free, inexpensive, and timely fashion."

- When you provide access to resources, such as research materials needed for estate planning, let learners decide how much research they want to do, but make their tasks more difficult if they haven't done enough research.
- Even if you have concrete information, such as survey results, talk to as many people in the company as you can to hear their stories about their experiences. This allows you to base your scenarios on your company's culture and atmosphere.
- Don't make your training too comprehensive. Don't overload trainees with too much information.
- Use third-person scenarios where the learner advises someone, so you don't evoke negative reactions, because employees think they would never be in that situation.

Designing Powerful E-Learning Delivery Systems

An e-learning program has to be adapted to your organization. Follow these principles:

- Incorporate "stories, simulations, goals, practice, fun and failure."

"E-learning should look and feel exactly like the job the learner is being trained to assume."

- Give learners an opportunity to fail and then consider why, since people learn when their expectations aren't met. When people repeat the same successful behavior and don't try anything new, they don't learn anything new either.
- Trigger emotions and feelings through realistic simulations since people remember best what they feel most intensely. Don't try to script "fake realities," such as having a junior trainee and top manager socializing, that wouldn't happen in your company.
- Even low-level people have the capacity to learn when you create apt simulations that the employee is likely to experience.
- Provide timely training when people are actually seeking help, so they are motivated. A good time is after someone has had a failure and really needs corrective help.
- Let the learner teach him or herself, since people naturally act as their own teachers.

"If you want to start building simple e-learning simulations, pick a job with well-defined, repeatable skills."

- Don't require people simply to memorize facts, procedures or lists of activities, since memory alone doesn't turn into a learned skill. People have to act on what they learn so incorporate actions and practice into your e-learning program.
- Offer varied experiences that take different learning styles into account. For example, some people like to dive in without explanations, while others want detailed explanations of what will happen, and still others like a brief introduction and then want to explore themselves. Provide these different possibilities in your software.
- Start each session with a hook that makes employees eager to learn. Commonly, classes start with a long, dull explanation of what's coming up. Instead, begin by giving people a powerful, emotion-evoking experience and then asking them to do something as a result.

Creating the E-Learning Scripts and Designing the Course

"Traditional training that insists on right and wrong answers disempowers the individual - it robs people of their decision-making ability."

Use the building blocks of e-learning to create scripts and dramatize them. The building blocks are scriptlets and the learner's own goals. Each scriptlet consists of a procedure or group of actions that a person performs so often that he or she can do it without thinking. For instance, a scriptlet might be the task of programming a VCR.

Build a series of scriptlets into your e-learning course by teaching a series of skills. For instance, don't teach employees how to "do customer service;" break the job into the skills or scriptlets they will use, such as handling a complaint or dealing with a difficult person. Any job can be broken down into a series of skill sets made up of a collection of activities based on specific predictable situations. Don't try to teach general principles; people learn from repeated experience and practice.

To determine what scriptlets to use, gather data about the needs of those you plan to teach. What do they not know how to do? What mistakes are they making and why? Turn this into the major points you want to teach in an e-learning course.

"To keep learners' interests, and for the lessons learned to be useful, it's very important to connect difficult content to the human, real-world context in which learners will use it."

These teaching points become specific lessons when you stage scenarios. Select pictures and descriptions to illustrate skills and actions. Create exercises based on real-life options and activities. Provide ways for the learner to correct mistakes, such as by making another better choice. Give feedback about why a particular action is incorrect.

For instance, take a scenario where the learner plays the role of a manager in a new department. Have the learner participate in a series of meetings with different employees, deciding whether to help each employee through coaching, resolving problems or motivating him or her to do better. After each choice, the manager can look at the consequences of that decision and make another choice if that was a mistake. Keep your scenarios real to make learning meaningful and to provide practice opportunities.

About the Author

Roger C. Schank, Ph.D., is a Distinguished Professor of Computer Science at Carnegie Mellon University, and the founder and chairman of CognitiveArts, a leading e-learning development firm. He also runs Schank Learning Consultants, and is an author and lecturer, as well as the inventor of powerful multimedia training tools. He founded the Institute for the Learning Sciences at Northwestern University and directed the Artificial Intelligence Project at Yale University. He has published more than 125 articles and books, including *Coloring Outside the Lines*, *Dynamic Memory* and *Engines for Education*.