SCENARIO-BASED E-LEARNING

by Ken Spero
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BENEFITS OF SCENARIO-BASED LEARNING ........................................1
LEARNING FROM AND BUILDING ON EXPERIENCE ......................7
BASICS OF EXPERIENCE DESIGN ........................................................9
GETTING STARTED ............................................................................10

REFERENCES & RESOURCES ............................................................12

JOB AID
Scenario- and Simulation-Authoring .............................................13

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In the effort to find new and interesting ways to design and deploy content to our targeted audiences, we seem to forget the old adage, “Experience is the best teacher.” Historically, when some one needed to develop demonstrable expertise in a profession, they undertook an apprenticeship to learn by doing. It is still true that when it comes to applying what is learned back on the job, there is no replacement for experience. Experience is still the best teacher when learning a new process and even more so when facilitating a change in behavior or skills.

If we need employees to do their usual jobs differently, simply telling them how may not be enough. The dual challenge of teaching them the new way and also working against their internal inertia to do things in the manner to which they are used requires more than instruction. It requires an experiential approach that is designed and deployed for scalability.

Enter simulations, which can be thought of as focused “apprenticeships in a box.” There are many different kinds of simulations, but in this Infoline we will focus on computer-based behavioral or scenario-branching exercises, which address the issues of scalability and context. However, much of the information presented in this issue can be applied to live simulations as well.

In this Infoline, you will learn about

- the power of simulations to capture and provide practical experience
- the basics of designing a computer-based simulation
- how to develop complex and engaging scenarios.

Scenario-based simulations are a set of scenarios that take place over time and are linked via a defined scorecard or set of learning objectives. In scenario-based simulations, training participants typically take over the responsibilities of a worker or manager and are placed into situations where they have to make the same kinds of decisions that a person in that role would make in real life. This can be a simulated hour, week, or even a year depending on the focus of the learning objectives and the nature of the experience that participants need to have. Either way, participants navigate an increasingly complex decision tree in which each decision they make determines the branch that they will continue to follow as they progress through the scenarios.

Our most memorable experiences are often made up of a number of discreet events or scenarios that are linked in some way and play out over time. When we are in the process of experiencing something, these links are usually not discernible. However, when we repeat similar experiences we begin to be able to detect patterns and learn the appropriate responses and behaviors. Like these real-life experiences, simulations are made up of a series of scenarios that play out over time; the difference is that they are constructed intentionally.

Our key objective in developing any exercise is to enable our students to retrieve the information or insights gained from the exercise when they need it, and use it to improve their performance. The more we engage students, the more likely they are to retain information and apply it when needed. In other words, your goal is to move learners along this continuum:

Engagement > Retention > Retrieval

**BENEFITS OF SCENARIO-BASED LEARNING**

Simulations and scenario-based learning have the following benefits that make them particularly effective and unique:

**They Are a Form of Storytelling**

Simulations can be very powerful from an engagement perspective due to their underlying stories. There is a narrative that is captured in the scenario or simulation and it is going to unfold through the students’ engagement with it.

(Text continued on page 5)
Case Study: The Mother-in-Law Scenario

This scenario-based simulation was designed for a pharmaceutical company that had been cited for a compliance infringement, and needed its employees to go through mandated compliance training. Taking a holistic view of the challenge, the client felt that the infringement was indicative of an underlying behavioral problem in their company. The problem was that employees had to deal with ethical issues, and decisions they were making that seemed like “the right thing to do” were often actually illegal. It was not enough to simply tell employees what was right and wrong, because there was a strong chance that they would continue to make the wrong decisions out of both habit and moral inclination. Therefore, the client decided that a scenario-based simulation was called for, which would convey information and provide interactivity.

One of the scenarios that we developed became affectionately known as the “Mother-in-Law Scenario.” In the scene, as the simulation character, you are a salesperson and your mother-in-law actually takes the medication that you detail. She informs you that she has lost her medical coverage and has run out of her meds. Knowing that you carry samples, she asks you for some. The choices in our design were a simple “yes” or “no” with some description included. It is illegal to give her samples, as only a physician can prescribe and provide access to medication; however, it is your mother-in-law, and she is in need, so what do you do? This is an example of how even relatively complex challenges can be presented in a relatively simple scenario that utilizes basic design principles to engage the student.
CRITICAL THINKING IN SCENARIOS

Initiative Implementation
New or Changed Business Practice

Review Issue From Multiple Angles

Exercise Judgment

Your Initiative
- decision tree
- workflow
- business process
- culture & behavior

Interact & Receive Feedback

Experience Consequences

Improved Critical Thinking
Confidence & High Retention
Measurable Results
Mindfulness in Decision-Making

Mindlessness is a key driver of failure in decision making. We often make decisions without critically thinking about the situation we are facing. Humans are creatures of habit. Executing a skill or making a decision without much thought is considered a sign of expertise. But to be mindful, we need to avoid letting habit dictate the way we approach certain situations. By being mindful we can properly maintain our expertise and be able to shift our skills and behaviors as necessary.

The overall goal of scenario-based simulation is not to provide participants with a recipe for effective leadership (or project- or account-management), but to teach participants that they need to fully understand the situation they are facing, evaluate it, identify possible responses, and choose the most appropriate solution. In other words, the focus of the simulation is to encourage mindful behavior.

To do this, the scenarios need to be written to reflect the types of decisions that the learners will face in real life. When participants are faced with a decision in a scenario, they are given anywhere from two to five options to choose from. Your options should provide

- **Valid alternative courses of action.** This encourages the student to consider different alternatives based on their respective tradeoffs. Choosing between valid courses of action helps to remove the blinders that many students wear with regard to the business habits they have developed and the myopic viewpoints they may have on certain issues.

- **Opportunities to choose both mindful and mindless courses of action.** Students will get a sense of the costs and benefits of mindful versus mindless thinking through the feedback provided in the simulation.

Three Ways Scenarios Encourage Mindfulness

Simulations also encourage mindful behavior by encouraging information gathering from multiple sources, placing focus on both process and outcomes, and providing shared context for learners.

**Gathering information.**

Scenarios and simulations can give participants access to sources of information that might assist their decision-making processes. For example, in a simulation on managing change, participants take over the life of the president of a division within a large manufacturing conglomerate. In the story, the other stakeholders in the simulation include the president’s staff of VPs, the COO of the conglomerate or the president’s boss, and four primary clients that the president will occasionally have reason to call. At any point in the decision-making process, participants can

- call a meeting with their direct reports in order to get their feedback on any particular issue
- walk around to each of the six major departments within the firm to access the “grapevine” and get a sense of what is happening on the shop floor
- call their clients to discuss a problem or to simply touch base.

This simulation allows participants to obtain information that will help them address the problems and decisions facing their simulated companies. The many choices for interaction offered in the simulation reminds participants that they may not always know all the answers, but that the information they need to optimize their decision making is usually within arm’s reach.
One of few things that are shared universally, across all cultures, geographies, nationalities, genders, and age groups, is appreciation of a good story. Stories can inculcate valuable lessons and urge us to take action.

The first step toward retrieval is engagement, and the story-based aspect of simulation provides that. A good story engages both the right and left sides of our brains. Students begin to envision the environment and the characters in the story and relate them to their real-life experiences. Each story element becomes a teaching tool that allows for issues to be brought to life and addressed. For example, a story told in a leadership development class can bring characters with different personality types to life, helping students explore ways to effectively manage this kind of diversity. Perhaps successfully managing different personality types is not a formal objective of the curriculum. However, telling this story allows the skill to be integrated in a more subtle way which can be debriefed or reinforced at a later time.

**Balancing outcomes and processes.**
Another issue that is both a cause and effect of mindlessness is what is referred to as *outcome orientation*, which is prevalent in the business world. One of the interesting paradoxes that managers face lies in planning for the long term and managing for the short term with respect to quarterly financial reports to shareholders and the like. This orientation has caused many managers to be totally focused on outcomes without any concern for process “as long as it gets done.”

In order to address this lack of consideration for process, scenarios can be designed such that the variables in the skills report are what drive the quantitative results. In fact, in some simulations, participants do not see ever see a financial report within the simulation. The idea is for them to understand that in reality it is process that will consistently drive results and improve outcomes.

**Providing common reference points.**
Another benefit that scenarios provide is a shared context for participants. Individuals or groups who face a particular decision after participating in a simulation enjoy a common reference point or context. This shared context opens the lines of communication between the individuals in the decision-making process, allowing them to form a common understanding of the issue at hand and how it can be resolved.

For an example of a scenario that is designed to engage participants’ emotions, see the sidebar *Case Study: The Mother-in-Law Scenario.*
They Enable “Failing Forward”
Scenarios provide opportunities for students to “fail forward,” or practice new skills and behaviors in a safe environment without fear of the repercussions of failing. However, nobody likes to fail, so even though it is risk free there is still the opportunity for emotional engagement. By having the opportunity to experience failure, learners can build the capacity to fix their mistake as they would in the real-life situation.

They Promote Critical Thinking
Critical thinking is itself an objective. Rather than providing a set of instructions for mindlessly performing a certain task, well-designed scenarios require participants to fully understand the situation they are facing, evaluate it, identify possible responses, and choose the most appropriate solution. When the participant engages in critical thought and makes a choice, in that moment the learning objective of critical thinking has been achieved.

See the sidebars Critical Thinking in Scenarios and Mindfulness in Decision-Making for ways that simulations can promote critical thought.

They Accelerate Time
One of the key limitations to learning from our real-life experiences is that the consequences do not always unfold right away, so it hampers our ability to connect the consequence to the action. Simulations allow the designer to accelerate time so that the learner can make a decision, implement it, and experience its consequences all within the same exercise.

They Provide Shared Context
Another benefit of scenarios is that participants will experience a shared context. As individuals or groups find themselves wrestling with a particular decision after undergoing a simulation, they have a common reference point or context. This shared context opens the lines of communication between the
individuals in the decision-making process, uniting their understandings and perspectives of the issue. As a result, participants who have shared in the simulation experience will be able to learn from each other and understand more clearly what is going on.

They Trigger Our Memories
Scenarios are effective in triggering retrieval because they place students into a context similar to their own. Scenarios enable two types of triggered remembering:

Context-based. Thoughtful use of the background and environment in a scenario can facilitate memory. For example, if the targeted issue relates to team management and in particular to managing a team meeting, then a scenario might take place in a room similar to where the student runs meetings with his or her real-life team, with a team size similar to what he or she is managing, and anything else that may serve as a recognizable element. This enables the participant to link the scenario to real life and vice versa.

Language-based. The language that is used in the scenario should be similar to what the students are accustomed to hearing in real life. According to the insight provided by John Medina in his book *Brain Rules*, whatever can be done to establish links through context will help to engage the students and make them feel comfortable, therefore facilitating the process of moving the learning from short- to long-term memory. See the sidebar, *Developing an Experience Portfolio*, for information on increasing participants’ retention through their experience portfolios.

Learning From and Building on Experience
Three components of experience design—consequences, narrative feedback, and the scorecard report—are particularly beneficial to learners. Each of these components plays a different role in helping students engage with the issue and learn the intended skills and behaviors.

Consequences. An issue is presented in a scenario and the decision options are strategically articulated to prompt critical thinking. The next step of the students’ learning can now be delivered in a variety of ways. The first is through consequences. The designer can author a reaction to the choice that was made in the context of the scenario. Through experiencing the consequence the students will gain insight into the approach they took and how it relates to the context.

Narrative feedback. Alternatively or in addition to consequences, the designer can write feedback on the choice that was made (either delivered immediately or delayed) that explains the issues and why the choice selected was good or bad.

The feedback can be as expansive or limited as fits the overall learning objective of the exercise, and can also be used to link to other elements (e-learning, synchronous module, and so on) within the learning program. The feedback explains the learning objectives that were being addressed by that particular scenario. It is then followed by a description of the effects of the decision that was made.

The scorecard. In writing any scenario, it is important to have a good understanding of the learning objectives, which define what the learners should be able to know or do as a result of the training. Learning objectives are captured in learners’ scorecards, which should in some way represent the tradeoffs that students considered when they were making their decision selections. In many contextual or interpersonal situations there are several options that need to be considered, and often the best decision may still have some negative consequence associated with it. The scorecard report provides insight into the specific issues that were addressed in the scenario and what effect the decision had on improving or detracting from the “score.” For example, in a leadership scenario, the best decision may improve your team while at the same time bypassing an agreed-upon priority. Or in a sales scenario, the best decision may strongly improve your relationship with a customer in the long term,
but not perfectly align with your manager’s short-term goals. By defining successful team or customer relationship management, we can easily demonstrate the tradeoffs in these scenarios and also provide opportunities for future debriefings on the issues.

Spaced Learning to Enhance Retention

As a designer, you must think about the nature of the experience you want the students to have over a prescribed period of time. A spaced learning approach, in which learning events occur over time and in different forms and modalities, has been proven to help learners retain and retrieve more information. Simulations and scenarios fit nicely into a spaced learning approach as they can be designed to achieve a specific learning objective, sometimes within 10 minutes or less.

There are a fair amount of options available to the designer who is blending an appropriate mix for the spaced learning program. Here is a simple list of those options:

- face-to-face workshops
- mobile support
- virtual workshops
- leader-driven interactions
- e-learning
- social networking
- coaching and mentoring
- performance support tools and job aids.

By taking a long-term view of the performance that is desired, you will be better equipped to select a blend of modalities that fits your budget and timeframe. Now that you understand how simulations can fit in with a spaced learning approach, let’s get into the basics of designing a simulation.
BASICS OF EXPERIENCE DESIGN

When beginning the scenario design process there are three key issues that designers need to keep in mind, whatever tools, methodologies, or modalities they are using:

Focus on building exceptional performers. This means that a training program should not be viewed as a "be-all or end-all" activity. It should give learners a foundation they can build on, for continually improving performance.

Don’t allow information overload. Often, we get caught up in the pressure to cram every possible learning item and issue into a particular program (and often delay deployment unnecessarily while attempting to do this). Instead, we should focus on first engaging the learners with a simple activity, and then gradually employing other forms and modalities to achieve the end goals in a “spaced” format.

Understand that everyone learns differently. We do not know when the lightbulb is going to go on for any particular student—for some students, it may not be during the training exercise at all. We run the risk of delaying deployment and also sub-optimizing the learning by trying to do too much at one time. By spacing the learning experiences we can set up an environment so when the “switch” is ready to be turned on, we can be there to do it.

Elements of a Good Scenario

Scenario development has a lot of overlap with movie scriptwriting. You don’t need to have extraordinary literary skills, but rather some insight into the work being done at the learner’s organization. Reality can be very compelling, so the materials for the scenario can be drawn directly from the workplace. Once the participants are engaged in the story, they will fill in any gaps that exist and even some that were not anticipated. Many of the elements of a good scenario are similar to the elements of a good story. They include:

Learning objectives. One must have an objective in mind that provides the basis and goal of the scenario or scenarios.

Settings. The objective provides you with some quick insight into the setting you ought to create. Should the scenario take place in an office? Hallway? Customer site? Shop floor? The idea is to consider the nature of the experience that the student needs to have and to design the scenario accordingly. Also, what additional elements need to be included to make the setting realistic? What tools or equipment might the participants deal with in this scenario?

Characters. Given the learning objective, the protagonist of the scenario should be fairly clear. If the scenario is about customer service, then a customer service representative might be the protagonist; if it is about supervisory training or leadership, then a supervisor might be the protagonist. Also, does the scenario call for interactivity? Who are the additional characters? Depending on the scope of the scenario, you may want to consider who else might be affected by the decision being made in the scenario. This helps illustrate the ripple effect that decisions can have, and helps participants learn about other areas of the business (and beyond) that are affected by their decisions. See the sidebar Developing Characters for more insight.

Plot. Now we get to the story itself—the reason for the scenario. Initially, the plot unfolds in a linear fashion, so that participants understand the scenario before they begin interacting with it. The learning objectives may call for an anchor story, which can have recurring story elements. See the sidebar Creating an Anchor Story for more information.

Scorecard. As a designer, you should be able to answer the question of how success will be measured in this scenario. Ask yourself, “How can I, as an observer, tell if the student got it right or wrong?” Correct demonstration of learned skills and behaviors should of course align with the learning objectives and the stakeholders’ goals. The elements
in a scorecard should also represent the tradeoffs that a student would consider when determining the correct path to follow.

**Decision alternatives.** Once the plot is developed, go back to identify appropriate decision points. Then develop an appropriate set of choices that prompt the student to critically assess the situation. Writing good choices is an art form. You do not want to present choices that are obviously correct or incorrect (and would not occur in a real-life situation). Review the scorecard for the program. Is there an obvious tradeoff between two or more items (such as team versus boss, customer versus company, or patient health versus time)? This kind of complexity makes for a richer and more memorable experience.

**Branching.** If the narrative is going to encompass more than one scenario, then branching will occur, so that participants can experience the consequences of each decision option. At this stage, however, it is important to recognize that not every choice needs a branch. Sometimes the power of the story allows the designer to create the illusion of complexity. See the sidebar on **Focusing Your Design** for more information on branching.

**GETTING STARTED**

Developing a simulation includes elements such as plot and characters that may be new to many designers. However, by concentrating on your learning objectives and the desired performance outcome, you can give focus to your simulation and provide a rich and engaging learning experience. When designing your scenario, follow this six-step framework:

**Step 1:** Identify the specific problem or issue that needs to be fixed.

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**CREATING AN ANCHOR STORY**

Story development is often a challenging aspect of designing scenario-based learning. The idea behind an “anchor story” is to create a story one time and then reuse and expand upon it as necessary.

Anchor stories also facilitate retention by allowing for some amount of repetition and **pattern matching**, which is another key strategy encouraged by John Medina in *Brain Rules*. When developing scenarios, designers need to account for the “ramping time” associated with introducing the story. But if the student is already familiar with the story, characters, context, and so on, then this time is considerably shortened and the student will be able to jump right in to the learning experience. Furthermore, all students who become familiar with the anchor story will have shared experience around it. This facilitates deeper and more effective communication around issues because participants will have these common reference points. Anchor stories can be used to enhance both the formal and informal communications in the organization through debriefings, team and company meetings, or social media.

Here are some elements to consider in designing an anchor story:

- Establish a back story that can be re-used to accelerate engagement, retention, communication, and retrieval practice.
- Identify recurring elements such as company, employees, products, customers, and competition. These elements may evolve over time and grow with your scenarios.
- Create a recognizable environment, but not one identical to the students’ organization.
- Use the anchor story in a number of ways, across different modalities. This helps establish context and depth.
- Build upon an existing anchor story if there is one in your portfolio.
**Step 2:** Envision the desired experience. What do you want people to experience when they go through the narrative? Is it a change in behavior? Is it the application of a new skill? Do you want to reinforce something they have been taught elsewhere? Or to allow them to fail forward in a safe environment? What is the outcome you are looking for?

**Step 3:** Determine the timeline in which this experience takes place. Is it during the course of an hour-long meeting? A day-in-the-life? A week-in-the-life? A year-in-the-life? This will provide some necessary context for the narrative and determine its scope.

**Step 4:** Define success. How is success going to be measured in the experience? What are the learning objectives? Who are the stakeholders and how are they affected by a successful or unsuccessful learning outcome? Is there financial impact or only interpersonal? By truly understanding the scorecard, we can identify root challenges and how to successfully overcome them.

**Step 5:** Add conflict. Learners need to face a simulated challenge and solve it as they would in a real-life situation.

**Step 6:** Finish the story. After you finish the core narrative, you will be able to go back later and add branches if you like. These elements do not need to be detailed or formalized at this point—you just want enough information to provide a framework.

Now, you should have a solid foundation on which you can build a simulation that is compelling and results in better retention and transfer.

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**FOCUSBING YOUR DESIGN**

One of the key stumbling blocks in using branching scenarios is the idea of the decision tree. While it sounds incredibly effective, actually creating a decision tree can be a process fraught with complications, leading to a poor result. Therefore, when considering branching scenarios, it is worth leaving the decision tree idea behind and thinking about three things:

1. What experience do my students need to have?
2. We are creating an experience, not the experience.
3. How can I use the power and engagement of the story?

By keeping these three things in mind a lot of unnecessary work can be avoided. Let’s break them down further.

First, by considering the experience the students need to have, you can limit the scope of your scenario and focus only on what’s necessary. For example, if the learning objectives contain 10 concepts that students need to master, remember that not all 10 of those concepts require decisions.

Second, in contrast with instruction, we cannot create a single simulated interaction that is going to cover all possible eventualities. If it is important for the student to be trained on each of the 10 options and their implications, it can either be done in a linked module that the student can refer to at a later point, or alternate paths of action can be discussed in the feedback.

Finally, if students are truly engaged with the story, they will want to see or experience what happens after they make a decision. This means that of the 10 choices, the designer may only need to write two branches, one for the preferred answer and one for all of the rest. Students only need to know that they made the preferred choice (or they did not) and the consequences can flow appropriately from that one branching.

As mentioned earlier, you can write the feedback with more detail and provide different insights based on the choices students made. This is much easier than designing multiple branches that continue to branch even further. In this way, we can create the illusion of complexity, and through the power of the underlying story, engage the student in the simplest decision-making scenario that is necessary for their development.
REFERENCES & RESOURCES

Books


Research
SCENARIO- AND SIMULATION-AUTHORING

This job aid is intended to be used as guidance for designers when working with subject matter experts (SMEs) to author a scenario-based learning program. In order to capture and deploy the most realistic and effective scenario possible, SME knowledge has to be transferred to the designer. This job aid will provide a process to capture and transfer that knowledge, through two design approaches. Approach A is an analytical approach. Answering the questions below will provide enough data to author a scenario. Approach B is a storytelling approach. Simply relate what happens in a typical day in the life of the person whose job is recreated in the scenario. Please note that names, situations, and specifics should be changed to protect the identity of the persons involved, and disguise the real-life situations if they are described to provide insight to the scenario.

You can use either Approach A, Approach B, or a combination of both to prepare for your authoring discussions with SMEs.

**Approach A: Analytical**

**What do you want to accomplish through simulation?**

1) What do you want people to learn?

2) What do you want them to do differently?

3) What knowledge do you want to capture?

4) What current behaviors do you want to reinforce?

5) Who is the main character in the scenario?

**What are the measurable results?**

1) How would you define them?

2) How would you measure them?
Describe the situation that you want simulated in detail. (Please assume that we know nothing and you have to educate us.)

1) Describe the situation. ____________________________________________________________

2) Please indicate the correct, best, or optimal path through the situation to be simulated. ____________________________________________________________

3) Please indicate other paths and the results or consequences of pursuing them during the simulated situation. ____________________________________________________________

4) What happens when things go exactly as anticipated? ____________________________________________________________

5) What happens when things go differently than anticipated? ____________________________________________________________

6) What are the details of potential derailments? ____________________________________________________________

7) How can students recover when they realize that they have made the wrong decision? ____________________________________________________________

Who are the stakeholders in this training initiative?

1) How do they interact with one another? ____________________________________________________________

2) Who do the principal participants interact with on a regular basis? ____________________________________________________________

3) Who do the principal participants interact with on an infrequent basis? ____________________________________________________________

4) How might each stakeholder impact the participant’s ability to get the job done? ____________________________________________________________
Do you have a model, recommended process, or procedure that you want people to follow?

1) If the answer is yes, please provide a description and example of how it works.

2) If the answer is no, do you have a preferred model, process or procedure that you want us to embed in the scenario; or can we choose generic examples?

Approach B: Storytelling

A Day in the Life:

1) Describe a day in the life of the person whose job we will simulate.

2) What happens in a typical day?

3) How did the day begin? What happened as the day progressed?

4) How did the person interface with the issue being addressed?

5) Who does the person interact with on a regular basis?

6) To whom does the person report?

7) Who are the person’s counterparts in other relevant parts of the organization? What are they doing?

8) How do the person and his or her peers work together?
9) What are examples of situations that have been handled well?

10) What are examples of situations that could have been handled better?

11) How is the team functioning?

Scenario Development Process
Create a first draft of the scenario and forward it to the SMEs for review. Hopefully, the first draft will be in good shape, but don’t expect it to be perfect. Hold some follow-up reviews to expand the storyline and ensure that all aspects of the design are accurate. This approach can be used at the start of any training design.
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