

Center HealthCare Learning | Windows | Google

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Center Multimedia Basics

**CERNER**  
All Together

Stories

**The Oncologist**

- Getting Started
- The Patient 17 minutes
- The Oncologist 27 minutes
  - The Oncologist
  - EMR in the Room
  - After Hours Phone Call
  - More Information
  - The Oncologist's Day
  - Mr. Johnson's Case
  - Dr. Silverman
  - Discharge Orders
  - Miscommunication
  - Angela's Lab Results
  - Herbie Talks to Dr. Toomy
  - Dr. Granger
  - Dr. Grady and Dr. Toomy
  - Committee Meeting
- The Nurse 16 minutes
- The Radiologist 27 minutes
- The Medical Technologist 7 minutes
- The Patient Accounts Manager 3 minutes
- The Pharmacist



Captivate software Try It

Standard Assessment    Conversation Branching    Multiple Game Engines

Arcade Game - Whack a mole    Adventure & Exploration

Simple ← → Complex

User Interface

Simulation Elements

Graphics & Animation

Narrative Elements

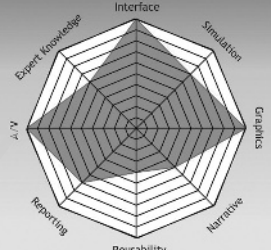
Reusability

Reporting

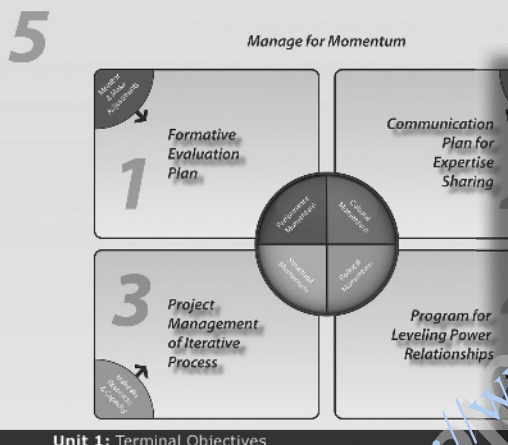
Audio/Video Assets

Expert Knowledge

Show Estimates



Overall Complexity: 54%



**Consideration #13**

Distance courses work best when the content is informative and knowledge based. The more interactive/hands-on the content is, the more difficult/costly it is to do from a distance.

**Question**

Is the information to be presented primarily informative and/or knowledge based, or performance based and/or hands on?

Informative and/or knowledge based

Performance based and/or hands on

Consideration 13 out of 16

Next

**Unit 1: Terminal Objectives**

**A** audience    **B** behavior    **C** catalyst    **D** degree achieved

One of the most important lesson you learn in this class is that "less is more". "Less" usually does take more work, and the diamond design process you learn about in this unit teaches you why. This unit gets you started doing the design process, but just part of the process. The process is somewhat complex, so we are starting with the most important part of the process first, the usability testing part of the process. By completing the unit activities you will also demonstrate the technical skills of posting a visual justification in the designated class area.

Chapter 2, Getting Started, this mini-lesson, and the unit activities will give you the information and practice needed to:

- conduct a usability test and justify the decisions you made
  - mini-lesson self-check
  - discussion
  - unit quiz
  - visual project
- analyze how elements of ACE are present during completion of a visual project
  - mini-lesson self-check
  - discussion
  - unit quiz
  - visual project
- recognize the importance of the diamond design process
  - mini-lesson self-check
  - discussion
  - unit quiz
  - visual project
- detect the presence of extraneous design elements
  - mini-lesson self-check
  - discussion
  - unit quiz
  - visual project
- post the usability portion of a visual justification paper in a blog
  - mini-lesson self-check
  - discussion
  - unit quiz
  - visual project

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Center Multimedia Basics


**CERNER**  
All Together

Stories

**The Patient: Dr. Granger**

Treatment > Evaluation > Assessment > Information > Follow Up > Scheduling

39 words



1:14

# Ideas for the Design and Development Process

This chapter emphasizes ideas that can improve the design and development process, which can make building online and technology-enhanced learning easier and less frustrating for all involved. Typically, building online and technology-enhanced learning involves numerous people (subject-matter expert, designer, developer, graphic artist, and so forth) and it's easy to miscommunicate or do other things that necessitate rework (no fun!). The ideas in this chapter make these processes more efficient and effective in order to reduce wasted effort and improve results.

I'm a strong proponent of good processes and communication and find they save sanity and resources. In the long run, it is extremely worthwhile to spend time and effort building (and updating as needed) good processes with stakeholders, gaining consensus on how they will be used, and helping people to become proficient with them.

## Aligning Objectives

### The Big Idea

#### What

This idea shows how using a simple process to write and align instructional objectives will help assure that strategies, assessments, and information presentation are on target and aligned with instructional objectives.

#### Why

Following the color-coded ABCD chart shown in Figure 1.1 helps you keep your objectives in mind while planning instructional elements. If you are working with people who are not used to instructional design, this may also make the process of writing objectives more meaningful to them.

### Use It!

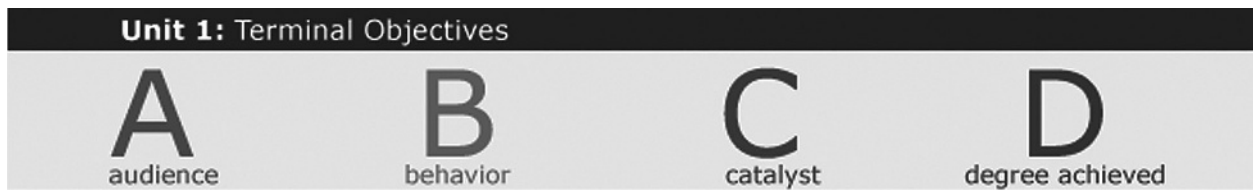
#### How

Writing meaningful objectives is easier when you follow an ABCD approach: **A**udience, **B**ehavior, **C**atalyst, **D**egree achieved.

The letter "A" stands for audience. Ask: Who is your learner? What about your learner is important for you to think about while you are designing? For example, if your learners are adults, you may not want to use lesson examples and graphics geared toward a teenage audience. And if they include novices, it will be important to explain terms that may not be familiar to them.

The letter "B" stands for behavior. Ask: At the end of the lesson what do you want the learner (the "a"udience) to do, think, or feel? Thinking and feeling are not directly observable, so you need to describe how you want the learner to think or feel and then translate those descriptions into something the learner does that reflects the thinking or feeling. For example, if you want the learners to simply notice something, you

**Figure 1.1. ABCD Example for One Lesson**



One of the most important lesson you learn in this class is that "less is more". "Less" usually does take more work, and the diamond design process you learn about in this unit teaches you why. This unit gets you started doing the design process, but just part of the process. The process is somewhat complex, so we are starting with the most important part of the process first, the usability testing part of the process. By completing the unit activities you will also demonstrate the technical skills of posting a visual justification in the designated class area.

Chapter 2, Getting Started, this mini-lesson, and the unit activities will give you the information and practice needed to:

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>■ conduct a usability test and justify the decisions you made</li> </ul>                   | <input checked="" type="checkbox"/> mini-lesson self-check <input type="checkbox"/> discussion<br><input type="checkbox"/> unit quiz <input checked="" type="checkbox"/> visual project |
| <ul style="list-style-type: none"> <li>■ analyze how elements of ACE are present during completion of a visual project</li> </ul> | <input type="checkbox"/> mini-lesson self-check <input type="checkbox"/> discussion<br><input checked="" type="checkbox"/> unit quiz <input type="checkbox"/> visual project            |
| <ul style="list-style-type: none"> <li>■ recognize the importance of the diamond design process</li> </ul>                        | <input type="checkbox"/> mini-lesson self-check <input type="checkbox"/> discussion<br><input checked="" type="checkbox"/> unit quiz <input type="checkbox"/> visual project            |
| <ul style="list-style-type: none"> <li>■ detect the presence of extraneous design elements</li> </ul>                             | <input type="checkbox"/> mini-lesson self-check <input type="checkbox"/> discussion<br><input checked="" type="checkbox"/> unit quiz <input type="checkbox"/> visual project            |
| <ul style="list-style-type: none"> <li>■ post the usability portion of a visual justification paper in a blog</li> </ul>          | <input type="checkbox"/> mini-lesson self-check <input type="checkbox"/> discussion<br><input type="checkbox"/> unit quiz <input checked="" type="checkbox"/> visual project            |

Source: Linda Lohr

describe how they notice. Do they label what they notice, or do you want them to make a statement about what they notice? Feelings are the hardest type of objectives to write because feelings are related to, but different from, thinking. Feelings involve judgment, emotion, values. Words that

describe feelings include “prefers” and “models.” Writing a feeling objective requires that you describe what “prefers” looks like. If, for example, your objective is to instill a value, such as a value for healthy eating, then your objective describes what healthy eating looks like. You might write a “feeling” objective related to healthy eating as, “The learner selects dark green vegetables.”

When you write out the B statements, begin each one with a verb that describes intended learner actions, feelings, or thoughts. The B statements in Figure 1.1 start with these words “conduct, analyze, recognize, and detect.” Avoid the verb “understands” because it is not specific enough and it is too “squishy” to measure.

The letter “C” stands for the learning catalyst. Think of C as your instructional strategy for these behaviors. The strategy is how you plan to grab the learner’s attention so that the “R” things can occur. The catalysts in Figure 1.1. refer to chapters, mini lessons, and unit activities. The catalysts are those things that you do to spark learning or interaction.

The letter “D” stands for degree of achievement. Here you identify how you assess whether the listed behavior occurred. Self-check questions, quizzes, discussions, and projects are used to assess whether the behavior is present. To make sure that you match assessments to behaviors, create a checklist next to each “B” statement, as you see in Figure 1.1. If your B statement does not have any of the items checked, you probably need to go back and create a new C (catalyst) or B (identified behavior). The example shown is for a higher education lesson, but a similar approach could be used for online training content. In this case, the assessment elements might include quiz questions (multiple choice, drag and drop, etc.), branched scenario, a tweet response, or something else.

When you are done, look them over. Are all critical behaviors listed? Are there adequate catalysts for these behaviors to occur? Are they the right type? Do the assessment methods align with the behaviors to be assessed? Do you have a balance of assessment methods? The list of “D” items that you create also tells you about the catalysts used. You should see how the “C” items (such as the mini-lesson and quiz) become more specific when you describe how these items will be assessed.

Writing objectives is a back and forth process. You will find that you may jump around trying to get the B, C, and D actions aligned. Using the strategies listed should get you off to a good start.

*Technologies used:* document

## Adopt or Adapt

This idea can be adapted for any content. Although those who regularly design instruction may not feel that they need to follow this type of process, doing so is likely to result in courses where the content, activities, and assessments are better aligned.

## Attribution

Submitted by Linda Lohr, professor, University of Northern Colorado, Greeley, Colorado, USA

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Linda Lohr is a professor at The University of Northern Colorado, where she teaches instructional design. She is the author of *Creating Graphics for Learning and Performance* and has illustrated a children's book. Linda is currently co-authoring an instructional design textbook to support teaching and learning visually.

## From Topics to Tasks

### The Big Idea

#### What

This idea provides a simple format that is useful for developing a very high-level design based on tasks rather than topics. This is especially useful at the initiation of an online learning course, when analyzing how to put existing content into an online learning format or when deciding what content needs to be developed from scratch.

#### Why

Topic-based instruction often doesn't "connect" well to learners' worlds. Topics seem to float outside of the real world, but real-world tasks are inherently meaningful because they are directly associated with the things that learners do.

### Use It!

#### How

When working with subject-matter experts (SMEs) or other stakeholders, one of the first orders of business is to determine what the instruction should "cover." Instruction is almost never able to "cover" everything, and this is especially true with self-paced online instruction. These modules often need to be as concise as possible.

In order to build instructional modules that are concise *and* relevant, Shank uses a short form to analyze the *most important* elements that need to be included. She shares the following form (one example is filled in).

## Module: Paid Leave Procedures

A. Topic	B. Real-world task (what the learner does in the real world)	C. Challenges of doing this task	D. Resources used for completing this task	E. How the completion is assessed in the real world
1. Paid leave requests	Complete paid leave request	Determine whether paid leave is available Determine type of paid leave	Pay stub HR intranet Supervisor	Supervisor has adequate and accurate information to approve or reject request
2.				
3.				

Shank starts with topics, because that is a familiar starting place for most SMEs. Then she asks for the things that learners *do* in the real world related to this topic. (Real-world tasks are what the module centers around, but topics are listed to help subject-matter experts get to these tasks.) For each task, the SME then provides information about the challenges of doing each task, the resources used when doing the task, and how the completion of the task is assessed in the real world.

Designers design modules around the *tasks* that learners do, rather than around topics, in order to be relevant and to concentrate on the key things that learners need (especially critical when conciseness is important). The challenges and resources inform the most critical activities and interactions. And the real-world assessments inform the online assessments.

This very high-level design step is a starting place, and more information is obviously filled in after this first step. The importance of this first step, though, is to help shift the focus from topics to tasks and gain critical information to inform next steps.

*Technologies used:* documents or forms

## Adopt or Adapt

Although this idea is primarily used to start the module design process for self-paced online learning, it could be adapted for use in synchronous and higher education online courses because the same elements are needed. Learners are generally more engaged in courses that focus on the tasks they are involved in, so using this approach across the board can be valuable.

### Attribution

Submitted by Patti Shank, president, Learning Peaks LLC, Denver, Colorado, USA

Contact: [patti@learningpeaks.com](mailto:patti@learningpeaks.com) or [www.learningpeaks.com](http://www.learningpeaks.com)

Two people have had a major impact on this idea: Joanna C. Dunlap, associate professor and faculty fellow for teaching, University of Colorado–Denver, and Dave Ferguson, The Strathlorne Group, Washington, D.C.

Patti Shank is the president of Learning Peaks LLC, an internationally recognized instructional design consulting firm that provides learning and performance consulting and training and performance support solutions. She is listed in *Who's Who in Instructional Technology* and is an often-requested speaker at training and instructional technology conferences. Patti is quoted frequently in training publications and is the co-author of *Making Sense of Online Learning*, editor of *The Online Learning Idea Book*, co-editor of *The e-Learning Handbook*, and co-author of *Essential Articulate Studio '09*.

## Online? Yes, No, Maybe So

### The Big Idea

#### What

This idea provides a decision tool used to analyze whether an online approach makes sense for instructional content for a given instructional situation.

**Figure 1.2. Introduction Screen**

**Welcome to the CL&PD distance learning course decision aid**

This decision tool is designed to help you determine whether your course content is suitable for delivering in Sandia's distance learning environment. At this point in time, we are just focusing on the remote site delivery options of videoconferencing or videostreaming.

Prior to making this decision, it is important that you know your target audience and have a solid understanding of the course content.

Each course should be considered individually as to its suitability to be offered via distance learning.

A distance learning program works well when the following four elements are in place:

- Consistent, effective means of transmitting and receiving information (Operational Criteria),
- A motivated group of learners (Participant Criteria),
- A motivated instructor/trainer (Instructor Criteria), and
- Effective training materials appropriate for the distance learning application (Instructional Design Criteria).

The following tool covers the criteria that should be considered when determining whether a course is suitable for distance learning.

**Begin** →

Source: Elsa Glassman and Peter Heald

## Why

Online learning is not suited for all types of learning or for all instructional situations. This online interactive decision aid is used to help stakeholders assess whether putting their training content online makes sense.

**Figure 1.3. Question Screen**

**Consideration #13**

Distance courses work best when the content is informative and knowledge based. The more interactive/hands-on the content is, the more difficult/costly it is to do from a distance.

**Question**

Is the information to be presented primarily informative and/or knowledge based, or performance based and/or hands on?

Informative and/or knowledge based

Performance based and/or hands on

Consideration 13 out of 16 Next

Source: Elsa Glassman and Peter Heald

**Figure 1.4. Results Screen**

### Results

Based on your answers to the questions, it looks like your course is not suitable for delivery via distance learning. We identified the following issue(s) as show stopper(s):

- Review instructor contract and renegotiate if possible
- Number of learners is not optimal; consider travel by instructor or students
- The availability of technical support at all sites

For corporate-managed courses, please contact the appropriate CL&PD manager to discuss other delivery options:

For courses in this category:	Contact:
Technical & Compliance	<a href="#">Belinda Holley</a>
Business & Professional Development	<a href="#">Linda Logan-Condon</a>
Leadership & Management	<a href="#">Anna Mckee</a>

Please realize this aid is meant to help you understand the issues involved in deciding on a delivery method. The final decision is made by the course development team, and depends on many factors: the project goals, budget, schedule, competencies of staff and learners, the assessment, evaluation, and tracking requirements, etc.

[Print](#) [Restart](#)

Source: Elsa Glassman and Peter Heald

**Use It!**  
How

Glassman and Heald created the web-based decision aids shown in Figures 1.2, 1.3, and 1.4 to communicate major decision-making criteria

and thereby help non-experts determine whether it makes sense to proceed with putting instructional content online.

Glassman and Heald found that using this aid improves the appropriateness of requests for service from their online learning services team, which helps the team operate more efficiently. It reduces the amount of time the team spends on initial scoping meetings to determine whether a given project is suitable for online delivery.

The text for the entire tool is provided below.

## Online Instruction Decision Aid: Is Web-Based Appropriate?

### *Planning Document*

*Instructions:* This aid will help you begin to determine whether your course content is suitable for online training. To best use this tool, you need to know who your audience will be and have a solid understanding of your content.

Fifteen considerations for putting a course online are listed, followed by a question that will help you assess your content in regard to that consideration. Read the consideration, then answer the question *with a single best answer*. At the end of the questions, you will add up the numbers next to your answers and gain some feedback about how suitable your content is for web-based delivery.

Issue/Question	Criteria	Rating	Consideration
1. How many organizations are impacted by this training?	One Multiple Lab-wide	0 2 3	As your content needs to reach more learners across more organizations, classroom-based training becomes more costly and difficult, while the cost and effort for online instruction stay the same.
2. Where are the learners located?	All at one location At both NM and CA Include remote sites	0 2 3	Online instruction can go across the world as easily and it can go next door. With classroom-based instruction, the more spread out the learners, the more difficult it is to reach them all.
3. Is the content better suited for collaborative/team or individual learning?	Collaborative/team Individual	-2 3	While it is possible to have collaborative learning via an online course, typically these types of interactions are better suited for classroom-based learning.
4. Do the learners have adequate computer skills/web literacy?	Yes No	1 -3	If the learners do not have the computer skills they need to use and interact with computers, being successful with online instruction is more difficult.

(continued)

Issue/Question	Criteria	Rating	Consideration
5. How frequently will there be changes to the course content?	No changes anticipated Plan to update yearly May need to update several times a year	0  1  2	Updates to content can be immediately incorporated into an online course and thereby be immediately accessible to learners.
6. Is there a need to allow learners to move at their own pace through the content?	Yes  No	3  0	Classroom instruction has to move with the "average" learner, which leaves slower learners behind and frustrates faster learners. Online learning allows everyone to move at his or her own pace.
7. How important is it for the content to be available immediately or all the time?	Critical Somewhat important Not critical	3 2 0	Unlike instructors, online training never sleeps and can be available at any time and anywhere.
8. What type of skill is being taught?	Knowledge/awareness Procedural Interpersonal Hands-on/performing	3 2 1 -1	Online instruction works best when the content is informative and knowledge-based. The more interactive/hands-on the content is, the more difficult/costly it is to do online.

Issue/Question	Criteria	Rating	Consideration
9. How important is guaranteed consistency of content and/or presentation?	Critical Somewhat important Not important	3 2 0	Instructors' presentations can change slightly from day to day. With online instruction, every learner has the same presentation, which can be very important when dealing with compliance content.
10. What type of access to, or feedback from, the subject-matter expert does the learner need to be successful?	Immediate Delayed None	-3 0 1	Even though the course is available 24/7, it does not mean that a subject-matter expert will be. Learners can email questions, or post messages on course-related discussion boards, but if your content requires immediate feedback from an expert, online training might not be the best tool.
11. What is the availability of qualified instructors for this course?	Very limited Somewhat limited Not an issue	3 2 0	Good and knowledgeable instructors can be hard to come by. Once online training is built, it is available to as many learners as need it.

(continued)

Issue/Question	Criteria	Rating	Consideration
12. Do your learners have access to Sandia's restricted network (SRN)?	None have access Some have access Most have access All have access	-3 -2 2 3	Our courses require access to Sandia's restricted network (SRN), so if access is not available, online instruction may not be the best option.
13. Is there a need for automatic test scoring and tracking answers to questions?	Critical Somewhat important Not necessary	3 2 0	Online instruction can track how every single learner answered every single question and automatically compile reports.
14. Are there any resources that the learners need access to that cannot be put online?	Yes No	-3 2	If you have resources that learners will need that are not able to be accessed online (e.g., URLs, printed material, examples, subject-matter experts), this could be an issue to using online instruction.
15. How many learners a month need this training?	Fewer than 5 Between 5 and 25 More than 25	3 1 2	Holding a face-to-face class for a couple of learners per month can be costly and inefficient and can also be a logistical nightmare. Online training is scalable and can reach as many learners as you have, all for the same costs.

Add up the numbers next to your answers.

### Scoring

- Less than 20: Reconsider putting instruction online.
- Between 20 and 30: Online training delivery may not be the only (nor best) option.
- Greater than 30: Online training delivery is probably a good fit.
- It is important to remember that this aid is meant to help you begin to understand the issues involved in deciding on a delivery method and that the final decision depends on many factors. You also need to take into account the project goals, budget, schedule, competencies and skills of staff and learners, the assessment, evaluation, and tracking requirements, as well as other factors.

*Technologies used:* HTML and Flash

### Adopt or Adapt

This idea can be adapted for your own situation. For example, your department may want to add other criteria (such as having a desktop computer or experience with taking online courses) or change the values associated with each answer (each answer was weighted between 0 and 3). It can also be adapted to provide decision criteria for other common decisions, such as when to include multimedia elements or whether a synchronous or asynchronous approach makes the most sense.

### Attribution

Submitted by Elsa Glassman, corporate online learning and e-learning services team lead, and Peter Heald, multimedia developer on e-learning services team, Sandia National Labs, Albuquerque, New Mexico, USA

Contact: [ejglass@sandia.gov](mailto:ejglass@sandia.gov) and [pheald@sandia.gov](mailto:pheald@sandia.gov)

Also involved: Jared Pearce, e-learning services team member, and Leslie Gardner, e-learning services team member, Sandia National Labs

Elsa Glassman, a Certified Performance Technologist, has more than thirty years of experience applying her expertise to programs in public education, telecommunication, financial services, and government. In response to a need for more effective and efficient ways to deliver training across the labs, she launched a campaign for e-learning. As a corporate change agent, she founded the Corporate Online Learning Team to leverage organizational expertise in online learning, led a multidisciplinary team to put Sandia's first corporate course online, and was instrumental in creating and implementing corporate online learning standards. Since 1997, she has served as Sandia's e-learning services team lead.

Peter Heald holds a master's degree in instructional technology, with an emphasis in adaptive learning systems and game-based learning. He has worked in the field of e-learning for twelve years, designing, developing, and implementing interactive multimedia-based training. Highly experienced in all technical aspects of multimedia, he is accomplished in Flash programming, streaming video and audio production, LMS conductivity, and the design and programming of interactivity. Peter is currently a multimedia developer on the e-learning services team at Sandia National Labs.

## Idea Title: Complexity Analysis

### The Big Idea

#### What

Having a discussion about the desired complexity level for a finished project at the beginning of an online learning project can bring clarity to elements of the project that typically may add cost, time, and resources. Aleckson's Interactivity Calculator (Figure 1.5) is a tool that can be used to anchor this discussion.

#### Why

Knowing what level of complexity is needed and desired up-front helps all stakeholders understand the cost/time/resource implications of more complex projects. It can also jump start a critical discussion about the elements that will add the most instructional value.

### Use It!

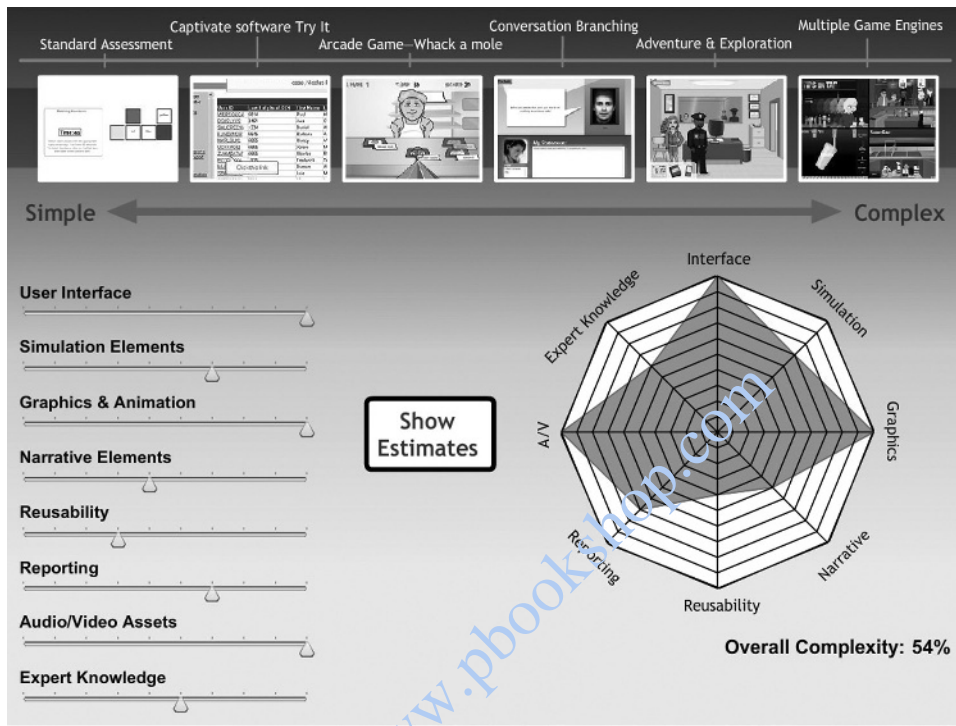
#### How

Stakeholders often do not understand the implications of additional complexity. Designers and developers need a way of communicating with stakeholders about the investment necessary to achieve more complex and higher levels of learner engagement. Defining the components and the cost, time, and resources that go along with them can improve decisions made, increase collaboration, and lead to increased budget, time, or resource allocations (or stakeholder acceptance of less complexity and reduced budget, time, or resource allocations).

The U.S. Army uses a five-level system to help their design and development teams describe the level of investment that is needed for a particular online learning project. The following is an estimate/adaptation of these five levels.

- *Level One:* "Page-turner" materials
- *Level Two:* Drag-and-drop, sequencing, and similar types of Flash activities every five pages

**Figure 1.5. Interactivity Calculator**



Source: Jon Aleckson

- *Level Three:* Adaptive features and branching depending on learner choices
- *Level Four:* Exploratory features combining multiple types of complex learning activities
- *Level Five:* Complex simulation or serious games such as a flight simulator

Aleckson's team found that, in order to define the effort it takes to create more complex online instructional materials, they needed to analyze

each component that increased complexity. They created the Interactivity Calculator for this purpose.

The components that are analyzed using the Interactivity Calculator include:

1. *User Interface*: A complex user interface increases complexity and may require additional graphics and development resources.
2. *Simulation Elements*: Simulations require context (story, background, graphics, etc.) and this typically results in additional writing, graphics, and programming efforts.
3. *Graphics and Animation*: Adding characters, backgrounds, or animation requires more graphic design and programming effort.
4. *Narrative Elements*: Writing dialog requires specialized writing effort, and narration may involve voice-over talent and multiple retakes.
5. *Reusability*: Items designed for reuse may require additional design and programming effort.
6. *Reporting*: The need for more complex data and reports requires additional programming effort.
7. *Audio/Video Assets*: Adding audio and video requires specialized skills and equipment and typically requires multiple retakes.
8. *Expert Knowledge*: The more complex the instruction, the more time is typically needed from subject-matter experts and programmers.

Each of these components can be more or less complex. More complexity in multiple components ups the complexity of the project as a whole. All increases in complexity in each component may impact complexity in other components and impact costs, resources needed, and time.

*Technologies used*: web programming

## Adopt or Adapt

Consider using Aleckson's Interactivity Calculator or developing one of your own (based on the components that are typically manipulated in your projects) and using it at the front end of a project to help stakeholders see the connection between each of these elements and cost, time, and resources needed. Your calculator doesn't have to be web-based. A paper model may work just as well.

## Attribution

Submitted by Jon Aleckson, CEO, Web Courseworks, Ltd., Madison, Wisconsin, USA

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Jon Aleckson has managed e-media development for over thirty years and is conducting his doctoral research on increasing collaboration with experts to enhance online learning and professional development programs for the Credit Union National Association, McDonald's Corporation, the World Anti-Doping Agency, and the Children's Hospital of Wisconsin. His company, Web Courseworks, Ltd., creates all types of online learning from self-paced tutorials to online games. Jon is an annual session speaker at the eLearning Guild's Learning Solutions Conference, ASTD, and the American Society of Association Executives. Jon writes a blog called Managing eLearning that can be found at [www.webcourseworks.com/blog](http://www.webcourseworks.com/blog).

## Frustration Reduction Checklist

### The Big Idea

#### What

Online learning has numerous benefits, but it's easy to forget that there are challenges for learners for learning online as well. We should reduce as many of these challenges as possible. A checklist for reducing the typical frustrations of online learning is provided in this idea.

#### Why

If we don't take steps to reduce frustrations, it's harder to learn. Bad idea.

### Use It!

#### How

It's hard to learn when the materials learners have to use, access to the materials, or learning processes get in the way of learning. To remind her of common frustrations that learners face when using online instruction, Shank created a frustration reduction checklist that she uses when evaluating her own or others' online instruction.

Shank shares the following checklist. All of the items may not be applicable in all online learning situations.

## Checklist for Online Learning

Elements	Y/N	Suggested Fix(es) if N
Minimum hardware and software requirements are listed.		
Learner can self-assess that needed technologies are working.		
Technical support is provided prior to and during event.		
Clear and concise "getting started" information is provided.		
Learner expectations are listed.		
Clear instructions are provided.		
Exemplars for expected deliverables are provided.		
Navigation is intuitive and easy to use.		
Persistent navigation is provided for frequently used items/pages.		
Screens are uncluttered.		
Text transcript of narration is available.		
Navigation shows where learner is.		
Organization of materials is clear and consistent.		
Frequently printed materials are available in printable format.		
No competing or extraneous media are used.		
All media works as expected.		
All links work as expected.		
Callouts and annotations are used to focus learner attention as needed on complex screens.		
Conventions (such as buttons and links) act as expected.		

Shank recommends the following when using the checklist:

- Consider having people who didn't design or build the materials test them because those familiar with the program cannot easily judge whether the materials are frustrating (since they understand them because of their familiarity).
- Give testers a list of tasks to do (for example, "Find the assignment that is due after Unit 2") and see whether they can do them without getting lost. If they get lost, the navigation isn't intuitive and should be fixed.
- Watch the faces of people testing the program. If testers look frustrated or you have to explain what to do, it's frustrating and requires a fix.
- Delete and add your own elements to the checklist.

*Technologies used:* document

## Adopt or Adapt

This idea could be adapted for all kinds of online materials, from information on a company intranet to instructional materials. The elements can be adapted for synchronous, asynchronous, and higher education online courses.

## Attribution

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Patti Shank is the president of Learning Peaks LLC, an internationally recognized instructional design consulting firm that provides learning and performance consulting and training and performance support solutions. She is listed in *Who's Who in Instructional Technology* and is an often-requested speaker at training and instructional technology conferences. Patti is quoted frequently in training publications and is the co-author of *Making Sense of Online Learning*, editor of *The Online Learning Idea Book*, co-editor of *The e-Learning Handbook*, and co-author of *Essential Articulate Studio '09*.

## Better Collaboration with Your Subject-Matter Expert

### The Big Idea

#### What

Creating highly interactive online learning activities, tutorials, games, or simulations requires a team effort. This requires an engaged subject-matter expert (SME), who wants to provide the right information and add to the team, rather than simply provide a content dump.

#### Why

Having an engaged and enthusiastic SME improves the quality of the final deliverable. This requires two-way communication and expertise-sharing, because the SME needs to understand enough about the design and development process to provide what is needed and the team needs appropriate insights about the content in order to make the content engaging and worthwhile.

### Use It!

#### How

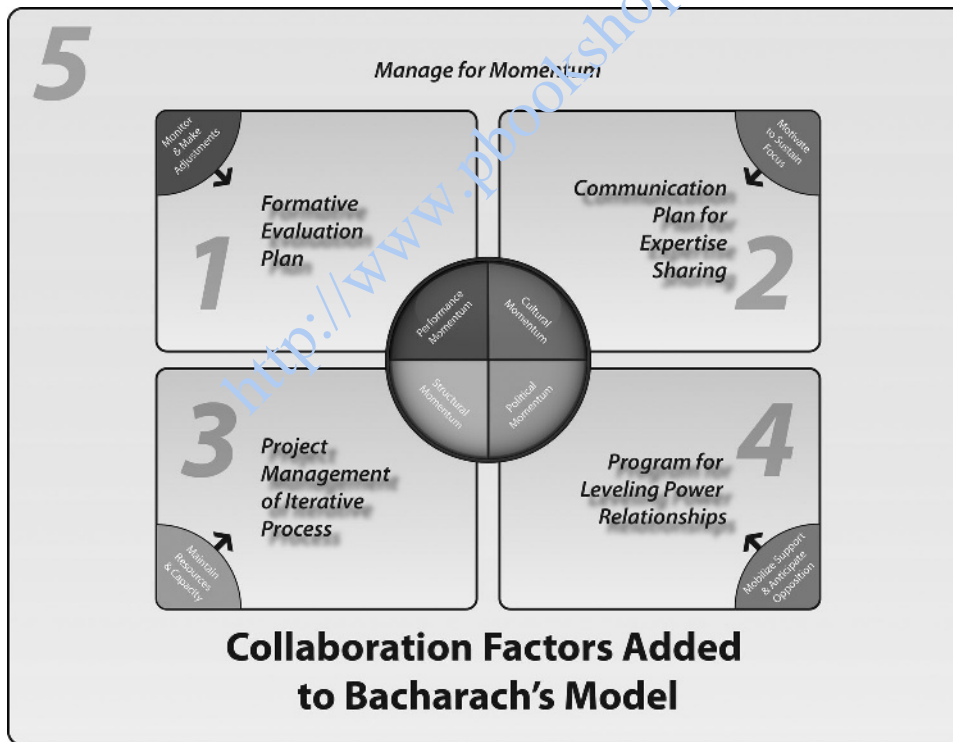
When developing complex online content, such as branched scenarios, games, and simulations, collaboration among the team members is truly critical since tacit knowledge (knowledge that is difficult to articulate and cannot easily be codified into simple rules) needs to be programmed into the content and activities. This requires the SME to share situational decision-making knowledge such as frequently encountered attitudes that need to be overcome for success. Figure 1.6 shows Aleckson's model overlaid on Bacharach's.

Aleckson's Five Factors for Good Collaboration (adapted from Bacharach, 2006) follow:

1. Project management
2. Expertise-sharing
3. Formative evaluation
4. Power Leveling
5. Project momentum

1. **Project management.** Developing online learning is typically an iterative process and, if it is not well managed, it can easily lead to communication problems and unnecessary work and rework. Make sure that there is a seasoned team leader who assembles the right people and manages resources,

**Figure 1.6. Five Factors for Good Collaboration Overlaid on Bacharach's Momentum Model**



Source: [www.webcourseworks.com/showcase/game-calculator](http://www.webcourseworks.com/showcase/game-calculator), Web Courseworks

tasks, and interdependencies. Aleckson recommends the Agile software development method as an appropriate process for online learning development. “Well managed” means providing clear expectations, communicating schedules and deadlines, and keeping everyone in the loop. A well-managed process respects the SMEs’ (and everyone else’s) time.

Aleckson especially recommends two project management tools that improve communication and coordination:

- A collaborative project site to hold files, schedules, meeting notes, and communications
- Synchronous communication tools such as web conferencing so face-to-face time can be used as needed

**2. Expertise sharing.** Design and development teams often expect the SME to be willing to learn about their processes. But does the team also demonstrate a high level of interest in the SME’s content area and work? To share expertise both ways, SMEs must understand team roles and expertise and team members have to understand the SME’s content and work.

**3. Formative evaluation.** To increase your team’s reputation for quality and to appropriately involve your SME, make a commitment to formative evaluation (evaluation that finds and fixes weaknesses) so quality is assessed on an ongoing basis while the project is under development. Make sure the SME is involved in user testing because this increases his or her commitment to quality and improves understanding of learners’ needs.

**4. Power leveling.** Creating an environment that empowers the team and encourages creativity makes collaboration more fun and fruitful. Promote professional development that positions your team members as experts. Equip the team with tools and templates that make the day-to-day work more efficient. Consider how to upgrade the status of your staff and department, including changes to the office environment and business cards and use of titles like lead game designer or information designer versus the traditional instructional designer title. This, in turn, helps SMEs realize that they are dealing with competent experts in the field of interactive information design.

**5. Project momentum.** SMEs sometimes complain that projects are stuck. Nothing is more frustrating to an SME than to put forth a ton of effort and not see that effort result in forward movement. Paying attention to the first four factors helps the team move forward and complete the task at hand.

*Technologies used:* project site and collaboration/communication tools

## Adopt or Adapt

These factors can impact online learning projects of *all* kinds, so consider how they might be attended to for your own situation.

## References

Agile Development Manifesto: <http://agilemanifesto.org/>

Bacharach, S.B. (2006). *Keep them on your side: Leading and managing for momentum*. Avon, MA: Platinum Press.

## Attribution

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Jon Aleckson has managed e-media development for over thirty years and is conducting his doctoral research on increasing collaboration with experts to enhance online learning and professional development programs for the Credit Union National Association, McDonald's Corporation, the World Anti-Doping Agency, and the Children's Hospital of Wisconsin. His company, Web Courseworks, Ltd., creates all types of online learning from self-paced tutorials to online games. Jon is an annual session speaker at the eLearning Guild's Learning Solutions Conference, ASTD, and the American Society of Association Executives. Jon writes a blog called Managing eLearning that can be found at [www.webcourseworks.com/blog](http://www.webcourseworks.com/blog).

## Multiple-Choice Question Checklist

### The Big Idea

#### What

This checklist will help you check the quality of your multiple-choice questions.

#### Why

Multiple-choice questions seem easy to write but are often poorly written. A checklist can help those who write these questions edit and fix problematic multiple-choice questions before they “go live.”

### Use It!

#### How

Multiple-choice questions are frequently used in tests because they are easy to score electronically and question writers think they are easy to write. Even though they may *seem* simple to write, they are typically fraught with problems. Poorly written questions cause problems for learners and make it difficult for question writers to make appropriate inferences from test results.

Shank built the Multiple-Choice Question Checklist on the next page to analyze multiple-choice questions. She suggests that multiple raters (such as instructional designers and content experts) use the checklist to uncover likely problems prior to “going live.”

## Multiple-Choice Question Checklist

Multiple-Choice Question	Y/N	Fixes Needed
Are multiple-choice questions an appropriate way to measure each learning objective (that multiple-choice questions are being used to assess)?		
Does the percentage of questions for each learning objective match the relative priority of the objective?		
Does the question require the same depth of thinking as the corresponding learning objective?		
Does the question measure more than recall of factual information?		
Is irrelevant or superfluous information eliminated from the question?		
Are irrelevant or superfluous images eliminated from the question?		
Does the question have a single, unambiguously correct answer (or more than one single correct answer for a <i>select all that apply</i> question)?		
Is <i>select all that apply</i> added to questions with more than one correct answer?		
Are negatives ( <b>not</b> , DO NOT, etc.) avoided or made to stand out?		
Was the question content adequately covered in the instruction?		
Are the directions clear?		
Is all language clear and non-ambiguous?		
Are the spelling and grammar correct?		
Is the wording at an appropriate reading level?		
Does the question contain enough information from which to choose the correct answer or answers?		
Are <i>all</i> distractor answers plausible?		
Are only as many distractors as are plausible used?		

*Technologies used:* document

## Adopt or Adapt

This idea can be used to evaluate any multiple-choice questions. It can be adapted by adding or deleting questions. An online form may be a useful way to obtain evaluations of questions from multiple raters.

## Attribution

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Patti Shank is the president of Learning Peaks LLC, an internationally recognized instructional design consulting firm that provides learning and performance consulting and training and performance support solutions. She is listed in *Who's Who in Instructional Technology* and is an often-requested speaker at training and instructional technology conferences. Patti is quoted frequently in training publications and is the co-author of *Making Sense of Online Learning*, editor of *The Online Learning Idea Book*, co-editor of *The e-Learning Handbook*, and co-author of *Essential Articulate Studio '09*.

<http://www.learningpeaks.com>

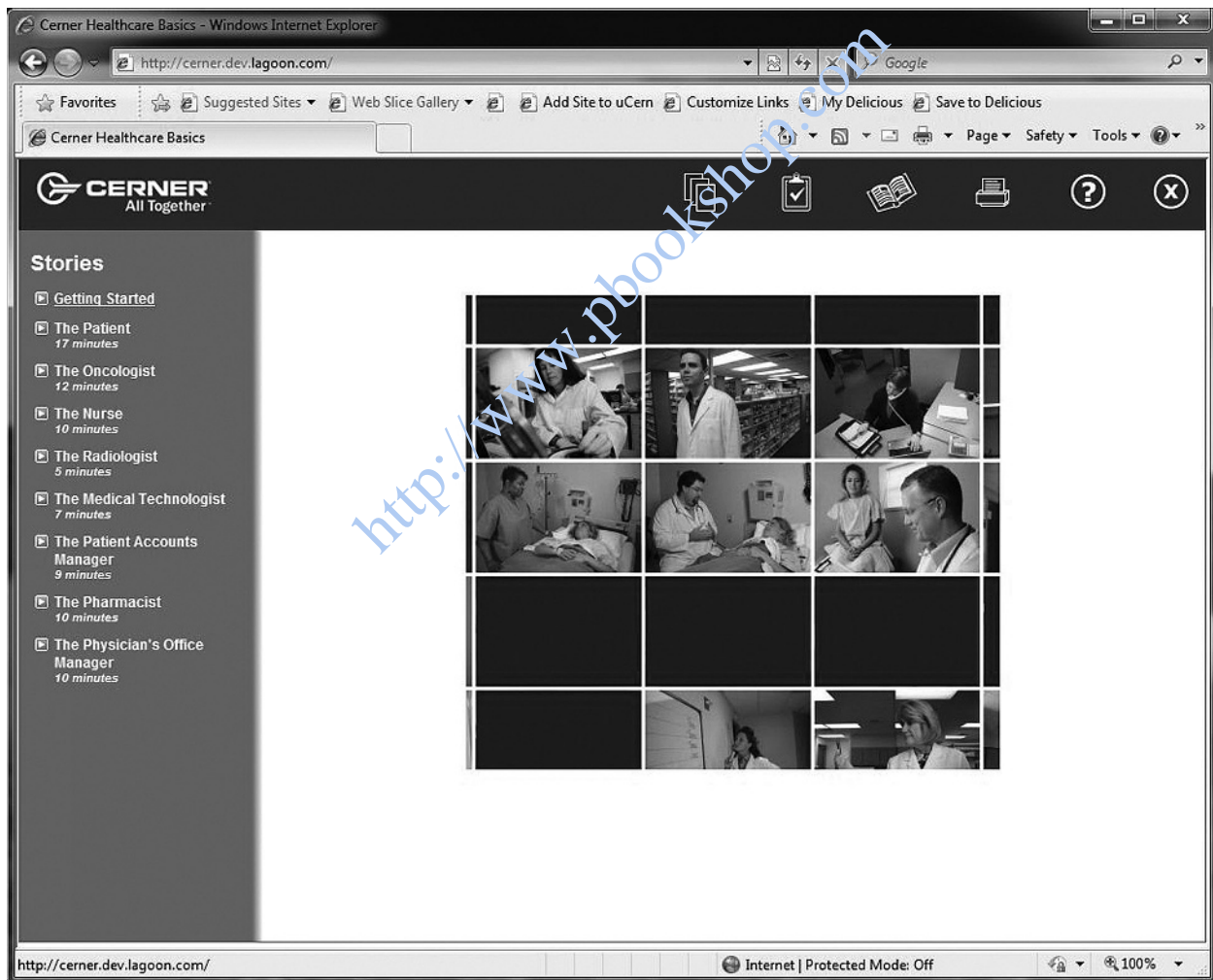
## Story-Based Learning v2

### The Big Idea

#### What

This idea follows the process of making changes to an existing self-paced story-based instructional module and describes lessons learned from the experience.

**Figure 1.7. Healthcare Industry Basics Course**



## Why

Stories are a powerful and engaging way to learn. Improving existing stories improves instruction. Learning from others' redesign experiences can improve the design of your instruction.

**Figure 1.8. Scenario: Dr. Toomey, Patient**

The screenshot shows a Windows Internet Explorer browser window displaying a Cerner Healthcare Basics training module. The browser's address bar shows the URL <http://cemer.dev.lagoon.com/presenter.htm?s=2&p=1>. The page features the Cerner logo and a navigation menu on the left titled "Stories". The main content area is titled "The Oncologist" and displays a video player. The video player shows a doctor in a white coat and stethoscope talking to a patient lying in a hospital bed. The video player includes a progress bar, a volume control icon, and a "CC" (Closed Captions) icon. The video duration is indicated as "45 seconds". A large blue watermark reading "http://www.pbookshop.com" is overlaid diagonally across the video player.

**Cerner Healthcare Basics - Windows Internet Explorer**

http://cemer.dev.lagoon.com/presenter.htm?s=2&p=1

**CERNER**  
All Together™

**Stories**

- Getting Started
- The Patient  
17 minutes
- The Oncologist**  
12 minutes
  - The Oncologist
  - EMR in the News
  - After Hours Phone Call
  - More Information
  - The Oncologist's Day
  - Mr. Kahn's Chart
  - Dr. Silverman
  - Discharge Orders
  - Medication Error
  - Angela's Lab Results
  - Nurse Talks to Dr. Toomey
  - Dr. Brady
  - Dr. Bainbridge
  - Dr. Brady and Dr. Toomey
  - Committee Meeting
- The Nurse  
10 minutes
- The Radiologist  
5 minutes
- The Medical Technologist  
7 minutes
- The Patient Accounts Manager  
9 minutes
- The Pharmacist  
10 minutes
- The Physician's Office Manager  
10 minutes

**The Oncologist** 45 seconds

Internet | Protected Mode: Off 100%

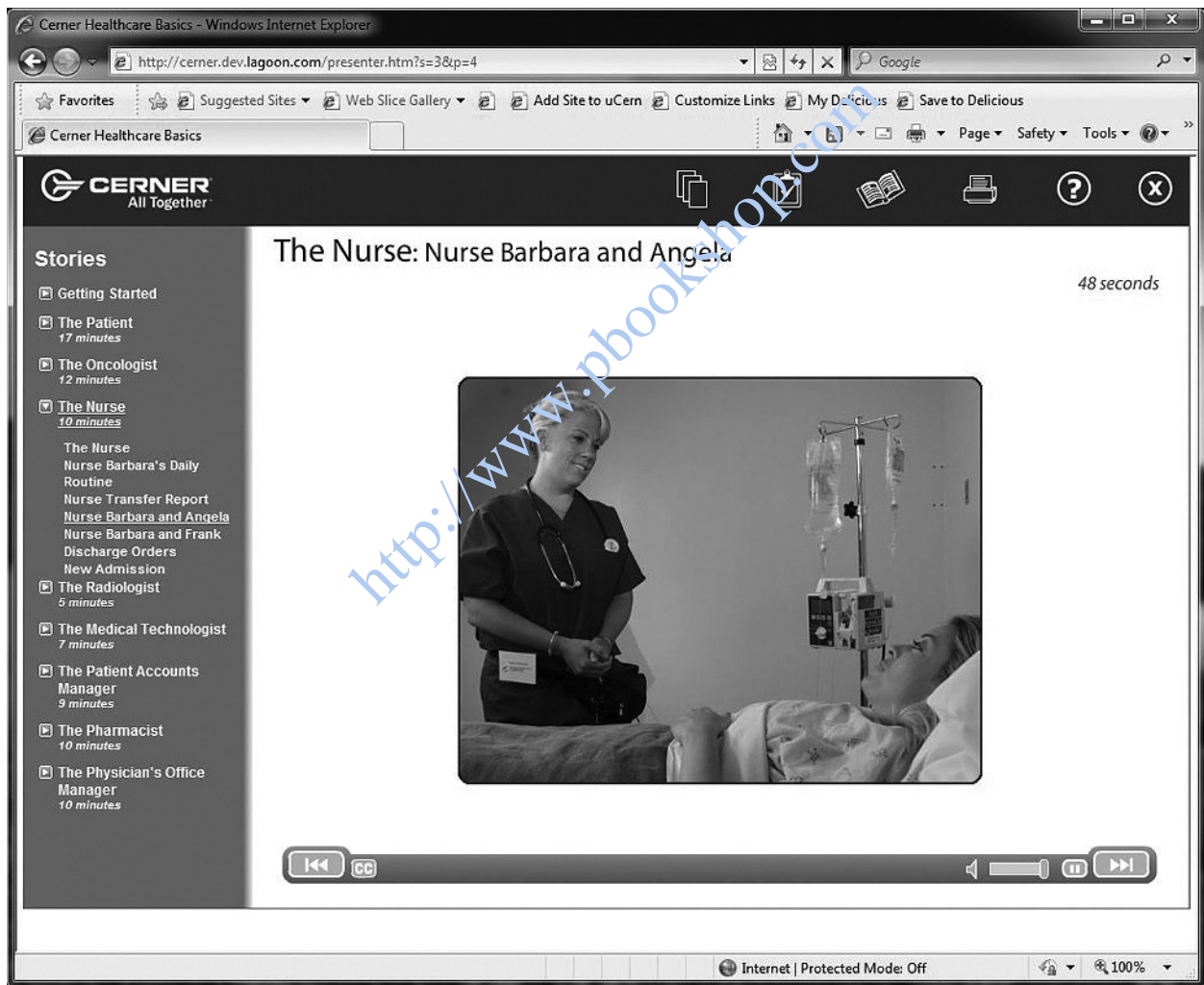
Source: Cerner Corporation, [www.cerner.com](http://www.cerner.com)

## Use It!

### How

Stories are used in this module to help people new to a field better understand what it takes to succeed. This includes key terminology, important facts, key concepts, rules and procedures, people and roles, and guiding

**Figure 1.9. Scenario: Nurse, Patient**



Source: Cerner Corporation, [www.cerner.com](http://www.cerner.com)

**Figure 1.10. Scenario: A Second Opinion**

The screenshot shows a Windows Internet Explorer browser window displaying a Cerner Healthcare Basics presentation. The address bar shows the URL <http://cerner.dev.lagoon.com/presenter.htm?s=1&p=9>. The page title is "Cerner Healthcare Basics". The main content area is titled "The Patient: Dr. Granger" and features a video player. The video player has a progress bar and a "29 seconds" timer. The video shows a woman sitting in a chair, looking down, and a doctor (Dr. Granger) looking at her. A watermark "http://www.pbookshop.com" is visible over the video. The left sidebar contains a list of scenarios, including "The Patient" (17 minutes), "The Oncologist" (12 minutes), "The Nurse" (10 minutes), "The Radiologist" (5 minutes), and "The Medical Technologist".

Source: Cerner Corporation, [www.cerner.com](http://www.cerner.com)

principles. The initial version of this story (described in Volume 1) contains a main character, supporting characters, dramatic conflicts, and emotional content. In that version, the learner follows a patient, nurse, oncologist, radiologist, medical technologist, pharmacist, patient accounts manager, and physician office manager through a series of scenarios. In

**Figure 1.11. Scenario: Patient Care**

Source: Cerner Corporation, [www.cerner.com](http://www.cerner.com)

the patient scenario, for example, the learner follows the main character, Terry, who has been diagnosed with cancer, and watches how Terry interacts with a primary care physician, an oncologist, a nurse, and other clinicians.

The same story is then retold from other perspectives, including a nurse and an oncologist. The aim of these scenarios is to introduce the learner to healthcare terminology and processes, key players and tasks, key drivers, and healthcare regulatory and government agencies affecting each role, department, or process. (See Figures 1.7 through 1.11.)

The initial version of the instruction focused on the perspectives of physicians, nurses, and patients regarding the diagnosis and treatment of breast cancer. The story described the patient's experience with healthcare professionals in diagnosing, treating, and recovering from the unexpected illness. The experience of the patient introduced learners to various clinicians and doctors who worked with the patient over time.

In the second version of this instructional module, the instructional design team connected the storylines to the performance workflows that supported the various doctors' and clinicians' efforts to treat the patient. Connecting the various performance workflows to the doctors, nurses, and patient's experience introduces additional depth and creates a foundation for deeper learning as learners advance in their professional careers.

Smith shares some of the lessons learned as the team improved the initial version of the module:

- The first version storyline was written by an instructional designer. In the second version, a professional script writer was hired to write the dialog so that it was more realistic, flowing, and cohesive.
- When building the first version, members of the team expressed concerns about overloading learners. Experience showed, however, that learners can keep track of multiple storylines and disconnects within the storyline.
- The images in the first version were taken in an office building that was made to look like a patient's home and hospital environment. Feedback showed that the environment detracted from the story. In the second version, images came from a hospital, clinic, doctor's office, patient's home, and other locations that were more realistic and more associated with the storylines. Images were shot in a wing of a hospital

that was being remodeled, using equipment after hours, and using unused sections of doctors' offices. Feedback showed that learners better bought into the storyline when these real locations were used.

- In the second version, green screen technology was proposed to speed up the time required to shoot images and place the story's characters in specific environments. But this technology was too costly and the location-based image shoots made better financial sense.

*Technologies used:* Flash, content development engine

## Adopt or Adapt

This idea provides multiple “ah-ha’s” about updating an existing instructional module that can be used when considering a redesign of existing instruction, such as what additional talent may be needed, which locations are best for video or photos, and the assumptions about learners that need to be tested. It also shows the value in rethinking how courses are designed and developed to improve them, especially as new information and insights are gained.

## Attribution

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Stephen Smith is a learning strategy consultant. His interests include designing impactful learning experiences, aligning those experiences with individual and organizational growth, and extending the boundaries of meaningful instructional technology use.