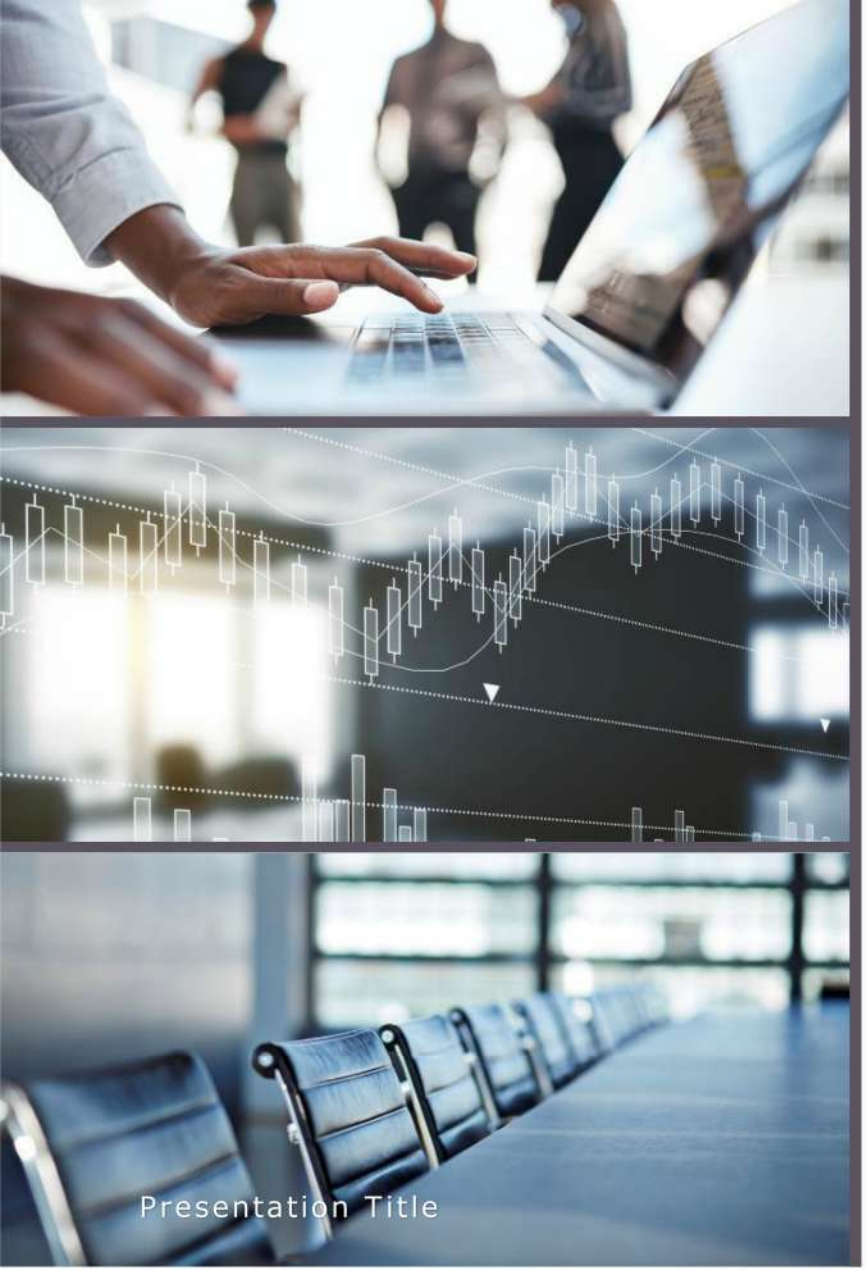
E-LEARNING

Lecture Notes 2025



Acknowledgment

These lecture notes have been prepared using the book entitled “E-Learning Fundamentals: A Practical Guide” by Diane Elkins and Desiree Pinder, in addition to several Internet resources.

Chapter 1: Introduction To E-Learning

Outlines:

1. What Is E-Learning?
2. Types of E-Learning
3. Advantages and Disadvantages of Asynchronous E-Learning
4. Elements of an E-Learning Course

WHAT IS E-LEARNING (electronic learning)?

E-learning: is any course or structured learning event that uses an electronic medium to meet its objectives.

It can have many of the same elements of more traditional learning (text, audio, tests, homework), but a computer is used to meet or enhance the learning objectives.

Types of E-Learning

E-learning can be divided into **three** main types: synchronous learning, asynchronous learning, and cohort learning.

These types are based on the use of an instructor, the timing of the course, and involvement with others.

Selecting the appropriate type involves considering the learner's prior knowledge, learning speed, time available, and geographic separation.

Types of E-Learning

Synchronous

Synchronous learning occurs when an instructor and learners are together at the same time—but not necessarily in the same physical place. Traditional classroom learning is a great example of synchronous learning.

Asynchronous

Asynchronous learning, or self-paced learning, is the opposite of synchronous learning.

It occurs when the instructor and learners do not participate at the same time.

Often there is no instructor at all, as in the self-paced branching scenario in Figure 1-2

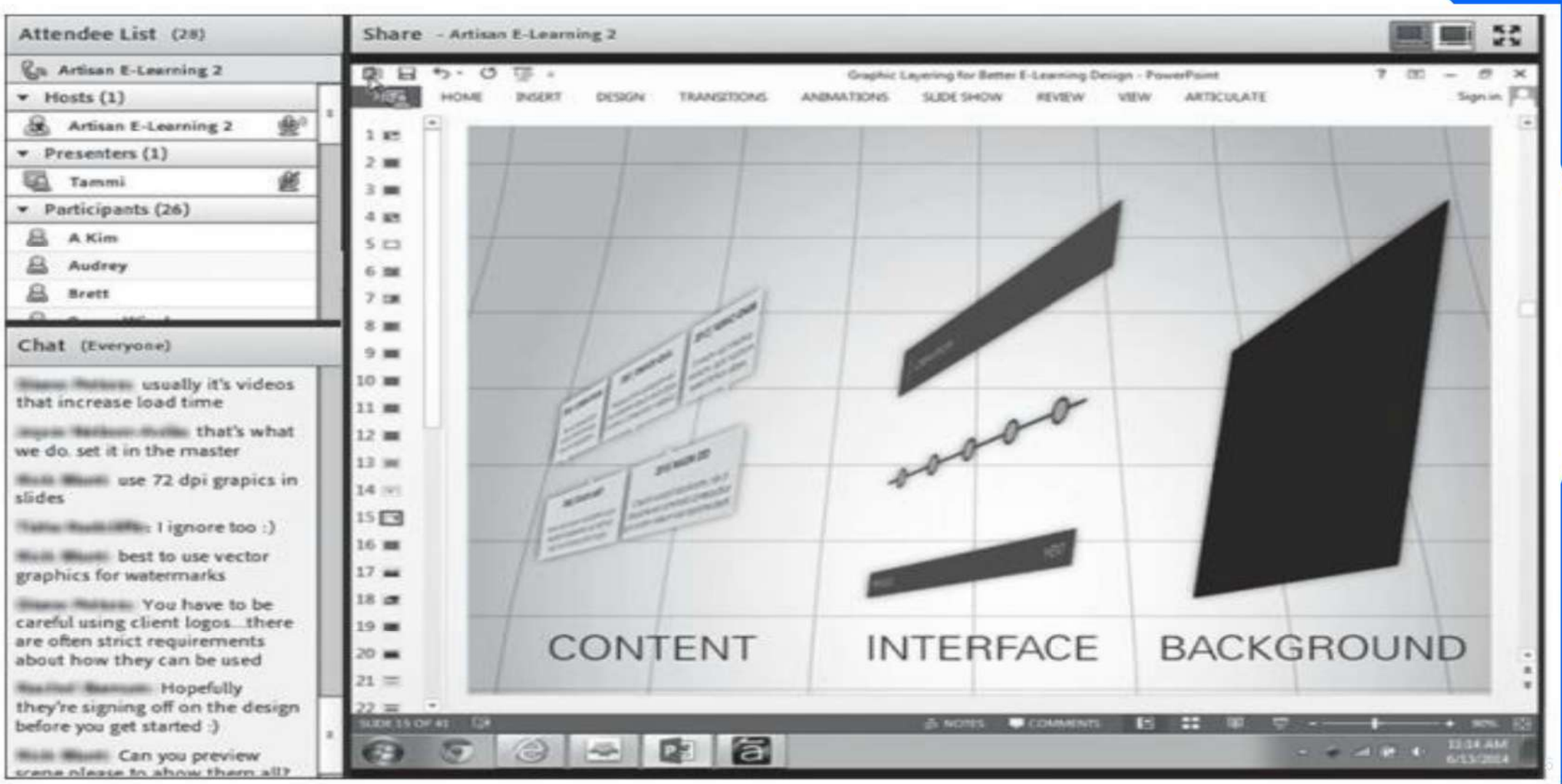
Cohort

Cohort learning has an instructor, and learners' complete activities such as readings, videos, discussions, assignments, and projects. There is a specified beginning and end date, but within the course timeframes, participants learn and communicate on their own time.

Synchronous Learning

- During a traditional classroom session, learners meet at a set time, have discussions, and are tested together.
- A synchronous e-learning course uses the same concept. At a set period, an instructor and one or more learners participate in an electronic learning event using a platform such as Adobe Connect or GoToMeeting.
- This format can be called a webcast, webinar, or virtual classroom.
- This type of training may include the instructor speaking, visuals such as PowerPoint slides or desktop sharing, discussion via chat (as shown in Figure 1-1), poll questions, and even activities via breakout rooms.

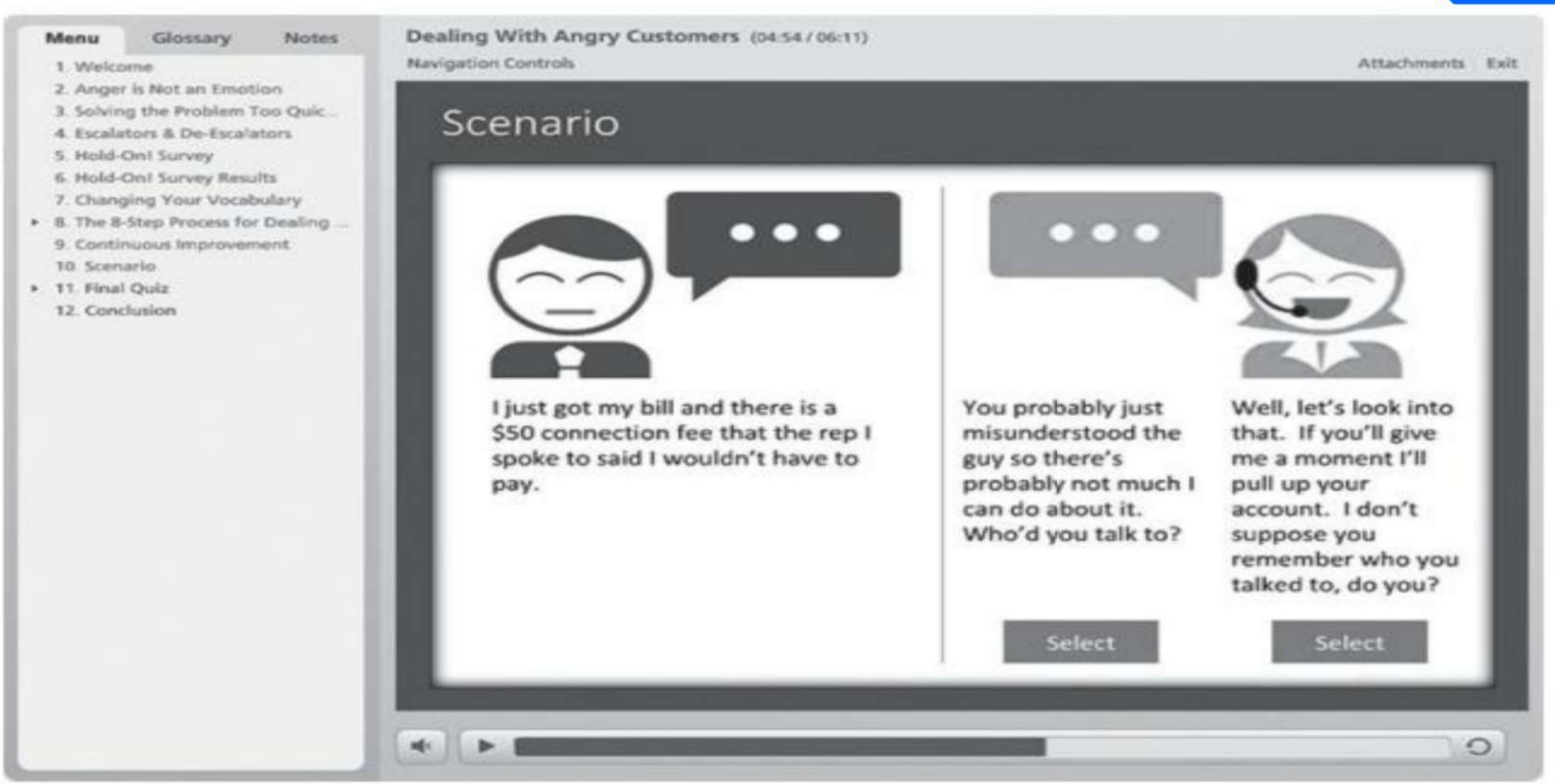
FIGURE 1-1: EXAMPLE OF A SYNCHRONOUS E-LEARNING COURSE



Asynchronous Learning

- In the world of traditional education, think of homework as asynchronous learning.
- If learners are given an activity to complete on their own time by themselves, the learning is asynchronous.
- In the world of e-learning, a self-paced course that can be accessed at any time and does not require the involvement of an instructor or peers is considered asynchronous.

FIGURE 1-2: EXAMPLE OF ASYNCHRONOUS E-LEARNING COURSE



Cohort Learning

- For example, in a synchronous leadership webinar, all participants log on to their computers at 2 p.m. on Tuesday and participate in the presentation until it is over at 4 p.m. With the cohort model, the learners typically log on at the beginning of the week and can then read the materials, complete the activities, and discuss issues with other classmates at any time during the week.
- Cohort learning includes an instructor who gives and grades tests and other assignments. This model is popular in higher education using platforms such as Blackboard. In addition to traditional for-credit courses, some universities are now offering this type of course free and open to the public, using platforms such as Coursera. Often called MOOCs (massive open online courses), some of these free and open programs can have 10,000 or even 100,000 learners.

FIGURE 1-3: EXAMPLE OF COHORT E-LEARNING COURSE

Blended Learning

- Blended learning uses two or more learning events in different formats.
- For example, you may develop asynchronous e-learning modules to present factual information, and then invite learners to participate in classroom instruction where they can have face-to-face discussions or hands-on practice.

In this course, we will focus on Asynchronous E-Learning!

Advantages of Asynchronous E-Learning

- **Viewed Anywhere:** E-learning programs can be viewed anywhere in the world where a computer is available. You can choose to present your course in these formats:
  - Computer—The course could be permanently placed on your computer's hard drive. Though this takes up hard drive space, it could be more convenient than carrying a disk or having to connect to a network.
  - Internet—Your course could be housed on the Internet. This convenient method allows for quick changes to the course, does not take up valuable space on your hard drive, and does not require that your computer have a CD drive to be able to view it.
  - Intranet—Your course could be placed on an internal company network that can only be accessed by employees of the company. This increases security but sometimes makes it more difficult for remote employees to access the courses.
  - Mobile device—Your course could be viewed on a mobile device such as a phone or tablet. The course could be downloaded to the device, viewed in an Internet browser, or packaged as an app.
  - Disk—Generally, a course will fit on a CD-ROM, DVD, or USB drive. The advantages to having your course on a disk are that it is portable, and the computer does not need an Internet connection. If you plan to use this method, be sure to consider your student's hardware now and soon. Fewer and fewer computers are even being sold with CD and DVD drives.

- **Used Anytime:**

Because of time-zone differences and people's busy schedules, it is valuable to have a solution that allows participants to learn when they can fit it into their schedules. If they want to view an online course during lunch, during a regular workday, or at 3 a.m., they can.

- **Less Expensive for Many Users:**

E-learning is an expensive solution if only a few people are learning from it; however, if many people take the course, it could cost significantly less than the traditional classroom model. For example, if a trainer is required in locations throughout the world, you could save on travel and lodging costs with an e-learning program.

- **Tracking Capabilities:**

An e-learning course can be set up to track such things as who took a course, how long a person spent reviewing the course materials, and the test scores. This can be very valuable information, especially for mandatory or certification classes that require proof of completion.

- **Self-Paced Learning:**

Learning speed can vary greatly from person to person. E-learning courses allow studying at one's own pace. Slower learners can feel free to take their time learning information, and faster learners can go through the materials at a quicker pace and still get the information they need from the course.

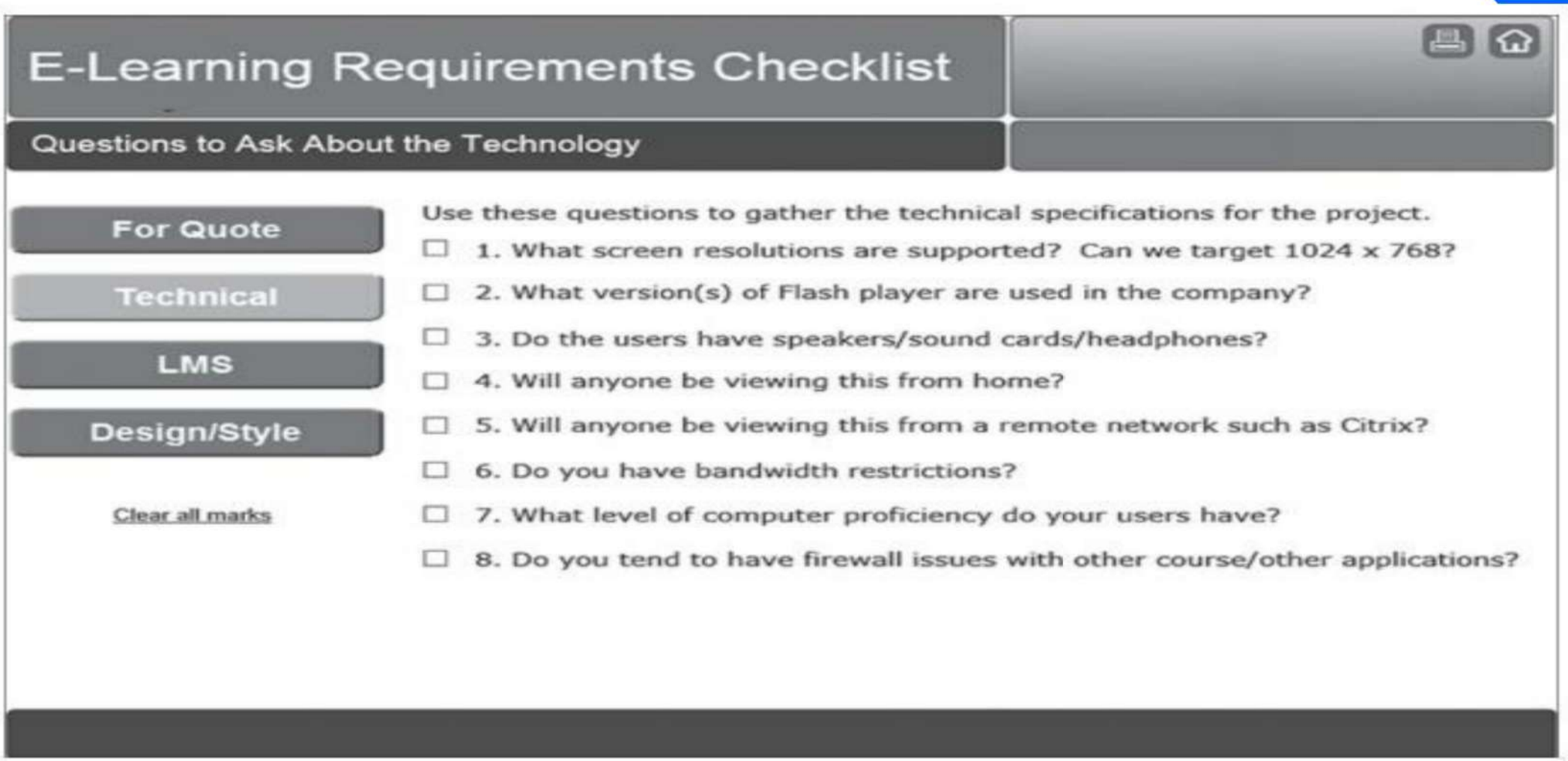
- **Review Tool:**

Once material has been learned, learners can go back and review areas that they don't remember or for which they need some pointers. This is helpful for seldom-used or complex concepts or procedures.

- **Performance Support for Just-in-Time Learning:**

Sometimes employees do not need a full course. They just need a little bit of information to help them with what they are doing at the moment. E-learning can help meet the immediate need for training. Examples of just-in-time training include a help menu in a computer program or an online checklist to prepare for a meeting, as shown in Figure 1-4.

FIGURE 1-4: EXAMPLE OF ONLINE PERFORMANCE SUPPORT



- **Delivered on Demand:**

Once a course has been developed and posted, participants can take it as soon as they need it—rather than waiting until the next time the course is offered.

- **Unlimited Simultaneous Users:**

Where classroom courses can only allow a certain number of learners per session, an e-learning course can be available to unlimited users at any given time. This can allow many people in multiple locations to get access to valuable information right away. This is useful when the entire company needs time-sensitive information, and you can’t wait for the trainers to get to all the locations.

Disadvantages of Asynchronous E-Learning

- **Development Time and Cost:**

While hundreds or thousands of participants can take an e-learning course quickly, that doesn't mean it is quick to develop. Similarly, although an e-learning program may end up being cheaper per user than classroom training, it isn't cheap. Between development costs, hardware and software, and ongoing maintenance, you could spend anywhere from a few thousand to more than a million dollars. If you have a small audience or budget, e-learning may not make sense for you.

- **Lack of collaboration:**

Some of the best learning in a classroom often comes from the interaction with the instructor and other learners. While this collaboration is not impossible with e-learning, there will probably not be as much of it.

Disadvantages of Asynchronous E-Learning

- **Technology:**

If the right technology is not in place, can't be afforded, or can't be supported, e-learning can be frustrating or even futile. Anyone who has tried to watch a video on a slow corporate connection knows this.

- **Computer Literacy:**

Some learners may not be computer literate. It is important to know your audience and plan, at the outset, to train learners on how to use the needed technology.

- **Computer Availability:**

Not everybody has access to a computer. If you do not supply computers to all employees in your organization, for example, it could be difficult for some to take e-learning courses.

Disadvantages of Asynchronous E-Learning

- **Device Compatibility:**

Not all courses can be used with all types of devices, browsers, and operating systems. It is important to know what your audience has and decide if your course can be viewed by everybody in your target audience.

- **Unanswered Questions:**

In classroom instruction, it is easy for participants to get their individual questions answered. With e-learning courses, it can be difficult for participants to find answers to questions left unanswered after completing the course. The goal with developing e-learning is to answer the questions before they are asked.

- **Lower Energy and Excitement:**

Learning online does not tend to create the same kind of excitement and energy as do traditional classroom sessions, which can more easily generate learner buy in about a particular subject. Also, a classroom session might be a refreshing break from a production line or cubicle.

Elements of an E-Learning Course

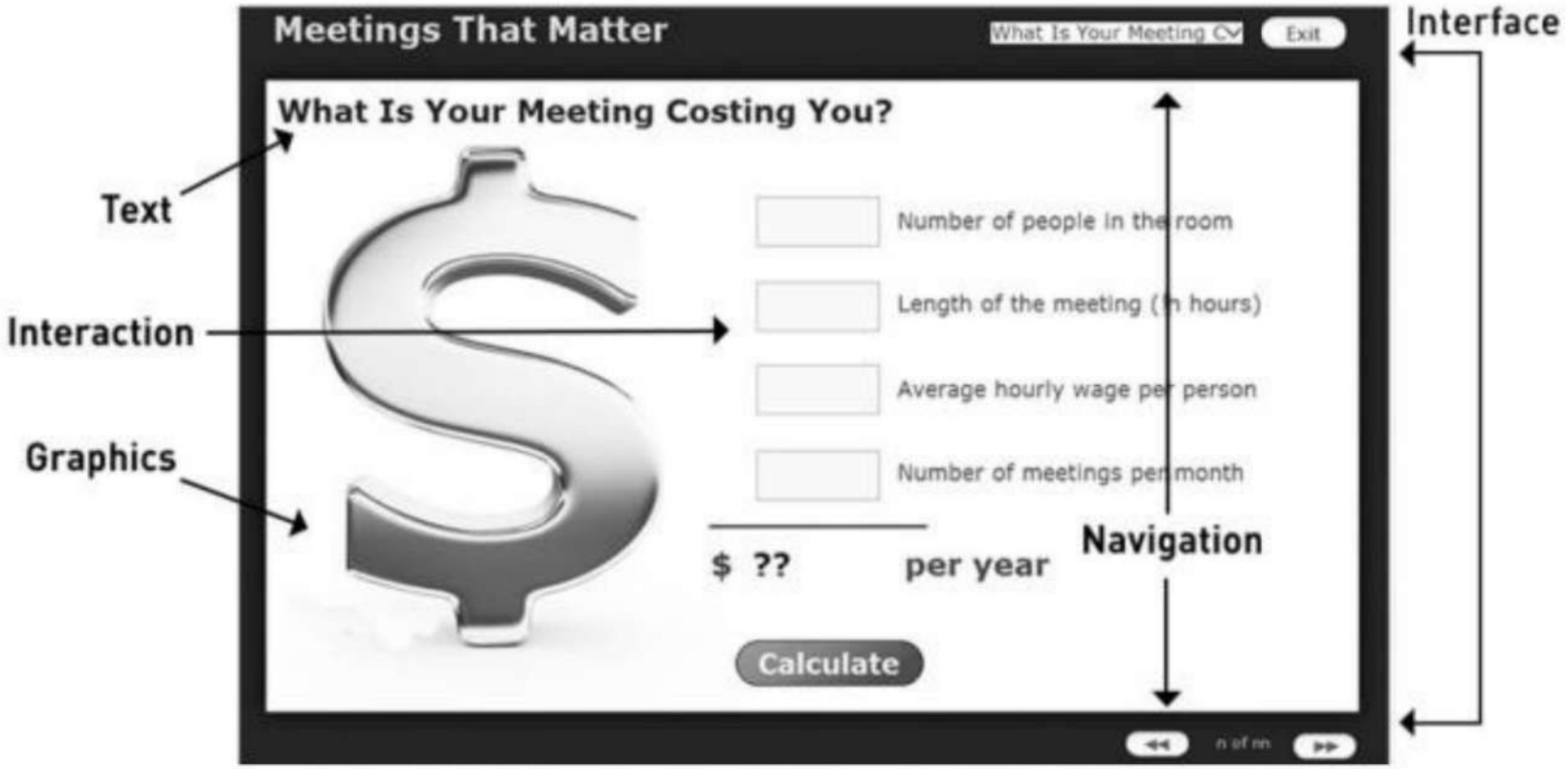


FIGURE 1-5: EXAMPLE OF E-LEARNING COURSE ELEMENTS

Elements of an E-Learning Course

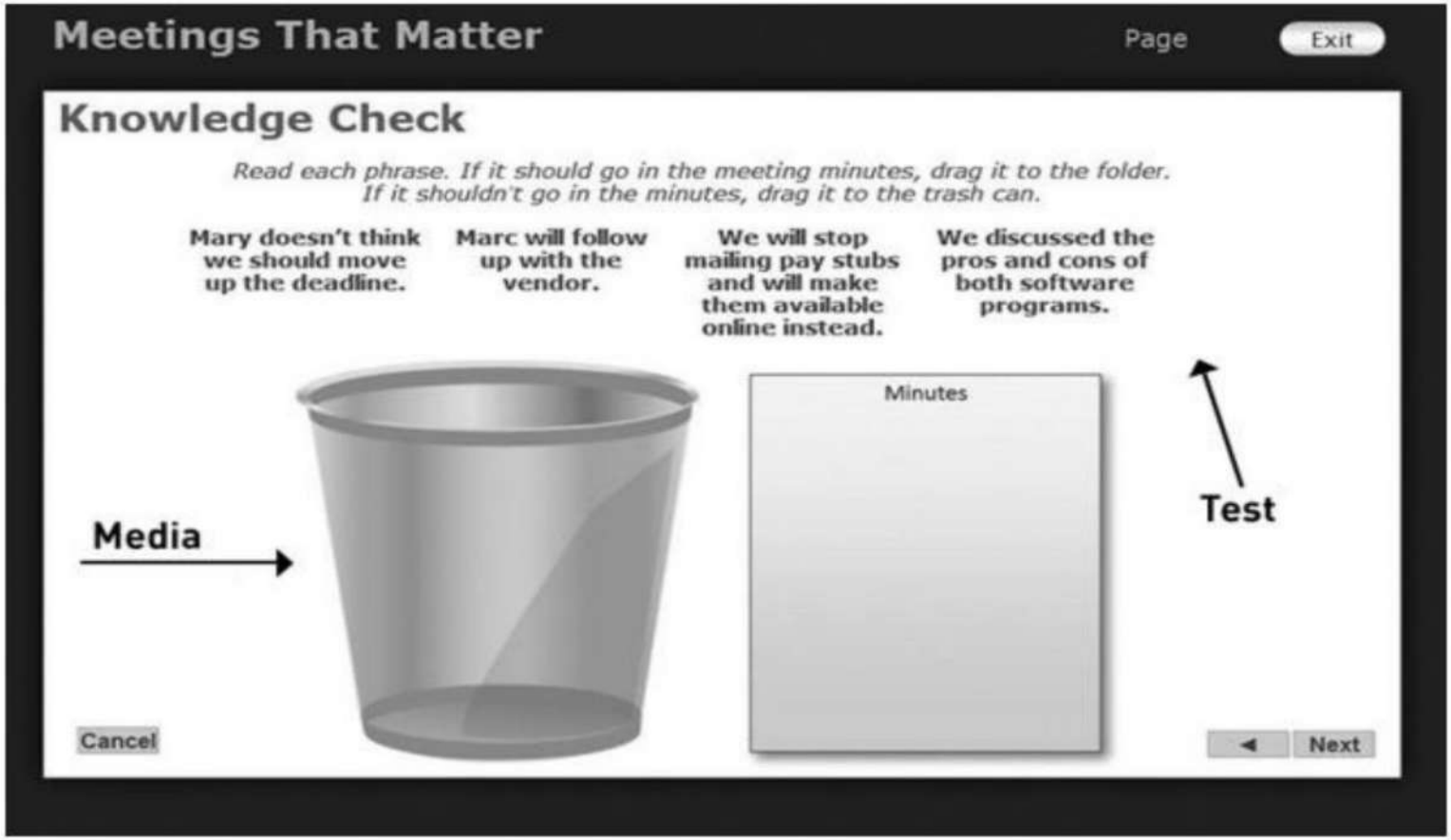


FIGURE 1-6: EXAMPLE OF E-LEARNING COURSE ELEMENTS

Elements of an E-Learning Course

- **Interface**

The interface is the visual framework for each screen. It includes the branding, titles, buttons, features, and navigation used throughout the course. Think of it as the elements that are the same on every screen.

- **Text**

In an asynchronous course, text can be used either as the primary way to communicate content or as support for audio narration.

- **Navigation**

The navigation for a course allows the learner to move through the course. Navigation buttons such as arrows, hyperlinks, and menus all guide the learner through the course. Navigation can be fixed (where the learner has to proceed in a linear fashion from the beginning to the end) or flexible (where the learner can choose where to go).

Elements of an E-Learning Course

- **Interactions**

Interactions are any events or activities that require the learner to respond in some way. Examples include a spot that the learner clicks to get additional information, a question the learner must answer, or a practice simulation. Interactions help to reinforce key teaching points and keep the learner interested and engaged. They are often the most interesting part of the e-earning course. However, they can also be the most time consuming to create.

- **Tests**

The ability to administer a test is a very popular feature in e-learning. Tests questions can use several formats: multiple choice , drag and drop, true/false, fill in the blank, short answer, essay, simulations. Some of these question formats (such as multiple choice) can be graded directly in the course; others (such as essay) cannot. Tests can be used at the beginning of a course, at the end of a course, at the end of individual modules, or scattered throughout the course.

Elements of an E-Learning Course

- **Media**

Technically, an e-learning course could consist of only on-screen text. But a more engaging course would use a number of different media elements, such as:

audio—used to deliver the primary content, as with a narrator, or can be used in specific situations, such as an introduction from the president of a company or characters in a scenario

video—can be used as the primary method of content delivery or to provide additional information for specific teaching points

graphics—include still photography (stock photography or custom), clip-art pictures, illustrations, graphs, or diagrams

animations—include moving graphics; for example, for a course about a manufacturing process, a moving graphic could simulate the flow through the different production departments.

Elements of an E-Learning Course

- **Collaboration**

Collaboration is the activity of learners working together to reach a learning goal. In the classroom, collaboration occurs anytime one learner turns to another and makes a comment, asks a question, or works with someone on a project. In e-learning this might occur in discussion forums or social media sites.

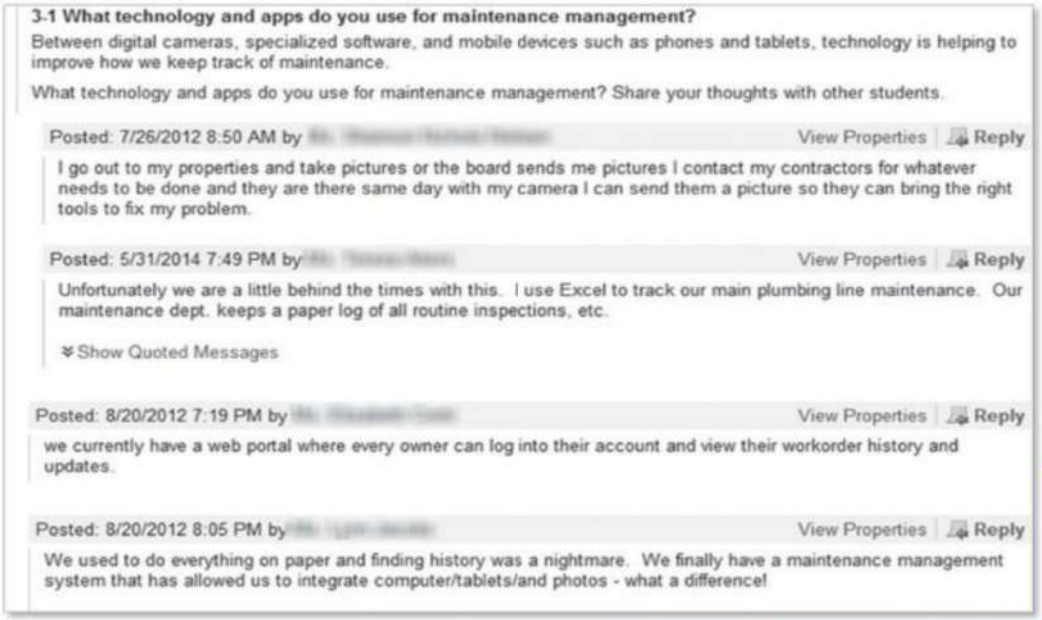
- **Discussion Forum**

A discussion forum is a collaborative learning experience where questions or comments are posted and a trail of responses are posted and archived regarding the original message. Often called threaded discussions or message boards, forums are asynchronous forms of communication and message sending. Self-paced courses can encourage learners to participate in discussions about the course content. In some cases, an instructor or moderator reviews the discussions to provide guidance and answers questions.

Elements of an E-Learning Course

FIGURE 1-7: ASYNCHRONOUS COURSE FEATURING AN ONLINE DISCUSSION FORUM

FIGURE 1-8: ONLINE DISCUSSION FORUM LINKED FROM COURSE



Elements of an E-Learning Course

- **Social Media Integration**

Sites such as LinkedIn, Twitter, and Facebook can be used to foster collaboration. For example, a course could be given a Twitter hashtag with students encouraged to post and search for tweets using that hashtag. Some corporations have their own internal social media system (such as Yammer or Jive) that allows such communication to happen privately within the organization.

- **Tracking**

One of the many reasons companies choose e-learning is the ability to track progress, completion, and test scores. If set up to do so, e-learning courses can send this information to be tracked. In the simplest forms, the information might be sent via an email. In more formal situations, the information is fed to a learning management system (LMS) that compiles and stores the information, as shown in the examples. Especially when a course is mandatory per regulation, it is important to be able to prove a learner did take and pass the course.

Summary

E-learning uses an electronic medium to allow learners to learn collaboratively or on their own, at their own pace or at the pace of a group. It has multiple advantages as well as disadvantages in comparison to other platforms. So, it's important to weigh the options and decide what is best for your particular course and objectives.

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    2. mCourser: https://www.learnetic.com/mcourser/?utm_term=learning%20management%20software&utm_campaign=mCourser-ruch-na-stronie&utm_source=adwords&utm_medium=ppc&hsa_acc=6825301605&hsa_cam=1391901838 3&hsa_grp=130561038411&hsa_ad=533946918648&hsa_src=g&hsa_tgt=kwd-30007563&hsa_kw=learning%20management%20software&hsa_mt=b&hsa_net=adwords&hsa_ver=3&gad_source=1&gclid=Cj0KCQiA5fetBhC9ARIsAP1UMgHmsayJjC7M9G11S7zhTu56_IESPBFQrs4OTibjVUMn5Azb6r-SI_kaArxyEALw_wcB
3. E-learning development tools:
    - Adobe captivate, iSpring, Easygenerator, Lectora Online, Elucidat ....etc

Chapter 2: Developing an E-Learning Strategy

Outlines:

1. What is a Strategic Plan?
2. Benefits of a Strategic Plan
3. Strategic Plans Versus Business Cases
4. Strategic Plans Versus Project Plans
5. Elements of a Strategic Plan

What is a strategic plan?

All models of a strategic plan should answer the following questions:

- What are you trying to do?

- Why are you trying to do it?

- How are you going to get there?

Benefits of a strategic plan

A good strategic plan can take a lot of time and effort to develop, but it can serve many purposes as well. It can help you to:

- decide if you even want to embark on an e-learning journey
- generate support from key stakeholders
- request funding from internal or external sources
- reach a consensus on what it will take to make the project happen
- notify everyone of potential risks and challenges
- ensure you are doing this for the right reasons
- create a common picture of what success would look like
- point you in the right direction for getting started.

Strategic Plans Versus Business Cases

Some organizations use these terms interchangeably.

Generally, the business case is a subset of a strategic plan.

A business case generally addresses the “What?” and the “Why?” questions.

A strategic plan also addresses the “How?”

Strategic Plans Versus Project Plans

- The “How?” portion of a strategic plan can overlap with the project plan. So how do you know where to draw the line?
- The strategic plan includes enough detail to ensure everyone knows what you are trying to accomplish and what it will take to make it happen.
- Your project plan includes all the details to actually make it happen.

Strategic Plans Versus Project Plans (Example)

- Consider the difference between a travel guide and a travel map. A travel guide helps you determine where to go and what to see. That's your strategic plan.
- But when it comes time to actually go on the trip, you will need a road map to help decide which interstate and which exit to use. That's your project plan.

Elements of a Strategic Plan

- How detailed should a strategic plan be?
- Only you and the people making the decisions about your project can answer this question.
- And the real answer may come in phases.
- For example, you may want to develop an extremely high-level cost-benefit analysis just to decide if it is worth the time and effort needed to build a more detailed business case.
- Then, when you are ready to ask for funding and support, you create a more detailed plan.

Elements of a Strategic Plan

Possible Elements in a Strategic Plan: Select the elements that relate to your decision-making process.

- Executive Summary
- Problem Statement
- Background
- Project Objectives
- Proposed Solution
- Cost-Benefit Analysis
- Alternative Solutions
- Recommendation
- Deliverables
- Quality Criteria
- Resource Requirements
- Known Constraints
- Estimated Timeline
- Proposed Budget
- Evaluation Plan
- Management Plan
- Risks
- Risk Management Plan
- Critical Success Factors
- Implementation Plan

Know What You Are Evaluating

- When building the business case and reviewing the cost-benefit analysis, make sure you understand exactly WHAT you are evaluating:
  - Are you comparing an e-learning course to no training at all?
  - Are you comparing an e-learning course to the same course delivered in another format?
  - Are you examining the benefits of computer-based training as well as the benefits of implementing a learning management system (LMS)?

The answers to these questions determine which parts of the analysis process you will use.

Tying E-Learning to Business Goals

To identify how e-learning ties into the organization's overall goals, ask yourself (and key stakeholders) the following questions:

- What business problems are we trying to solve?
- What business problems are we trying to prevent?
- What strategic goals does the organization have that e-learning would support?
- What strategic goals does the organization have that e-learning might hinder?

You will be in a better position to generate support and funding if you can show how the e-learning initiative is tied to the overall organizational strategy.

Benefits of the Training Program

- If you are proposing a brand-new training program (regardless of format), you will want to analyze the benefits of conducting the program.
- This process is the same whether you are looking at classroom delivery or online delivery. Using a combination of interviews, brainstorming, and statistics, you'll want to create a list of anticipated benefits that include metrics such as:

- Time saved
- Productivity increased
- Service increased
- Turnover reduced
- Safety violations reduced
- Sales increased
- Money saved
- Liability decreased
- Quality increased
- Alternative Solutions
- Any other factors related to the project you are reviewing

Benefits of the E-Learning Delivery Platform

- Sometimes an e-learning project is not about the content—it is about the delivery method.
- Perhaps you have an effective classroom training program in place, but the question on the table is, “What are the business benefits for converting to a different delivery platform?”
- Use the checklist in Figure 2-1 to see if you have some of the environmental factors that often make e-learning a good fit.

FIGURE 2-1: DO YOU NEED E-LEARNING?

		Yes	Some	No
1.	Do you have a geographically dispersed workforce?			
2.	Does your audience work in different time zones or on different shifts?			
3.	Do you have to train on a subject frequently?			
4.	Do you have people with low productivity or high error rates because they have to wait for the next training class to be offered?			
5.	Do you have a large number of people to train?			
6.	Do you have mandated training?			
7.	Do you need to reach a lot of people very quickly (such as product knowledge for a new launch or a new legal requirement)?			
8.	Do you need to train on complex information?			
9.	Would it be useful for people to be able to go back and study a section again?			
10.	Do you have a wide variety of preexisting knowledge on a subject (some learners are experienced, some are novices, and some in the middle)?			
11.	Do different portions of your audience need slightly different information?			
12.	Would you like people to be able to test out?			
13.	Would your information benefit from video or animation (such as a moving diagram of how a manufacturing process works)?			
14.	Would you like to provide the same level of training in less time?			

Benefits of the E-Learning Delivery Platform

For any question where you answered “yes,” determine the benefits to you for using e-learning to deal with that issue. For example:

• If you have a geographically dispersed workforce, you might benefit from reduced travel costs, from providing training to smaller locations that currently don’t receive the same training as the large offices, and from a consistent training message to all employees.

• If you have a wide variety of preexisting knowledge on a subject, you might benefit from less time spent in training overall if the experienced employees can skip the sections they already understand or can at least cover them at a quicker pace; or you could benefit from increased understanding by your inexperienced employees because they can take as much time as they need to really understand.

Continue through all items that apply to you until you have uncovered all the benefits you can think of.

Benefits of a Training Management System (LMS)

- If you are considering the use of a learning management system (LMS), learning content management system (LCMS), or other administrative software, continue the process by identifying the benefits of such a system. These are some potential benefits:

  - reduced data entry time
  - increased protection against liability
  - reduced time needed to create compliance documentation
  - increased training completion due to automated registrations, reminders, and exception reports.

Cost-Benefit Analysis

The core of your business case will be the cost-benefit analysis. This can be a formal, quantitative analysis including a complete return on investment (ROI) statement or an informal, qualitative approach that considers tangible as well as intangible benefits.

A Cost-Benefit Example:

Consider that using an e-learning format will reduce the amount of time your salespeople will spend in training when they could be meeting with potential clients.

- To what degree? How much more time will they be able to spend on sales activities?
- At what cost or savings? If a salesperson is selling x hours a month more, how much is that likely to increase sales?

Through research and interviews, you determine that the new format will save five hours a month. That increased sales activity is likely to lead to 0.5 more sales per month with a company average order of $6,000. There are 35 sales reps.

Monthly benefit = 0.5 sales x $6,000 x 35 people = $105,000 increased sales per month.

Quantifying Benefits

Most benefits can be quantified by asking two questions: To what degree? At what cost or savings? These factors, when combined with the number of people affected, can give you a numerical value for the benefit.

Quantifying Costs

To determine if the benefits are worth it, you will want to create a high-level estimate for the overall cost of the program.

Direct Program Costs

- Can be challenging to determine early on in an e-learning project because you haven't yet made a lot of the decisions that will go into your ultimate project budget. At this point, you will want to come up with some estimated high-level numbers about what you will need to spend.

Indirect Program Costs

- The most common indirect cost for a training program would be an opportunity cost. For example, what could your money and people be doing if they weren't doing this? What is the cost of that missed opportunity? So, in this case, what would your training team, your SMEs, or your IT team be doing if they were not working on this project?

Comparing Methods

Comparing Costs to Costs

If you are looking at converting an existing classroom program to an online delivery format, you would simply compare the cost of each in a side-by-side comparison. To do this, you will want to estimate the shelf life of the materials and project the costs for that period of time.

FIGURE 2-2: SAMPLE COST COMPARISON FOR AN ORIENTATION PROGRAM

Classroom Delivery	
Costs for a six-hour class of 15 people every month for three years.	
Materials	$5,400
Instructor's salary	$6,480
Refreshments	$5,940
Learners' wages @ $10/hr	$32,400
Total cost for three years	$50,220

Online Delivery	
*Costs for a three-hour online course used for three years.**	
Contract development	$45,000
Learners' wages @ $10/hr	$16,200
Total cost for three years	$61,200

* An online course typically takes half the time of the equivalent instructor-led course.

Comparing Methods

FIGURE 2-3: SAMPLE COST COMPARISON FOR NEW PRODUCT TRAINING (INCLUDING INTANGIBLES)

Classroom Delivery	
Costs for a one-day class for 35 people.	
Contract development	$8,000
Materials	$350
Instructor's salary	$500
Facilities	$750
Refreshments	$450
Travel (mileage)	$850
Lodging (for four reps)	$300
Lost sales while in training and transit	$210,000
Total cost	$221,200

Online Delivery	
Costs for a three-hour online course.	
Contract development	$45,000
Materials	$175
Lost sales while in training (training taken during non-productive times such as flights or while waiting for meetings)	$0
10% reduced sales of new product for first two months because opportunity for practice was not provided	$71,400
Total cost	$116,575

Comparing Methods

Comparing Costs to Benefits

Rather than comparing the two sets of costs, you could simply look at the costs versus the benefits of the one delivery option.

FIGURE 2-4: COSTS VERSUS BENEFITS FOR A LEARNING MANAGEMENT SYSTEM

Benefits Over Three Years	
Elimination of 1.5 FTE training assistants*	$189,000
Total cost for three years	$189,000

Costs Over Three Years	
Hardware upgrades	$12,000
Software license	$35,000
Implementation and testing	$15,000
0.25 FTE LMS administrator	$67,500
Total cost for three years	$129,500

*FTE = full-time equivalent

Calculation Methods

There are several different ways to present your bottom-line numbers. Cost-benefit ratio and return on investment are two of the most common.

Cost-benefit ratio:

Financial Benefits ÷ Total Cost of Training = Cost-Benefit Ratio
Example: $189,000 ÷ $129,500 = $1.46
- This means that for every dollar invested, it will return $1.46.
- Different organizations have different opinions about what an acceptable cost-benefit ratio is. Some would say that anything over the break-even point (1.0) is worth doing. Others would say that there is not enough benefit to be worth the trouble unless the benefit is a certain amount over 1.0.

Calculation Methods

Return on Investment (ROI):

(Total Benefits - Total Costs) ÷ Total Costs x 100 = ROI
Example: ($189,000 - $129,500) ÷ $129,500 x 100 = 46%

- This calculation gives a similar result as the cost-benefit ratio, but in different terms.

- This shows that the ROI is 46 percent of every dollar spent for training: 46 cents. As with the cost-benefit ratio, different organizations have different opinions regarding an acceptable ROI.

Generating Support

An e-learning project requires the support of many groups throughout the organization. Gathering this support and troubleshooting any issues will help your project flow more smoothly.

Identify Stakeholders

- Because e-learning projects tend to be more expensive and more involved than a typical training project, you will often need to involve more people than you are used to. Take the time to figure out who they are before you need them—and before they find you!
- Use the Stakeholder Worksheet to identify the different groups who may want to have a say in how the project is handled. It is better to involve too many people than to forget someone with important input.

FIGURE 2-5: STAKEHOLDER WORKSHEET

Who are they?	What do they want?	Why do they want it?

A Surprise Stakeholder!

A medium-sized financial services firm was making good progress on its first e-learning initiative—a two-hour overview of the company and the industry. When the online draft was posted for internal review, the marketing department took a look and discovered that the interface was not using the company's standard for web fonts or the correct shade of navy blue. These would have been easy changes to make during the design phase. But since production had already begun, the changes were more expensive.

The moral of the story: Get everyone involved early!!

Recognize Priorities, Motives, Obstacles

- Now that you've found your stakeholders, don't be surprised if they don't all jump up and down for joy about your new project. Take the time to think about the priorities and motives each group might be dealing with and the obstacles that might arise. For example:

• Upper management may be hesitant because previous IT projects did not result in the benefits promised.

• Training management may agree with the business case on paper, but they don't want to be responsible personally for the risks.

• Trainers may resist because they secretly wonder if their jobs will go away or if they will understand the new technology.

Recognize Priorities, Motives, Obstacles

• The information technology department may pose objections because they are already overworked, and this would be one more system to support.

• Line managers may consider this just another management fad that will take up their time.

• Employees may be uncomfortable with the technology and disappointed that they don't get the "time off" to go to the training classes, which they enjoy.

❑ When building the business case, you took the time to analyze the benefits, costs, and risks of the project from your perspective. Now take the time to examine the project honestly from everyone else's perspective. This will help you overcome resistance, remove potential obstacles for these groups, and create a cohesive team.

Present and Talk about Features, Benefits, and Costs

- From this point until the formal project sign-off, your job is communication.
- Use your strategic plan, benefit analysis, and other information to educate the key stakeholders on what you are trying to do and why.
- But also, be sure to listen to everyone's input as well.
- Work hard to distinguish what is a fear and what is a legitimate concern. Be prepared to make compromises or adjustments to ensure that everyone's needs are met.

Summary

- You may be under pressure to jump into a project quickly so you can be up and running right away.
- Conversely, you may also be under pressure to document and prove the ROI mathematically well before you know enough to make that kind of determination.
- In the end, a balanced approach will help you ensure that your e-learning project has a strong justification, a feasible plan, and a supportive team. As you do so, keep these key points in mind:
    - Understand what you are trying to accomplish and why.
    - Link project goals to overall business goals.
    - Identify and quantify benefits.
    - Identify high-level costs.
    - Calculate the return.
    - Identify key stakeholders and their motivations.
    - Build support.

Chapter 3: Managing an E-Learning Project

Outlines:

1. The Project Management Model and the ADDIE Model
2. Define the Project
3. Plan the Project
4. Implement, Monitor, and Adjust the Project
5. Evaluate the Project
6. Budgeting
7. Resources
8. Timelines and Development Ratios
9. Working With Vendors

Introduction

Every training development project requires strong management skills. But because an e-learning project generally takes more time, costs more money, and involves more people, an emphasis on proper management is even more important.

From defining and managing the project to budgeting and working with vendors, you'll want to stay on top of all the details to make sure your project is delivered on time, on track, and on budget.

The Project Management Model and the ADDIE Model

ADDIE model

- The ADDIE model (analyze, design, develop, implement, evaluate) is widely used to manage training development.

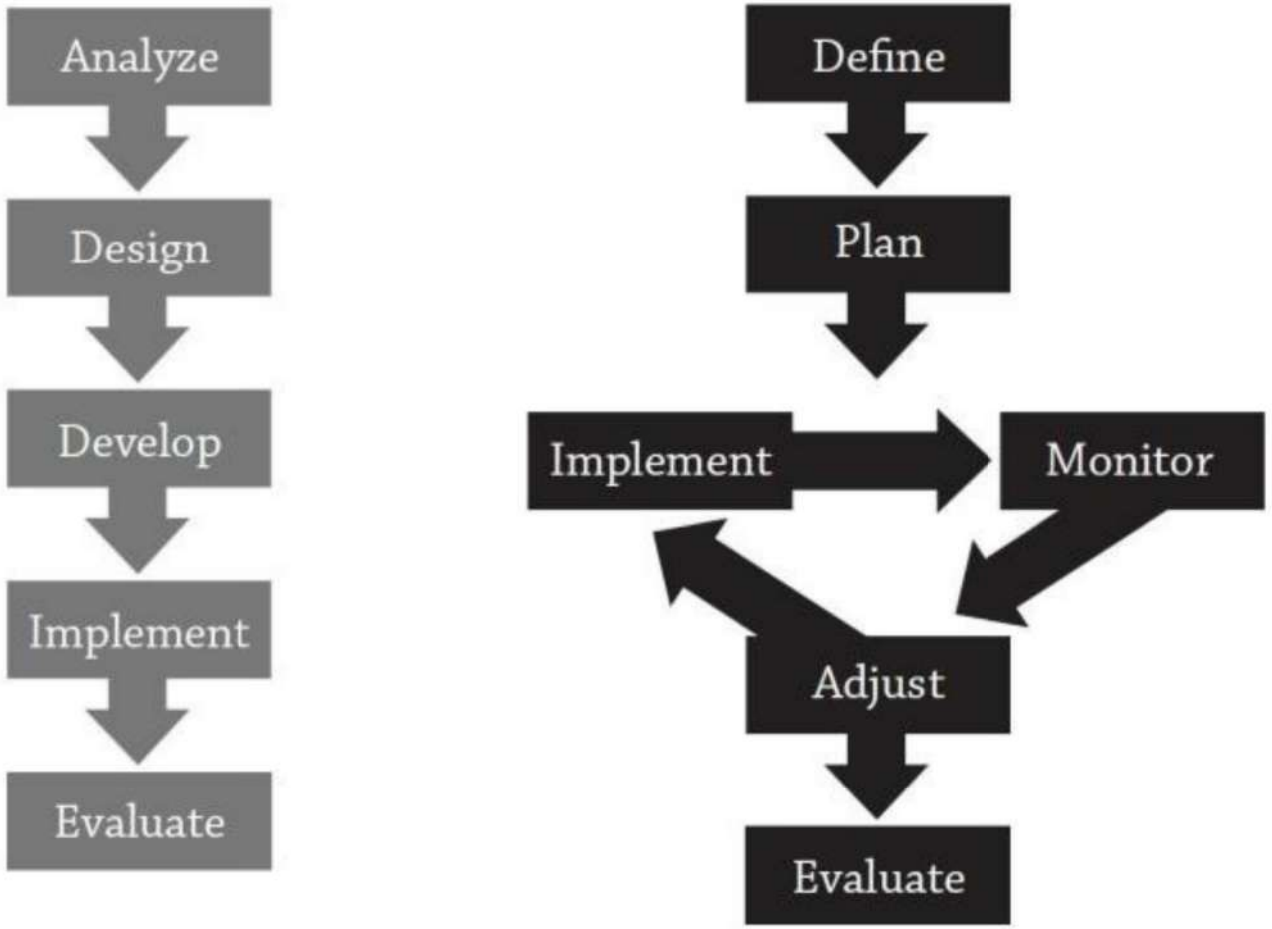
- While the use of this model helps ensure that you have high-quality, effective training, it doesn't necessarily mean the project itself will run smoothly and efficiently.

ADDIE model

- Therefore, a combination of the ADDIE model and the project management model can help you create great training while keeping your project on track.

- The ADDIE model helps you create an effective course, while the project management model helps you run an efficient project.

FIGURE 3-1: THE ADDIE MODEL VERSUS THE PROJECT MANAGEMENT MODEL



Define the Project

- The definition phase of a project is very similar to the analysis phase of the ADDIE model—you are trying to find out what needs to be accomplished. From a project management standpoint, you'll want to make sure you know four main things:

  - what you are trying to do
  - why you are trying to do it
  - who your customers or stakeholders are
  - what success looks like.

Steps for Defining Your Project

1. Create Project Goals and Objectives: To understand (and everyone agrees upon) the reasons why this project is necessary.

2. Understand Drivers: To make sure everyone is clear about what everyone's motivation is.

3. Identify Constraints: To identify high-level resource and time constraints. Understanding your constraints will help you better manage the entire project.

1. Create Project Goals and Objectives:

- In addition to the specific training goals for your course, you want to ensure that you understand (and everyone agrees upon) the reasons why this project is necessary. Think of it as the problem needing to be solved. For example:

• to prepare employees in all 35 locations for the rollout of the new customer-relationship software in April.

• to provide the same training opportunities for supervisors in our remote locations as the supervisors in our home office.

2. Understand Drivers

- To make sure everyone is clear about what everyone's motivation is.
- For example, if your company is starting e-learning because the new CEO thinks it's cool, then you might approach your project one way. If you are starting e-learning because you want better records because of a painful loss in a court case, you might manage the project differently.
- The drivers around the project dictate how much support you get (and keep), what kind of decisions to make, and what kind of trade-offs might be necessary.

3. Identify Constraints

- To identify high-level resources and time constraints.
- For example, some e-learning projects might have an end-of-the-year goal that is arbitrary—the goal is there to have something to shoot for. However, another project might have an end-of-the-year goal because of a new product launch or a grant-funding deadline.
- Other constraints might be a hiring freeze or lack of project funding.

Deliverables for the Project Definition Phase

- Through interviews, negotiations, and brainstorming sessions, you will create a vision for the project.
- This vision should be documented, shared with key stakeholders, and signed off by the project sponsor.
- This documentation may come in in any form or shape such as project charter, scope of work, or project definition statement.

Project Definition Questions

Project Definition Questions

Problem

- What are we trying to do?
- What are we really trying to do?
- What problems are we trying to solve?
- What caused the problems?
- What client needs will be satisfied?
- What are the benefits?

Customers and Stakeholders Statement

- Who is this for?
- Who else is this for?
- Who else needs to be happy for this to be considered a success?
- Who else might want some input?
- Who else might be affected?

Objectives and Scope

- What is the desired outcome? (multiple answers)
- What is the gap between what you want and what you have?
- How will you know you have achieved the desired result?
- What will be different that you can see, hear, touch, measure?
- Which quality criteria are "must do," "should do," and "nice to do"?
- What "extras" might the stakeholders be unknowingly expecting?
- Will successful completion give rise to other needs?
- What does not have to be done?
- I'm sure there's something else—what is it?

Constraints and Obstacles

- What prevents us from achieving the objective or makes it difficult?
- What resource and time constraints exist?
- What is the driver? Does everyone agree?

Additional Issues

- What other needs might be present? Consider department, manager, client, company, and personal.

Sample Scope of Work for E-Learning Course Development

- Overview
- Project goals
- Audience
- Tasks to be performed
- Roles and responsibilities
- Technical specifications
- Deliverables
- Success criteria
- Deadline

Plan the Project

- The planning phase of the project management life cycle corresponds closely to the design phase of the ADDIE model.
- So, while you are designing what the courses should look like, you will need to plan what the project will look like.
- Most e-learning managers start out with a high-level plan based on early information, and then revise the plan at the end of the design phase.
- If you are going to use this approach, make sure the stakeholders know that the first plan is tentative.

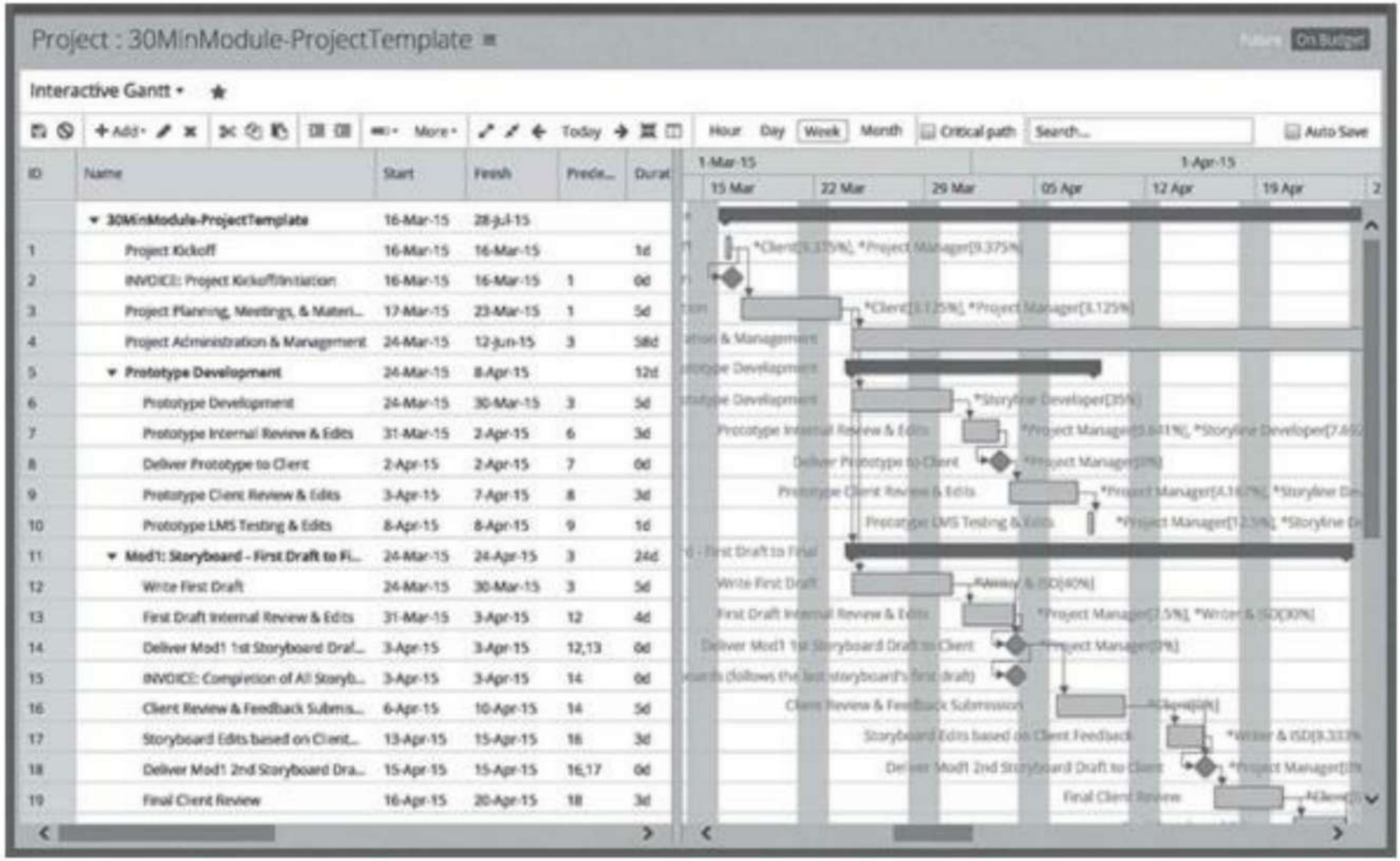
Plan the Project

- It will be difficult to finalize decisions about level of effort, schedule, and budget until you know what the design will look like.
- For example, if the course will include audio or a randomized bank of questions, you will have a higher development effort than if you didn't include either of those.
- At the same time, you can't really wait until the design is done to create your project plan, because the design phase is part of what needs to be managed!

Plan the Project

- A project plan generally contains these elements: task list and schedule; resources (money, staff, equipment); and risks (along with mitigation strategies and contingencies).
- The plan can be developed using a project management tool such as Microsoft Project or with regular desktop applications such as Microsoft Word or Excel.

FIGURE 3-2: SAMPLE PROJECT MANAGEMENT SCHEDULE



Implement, Monitor, and Adjust the Project

- In the ADDIE model, implementation means launching the training.
- In the project management model, implementation means doing the work. This can mean the design, development, and implementation of a training project.

Implement, Monitor, and Adjust the Project

- To manage the project effectively, you should have a solid system for tracking progress, such as which module is being built and which one is being reviewed (as shown in Figure 3.3), and dealing with issues, such as missing content, open questions, or technical implementation concerns (as shown in Figure 3.4). Because e-learning projects are generally more complex than classroom training projects, you may want to use more formal methods of tracking. Status meetings, status reports, and project management software can all help you stay on top of things. Perhaps a simple spreadsheet posted on a shared drive can help you keep everything under control. Be sure to build this project management time into your schedule and development estimates.

FIGURE 3-3: DEVELOPMENT TRACKING SPREADSHEET

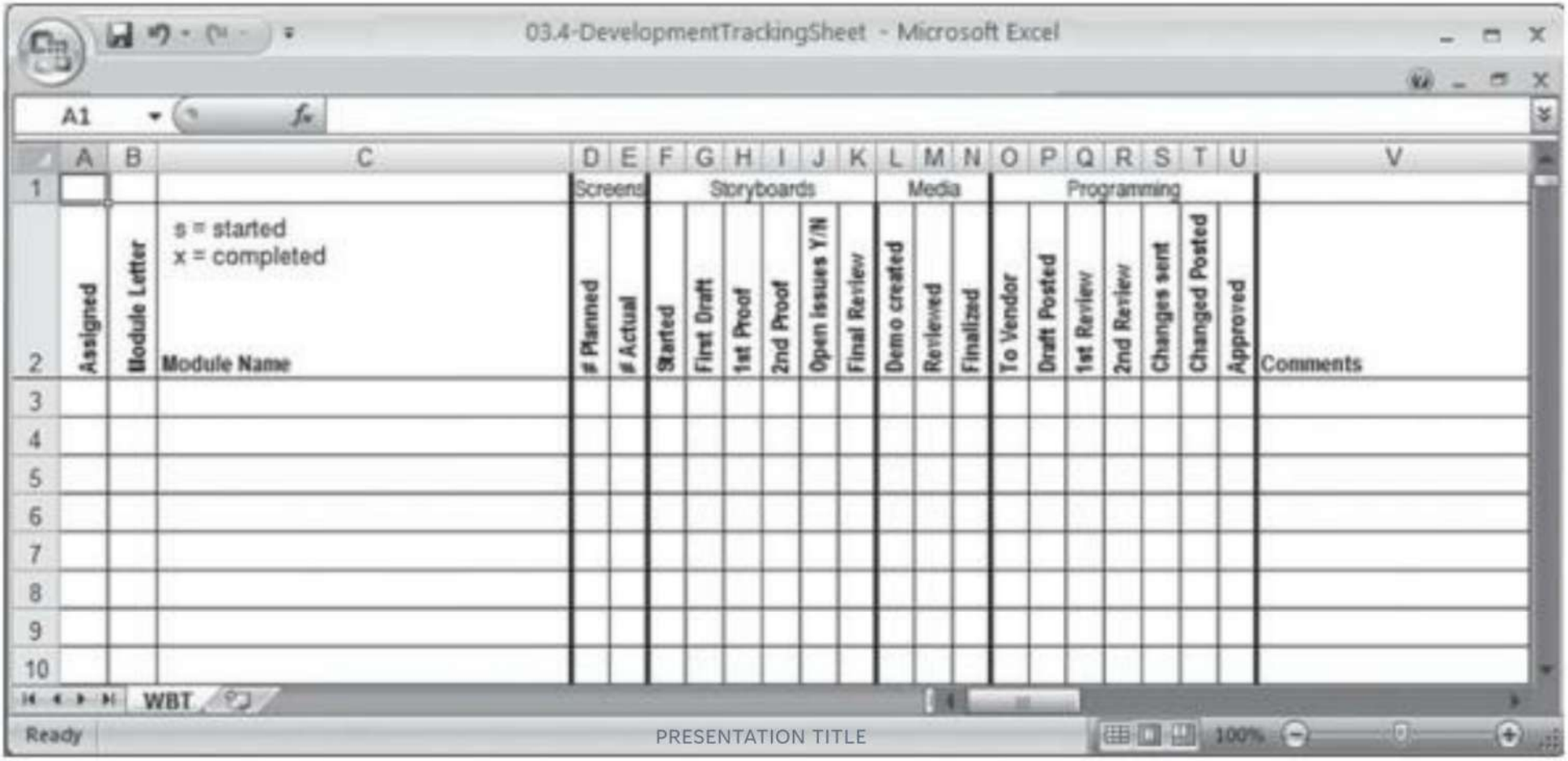
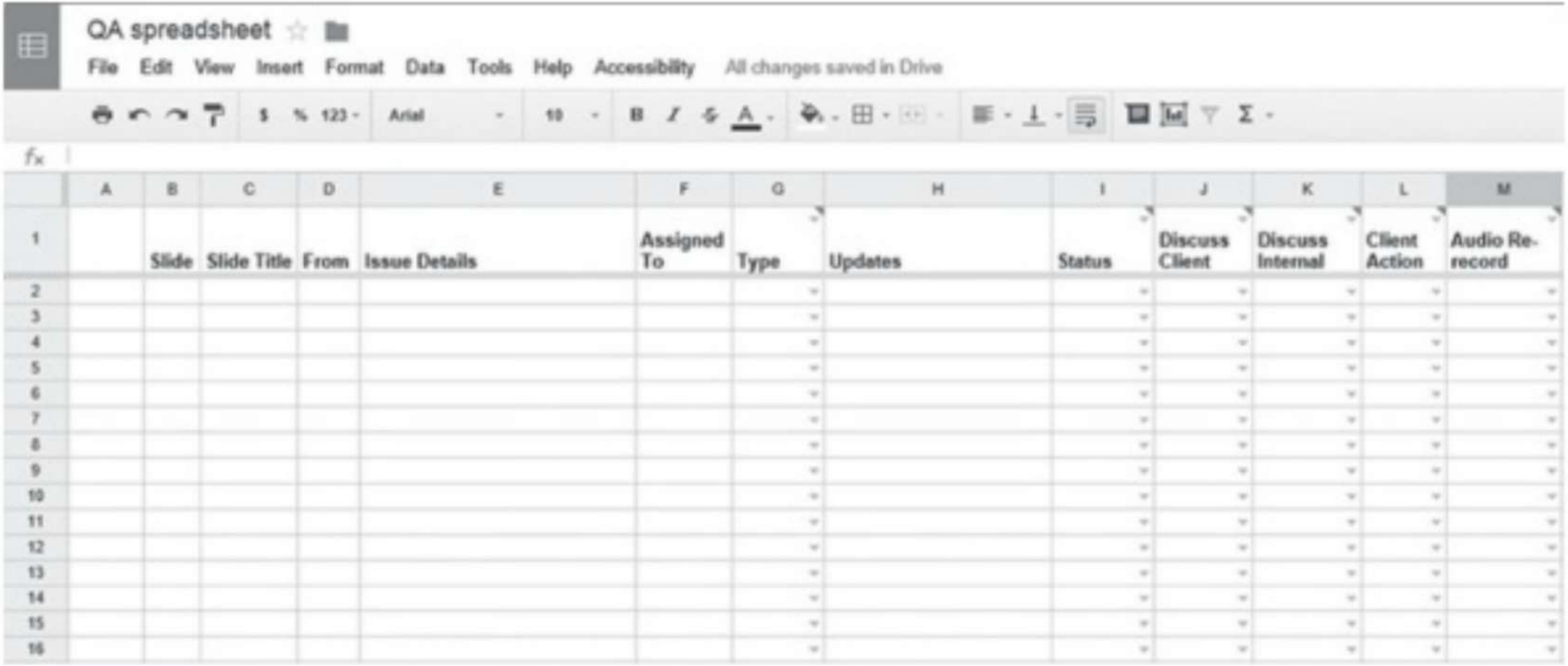


FIGURE 3-4: ISSUES TRACKING SPREADSHEET



	A	B	C	D	E	F	G	H	I	J	K	L	M
1		Slide	Slide Title	From	Issue Details	Assigned To	Type	Updates	Status	Discuss Client	Discuss Internal	Client Action	Audio Re-record
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

Evaluate your Project

- At the end of a project, take the time to evaluate the process as well. Hold a debriefing session and discuss what worked well and what didn't in terms of:
  - team structure
  - schedule
  - budget
  - communication
  - handling issues
  - teamwork
  - customer service

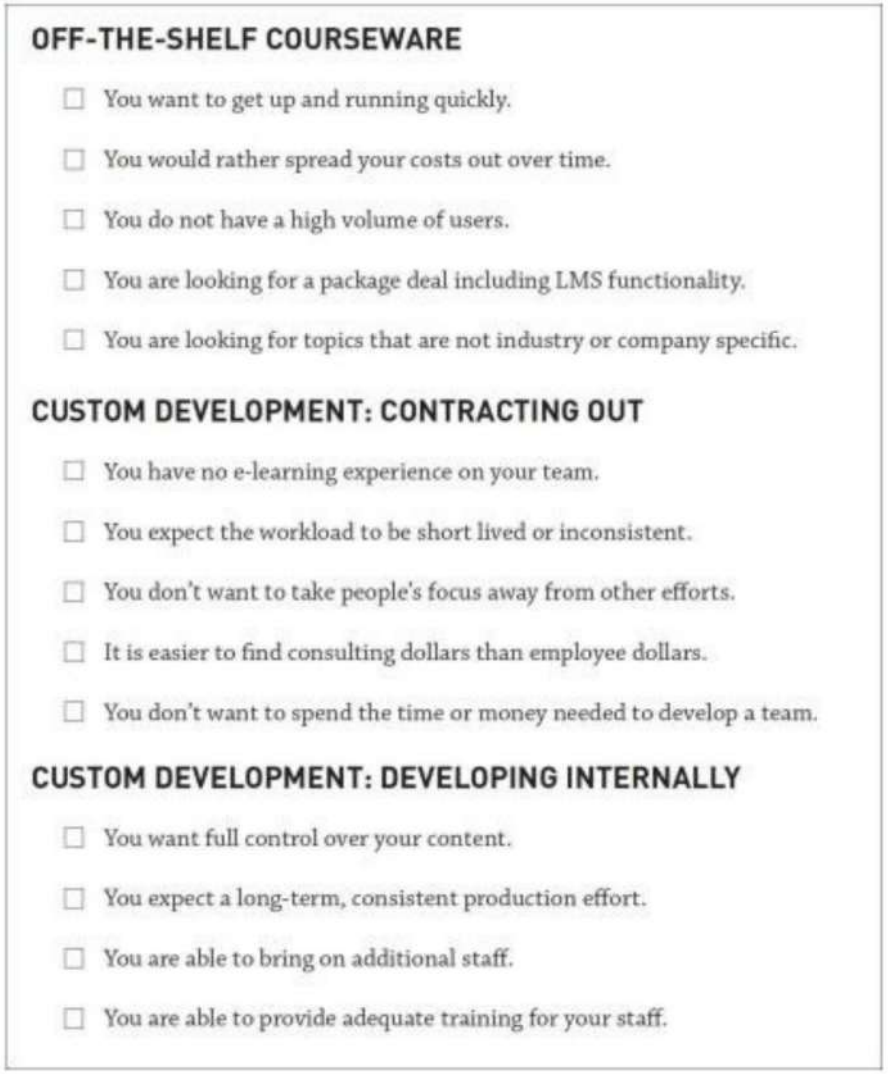
Budgeting

- “Which comes first: the budget or the specifications?”
- It is challenging to put together a detailed budget without knowing what the courses will look like and how they will be developed.
- Yet it can be a waste of time to get all the specifications you need without knowing for sure that you even have the money to do the project.

Acquisition Approaches

- There are several ways to approach the acquisition of content, and you may need to put together sample budgets for each of the options (either here or during the strategic planning stages) to decide the best way to go.

FIGURE 3-5: REASONS FOR DIFFERENT ACQUISITION APPROACHES



OFF-THE-SHELF COURSEWARE

- ☐ You want to get up and running quickly.
- ☐ You would rather spread your costs out over time.
- ☐ You do not have a high volume of users.
- ☐ You are looking for a package deal including LMS functionality.
- ☐ You are looking for topics that are not industry or company specific.

CUSTOM DEVELOPMENT: CONTRACTING OUT

- ☐ You have no e-learning experience on your team.
- ☐ You expect the workload to be short lived or inconsistent.
- ☐ You don't want to take people's focus away from other efforts.
- ☐ It is easier to find consulting dollars than employee dollars.
- ☐ You don't want to spend the time or money needed to develop a team.

CUSTOM DEVELOPMENT: DEVELOPING INTERNALLY

- ☐ You want full control over your content.
- ☐ You expect a long-term, consistent production effort.
- ☐ You are able to bring on additional staff.
- ☐ You are able to provide adequate training for your staff.

Types of Expenses

- ✓ **Developing Tools**
- ✓ **Course Authoring Tools**
  - To assemble the courseware such as:
  - Udutu, are free or open source
  - Adobe Captivate, Articulate Studio, Articulate Storyline, and Trivantis Lectora, cost between $800 and $2,500
- ✓ **Course Element Tools**

Types of Expenses

✓ Course Element Tools

- In addition to the software you use to assemble the course, you may want specialized software for specific elements. These packages can range from $100 to over $1,000. You may want several—or you may not need any. It all depends upon how you design your course and what features are already available in your authoring tool.

- Examples:

- graphics software such as Photoshop Elements
- software simulation tools such as Captivate or Camtasia
- assessment tools such as QuestionMark Perception
- game development software such as Raptivity.

You may also want to budget for a graphics library of some sort. You might purchase a subscription from companies, such as istockphoto or eLearning Brothers, or plan to pay per image as needed.

Pricing Models: Installed Versus Cloud Based

- ✓ Some development tools are available as an installed solution.
- ✓ Some tools, however, are available as a hosted or cloud-based solution, such as dominKnow by Claro, you can use it for a specified period of time (usually one to three years) and access it from the web. When you cancel the agreement, you can no longer use the software .
- ✓ If you are considering a cloud-based solution, make sure you understand all the fees involved. Some companies have a fee to use the software and then additional fees each time the course is accessed.

Additional Tools

- You may need to budget for other technology needs that are part of the overall e-Learning landscape at your organization, such as:
  - LMS and learning record stores (LRS): to launch and track your training
  - learning content management systems (LCMS): to help manage reusability of course assets
  - synchronous platforms: for webinars
  - social media/collaboration platforms: for discussion forums and other collaborative activities.

Internal Team Members or Contractors

- You need to include line items for all the people working on the design and development.
- Even if you are outsourcing development, some of your internal team resources will be needed to manage the project and the vendor.
- When calculating your budget, you may need to include salaries, overhead costs, benefits for each team member, possible overtime, SME time, and maybe wages for the learners while they are taking the courses.

Outsourcing Development

- At the low end, you can pay a few hundred to a few thousand dollars for someone to convert a PowerPoint presentation online or to put a simple series of text-based web pages online when all the content is already put together.
- At the high end, you could pay $50,000 and up per finished course hour if you want extensive simulations, high-quality video, or 3-D animations.
- Most people can expect to pay between $12,000 and $30,000 per finished course hour.

Outsourcing Development

❑ Major variables include:

- **The condition of the content**—Expect to pay less if all the material is written out somewhere; expect to pay more if all the material is in someone's head.
- **The level of interactions and questions**—Expect to pay less for straightforward rollovers and standard question types; expect to pay more for branching scenarios and elaborate simulations.
- **The media used**—Expect to pay less for stock photography and video you provide; expect to pay more for custom graphics, animations, professional voice talent, and shooting or editing any video.
- **Special programming requirements**—Expect to pay less for a template-driven course with preset options; expect to pay more for special requirements such as custom learning paths, or anything else "really cool" you can think of.
- **Review cycles**—If not managed properly, review cycles can take longer and cost more than the initial development. The number of people involved, number of reviews conducted, and number of changes allowed will all affect your costs

Resources: Internal development team

- Regardless of how big or small your development effort is, an internal development team needs to possess certain skills.
- For a large development team, you may need several people for each role.
- For a smaller team, you may need to find one person who can wear all or most of the hats, perhaps supported by contractors or vendors to fill the gaps.
- You may need to hire someone who already has the needed skill or send a team member to specialized training to learn a new skill.

Figure 3-6: Sample Budgeting Worksheet

Item	Per Unit Cost	Number of Units	Total Cost
Development tools			
Authoring tools			
Graphics library			
Audio recording equipment			
Training on new tools			
Staff (internal or contract)			
Course developers			
Proofreaders			
Programmers			
Consultant for first course			
Project manager			
SMEs			
Learners' wages during course			
IT costs			
Additional servers			
Additional computer kiosks			
Headsets			
New training dept. workstation			
Help-desk support			
Additional costs			
Program promotion and launch			
Evaluation expenses			
Course-update costs			
TOTAL			

Timelines and Development Ratios

- According to the Chapman Alliance, a basic one-hour course might take 80 hours to create.
- For high-end courses or development that involves full analysis and content gathering, you may spend over 500 hours for one hour of courseware.
- The biggest variables surrounding how long it will take to create a course are the same variables that affect the cost of a course:
  - condition of the content
  - level of interactions and questions
  - media used
  - special programming requirements
  - review cycles.

Timelines and Development Ratios

ChapmanAlliance
PASSIONATE ABOUT INNOVATIVE LEARNING

Development Ratios - Summary

ILT, Level 1 eLearning (Basic), Level 2 eLearning (Interactive), Level 3 eLearning (Advanced)

	Rapid Development, Simple Projects	Average *Typical Project*	Advanced, Complex, More Media
Instructor-Led Training (ILT)	22:1	43:1	82:1
Level 1 eLearning (Basic) – Content Pages and Assessment	49:1	79:1	125:1
Level 2 eLearning (Interactive) – Level 1, plus 25%+ interactive exercises	127:1	184:1	267:1
Level 3 eLearning (Advanced) – Simulations, Games, Award Winning type	217:1	490:1	716:1

ChapmanAlliance

Research data collected: September 2010, by Chapman Alliance

FIGURE 3-7: DEVELOPMENT RATIOS

FIGURE 3-8: SAMPLE DEVELOPMENT HOURS RATIO CHART

Task	Ratio to Develop
Gather content	6 to 1
Write storyboards	30 to 1
Review and revise (internal)	20 to 1
Revise (external)	10 to 1
Assemble course (including media)	70 to 1
Review and revise (internal)	20 to 1
Review and revise (external)	10 to 1
Subtotal	**166 to 1**
Project management	Add 10%
Total	**183 to 1**

Working with Vendors

- An e-learning project may include vendors to provide software, hardware, consulting, or development. Selecting these vendors is an important decision and might best be treated as its own project.
- Part of what makes the selection of an e-learning vendor challenging is the fact that you may not know enough to assess when a vendor is good, operating outside of his or her expertise, or is about to rip you off.
- Your best protection against picking a bad vendor is doing your homework: making sure you know what you do and do not want and taking a systematic approach to vendor selection.
- Your best protection against having a project go sour because of a vendor is to make sure you manage the relationship formally.

Summary

- Great e-learning projects don’t just happen. They are expertly defined, planned, implemented, and evaluated. By adding project management tools to your toolbox, you will increase the efficiency of the process and the quality of the end product.

Chapter 4: Tools to Create and Manage a Self-Paced E-Learning Program

Outlines:

1. Authoring Tools
2. Element Tools
3. Assessments
4. Audio and Video

Authoring Tools

- An authoring tool is the software you use to assemble the course. It is the tool you would use to place all your course elements (such as text, graphics, and questions) and turn individual screens into a complete course (with pages, navigation, menus, and buttons).
- Authoring tools have a variety of features, come in a wide range of prices, and require different levels of skill. Some tools are very simple to use with templates, wizards, and features that work just like common business software such as Word or PowerPoint.

Authoring Tools

- Other tools allow for greater design flexibility but are more difficult to learn—some even require programming knowledge.
- Selecting the right tool involves consideration of the price, time for development, the level of skill of your users, and the features you want to include in your course.

Authoring Tools Classification

1. Web Authoring: An e-learning course can be considered a type of website or web page. Because of this, any tool that can be used to create a website can be used to create an e-learning course.

   EX: Adobe Muse

- The disadvantage of web-authoring tools is that they are not designed specifically for e-learning. Therefore, many of the course elements must be custom-built, or you would need to buy third-party software to get around this issue and build some of the course structure for you.

Authoring Tools Classification

1. Web Authoring Tools
2. HTML Editors: Courses created with an HTML editor tend to be low bandwidth, easy to update, and very compatible with different operating platforms. In addition, web programmers can use programming languages (such as JavaScript) to create advanced features. Ex: Adobe Dreamweaver.
3. Media and Application Tools: For more interactivity and media, you could consider using more advanced web applications such as Adobe Flash or After Effects. These programs are designed to create slick visual presentations and are even used to build new software programs.

PowerPoint Conversion Tools

- Some of these conversion tools simply convert the PowerPoint document to a Flash file or other web-enabled format.
- While this doesn't make for very interactive learning, it makes it easy to launch and track the presentation on your LMS.
- Other conversion tools let you add e-learning elements such as interactions, quizzing, and tracking, available on a new menu in your PowerPoint software. Ex: Articulate Studio and Adobe Presenter.
- The downside is that the final product may look more like an online presentation than online learning.

Which Authoring Tool to Use?

FIGURE 4-3: SAMPLE COURSE-AUTHORING TOOL CHECKLIST

Feature	Importance	Tool 1	Tool 2
General			
Company name			
Website			
Access to demo			
Installed or cloud based			
Purchase price			
Maintenance and upgrade fees			
Other fees			
Training provided			
Support provided			
Can be bought alone (not with LMS)			
Company Information			
Years in business			
Number of users			
Year this tool was released			
Year this version was released			
Media			
Audio			
Accepts audio files (which formats?)			
Plug-ins or players learners need to play audio			

Element Tools

- While an authoring tool helps you assemble your course as a whole, you may also need tools to help you with individual course elements.
- These elements can then be pasted or imported into your authoring tool.
- In some cases, your authoring tool may have the capability to create these elements and you wouldn't need a separate tool.

Element Tools

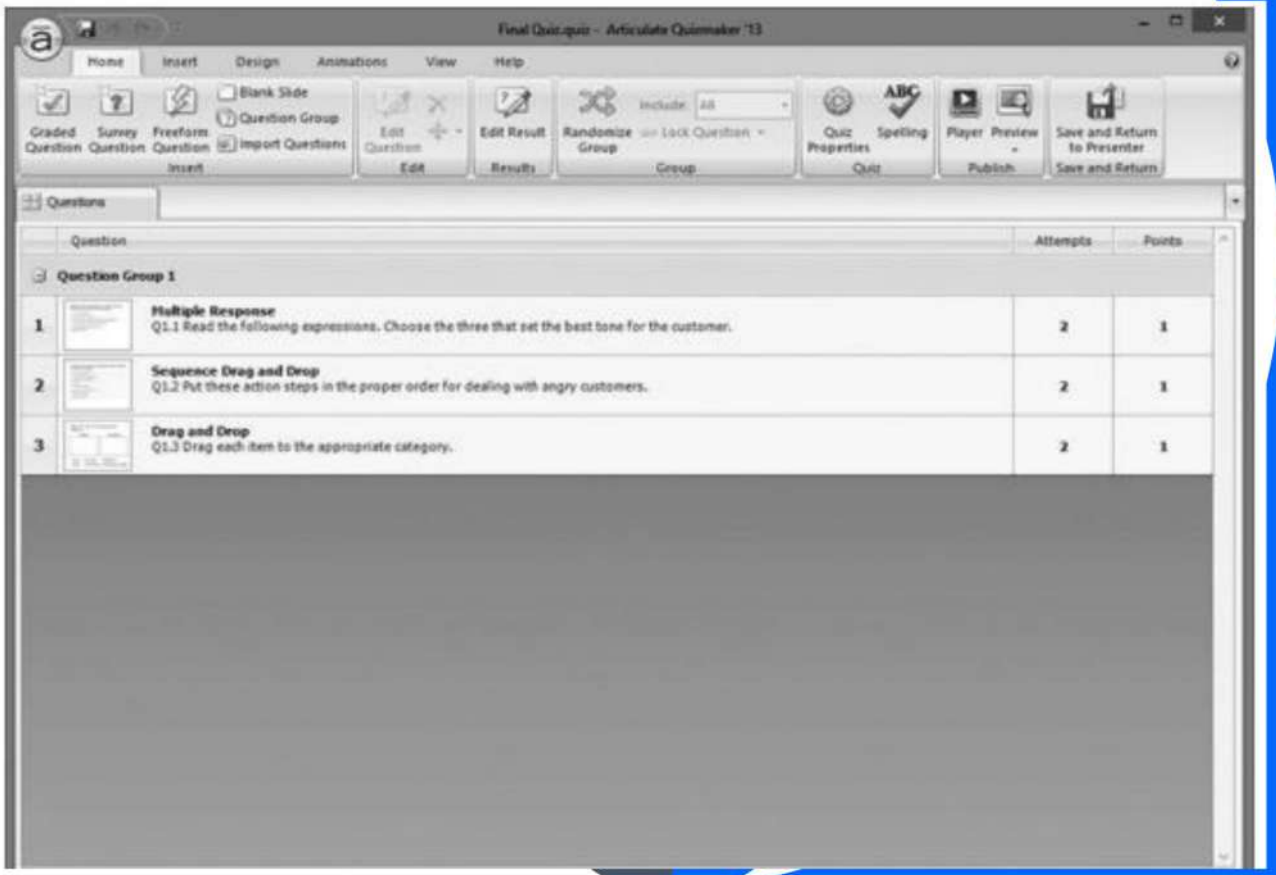
- Graphics Tools:
  - Photo editing software: Adobe Photoshop, Snagit
  - Graphics creation software: Adobe Photoshop, Adobe Illustrator, Adobe Edge Animate, Snagit, PowePoint
- Interactions and Animations: allows you to create more advanced, more flexible, and more creative interactive elements.
  - Adobe Flash, Adobe Edge Animate, Articulate Engage, Raptivity

Element Tools

- Simulations:
  - Adobe Captivate, TechSmith Camtasia, Articulate Storyline, Articulate Studio
- When creating courses designed to teach software applications (such as order processing or customer-relations management software), you can include onscreen simulations of how the software works.
- You can even create practice or testing sessions where learners may try the steps themselves. Special tools are available that make it quick and easy to create these simulations.

Element Tools

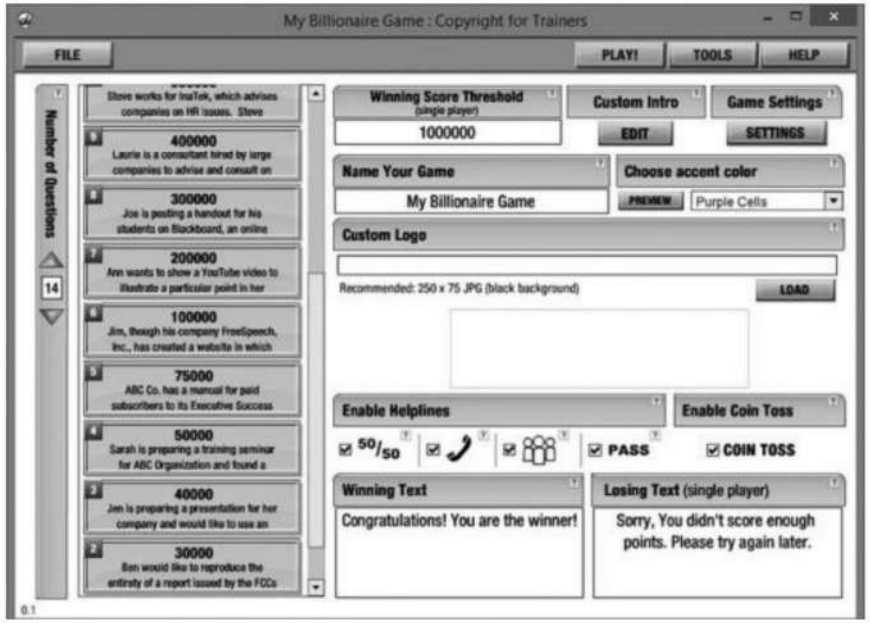
- Quizzes and Tests:
  - Questionmark Perception, Articulate Quizmaker



Element Tools

- Games: If you'd like to get more creative with your quizzing and assessments, you may want to consider software that lets you create online games.
  - BRAVO! (C3 SoftWorks), Raptivity (Harbinger Group)

FIGURE 4-10: MY BILLIONAIRE GAME FROM BRAVO!



Element Tools

- Audio and Video: Many e-learning developers use Audacity for audio editing because it is relatively easy to use ... and it's free.

- For video, tools such as Microsoft Windows Movie Maker, Adobe Premiere or Premiere Elements, and Adobe Director provide a nice balance of capability and ease of use.

- On the high end, you could purchase very expensive equipment to record, mix, and edit audio and video. However, unless you have a large-scale production effort or other needs in the company for similar services, it is often best to contract out any high-end media production.

Summary

- Many options allow you to create, deliver, and manage your eLearning.
- It is important to establish upfront which features you want, prioritize them based on necessity, and then find the best product to meet your needs and your budget.

Chapter 5: The Analysis Phase

Outlines:

1. Business Analysis
2. Audience Analysis
3. Technology Analysis

ADDIE Model (Analysis Phase)

- ADDIE model (analyze, design, develop, implement, evaluate) is widely used to manage training development.
- The analysis phase began during your strategy and project planning phases and continues as you gather information that helps you make many design decisions about your e-learning courses.
- The goal of analysis is to ask the right questions and discover information about the business environment, learners, and technology in the organization so you can determine the most effective course design.

Business Analysis

- Training professionals are often given a problem that the organization is facing and are told to solve it with training.
- From Figure 5-1, asking these questions will help you understand:
  - whether training will solve the problem
  - when training won't solve the problem, whether it can still help in some way
  - who needs the training
  - who should be involved in development
  - what the objectives should be
  - what information to include
  - how that information would best be taught
  - if e-learning would be a good format.

FIGURE 5-1: PROBLEM ANALYSIS CHECKLIST

Question	Answer
What is the problem?	
What caused the problem?	
Where is the problem (certain department, entire organization, etc.)?	
When did the problem begin?	
Is the problem persistent?	
Has the problem ever occurred before?	
What are the issues that surround the problem?	
Has anyone tried to fix the problem before? If yes, how did they try to fix it and what was the outcome?	
How was the problem discovered?	
What are the consequences if the problem continues?	
What are the benefits if the problem is solved/lessened?	
Are there legal or compliance issues involved?	

An Example—Low Sales

- Say you are told that sales have decreased 30 percent during the last quarter, and you need to find the cause.
- You may find the cause is a change in a customer-service policy or perhaps the release of a new product that the sales force doesn't understand how to present to customers.
- If the issue is the policy, that would suggest a review of the policy would help most, rather than training.
- If the issue is the new product, then maybe some quick training is needed on features, along with discussions on how to present the product.
- If just product knowledge is needed, self-paced training might be effective.
- If discussion is necessary to help the sales team determine how to apply the information in real-world situations, perhaps a blended learning solution would work best so that the salespeople could discuss different scenarios and options in a classroom setting.

The Business

- Understanding the overall business environment also helps you make decisions about how to approach training—whether classroom or computer-based.
- From Figure 5.2, these questions will help you decide:
  - the style and tone of the interface, graphics, and language
  - the best format (classroom, e-learning, or type of e-learning)
  - the cost-effectiveness of an e-learning solution.
- For example, a traditional, conservative financial institution may not be suited for game-based simulations; similarly, an organization with locations throughout the world may not be able to support live webcasts because of time-zone differences.

FIGURE 5-2: BUSINESS ANALYSIS CHECKLIST

Question	Answer
What is the business (retail, manufacturing, etc.)?	
What types of tasks do the employees do?	
What are the job classes (manager, associate, etc.)?	
How many locations are there?	
How spread out are the locations? Different countries? Time zones?	
What are the different departments?	
How many employees are there?	
What is the business culture?	
What is the turnover rate for the organization?	
Who are the decision makers in the organization?	
Are there corporate communication guidelines you need to adhere to (fonts, colors, logo usage)?	

The Learning Environment

- Studying the learning culture and environment for the entire organization will help in making important training decisions.
- If e-learning has been used by the organization, find out everything you can about what topics were rolled out, how it was designed, and how the learners responded.
- From Figure 5-3, Knowing the answers to these questions can help you decide:
  - whether e-learning is a good fit
  - how hard you might need to "sell" e-learning to the organization
  - whether you need an LMS and with what features
  - what kind of navigation and testing to include in the course
  - how long to make each course or module
  - which authoring tool might be best
  - how you will plan your implementation.

FIGURE 5-3: LEARNING ENVIRONMENT ANALYSIS CHECKLIST

Question	Answer
How is training perceived in the organization? - By upper management? - By the target audience? - By the supervisors of the target audience?	
What types of training have been used before?	
What types of training have been successful?	
What learning incentives have been used in the past—positive and negative?	
What disincentives to completing training might exist?	
Are there limitations on who can take classes (for example, by job function, job title, or employment status)?	
Who is in charge of training?	
How much money is in the budget for training?	
Who is most likely to develop the training: training department, contractors, subject matter experts?	
How often will the material change/need to be updated?	
Do you have mandatory training requirements? Self-imposed requirements?	
Do you have mandatory testing requirements? Self-imposed requirements?	
Do you need to prove to anyone that the training was completed? Passed?	

Question	Answer
Are grades important?	
In what ways is training tied to performance (such as bonuses, appraisals, etc.)	
How long can the target audience typically get away for when they need training?	
Should a learner pick and choose courses?	
Should a learner pick which sections of a course to take?	
Do the learners need to take the training even if they know the information?	
Has e-learning been introduced to the organization? With what reaction and result?	
What tracking and reporting needs do you have?	
Do you have certain training that must be taken again annually?	

Audience Analysis

- The audience analysis is your key to understanding learners' abilities to take your course and learn the material.
- Analyze everything—from your audience's language abilities and computer knowledge to their motivations and existing knowledge of the subjects being taught.

FIGURE 5-4: AUDIENCE ANALYSIS CHECKLIST

Question	Answer
Demographics	
What are the different age groups?	
What are their educational backgrounds?	
What is their English proficiency (reading, writing, listening)?	
What other languages are spoken that might be preferable for the training?	
Are there literacy issues?	
What is the reading level of the group?	
Work Environment	
Will learners be taking courses from home?	
Will learners be taking courses while traveling?	
Does the environment have interruptions?	
Does the environment have noise?	
Will noise disrupt the learners' environment?	
What shift(s) do they have?	
When will they take the training?	

Question	Answer
Computer Knowledge	
Are learners comfortable using computers? - What is their computer proficiency? - What are the different proficiencies within the target audience?	
Are learners comfortable with the e-learning format?	
Subject Matter	
What level of knowledge do learners already have?	
What experiences have they had with subject?	
Are they likely to need to refer to the material again after training is complete?	
Are they likely to have trouble understanding the information?	
Are they likely to have trouble applying the information?	
Motivation	
How receptive are the learners to training in general?	
How receptive are the learners to THIS topic?	
Are they being forced to go to training?	
Have you had situations where the learners tried to "get around" completing mandatory training?	
Are there concerns about cheating?	
Disabilities and Special Needs	
Is there anyone in the target audience with special auditory needs?	
Is there anyone in the target audience with special visual needs?	
Is there anyone in the target audience with special motor skills needs?	
Is there anyone in the target audience with special cognitive needs?	

Audience Analysis

- From Figure 5.4, knowing more about your audience can help you make decisions about:
  - what format to use for the training
  - whether to use fixed versus flexible navigation
  - how to structure testing
  - whether to make the course Section 508 compliant or perhaps use some of the programming guidelines found in that requirement
  - how to present your information (style, graphics, benefits, language)
  - what advanced course features to use or leave out
  - what help features and instructions to use
  - where the training should take place
  - what information to include, leave out, or allow people to test out of.

Technology Analysis

- From Figure 5-5, Understanding this information will help you make decisions about:
  - what authoring tool to use
  - whether you need to set up dedicated training stations
  - what file size, plug-in, and other design restrictions you might have
  - what type of media can be used
  - what upgrades might be necessary for implementation?

FIGURE 5-5: TECHNOLOGY ANALYSIS CHECKLIST

Question	Answer
Technology for Learner Computers	
Do they have speakers or headphones?	
Do they have a sound card?	
What is the processor speed?	
What operating system are they using?	
Do they have Internet access?	
What is the browser type and version?	
What is the connection speed?	
What is the screen size?	
How much memory do they have?	
Do they have a webcam?	
Do they have video playback capability?	

What drives are available (CD, USB, DVD)?	
Is a printer available?	
Do they have a microphone?	
What version of the Flash player is installed?	
Mobile	
Will they be using mobile devices?	
Which devices?	
Which operating systems?	
Which versions of which browsers?	

Question	Answer
Restrictions	
What is their bandwidth?	
Is there a firewall?	
Can they download and install files?	
Are there guidelines for individual file sizes?	
Are there certain websites that are blocked?	
Miscellaneous	
Will anyone be accessing the courses through a remote network (such as Citrix)?	
Would any information need to move between your course and other systems?	
Would your courses need to be SCORM, AICC, or SCORM compliant?	

Summary

- During the analysis phase you want to gather valuable information that will help you make decisions about your training.
- Ask questions about the problem, business, audience, and technology.
- Once you have the answers to your questions, use the design phase to decide what solutions are best and what your objectives will be.
- The next three chapters explain what to do with the information you have gathered and how to make design decisions that you will use when developing your course.

Chapter 6

The Design Phase

Agenda

1. Broad Strategies
2. Learning Objectives
3. Prerequisite
4. Content Outline
5. Instructional Strategies
6. Delivery System
7. Test Questions
8. Course Features, Functions, and Design
9. Design Document

1. Broad Strategies

- The analysis phase was about gathering information while the design phase is about making decisions based on that information.
- Steps that are considered during the design phase:

  - develop learning objectives
  - determine prerequisite skills
  - create a content outline
  - decide on instructional strategies for content presentation, practice activities, and assessments
  - choose the right delivery system
  - create test questions
  - decide on course features, functions, and design
  - create a design document.

Developing Learning Objectives

- Learning objectives are "clear, measurable statements of behavior that a learner must demonstrate for training to be considered a success."
- Objectives help you decide what to include in the course, help the learners understand what they will get and what will be expected of them, and help you evaluate the learner and the course.
- A strong learning objective covers only one point, is focused on what the learner will do, and generally contains a behavioral outcome, a condition, and a success criterion or standard and can be tested.
- You may create a hierarchy of objectives such as:
  - course objectives, module objectives, and section objectives

Prerequisites

- To identify the knowledge, skills, and abilities you expect the learners to have before taking the course.
- This helps you:
  - decide what not to include in the course
  - notify the learner upfront of the expectations
  - set up prerequisite training requirements, especially if you have a learning management system that can track such things
  - develop your content to the right level of knowledge.

Create Content Outline

- To decide on the order and flow of the material. Examples:
  - ✓ in the order that it will come up on the job (such as a series of business, computer, or manufacturing processes),
  - ✓ from the simple to the complex (such as scientific information or business theories),
  - ✓ or from the general to the specific (such as employee orientation information about the industry, the company, then the department).

Course Hierarchy and Outline

- To determine how many levels in the course
- To determine when to break topics into modules or lessons
- To outline how much information should go on a single screen
- You are not writing the content at this stage, but you are outlining the courses, modules, and lessons

Presentation

- Many factors in deciding the best way to present information to learners:
  - Type of information—Is it a fact, concept, attitude, procedure, or behavior? Is it simple or complex? Is it likely to cause resistance or confusion?
  - What you want them to do with the information—Do you want them to know something, believe something, or do something?
  - The level of mastery you want them to have—Do you want them to be able to recall, comprehend, or apply a fact or concept? For a skill or procedure, do you want them to be able to perform it on their own or with guidance?

Presentation

- Possible presentation strategies:

- video presentation (live or recorded)
- audio presentation (live or recorded)
- text narrative
- lecture
- question and answer
- reflection
- on-the-job training
- mentoring or coaching
- scenarios
- simulations
- diagrams
- exploratory activities
- demonstrations
- discussions
- group activities
- self-directed research
- documents to be read
- assignments

Practice

- Effective training allows the learners to practice and receive feedback:
- Some common practice options:
  - fact checks (simple questions sprinkled throughout the presentation)
  - simulated role plays
  - games
  - scenario situations
  - branching simulations
  - simulated practices
  - hands-on practices
  - group projects
  - written exercises.

Testing and Assessment

- With a formal assessment, you'll want to consider a few other factors as well:
  - Do you want a pretest and a post-test?
  - Do you want unit assessments, module assessments, or course assessments?
  - Will you want to put security procedures in place to increase the integrity of the results?
  - Do you want the learners to have more than one try or receive assistance?
  - Can the learners refer to any materials or work together?
  - Can the learners view the final score, the result of each question, the correct answer to each question, or the reason behind the correct answer? Can they see this after each question or at the end of the test?

Testing and Assessment

- Identify your reasons for including testing:
  - **interaction**—to keep learners engaged and involved
  - **self-awareness**—to let learners know, for their own benefit, how they are doing; this can help them decide for themselves if they need to go back and restudy any of the information
  - **remediation and correction**—to provide learners feedback on their mastery of the material and redirect them as needed
  - **reinforcement**—to make sure a certain teaching point is not only learned but also remembered, to reinforce information
  - **course direction**—to create customized learning paths for each learner based on what he or she already knows
  - **course evaluation**—to determine if the course truly taught what it was supposed to teach
  - **learner evaluation**—to assess if the learner knows what you want him or her to know
  - **certification**—to be 100 percent sure the learner knows what you want him or her to know and to be able to document it.

Creating a Testing Strategy

- This includes several one-time decisions about how questions will be structured, written, programmed, and presented.
- The types of questions are driven by:
  - the type of content
  - the specific objectives
  - the authoring tool
  - whether or not there is an instructor available

Types of Questions

- Multiple Choice: most common in e-learning, best for facts, concepts, and even applications.
- True/False: should be saved for straightforward factual information with little room for interpretation, such as policies and procedures.
- Matching: pair up two different facts, concepts, or even pictures, and work well with terminology, classifications, or software commands

Types of Questions

- Fill in the blank: requires a higher level of mastery from the learners because they need to remember the answer on their own, rather than just recognize it in a list.
- Short Answer and Essay: require a subjective evaluation. In some cases, you can have the answers sent to your LMS or emailed to an instructor for evaluation.
- Drag and Drop: many variations of this question type can be taken, including labeling parts of a diagram, putting steps in order, or putting information into categories.

Types of Questions

- Simulation: means a simulated environment for a process, software usage, or equipment usage.
  - For example, in a math course, you may be asked to perform calculations on a simulated on-screen calculator.
  - Are job-oriented and performance-focused,
  - Very effective
  - More expensive to create and maintain.

Types of Questions

- Quiz Games: a good choice if you need lots of repetition and practice to make sure your audience truly remembers the information.
- Games can also be a nice touch when you expect your audience to have low motivation for the subject or a low attention span.

Placement

- Based on your testing goals, you may want pretests, post-tests, or individual questions embedded throughout the content.

Pretests

- Used:
  - to judge the effectiveness of the course (comparing “before” knowledge to “after” knowledge) or
  - when you want a custom learning path for the learner.
  - There are several options for using a pretest for custom learning paths:
    - ✓ Test results automatically pull up only the content the learner has not mastered, with credit given for the rest of the material.
    - ✓ Test results give credit for the material mastered and suggest a path, but the learner can take the entire course if desired.
    - ✓ Test results provide a suggestion for learners to use as they see fit. There is no credit given and all content is available.

Post-tests

- Can be included at the end of each lesson, module, course, or even some combination of these.
- These tests are scored and tracked.
- For example, you may want a post-test at the end of each lesson for reinforcement and to help the learners decide if they are ready to move on.
- Then you may include a scored and tracked post-test at the end of the entire course that you use for certification purposes.

Embedded Questions

- are for practice, reinforcement, remediation, and keeping the learner engaged.
- are usually not tracked and are most often included just for the benefit of the learner.

Remediation

- Is used to describe any feedback given to a learner during a practice or test exercise.
- Technically, it means correcting a fault.
- Remediation can be provided as each question is answered or in a summary report given at the end of the test (particularly in very formal assessments and certifications).

End-of-Test Remediation

- Final score only (no feedback, reliable, not sharing answers)
- Right and wrong indication(to show the final score at the end and let the learners know which questions they did or didn't get right—but without showing them the answers.): some feedback, keeps integrity high.
- Answers provided for questions missed (to display only the questions they got wrong, along with the correct answer, increases the remediation for the learner, but does allow them to copy down or share that information.)
- Answers provided for all questions at the end of the test (gives useful direction to learners for areas needing improvement and reinforcement for those questions answered correctly, easy to use when retaking the test or to share with other learners).

Per-Question Remediation

- Standard for the whole course (there can only be one “correct” message and one “incorrect” message for the entire course to let learners know if they got the answer right or wrong).

- Question-specific remediation without explanation (indicates whether learners got the answer right or not and what the right answer is but with no explanation as to why).
- Question-specific remediation with explanation (to include an explanation that provides details on the correct answer).
- Per-option remediation (most detailed form of remediation, a separate message displayed based on which individual option learners selected, such as one message if they guessed “a” and a different message if they guessed “b,” even though both are wrong, allows to provide tailored feedback by addressing what was right or wrong about the specific choice the learners made).

Outlining the Instructional Strategies

Objective	Type of Information	Presentation	Practice	Assessment
Set up an out-of-office message in Outlook	Procedure	Demonstration (live or simulated) with narrative text (written or presented) to provide context	Hands-on practice, either simulated or in a live system, with the ability to reference the procedure if needed, and feedback for each step (either system generated or provided by an instructor)	Hands-on practice in a real or simulated environment without reference to the procedure. Correct or incorrect feedback provided, but without explanation or assistance

Special E-Learning Considerations: Standards and Compliance

- The design phase is the perfect time to decide if you want or need your courses or other e-learning systems to comply with any industry standards and guidelines.
- If you want your course to talk to your LMS, make sure they are talking the same language.
- The e-learning industry has three main interoperability standards (SCORM , AICC , Experience API) you can use to make sure the course and LMS talk to each other.

Special E-Learning Considerations: Standards and Compliance

- Section 508 is a part of the Rehabilitation Act of 1973 as amended in 1998. It provides guidelines for all federal government agencies to ensure their electronic communication is accessible to those with disabilities. E-learning falls under the category of electronic communication.

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Test Questions Randomization

- To increase the integrity of your test, you may want to include some randomization options, such as:
  - ✓ mixing up the order of the questions or
  - ✓ using different questions each time.
- Reasons for employing randomization in your tests:
  - ✓ to make sure that if learners need to retake the test, they are truly being retested on the content, rather than being retested on whether they remember what the right and wrong answers were the first time around.
  - ✓ to limit the chance that learners will share the answers.

Common Randomization Options

- Order of options: the same questions appear for each learner each time one of them takes the test. But the answer options are in a different order.
- Order of questions: the same questions appear for everyone, but they appear in a different order.
- Questions pulled from a question bank: different questions appear for each person or each time the same person takes a quiz. But needs to create more questions than would be used, and the course creates a unique quiz for each person. (harder to share answers)

Common Randomization Options

- Questions pulled per objective from a bank:
- using the previous method, will not guarantee that all objectives will be tested. The learner could end up with two questions on objective one and no questions on objective four.
- One way to guarantee all objectives are met with a question bank is to create a separate bank for each objective. Then one question is pulled from each bank, guaranteeing that all objectives are tested equally.

Common Randomization Options

- Questions pulled per objective from a bank:
- requires objectives to be identified, several questions to be developed for each objective, and the test engine to be able to pull one (or two, or three, for example) from each objective to create the test.
- the most secure self-paced testing methods
- guaranteeing all objectives are tested.
- requires the most logic to be programmed into your system or built into your authoring tool.

Other Options for Your Testing Strategy

- Allow partial credit for any question that requires knowledge of several pieces of information (such as a multiple-choice question with more than one correct answer or a matching question).
- Put one question on a screen, versus having all questions on one scrolling screen.
- Weigh some questions more heavily than others in the overall score.
- Set a time limit to answer the questions.
- Incorporate media elements into the question (audio, video, or graphics).

The Question Creation Process

- ❑ Writing good questions can easily be the most time-consuming part of building your content.
- ❑ Be sure to review your objectives carefully and always use them as your guide.

Common Mistakes With E-Learning Questions

- Questions don't test the most important information but rather the easy to test.
  - Solution: Review your objectives and create a question outline first. Then develop your questions from that list.
- Questions don't fully test the objective: Some tests provide just one or two simple questions about single facts in a lesson. Knowing the answer to those one or two questions does not mean the learner has fully achieved the objective.
  - Solution: Review your objectives and create a teaching point list first. Then develop your questions from that list.

Common Mistakes With E-Learning Questions

- Directions are unclear.
  - Solution: Remember the skill level of your audience when constructing questions and think like a true beginner when writing instructions for them.
- Questions have “clues” about the correct answer: Experienced test takers have learned over time how to increase their odds when guessing a question.
  - Solution: Make sure you aren’t helping the guessers.

Common Mistakes With E-Learning Questions

- Questions don't match the content: test content not covered in the material or content covered in a different module.
  - Solution: Have clearly defined objectives and questions before you develop your content. Have a full review of the course done by someone not involved in the development process.
- Questions have unclear answers: there may be incorrect options that are correct in the right situation. And yet, because it wasn't what was taught in the class, the option is deemed incorrect.
  - Solution: Try to argue with your questions to see if there might be a different perspective. Make sure you aren't marking something as incorrect just because it is not the focus of your lesson.

Interactions

- There is a difference between training and a keynote speech. The first is generally a two-way, back-and-forth exchange, and the second is one-way communication.
- Similarly, there is a difference between e-learning and e-reading.
- Effective e-learning provides interaction for the learner, while e-reading is a more passive activity.
- Just as a classroom training session can be made more effective by questions, activities, games, and discussions, so can your e-learning.

Types of Interactions

- Offline Activities are any activities that do not rely solely on the course. The instructions and the assignment may reside in the course, the learners would perform the offline activity outside of the course.

- Examples: Internet research, software assignment, traditional homework assignment.

Types of Interactions

- Collaborative Activities entail the involvement of an instructor, a mentor, or other class members.
- They require that other learners are going through the same course at the same time, but they allow for the type of discussion and feedback that can be so useful in a classroom environment.
- Examples: threaded discussions or forums, email discussions, group projects, surveys, and polls.

Levels of Interactions

- Level I: Passive
  - In this level, the learner acts merely as a receiver of information.
  - The learner may read text on the screen as well as view graphics, illustrations, and charts.
  - The learner may interact simply by using navigational buttons to move forward or back through the program.

Levels of Interactions

- Level II: Limited Interaction
  - At this level, the learner makes simple responses to instructional cues.
  - As in Level I, there may be multiple-choice exercises, pop-ups, rollovers, or simple animations.
  - Level II adds a component of scenario-based multiple choice and column matching related to the text and graphic presentation.

Levels of Interactions

- Level III: Complex Interaction
  - Here, the learner makes multiple, varied responses to cues.
  - In addition to the types of responses in Level II, complex interactions may require text entry boxes and manipulation of graphic objects to test the assessment of the information presented.

Levels of Interactions

- Level IV: Real-time Interaction
  - Real-time interaction creates a training session that involves a life-like set of complex cues and responses in this last level. The learner is engaged in a simulation that exactly mirrors the work situation.

Tips for Designing Better Interactions

- Consider some sort of interaction every five to seven screens at a minimum.
- Make instructions clear.
- Ensure your training objective is met. Don't get too carried away with the fun factor.
- Be sure most of your interactions get the learner thinking, rather than having all of them simply require the learner to click a button to learn more.
- Consider the shelf-life of the material before designing an interaction. Information that might need to be updated periodically may be a good choice for a simple question rather than an elaborate simulation—to keep maintenance costs down.

Summary

- Testing and interactivity are what keep your e-learning engaging and effective.
- Keep in mind that these elements often take the most creativity to design and the most time and money to create.
- So always make sure that they are designed in a way that meets your needs and your learners' needs.

Chapter 7

The Development Phase: Writing the Course

Agenda

1. Working with Storyboards
2. Elements of the Storyboard
3. Storyboard Templates
4. How to outline information in storyboard fashion
5. Converting Existing Content

Introduction

- Whether you are working with a developer who will build the course from your instructions, or you are taking care of everything yourself, it is time to organize and write your content.
- This chapter walks you through the process of getting your information and ideas in writing so you can make technology meet the objectives of your course.

What is a Storyboard?

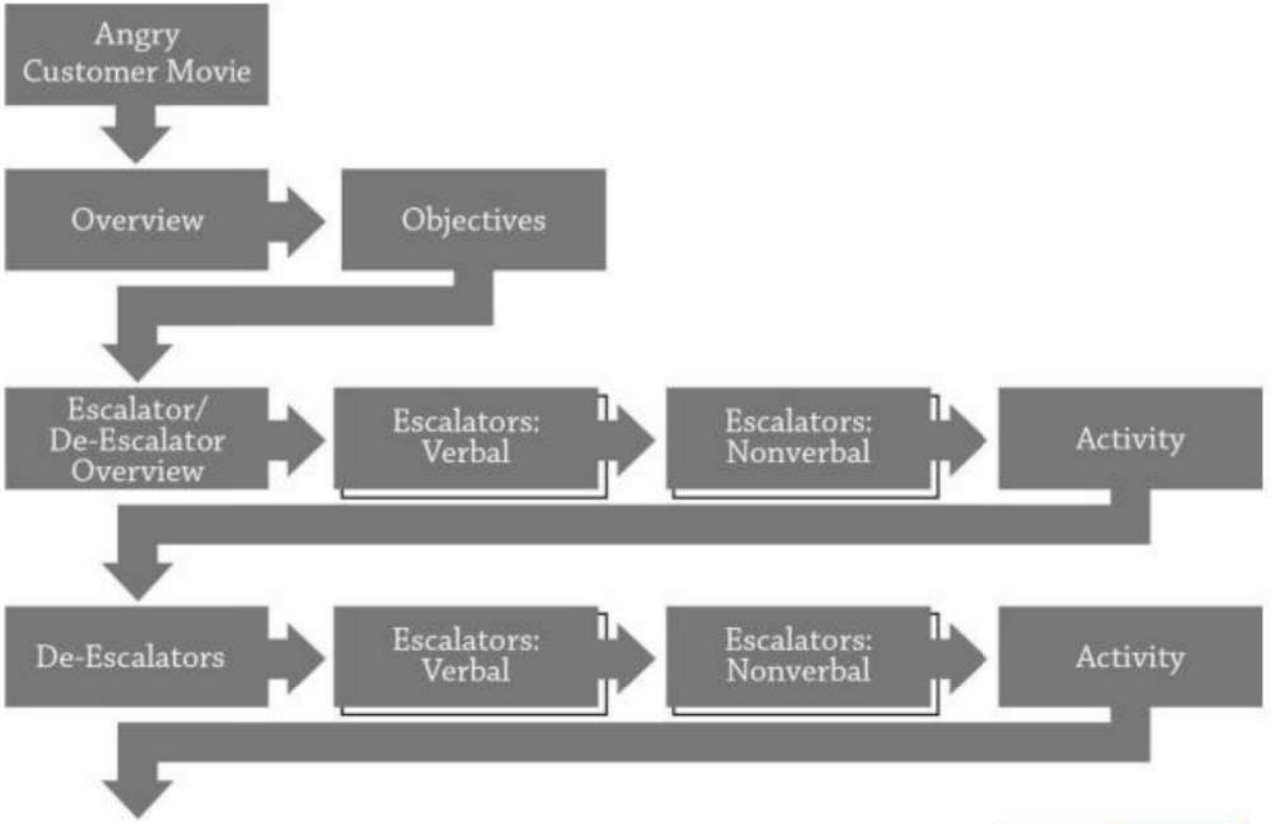
- Storyboards are the blueprints مخططات for your course.
- You can use them to work out the details of the content, get approval from stakeholders before assembly begins, and provide direction to developers, artists, and other team members on how to build the course to your specifications.

- In e-learning, a storyboard can mean two different things:
  - a high-level flowchart of the course
  - a detailed description of all content and programming

What is a Storyboard?

- In e-learning, a storyboard can mean two different things:
  - a high-level flowchart of the course: useful for mapping out how many screens you may devote to a subject, where the activities will go, and how complex logic will work, among other things.
  - a detailed description of all content and programming

A Sample High-Level Storyboard



What is a Storyboard?

- In e-learning, a storyboard can mean two different things:
  - a high-level flowchart of the course
  - a detailed description of all content and programming:
    - **Contains your course content**—This includes the text that will be on each screen, as well as all the interactions, questions, and graphics.
    - **Provides directions to the developer or artists**—Developers and artists need to know exactly what the developer wants the course to look like and how it should function. The storyboard does this. For example, the developer will need to know where the "Next" button should take the learner so the path can be programmed properly.
    - Note: The developer is the person who assembles the course in the chosen authoring tool.

What is a Storyboard?

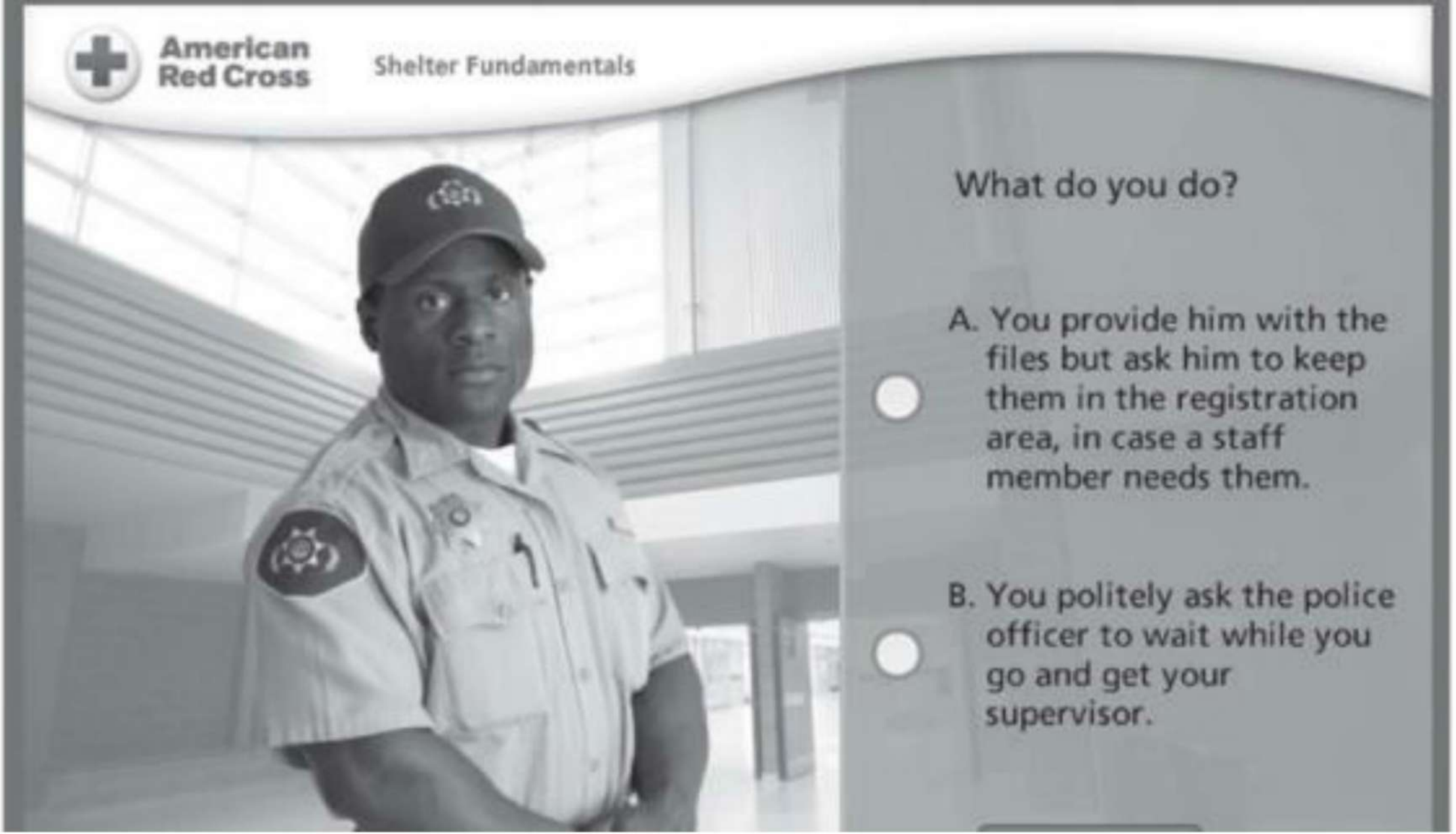
- In e-learning, a storyboard can mean two different things:
  - a high-level flowchart of the course
  - a detailed description of all content and programming:
    - **Creates the vision for the course —**The instructional strategies and course features outlined in the design document now come to life. The storyboard writer provides the information and instructions that the developer uses to create the course.
    - **Reduces rework—**Every course goes through review and revision cycles. If the first review was done on a fully authored version of the course, you'd have a lot of expensive and time-consuming changes to make. If the reviews are done on the storyboards, the changes can be made before the media and programming work gets started.

Sample storyboard and resulting course page

24	Law	Law Enforcement
On-screen Text		**Narration**
What do you do? A. You provide him with the files but ask him to keep them in the registration area, in case a staff member needs them. **B. You politely ask the police officer to wait while you go and get your supervisor.**		A uniformed police offer approaches you at the registration desk. He shows you his badge. "I'm with the Springfield County Sheriff's Department, and we have reason to believe a suspect in a murder attempt is in your shelter. We need to see your records and walk around a little bit to determine if he's here." What do you do?
Graphic Suggestions		
Lobby background Police officer		
Programming Notes		
Correct/Not Quite feedback indicator, followed by this text: The rule here is actually very simple. A registration worker should never share records with anyone, unless directed to do so by a supervisor. Go get your supervisor to work out a solution with the officer. In this case, the supervisor will most likely accommodate his request because it is a matter of public safety and imminent danger.		

American Red Cross

Shelter Fundamentals



What do you do?

A. You provide him with the files but ask him to keep them in the registration area, in case a staff member needs them.

B. You politely ask the police officer to wait while you go and get your supervisor.

Elements of the Storyboard

- ❑ There isn’t one specific way a storyboard should look.
- ❑ However, certain things should be included in a good storyboard:
  - ❑ Page Names and Numbers
  - ❑ On-Screen Text
  - ❑ Media Elements
  - ❑ File Types and Naming Conventions
  - ❑ Programming Instructions
  - ❑ Navigation
  - ❑ Links, Documents, or Special Features
  - ❑ Interactions
  - ❑ Questions

Storyboard Templates

- Storyboard templates are a great way to make sure all the elements you need for your storyboard are included.
- Templates can be outline-based, form-based, or give a visual representation of your course.
- If your authoring tool does not come with storyboard templates, you can use Word, PowerPoint, and Visio.

A storyboard template sample

Screen Title	Screen Type	Screen Number	Keyword
Onscreen Text		**Narration**	
Graphic Suggestions			
Programming Notes			

Storyboard Templates

- Create a template for each different screen type you intend to use such as:
  - introduction
  - objective
  - standard teaching screen
  - demonstration
  - hot spots
  - video clips
  - practice
  - each question type
  - summary.

How to outline information in storyboard fashion?

1. Develop your objectives.
2. Create taxonomy and outline.
3. Write your test questions.
4. Write the main point on each storyboard. Once you have outlined your course at a high level, divide your screens or pages by objective or main point. This may seem like an easy step to skip. But because of the time and effort needed to create every screen, it will be very important that your writing is clear, organized, and succinct. Sketching out the main point that goes on each screen will help you stay targeted and will help you keep development time and costs under control. A high-level storyboard might be useful here.

How to outline information in storyboard fashion?

5. Add supporting points. This takes the information to a deeper level than your outline.
6. **Go back and write the actual text**. The information you have gathered from your topic research, subject matter experts, and various documentation can now be added to the storyboards.
7. Add the interactions and reinforcement questions. The interactions you create should support the learning goal.
8. Add navigation instructions. Include the navigation instructions on each storyboard.
9. Write special feature pages. You may have designed special feature buttons, such as glossary, FAQ, and job aids. Write storyboards for each of those buttons so they will contain the information you want.

Converting Existing Content

- Converting existing content from instructor-led training (ILT) to eLearning introduces a new set of challenges.
- It is normal to think that if you already have a course designed for the classroom it could quickly and easily be converted to e-learning with little or no additional effort. Unfortunately, this is rarely the case.

Converting Existing Content

- Here are some special concerns when converting existing content.
  - **Course length:** Because of the cost of e-learning development, you'll want to make sure to include only the elements that are truly necessary for the learning to take place.
    You don't want to strip out content to save time and money, but you will want to look at the entire program carefully and possibly eliminate some of the "nice-to know" information. Typically, an e-learning course will be half the length of an ILT training—without cutting content.

Converting Existing Content

- Here are some special concerns when converting existing content.
  - **Anticipating questions:** When creating a self-paced course without an instructor, you might need to be more thorough in your explanation of some areas. Learners taking an e-learning course don't have the benefit of asking an instructor clarifying questions. Make sure, you give important information and adequate explanations up front so the learner can meet learning goals. One way of making sure you answer the learners' questions up front would be to ask the classroom instructors what questions they typically receive during a class session.

Converting Existing Content

- Here are some special concerns when converting existing content.
  - **Including all the content:** Sometimes the most valuable information a learner gets from ILT comes from the instructor, rather than the written materials. So, if you are using the written materials alone to develop your e-learning course, you may be missing important information. You may want to interview instructors to see what personal stories or special information they are giving their classes that may not be included in the written materials.

Converting Existing Content

- Here are some special concerns when converting existing content.
  - **Interactions:** Any good classroom training includes interactions where the learners have a chance to think, reflect, respond, and process. Some of those activities might work in an online environment, but some of them won't. You will need to decide how to make sure your online learners get the same level of engagement, practice, and application as your classroom learners.

Converting Existing Content

- **Informal Changes to the ILT Materials:** Over time, instructors learn what does and doesn't work in the classroom. They may have made several changes to content, format, or teaching strategies based on feedback they've received—as well as from their own judgment. These changes may not have ever been incorporated into the ILT materials but may be something you want to investigate prior to developing the e-learning class. Just because something is written in the ILT manuals, doesn't mean it was a successful element of the classroom learning experience. If you have existing courseware, you should be able to develop your eLearning in less time than if you are starting from scratch but realize that it will not be a straight conversion. You will need to put extra thought and perhaps extra research into the process.

Summary

- Storyboarding provides the blueprint for your course.
- Make sure you include all the necessary elements, so your blueprint is complete.
- Whether you are having others develop your course or are building it yourself, using storyboards helps to organize your content and ensure that everyone is working toward the same goal.

Chapter 8

The Development Phase: Putting the Course Together

Agenda

1. Rapid Prototyping
2. Rapid Development
3. Paper Review Cycle
4. Assembling the Course
5. Extras
6. On-screen Review Cycle
7. Testing

Introduction

- During the production process, you'll want to keep a close eye on everything to make sure all the right criteria are met.
- This formative evaluation process ranges from simple proofreading, to content reviews, to functionality and technical testing, and finally to end-user testing.
- You'll likely start off with a small manageable prototype and then revise and expand your guidelines as you prepare for full-scale production.

Rapid Development

- A prototype is a sample chunk of courseware that is developed from start to finish before the rest of the courseware is begun.
- Rapid prototyping means **developing a rather small**, but representative chunk of content—perhaps five to 10 minutes' worth.

Why to Create a Prototype?

- The prototype helps make sure that the design phase assumptions are valid and that the decisions translate well when they move from the drawing board into actual production.

Benefits of Prototypes

- ✓ **Saves rework:** If you work with a prototype, you can catch design issues or problems early and revise your design or processes before the rest of the work begins.
- ✓ **Helps streamline process:** During the development of the prototype, you will probably uncover various shortcuts that help the entire team work together. You may find that it is easier for your programmer to build the course if the storyboards use a certain style. Or you may learn from the person in charge of audio recording that if the script is provided in double-spaced format, there are fewer errors made during recording.

Benefits of Prototypes

- ✓ **Helps with development estimates:** By taking one chunk of content from beginning to end, you can test your development timelines and make revisions to the estimates. Realize, however, that the first part of any new course tends to take the longest.
- ✓ **Can be tested:** If it turns out your courseware is too complicated for your target audience or the design style is too frivolous for the culture, then the prototype phase is the best place to find this out. The sooner in the project you uncover an issue, the easier it is to resolve.
- ✓ **Helps you feel the progress:** The prototype is something you can show to everyone to build excitement, support, and momentum.

Prototype Cost

- The major disadvantage to working with a prototype is time.
- Putting together a prototype can often take six to eight weeks because of all the decisions that have to be made, all the people who need to provide input, and all the processes that need to be worked out.
- This may feel like a very long time before you can really start the development.
- However, on most projects, it is worth the investment up front to save time, money, and headaches for the rest of the project.

Selecting the Content for the Prototype

- When deciding what content to use for the prototype, think typical. You don't want to select the simplest material, and you don't want to select the most complex material.
- Instead, select something that is typical of the course in general and that incorporates the major features and functions of the course.
- For example, you probably don't want to select the beginning of the course since that material is often very general and may not lend itself to the interactions, practices, and quizzes you have planned for the rest of the course.
- Since prototypes tend to be more about design and functionality than about content, the screens you choose for the prototype don't have to be sequential.

Rapid Development

- The process of developing an e-learning course from concept to execution can be a time-consuming endeavor. So if there is a need for immediate training, what can be done to minimize the gap between the time the course is needed and the time the course can comfortably be created? Is there a way to speed up the process?
- Rapid development is the answer. It allows an e-learning course to be developed faster and sometimes cheaper without sacrificing quality.

How to Decrease the Development Time?

- ✓ **Developing several courses or modules at the same time:** have your team start working on the storyboards for additional modules before you finish the prototype.
- ✓ **Choosing an Easy-to-Learn Course Authoring Tool**
- ✓ **Choosing an Easy-to-Use Course Authoring Tool:** Whether or not something is easy to learn is a one-time issue. Be sure also to consider how easy it is to use once you are up and running. The same module might take one hour in one software or three hours in another software.

How to Decrease the Development Time?

- ✓ **Using Ready-Made Templates:** you can just plug information into the template, rather than having to make individual interface design decisions. With the templates, the design has already been produced
- ✓ **Keeping on Top of Deadlines:** Even one deadline being missed can be a problem when you are working toward rapid development.

How to Decrease the Development Time?

- ✓ **Wearing lots of hats:** If there is someone on your development team who can design, develop, and program your e-learning course, let him or her do it! If the same person is writing the storyboards, working with the media elements, and assembling the course, you can save time for two reasons. First, the storyboard instructions don't have to be as detailed if one person is doing all the work. Secondly, any time work must pass from one person to another, a little time is lost and the project coordination effort increases. If one person is doing it all, you don't need that extra time.

How to Decrease the Development Time?

- ✓ **Working on Media and Authoring Before the Review Cycle is Complete:** Ideally, you would have your storyboards reviewed internally by your team as well as by your client (internal or external) and SMEs before you begin the process of finding or creating the graphics and actually assembling the course. However, the storyboard review cycles can take a lot of time and are prone to delays. If you need to accelerate your project, you can use the drafts of the storyboards to begin the work on the media and authoring. This will give you a head start on that work, but realize you may need to re-do some of it based on changes requested by the client or the SMEs.

Paper Review Cycle

- While you are still at the storyboard phase of development, changes are still relatively easy to fix. Therefore, it is usually a good idea to conduct a series of thorough reviews before the course is actually built.

Structuring the Reviews

- During the design phase, the process for handling storyboard and other reviews was defined and documented.
- There are many ways to structure your review cycles and many factors for you to consider, such as:
  - ✓ How many people should look at a given module?
  - ✓ When should external reviewers (business customers and subject matter experts) be involved? Should there be an internal review first? Should reviewers be involved in the storyboard phase or once the course is developed?

Structuring the Reviews

- There are many ways to structure your review cycles and many factors for you to consider, such as:
  - ✓ What if people disagree with each other in their comments?
  - ✓ How long should reviewers be allowed to go over the material?
  - ✓ What if they don't respond in the time allotted?
  - ✓ How should feedback be provided? (for example, handwritten notes, Excel spreadsheet, tracked changes in Word)
  - ✓ How will open issues and questions be tracked and handled?

Structuring the Reviews

- There are many ways to structure your review cycles and many factors for you to consider, such as:
  - ✓ What if you think a suggested change isn't a good idea?
  - ✓ How would extensive changes be handled? (Would the project schedule be affected? Should such changes be considered out of scope? If appropriate, would the requested changes warrant additional charges?)
  - ✓ What is the process for checking that corrections were made properly?
  - ✓ Should there be a formal sign-off on the final version?
  - ✓ Can any media or programming work be done before final sign-off?

Content Review

- You can have the flashiest graphics and the coolest interactions in the world, but if your content is inaccurate, your course will be a flop. That's why one of the early steps in the review process is to have your content checked for accuracy.
- Even if you are converting material from an existing document, you'll still want a thorough review—a simple edit could inadvertently change the meaning of something

Instructional Design Review

- Once you have thorough, accurate content, you want to ensure it is being taught well.
- These steps should be on your instructional design review checklist:
  - ✓ Review the Content Review Questions.
  - ✓ Will the learners understand what is expected of them?
  - ✓ Are the objectives well written and clearly stated?
  - ✓ Are the benefits of learning this information clearly explained?
  - ✓ Does the teaching content support the objectives?
  - ✓ Will the learners know how to apply the information to their particular situation?
  - ✓ Are the learners given opportunities to practice the concepts?
  - ✓ Do the learners receive adequate feedback on their practice sessions?
  - ✓ Are the questions too easy or too hard?
  - ✓ Are any of the questions too subjective?

Editorial Review

- In addition to the reviews of content and instructional design, you'll want to make sure your information is written, structured, and formatted correctly.
- This job can be filled by anyone with strong written language skills who has a copy of your standard documentation.

Editorial Review

❑ This is the editorial review checklist:

- ✓ Are there any spelling or typographical errors?
- ✓ Does the writing use good grammar and word choice?
- ✓ Could the same thing be said more simply? More concisely?
- ✓ Is the material written to the intended reading level?
- ✓ Are there any phrases or idioms that a non-native speaker of English might not understand?
- ✓ Is the formatting consistent with the standards documentation and any designated style guide?
- ✓ For any formatting not specifically designated in the documentation, is it used consistently throughout the course?

Course Extras

- During production, it is easy to focus mainly on the individual modules or lessons. However, the development phase also includes any course extras that are a part of the design.
- Based on your design plan, you may need to develop these additional course elements:
  - ✓ title page: if you want a graphic or animated first impression for the course
  - ✓ catalog description: to help the learners decide if a course is appropriate for them

Course Extras

- Based on your design plan, you may need to develop these additional course elements:
  - ✓ fine print: to provide any legal statements, such as copyright, confidentiality statement, privacy policy (especially if you will be tracking scores and answers), disclaimers, acknowledgments for other copyrighted material used with permission, and statements about trademarks referred to
  - ✓ how to use this course: to provide details on the various features and functions of the course; for example, how to move around

Course Extras

- Based on your design plan, you may need to develop these additional course elements:
  - ✓ help section: to provide troubleshooting on issues that might arise with the course
  - ✓ FAQs (Frequently Asked Questions): to give information either about how the course operates or about the content itself
  - ✓ glossary and index
  - ✓ references and job aids
  - ✓ any other feature you might be including.

On-Screen Review Cycle

- Even though your content was probably reviewed very thoroughly during the storyboard phase, you will want to have it reviewed again once it is built.
- During this phase, you'll want to revisit the questions you asked during the storyboard review (content, instructional design, and editorial reviews) to make sure that everything from the storyboards has been included in the online draft and that the concepts work as intended.
- In addition, you'll need to make sure everything functions properly, and the course meets the needs of the intended audience.

Functionality Review

- To make sure the course has been programmed properly and functions as expected.
- The best quality assurance (QA) tester is one who enjoys trying to “break” the system, gets the course to do something it shouldn’t do and looks at everything a learner might misunderstand or do wrong.

Technical Testing

- While the course may work properly for the designers, developers, and testers, you'll also want to make sure it functions properly on the target platform.
- Generally, this testing will be conducted or at least coordinated with your IT department.

Testing Types

- ✓ **Integration Testing**
  Do the courses operate properly with any other related systems (such as a learning management system)?
- ✓ **Load Testing**
  Will the courses, when used by the projected number of people, cause the systems to slow down or even crash? Can the servers handle it? Can the company bandwidth handle it?
- ✓ **Workstation Testing**
  Will the courses run on the various configurations of workstations? You'll want to test the courses on the various configurations possible, such as different devices, browser versions, operating systems, or bandwidth.

End-User Testing

- In addition to testing the course with subject matter experts, instructional designers, editors, and technical testers, it is important to include end-user testing, also known as pilot testing.
- User testing will help you determine whether:
  - ✓ they like or enjoy the course
  - ✓ they understand the material
  - ✓ the material is helpful to them
  - ✓ they know and can do what they need to as a result of the course
  - ✓ They can operate the course

Summary

- It's exciting to see your course finally taking shape and coming to life. By starting with a prototype, not only will you have the chance to build excitement by seeing some tangible results quickly, but you'll also gain valuable insight into your design and development that will streamline your production and increase your course's effectiveness.
- Take the time necessary to build in all the checks and balances needed to ensure that you finish with a superior product that works properly, people enjoy, and that meets the business goal.
- Remember to put formal processes in place to review your course for content, instructional design, editorial issues, proper functionality, technical problems, and end-user feedback.

Chapter 9

Implementation and Evaluation

Agenda

1. Implementation
2. To make an implementation successful
3. Preparing the audience
4. On-going management
5. Evaluation
6. Kirkpatrick evaluation model

Implementation

- Implementation day is when the courses are available for your first learner. But before that day, it's important to consider and execute some key details to ensure successful implementation.

To Make the Implementation Successful

1. Develop an engaging e-learning course. (If the course is bad, no amount of marketing will lead to long-term success.)
2. Make your course match your audience's learning needs.
3. Market your e-learning course.
4. Provide support. (Your support needs will be greatest in the first few months but then should dwindle some.)
5. Give clear directions on how to access the course.
6. Give incentives for course completion.
7. Minimize disincentives.
8. Involve management to promote buy-in.
9. Support a positive environment for e-learning.
10. Prepare your technology for your course so your first learners have a positive experience and spread the word.

Preparing the Audience

1. Managers and Supervisors: Often the best way to get buy-in from management is to give business reasons for the training. For example, in a customer-service organization, a particular course may likely lead to more satisfied customers, which could ultimately make their lives easier. Letting the managers know about this benefit could give them the incentive to encourage the learners.

2. Learners: Marketing the course through email, company literature, and an Internet or intranet site are all possible options, and don't forget to use your management team. In some cases, if it's important to an organization, making a course mandatory might be a step toward ensuring its completion.

Preparing the Audience

3. Environment: The learning environment can make or break an e-learning project. If e-learning is new, you may want to take extra time marketing the concept and the process, as well as the course. Perhaps you can offer a classroom session for everyone to try out the first course. This helps bridge the gap for learners between how they are accustomed to learning and how they will soon be learning.

Preparing the Audience

4. Incentives and Disincentives: Incentives are anything that encourages a learner to take a course or series of courses. An incentive could be as simple as a certificate of completion or a type of bonus. Incentives can give e-learning a positive reputation in the company as they encourage participation and excitement.

- Disincentives, however, are anything that may discourage someone from taking a course. Sometimes courses have unintentional, built-in disincentives. For example, it is a disincentive if learners must spend an hour taking a course, yet they still have to achieve the same production levels as if they were on the manufacturing floor all day.
- Take a look at everything from manager attitudes to performance criteria to bonus policies to see where you can add incentives and remove disincentives.

On-Going Management

- Once your course is up and running, you'll want to continue to manage it, looking out for any technical problems, as well as providing necessary updates and revisions.

Summary

- Once your courses are complete, it takes more to implement them than just posting them on the servers. After making sure your courses function properly, your technology is set, and your audience is informed and excited, you can invite your audience to start learning.
- Remember, however, that training development is never truly over. Put plans in place to troubleshoot issues, update content, and manage the administrative elements.
- So, now you can finally breathe easy because your work is done. Sit back and relax and let everybody take your course ... until it's time for the next one

Evaluation

- You have used a number of evaluation techniques to guide you during the development of the project (formative evaluation). Now it is time to evaluate the reaction, effectiveness, and impact of the final product (summative evaluation).
- One of the most commonly used models for evaluating training is the Kirkpatrick model, developed by Donald Kirkpatrick:
  - ✓ Level 1: Reaction
  - ✓ Level 2: Learning
  - ✓ Level 3: Behavior
  - ✓ Level 4: Results
  - ✓ Level 5: Return on investment

Level 1 Evaluation: Learner Reaction

- Level 1 evaluation is designed for you to receive feedback about what the learners thought about the course.
- A Level 1 evaluation is, by nature, very subjective—measuring opinions and impressions.

Level 2 Evaluation: Learning

- With a Level 2 evaluation, you are trying to determine if the learners learned what they were supposed to learn. Did they meet the objectives?
- In most cases, the Level 2 evaluation is done with some sort of post-test that is part of the course.

Level 3-5 Evaluation: Impact

- Evaluation Levels 3, 4, and 5 help you determine the impact of the training.
- Level 3: Behavior
  - helps you to determine whether or not learners' behaviors actually changed as a result of new learning.
  - is generally conducted three to six months after the training and is often done in the actual work environment.

Level 3-5 Evaluation: Impact

- Evaluation Levels 3, 4, and 5 help you determine the impact of the training.
- Level 4: Results
  - proves (or disproves) whether that training has benefitted the organization in some way.
  - to measure the improvements desired, refer to the business case to see what you hoped to accomplish, such as increased sales, reduced complaints, reduced turnover, increased efficiency, increased production, and fewer accidents.
  - Then you can gather data on these outcomes.

Level 3-5 Evaluation: Impact

- Evaluation Levels 3, 4, and 5 help you determine the impact of the training.
- Level 5: Return on Investment (ROI)
  - Some training practitioners consider ROI to be a part of Level 4, while others consider it as its own level. Regardless of what level you put it in, you may want to attach dollar figures to your business results.

Summary

- An e-learning project is a significant endeavor. A lot of time, money, and effort probably went into it, so it makes sense to stop and see if it was worth it.
- Unfortunately, many companies do not take these steps because evaluation, too, takes time, money, and effort.
- The best way to ensure that you can undertake an evaluation effort is to build it into your project plan from the very beginning.