Planning for success in creating your e-learning

Overview

Planning for e-Learning Success is designed to give you a simple, high-level overview of the conscious design and creation of e-learning media. Each section will contain just what you need to know along with references, keywords, samples, and guidance should you have more questions.

...this guide should support your thinking in designing and developing an effective e-learning experience

We will briefly describe the design and development of e-learning using a simple, five-step "backwards planning" model based on a time-tested ADDIE model. ADDIE stands for analysis, design, development, implementation and evaluation and "...first appeared in 1975. ... [ADDIE] was created by the Center for Educational Technology at Florida State University for the U.S. Army and then quickly adapted by all the U.S. Armed Forces."[1] Since its creation, organizations across the globe have used ADDIE as a simple methodology to organize the design and development of training.

By first identifying **objectives** and how you will collect evidence that the outcomes have been achieved, you will be able to design your training to be as efficient and effective as possible. As will be explained in Part 2 of this guide, each aspect of the process of designing and developing the training should be carefully documented to facilitate revisions.

Whether you are a trainer or a subject matter expert, this guide should support your thinking in designing and developing an effective e-learning experience.

Before You Begin

Formal classroom training as we know it is relatively new, not appearing until the 19th century.[2] As industrialization emerged, so did many of the attributes of training. Whereas learning once consisted of an apprenticeship and a lifetime of experience, industrialization began to separate the work *experience* from the job tasks: A worker could be trained how to do a job, but he or she might never know *why* the tasks were being done. Unfortunately, if we don't know why we're doing something, we're less likely to be engaged in what we're doing. The same holds true for training: If we don't know why we're being asked to learn something, we're less likely to be engaged in the learning process, and we're less likely to retain what we've learned.

As you began to think about the design (documentation of training intentions) and development (the creation of training materials) of your e-learning keep in mind that the *connections* trainees make to the training—the *whys*—are equally as important as the facts of the training. The "why" is often referred to as a value proposition, or more commonly, What's in it for me? (WIIFM?). Adult trainees need to have a stake in their learning. They need to know why they need the training and how it will improve them and their work.

Once you establish the WIIFM, you need to be able to engage the trainees beyond the facts and figures. Some effective strategies are to use stories, personal experiences, problems, and case studies to contextualize and illustrate the points you are trying to make. Contextualized training using digital storytelling must convey the facts but also personally *impact* the trainee. Examples should state facts explicitly, but they also should emotionally connect with the trainee.

After you have connected with the trainee and have explained why he or she needs the training (the WIIFM?), you should complete the training cycle by allowing the trainee to immediately respond in some way to the story (to interact with the information presented). That way, you can ensure that the trainee has received the training intended through the story and has processed it appropriately.

For example, imagine that you're creating a training course on cash management. Instead of bulleting the cash control policy, you could give the trainee a series of stories and ask him or her to respond. After each scenario in the story, ask the trainee a question to assess whether he or she paid attention and processed the message. The story helps the trainee process and contextualize the facts. The questions help the trainee, and you, to know whether or not the trainee understood the facts and the *why* behind the facts.

Part 1

Analyzing the Training Need

You may already have an idea or outline for the training (e.g., new employee onboarding) or know what performance tasks are required (e.g., safety protocol, cash control, customer service). However, you should still analyze what is lacking and what you need in the context of the following:

1. What skills and knowledge do various roles require? By analyzing "who does what," you can ensure that the training is appropriate.
2. Does the training exist elsewhere? There could be an existing solution or one that could be adapted.
3. Are there any compliance considerations? There may be codes of conduct or standardized rules that could drive the training.

As you begin to understand the training need, you may identify a SME who should become a partner in designing and building the training.

Be aware that not all issues require training: poor communication; overly complex or ill-prepared procedures; or mismatched priorities can all affect performance. These situations may simply require better communication, over more refined procedures.

Key term(s)

(Performance) Objective

Performance objectives are simple written descriptions of what good performance in the job looks like. They describe the 'what' of the job (the quantity, quality, and time elements) and the 'how' of the job (the behaviors).[3]

Subject Matter Expert (SME)

A subject matter expert (pronounced *smee*) is, by definition, the person who has expert knowledge, experience, and/or a credential in the training content. The SME is often accountable for the accuracy of the training content.

Once you have vetted the *idea* for the training solution and have evaluated existing internal and external training programs and compliance requirements, you will want to analyze the audience who will receive the training. Your audience analysis may consider the following aspects:

1. Trainees' prior knowledge
2. Reading level(s)
3. Cultural background(s)
4. Work experience (in and out of the current role)
5. Technology experience and expectations
6. Expectations for training
7. Access to technology for training

The product of this analysis should be a detailed report that will guide how you create the training so that it most benefits the trainees.

Part 2

Designing Your Training

Once you have completed your analysis of training needs, you will want to link those needs to your training by breaking down training concepts into a series of manageable performance targets or **objectives.** Pioneered by Robert F. Mager in his 1962 book *Preparing Objectives for Programmed Instruction*, the approach to objectifying, scoping, and sequencing training has greatly impacted and improved training and learning. Whether they are called *targets*, *performance objectives*, or *training objectives*, the objectives should be written as an active statement of what the trainee will be able to do or know as a result of the training, rather than what the trainer will do to provide the training. Therefore, the language you use, especially the action verb you select, gives an indication of the complexity of the training. The statement of the performance objective is required because you want to be specific in describing the performance need being bridged by the training.

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Bloom's Taxonomy

A classification system used to define and distinguish different levels of human cognition (i.e., thinking, learning, and understanding). Educators have typically used Bloom's taxonomy to inform or guide the development of assessments (tests and other evaluations of student learning), curriculum (units, lessons, projects, and other learning activities), and instructional methods (questioning strategies).[4]

The objective is built from a very standard formula

Given a set of conditions + the trainee will be able to + VERB + a description of precision, quality or accuracy that would be accepted

Example
Given five minutes, the trainee will be able to COUNT down a cash drawer to $150 to the penny.

Note that the statement of the *condition* is not always of time; rather, it could be *any* condition under which the trainee would be expected to perform the work. If the conditions are obvious, this part of the objective can be left out.

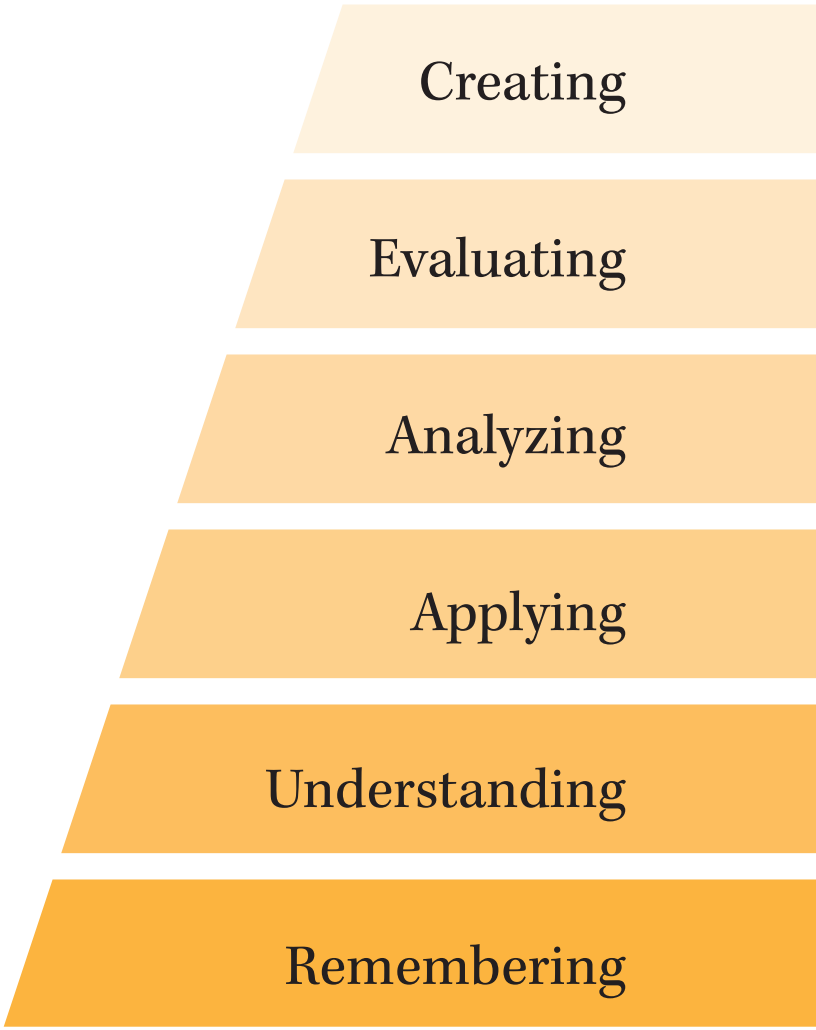
Remember that every objective must be something that the **trainer could observe the trainee performing**. Therefore, you should avoid vague words like "understand" because understanding is a phenomenon that occurs within the brain, and you cannot observe it.

What verbs should you use to write your objectives?

There is a commonly used hierarchy of verbs that correlates to the complexity of the training need. This hierarchy was first defined by Benjamin Bloom in 1956, and it was later revised in the mid-1990s.

As you plan for your training, start simple and concrete and slowly move the objectives to increasing complexity. Your selection of verbs should align with the complexity of the tasks.

The six complexity levels of Bloom's Taxonomy are remembering, understanding, applying, analyzing, evaluating, and creating.



This table defines the levels, gives examples, key verbs to consider, and training tools that you might use.[5]

Category	Examples, keywords (verbs), and technologies for learning (activities)	
Remembering Recall or retrieve previously learned information.	Examples:	Recite a policy. Quote prices from memory to a customer. Recite safety rules.
	Keywords:	Defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states
	Technologies:	Book marking, flash cards, rote learning based on repetition, reading
Understanding Comprehending the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one's own words.	Examples:	Rewrite the principles of test writing. Explain in one's own words the steps for performing a complex task. Translate an equation into a computer spreadsheet.
	Keywords:	Comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives an example, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates
	Technologies:	Create an analogy, participating in cooperative learning, taking notes, storytelling, internet search
Applying Use of a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the workplace.	Examples:	Use a manual to calculate an employee's vacation time. Apply laws of statistics to evaluate the reliability of a written test.
	Keywords:	Applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses
	Technologies:	Collaborative learning, create a process, blog, practice
Analyzing Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.	Examples:	Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training.
	Keywords:	Analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates
	Technologies:	Fishbowls, debating, questioning what happened, run a test
Evaluating Make judgments about the value of ideas or materials.	Examples:	Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget.
	Keywords:	Appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports
	Technologies:	Survey, blogging
Creating Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.	Examples:	Write a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and process to improve the outcome.
	Keywords:	Categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes
	Technologies:	Create a new model, write an essay, network with others

To manage the complexity of the training experience, you should try to limit each learning experience to four to seven related objectives. The more complex the training, the fewer objectives you should expect to achieve per experience. For each objective, you should plan to engage the trainee with training material and some sort of assessment to gauge the trainee's progress.

To ensure that your objectives align with the assessments and the training solution, carefully document the delineation of objectives with your training and any assessments. This design document can be written as a narrative or a table. The training blueprint should be **written concisely**, and it should ensure that the objectives are aligned to the training content, and assessments. If you're using a table format, each objective, and its associated training and assessments, can be presented in a different row.

Sample Design Blueprint 1

Objective	Training	Assessment
Given five minutes, the trainee will be able to verify a cash drawer to $150 to the penny.	Using a media presentation, demonstrate how to verify a cash till. Provide the trainee with a PDF job aid.	Provide the trainee with three tills. One of the three will have an overage of 22 cents, the second will be balanced to the penny, the third will be under by $1.27. The trainee will have five minutes to validate each till. The trainee must correctly validate all three.

Sample Design Blueprint 2

Objective	Training	Assessment
For shift-end, the trainee will be able to count down a till.	Demonstrate the process for counting the till through a media presentation. Attach a PDF of the till-counting job aid.	Allow the trainee time to practice; then ask the trainee to count down a till.
Faced with an angry customer, the trainee will be able to follow the X steps for creating a positive customer experience	• Provide the trainee with a PDF delineating the X steps for creating a positive customer experience. • Provide two case studies showing how to turn around an experience. • Show the interactive video multi-media "Creating a Positive Customer Experience."	Give the trainee an angry customer scenario. Trainee will be asked to walk through the scenario and provide what he or she would do in each step.

The design document also helps to ensure that the objectives are scoped (i.e., given the correct amount of time and attention) and sequenced appropriately, and it shows that there are sufficient assessments to check the trainees' progress. Not only will your training design blueprint aid in building your training, it will become the basis of future analysis and revisions.

Considerations for Training Adults

There has been a lot of research around training adults. Malcom Knowles was an American educator who became well known for the use of the term *andragogy* to distinguish what he considered the unique traits and needs of adult trainees in contrast to the term *pedagogy* for child trainees. Knowles proposed these six assumed characteristics for adult learning that you should consider as you develop your e-learning.[6]

1. **The need to know:** Adults need to know why they need to learn something before undertaking to learn it.
2. **The trainee's self-concept:** Adults have a self-concept of being responsible for their own decisions, for their own lives. Once they have arrived at that self-concept, they develop a deep psychological need to be seen by others and treated by others as being capable of self-direction.
3. **The role of the trainee's experience:** Adults come into educational activity with both a greater volume and a different quality of experience from youths.
4. **Readiness to learn:** Adults become ready to learn those things they need to know and are able to do in order to cope effectively with their real-life situations.
5. **Orientation to learning:** In contrast to children's and youths' subject-centered orientation to learning (at least in school), adults are life-centered (or task-centered or problem-centered) in their orientation to learning.
6. **Motivation:** While adults are responsive to some external motivators (better jobs, promotions, higher salaries, and the like), the most potent motivators are internal pressures (the desire for increased job satisfaction, self-esteem, quality of life, and the like).

Tips for Media

- Use graphics to support the concepts.
- As you create your training design, use stories or vignettes that illustrate how your trainees can apply what you're teaching on the job.
- Try to minimize the volume of bulleted text on a page, as the mere presentation of text does not support trainee engagement.
- Make stories universally accessible to trainees of various backgrounds, religions, and cultures. Remember to use clear, concise, and consistent language.

In addition to the assumptions about adult trainees, Knowles had four principles detailing how to design learning to best suit these assumptions about adult trainees.[7]

1. Adults need to be involved in the planning and evaluation of their instruction.
2. Experience (including mistakes) provides the basis for the learning activities.
3. Adults are most interested in learning subjects that have immediate relevance and impact to their job or personal life.
4. Adult learning is problem-centered rather than content-oriented.

What are the implications of andragogy in creating e-learning? Based on Knowles' assumptions of trainees and the design principles, e-learning should:

- Define the training relevance for the trainee: what they must learn to be successful in their work, lives, etc.
- Provide multiple modalities, choices, and opportunities to learn
- Allow the trainee to express him- or herself, make mistakes, and recover from the mistakes through multiple exposures to concepts
- Present learning as problems to be solved, experiences, and interactions

Once the design document is complete in draft form, stakeholders who have a key interest in the training and its success should review and sign-off on it. The SME, compliance staff, legal, and anyone else identified as having a stake should be given the opportunity to review and revise the factual content. The presentation of learning and assessments should remain with training staff. Once, all reviews and revisions are complete, the training materials are ready to be created.

Part 3

Creating Your Training

Once you have a completed the training design document, then you can begin to create your training. To improve quality and manage development time, you should consider developing a **storyboard** for each training "piece." The storyboard is a graphic representation of the carefully scoped and sequenced training experiences; it is distinguished from the design document by the level of detail applied to the textual and graphical experience of the e-learning. If you think of the design document as your road map, then the storyboard would be your travelogue.

To create a storyboard, you can use a slide show application like PowerPoint or Google Slides to lay out the graphic and textual elements. Be sure to include a voiceover script and a narrative of any animations.

Key term(s)

Storyboard

A storyboard is a "graphic organizer in the form of illustrations or images displayed in sequence for the purpose of pre-visualizing sequence."[8]

Chunk(ing)

A term used to describe the process of breaking training into manageable pieces that each convey an idea or add further clarification or information to the development of the content.

Tips

Use your storyboard to:

- Select appropriate graphics and the precise text to best support the objectives.
- Avoid anything that is not directly related to the objective(s).
- Ensure precision in language. Keep each segment presentation of new content to between two and seven minutes.
- Use an assessment tool to evaluate the trainee's progress after each *chunk* of content.

Once your storyboard is complete, assemble as many of the elements as you can before you begin building the media piece. If you need graphics, find royalty-free or copyright-free graphics.

Once you have all the materials you need, then you can begin to build your training using your storyboard to drive the development.

Part 4

Evaluating the Training

Once you have implemented the training, and at the end of some time frame that your stakeholders determine, it will be helpful to analyze user feedback and performance changes to ensure that your training was successful. To complete that evaluation, you may choose to collect important information, including:

1. User surveys
2. Data from supervisors on the quality of the trainees' performances
3. Assessments of trainees to confirm that their real-world work matches the objectives and training you defined

You can develop the evaluation report in conjunction with your initial analysis and the design document to paint a picture of any training gaps and how they are supposed to be bridged by your training interventions.

Summary of the guide

I. Analyzing the need for training

1. Not every challenge is the result of a training gap.
2. Some training gaps can be anticipated (on-boarding of new staff).
3. Take some time to analyze what is happening and compare it to what is needed.

II. Designing your training

1. Start your planning your training by creating a list of learning objectives.
2. Objectives are written using a simple formula.
3. Each objective is written so that you can observe the trainee somehow doing what you want them to do.
4. Sequence your objectives from simple to complex. There is a hierarchy of verbs that you can use to help you sequence.
5. An e-learning experience or "piece" should contain only a limited number of related concepts that can be achieved in a reasonable amount of time (more on *reasonable* later). Strive to ask the trainee to complete no more than four to seven achievements. These achievements are most often referred to as *objectives*.
6. For every "chunk" of learning, somehow assess the trainee's progress (ask a question, provide an activity).

III. Creating the training

1. Use clear, concise, and consistent language in everything you do. Tell your trainee what he or she will learn, teach it, then tell the trainee what he or she learned. Avoid anything that is not directly related to the content.
2. Storyboard before you begin to build training. You can save a lot of time by carefully planning text, audio, and graphics before building the media.
3. Engage the trainee in the process: use stories, examples, etc.
4. Make the activity interactive.
5. Use multiple means to communicate, as appropriate. Use text, graphics, audio, and video, but make sure that each is **directly** related to the objective you are trying to achieve. Avoid anything that is distracting. Only use a medium if it enforces or enhances the objective you are trying to achieve.
6. At the end of longer, or more complex training, consider a quiz or knowledge check to inform the trainee of his or her overall success in achieving the objectives.

IV. Evaluating the training

1. At the end of some time frame, it will be helpful to analyze user feedback and performance changes to ensure that your training was successful.
2. Survey users.
3. Collect data from supervisors.
4. Perform assessments to confirm that their real-world work matches the objectives and training you defined.

Version 1.0

OnCourse Learning

For More Information

Part 1: Analyzing the Training Need

Needs Analysis: How to Determine Training Needs
http://www.hr-guide.com/data/G510.htm

Training Needs Analysis: 8 Steps to Conducting a Training Needs Analysis
http://www.slideshare.net/SallyPeters1/training-needs-analysis-8-steps-to-conducting-a-training-needs-analysis

Marc My Words: Back to Basics — When Training Is Not the Answer
https://www.learningsolutionsmag.com/articles/712/marc-my-words-back-to-basics--when-training-is-not-the-answer

How to Do an E-Learning Audience Analysis
https://community.articulate.com/articles/how-to-do-an-e-learning-audience-analysis

6 Key Questions to Effectively Analyze Your eLearning Course Audiences
https://elearningindustry.com/6-key-questions-to-effectively-analyze-your-elearning-course-audiences

Part 2: Designing Your Training

How to Create an Effective Training Program: 8 Steps to Success
http://blog.convergencetraining.com/how-to-create-an-effective-training-program-8-steps-to-success

What Is Effective Elearning?
http://www.smartbuilder.com/services/what-is-effective-elearning

The 4Door™ eLearning Approach
http://www.thiagi.com/games/2015/7/31/the-4door-elearning-approach

Part 3: Creating Your Training

How To Choose Graphics In eLearning: 7 Best Practices to Choose Graphics for Your eLearning Course
https://elearningindustry.com/graphics-in-elearning-7-best-practices-to-choose-graphics-for-your-elearning-course

Realistic Graphics and Learning: What's Most Effective?
http://theelearningcoach.com/media/graphics/realistic-graphics-and-learning/

Top 10 Tips to Create Effective eLearning Presentations and Slideshows
https://elearningindustry.com/top-10-tips-create-effective-elearning-presentations-and-slideshows

The Ultimate List of HTML5 eLearning Authoring Tools
https://elearningindustry.com/the-ultimate-list-of-html5-elearning-authoring-tools

4 Tips to Boost User Experience (UX) Design for eLearning
https://www.talentlms.com/blog/tips-boost-ux-design-for-elearning

Part 4: Evaluating the Training

eLearning Course Evaluation: The Ultimate Guide for eLearning Professionals
https://elearningindustry.com/elearning-course-evaluation-the-ultimate-guide-for-elearning-professionals

How to Evaluate Instruction, Including eLearning
https://www.learningsolutionsmag.com/articles/881/how-to-evaluate-instruction-including-elearning

Evaluating Your Online Courses
http://theelearningcoach.com/elearning_design/evaluating-your-online-courses

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7. Kearsley, G. (2010). Andragogy (M.Knowles). The theory Into practice database. Retrieved from http://InstructionalDesign.org

8. Storyboard (2017). In *Wikipedia*. Retrieved from https://en.wikipedia.org/wiki/Storyboard