

Instructional Design Basics for Courses/Modules

By William J. Rothwell*

CLS Module

Designing a training course [i.e. module] can be more difficult than it appears to be. Many books and articles have been written about this topic over the years, and they can provide some guidance to beginners who are writing their first course. (See the Reference Section at the end of this explanation for a list of such books.) This Introduction is not intended to teach you everything you need to know about how to design a training course/module; but it is intended to get you started in designing a course and to point you in the right direction.

One way to think about designing a course is to think of it as a process of asking-and-answering some key questions:

- ?? What is the purpose of the course, and why is it being designed now?
- ?? Who will participate in the course?
- ?? What should participants in the course be able to do when they finish? How will we know the participants can perform as desired?
- ?? When should the course be ready, and where will it be offered?
- ?? What content should be covered in the course?
- ?? How will the course be delivered?
- ?? How will the results of the course be evaluated?

This Introduction will seek to answer each of these questions briefly. If you wish, follow along and answer these questions for *your* course on the Worksheet appearing at the end of this chapter as you read about how to answer these questions.

What Is the Purpose of the Course and Why Is it Being Designed Now?

A good place to start in designing any course is to clarify its purpose and its importance *now*. Why is it desired? What is it that people are doing that they are not doing well enough? What changes in the workplace are expected that will affect what people should be doing in the future?

Let me give you a simple example to illustrate the importance of being clear about the purpose of a course.

Suppose a manager says to you that "Our employees can't use our word-processing software effectively, so we need a course on our word-processing - software." While that request may seem clear enough, it really isn't. The reason? You don't know what problems that manager is seeing that led him or her to say that a course is needed. As a result, you don't know what to include in the course in order to solve the problem.

The best way to approach this problem is to ask for more information to make the purpose of the course clear. Ask questions like these:

What problems are you seeing with the use of the software? Could you show me some examples of the problems you are seeing?

How do you know there is a problem? Describe what is happening. Use the answers to these questions and others you might think of to write a brief description of the purpose of the course.

Who Will Participate in the Course?

You should never design a course unless you are clear for who it is targeted. The *targeted participants* are the people intended to "take" the course. You want to know about them because *who they are* will affect *what they already know*. For instance, you would not want to teach "basic engineering" to a group of college engineering faculty, and you would not want to teach "basic accounting" to a group of Certified Public Accountants.

The more you know about the group of people who are targeted to participate in a course, the better off you are because you can focus the course content on what they need to know only. To find out the answer to this question, then, ask such questions as these:

- ?? Who are the targeted participants for the course?
- ?? What do they already know about the course topic?
- ?? How do we know what they already know?

A good way to get answers to these questions is to ask some targeted participants and their immediate supervisors to help out in course design by reviewing outlines and course content. That way, they can provide reactions and advice about course content.

What Should Participants in the Course Be Able to Do When They Finish?

This question is very important. You should always get the answer(s) to it before you begin designing a course. The reason: a focus on results or outcomes will permit you to narrow down the course content. Instead of needing to cover *everything*, you can *focus on designing a course that is specifically targeted to help the targeted participants do something useful on the job*.

One way to do this is to meet with the supervisors of people who are targeted to participate in the training and a few good, experienced performers from the group of targeted participants. Ask them this question: *what should participants in the course be able to do when they are finished with the course?* The answers to this question will provide *course objectives*. Write down the answers to that question and use them as a starting point for preparing a course outline. (There is a sample form you can use at the end of this article).

How Will We Know the Participants Can Perform as Desired When They Finish the Course?

It is one thing to write course objectives, but it is another thing to figure out whether people have met those objectives at the end of a course. That is why we usually have tests. Tests help us measure how well people met the course objectives and to pinpoint areas for improvement in the course and with the targeted participants. Every course objective should have one (or many) test items prepared for it.

The best time to begin preparing a test is right after you have finished writing the course objectives. In fact, the test should be based on the course objectives. You want the test to cover only what the course covers-and not other things. While the topic of test design is a complicated one, the best advice is to use one of two types of tests, a knowledge test and a performance test. A *knowledge test* evaluates what

knowledge the participant learned. While you may be familiar with many kinds of tests from school, the fact is that multiple-choice tests are usually the best kind of knowledge test item. Avoid True/False questions, since people have a better chance of guessing the answers. A *performance test* evaluates how well participants can do what they learned in the course.

Ask them to "show you." Use a checklist to determine whether they can show you and how well they can perform. Be sure to establish measurable performance standards first.

When Should the Course Be Ready, and Where Will it Be Offered?

As you begin designing a course, you should always think about *timing* and *locale*.

Quite often, managers want a course designed "yesterday." That is not realistic. But what you should do is find out what realistic timeframes are available to design the course. Is there some reason why the course might be especially sensitive to time? For instance, will production be held up because people don't know how to perform? In that case, you had better find out when production is slated to begin. That gives you a sense of how much time you have to design the course.

A good place to start is to write down a list of steps that need to be taken to get the course ready. You might think of that as a "to do list." It is really a project plan that helps guide you-and others-through the steps that must be taken to design the course. Examples of steps you might write include the following:

Project Steps

- ?? Meet with the manager and her supervisors to discuss the need for the course.
- ?? Meet with the manager and some targeted participants to discuss what people should be able to do when they finish they course.
- ?? Write up test items or testing methods based on the course objectives.
- ?? Prepare a course outline.
- ?? Have the outline reviewed by the manager and some experienced workers to see if it meets the objectives and the needs of participants.
- ?? Produce the text and select the media to complete the outline.
- ?? Create activities or other assessment methods throughout the course to assess I periodically how well the learners are understanding what they are learning.
- ?? Field test the course on a small group of people.
- ?? Revise the course based on the field test.

Once you have a list of steps, then you should be able to estimate how long it I will take to complete each step, who should be involved in each step and how much time they will need to devote to it. You should therefore be able to come up with *project milestones* that is, points in time when each step in the "to-do list" is completed. You may also be able to come up with a budget based on how much time it will take to do each step, what resources or people are needed to do each step, and other resource requirements.

Another issue to think about at this point is this: *where will the course be delivered?*

What you really want to know is whether the course will be delivered on-the- job, near-the-job or off-the-

job. *On-the-job training* (OJT) occurs right in the workplace. Of course, that is subject to distractions that workers face as they are torn between doing the work, meeting customer or client demands, and mastering course content. You want to think about how distractions might be managed, since you know they will occur. *Near-the-job training* (NJT) occurs directly next to the work site but not in it. For instance, equipment might be set up directly next to a production line or a retail counter or in a conference room close by it. The advantage of NJT is that workers can take time to participate in the course in brief time segments and do not have to be away from the work setting for long. *Off-the-job training* (OFJT) occurs away from the workstation. Workers have to travel to another location for it—to another building or even another geographical locale. Another example of OFJT is Internet-based or CD ROM-based training from home. While OFJT can minimize the distractions that targeted participants' face from the work setting, it can also lead to greater losses of production or service delivery while people have to travel and be away from the job site. No location is ideal. What you want to think about is how to minimize the disadvantages of each locale so that targeted participants can most effectively meet course objectives while they are learning.

What Content Should Be Covered in the Course?

Most people who design a course want to jump to this question first. The problem is that, without considering course objectives, it is usually wasteful to do so. The tendency is to "dump" too much information on people without being economical. In work settings, we don't have time or resources to do a core dump on people. We want the course content to meet the course objectives and nothing more.

In fact, the course objectives are the best place to start in establishing course content. Create an outline directly from the course objectives.

Perhaps a simple example will help to illustrate how to do that. Suppose that the course objectives are these:

Course Objectives

Upon completing this course, participants will be able to:

- ?? Describe the company's policies on employment interviews
- ?? Review the steps in an effective interview
- ?? Demonstrate, through role-play and other examples, how to conduct an effective selection interview

Course Outline

- I. Introduction
 - A. Course purpose
 - B. Course objectives
 - C. Course participants

- II. What Are Employment Selection Interviews, and Why Are They Important?
 - A. Definition of an Employment Selection Interview
 - B. Importance
 - C. Activity on Common Problems in Conducting Employment Selection Interviews

- III. What Are the Company's Policies on Interviews?
 - A. Policy Statement
 - B. What the Policy Means

- IV. What Are the Steps in Conducting an Interview?
 - A. Steps
 - B. Meaning of Each Step
 - C. Example

- V. Demonstrating Effective Employment Selection Interviews
 - A. Instructions for the Role Play
 - B. Role Plays
 - D. Feedback

- VI. Conclusion
 - A. Course Summary
 - B. Course Evaluation

Note that there is a direct relationship between the course outline and the course objectives. The outline can, of course, be made much more detailed, but this is a good starting point for beginning to clarify how the topic will be treated. Once an outline has been completed, the next steps for creating interactive courses are to:

- ?? Determine what media are needed to support each section .Prepare the media (images, animation, audio, and video)
- ?? Bring the outline into the software complete with questions
- ?? Attach the media you prepared to its associated section of the outline

How Will the Course Be Delivered?

Any topic can be delivered in any way. *Delivery methods* may include on-the-job training between one job coach and one trainee, classroom-based instruction offered to groups, computer-assisted or computer-based training, Web-based instruction, and many other approaches. One course may actually use multiple delivery methods.

While much research has been conducted on delivery methods, the results have been inconclusive. Generally speaking, people can learn just about anything from any delivery method. But if the goal is to deliver information or to build participant knowledge, computer-assisted, computer-based or Web-based instruction is often the most time efficient method.

To make decisions about delivery methods, use the outline as a starting point. Once the content of the course is clear, then decide how each part of the course outline will be delivered. Consider such issues as how much time you have available to design the course and what delivery method is likely to be most effective, given the topic to be covered.

How Will the Results of the Course Be Evaluated?

How can you evaluate the course? Research shows that most organizations use some kind of reaction sheet (what trainers call "smile sheets" because they sometimes have smiley faces on them) to evaluate courses. That is not the best way because that tells you only how much people "enjoyed" the course. However, managers usually want to know how much people learned, what they can do on their jobs better, and what return on investment the organization realized from the training. These are more difficult issues to evaluate. If you have developed a knowledge or performance test, you can address the issue of how much people learned by tracking how well people performed. That information should be fed back to the immediate supervisors of the course participants so that they can hold people accountable on the job for applying what they learned in training. If that happens, then changes on the job can be measured through a company performance appraisal system.

The most difficult issue of all to address is the return on the investment. What did the organization gain in increased productivity or reduced expenses as a *direct result* of the course? For the most part, managers will not ask this question if they believe that the course met the need they perceived. But course designers are well-advised to ask the question themselves and track it. To do that, estimate how much it cost to design and deliver the course. Then estimate what increases in productivity resulted directly from the training by asking workers and their supervisors. Based on the number of participants who enroll in the course, develop an estimate of what that increased productivity is worth to the organization. Then subtract the cost of designing and delivering the course from the estimated value added by the course. The amount you estimate should be a return on investment figure. Be sure to verify that with decision-makers, such as managers and workers. When you have it, communicate it to others in the organization to demonstrate to them that the course was worthwhile and that the organization benefited.

***William J. Rothwell** is Professor of Human Resource Development on the University Park campus of The Pennsylvania State University. He has authored or co-authored over 30 courses on employee training, including the classic text on course design -Rothwell, W., & Kazanas, H. (1997). *Mastering the instructional design process: A systematic approach* (2nd ed.). San -- Francisco: Jossey-Bass. In his career he has designed and delivered hundreds of training courses ~ for government, business, and education organizations.

References

- Rothwell, W. (1999, in press). Action learning: A real-time strategy for problem-solving, training - design and employee development. San Francisco: Jossey-Bass.
- Rothwell, W. (1996). Beyond training and development: State-of-the-art strategies for enhancing human performance. New York: AMACOM.
- Rothwell, W., & Cookson, P. (1997). Beyond instruction: Comprehensive program planning for business and education. San Francisco: Jossey-Bass.
- Rothwell, W., & Kazanas, H. (1997). Mastering the instructional design process: A systematic approach (2nd ed.). San Francisco: Jossey-Bass.
- Rothwell, W., & Kazanas, H. (1994). Improving on-the-job training: How to establish and operate .

Professional Worksheet for Course Design

Directions: Use this Worksheet to help you structure your thinking about key issues that should be considered during course design.

1. What is the purpose of the course, and why is it being designed?
2. Who will participate in the course?
3. What should participants in the course be able to do when finished?
4. How will we know the participants can perform as desired?
5. When should the course be ready, and where will it be offered?
6. What content should be covered in the course?
7. How will the course be delivered?
8. How will the results of the course be evaluated?