

Assess Instructional Needs

Assessing instructional needs is the first phase of instructional design. Depending on your situation, you may not need to assess and determine an instructional need; that work may have been done for you. It may be, too, that your particular situation does not require a needs assessment. However, if you are responsible for course-creation from the ground up, conducting a needs assessment may be a necessary step.

The motivation behind conducting a *needs assessment* is not too mysterious: in order to begin designing instruction, you may need to determine whether there is a *need* for the instruction you intend to offer. In addition, depending on your instructional goal and course content, you may need to identify the gap between what *is* and what *needs to be*; that is, what do learners know now, and what do learners need to know? New educational needs or enhancements may arise because of changes in legislation, changes in a given industry, or mandates from professional organizations. For instance, a telecommunications company may realize that it's falling behind in the area of wireless technology; it may then conduct a needs assessment to determine how to remedy the lack.

To begin designing instruction . . .

Ask yourself. . .

- Who is affected by this need? Who are your potential learners?
- What prerequisite knowledge, skills, or understanding do your learners need?
- What is and what needs to be? What is the instructional goal?

Begin with the learner. . . .

- If possible, solicit input from your potential learners. Consider using email, a survey, a focus group, informal or formal observation, or discussion.
- If you use or develop CBT or WBT, what kind of access to technology do your learners have?
- Are there language considerations? Are there students who speak English as a second language?

Consider the learning environment. . . .

- If applicable, determine whether there are existing curricula or certification requirements your course must satisfy.
- If your course is media-dependent, determine the availability of required media. If you use or develop CBT or WBT, what are minimum technical requirements?
- Find out what facilities are available.

To get started, collect the following data. . . .

- Who is the intended audience? Who will make up your potential learners?
- How many potential learners are there?
- What specific industries, businesses, and professions will find your instructional material of particular interest?
- What are the prerequisites for the course? What should learners already know?

- Where are the potential learners geographically located? Will learners be located in a centralized classroom, or distributed throughout a geographical location?
- What is the need? Has it been determined by legislation, a change in career or job expectations? What is the gap between what is and what should be?
- What kinds of knowledge, skills, or tasks will the intended instruction include?

If you decide to conduct a needs assessment, here are some online materials that may help you work through this phase. Two of the sites represented here are specific to distance education; however, many of these principles may be applied to different kinds of educational environments.

http://mime1.marc.gatech.edu/MM_Tools/analysis.html

This Web site includes links to tools for use in assessing instructional needs. The tools presented here are specifically written for multimedia products, but the methodologies may be adapted for all instructional assessment needs.

<http://www.uidaho.edu/evo/dist3.html>

Instructional Development for Distance Education. Developed by Engineering Outreach at the University of Idaho. For needs assessment, see particularly "The Need for Instructional Development" and "The Design Stage."

<http://www.mtsu.edu/~itconf/proceed98/rstewart.html>

Needs Assessment: A Systematic Approach for Successful Distance Education. Online article, outlining the needs assessment process for effectively implementing distance education.

Analyze Learners

Although not always possible, it's good practice to spend some time thinking about and researching your potential learners or your *target population*. These are the folks who will actually be taking your class, using your computer-based training, or working through your self-paced instructional materials.

Usually, it's best to create instruction around a particular audience, rather than designing content and then searching for an audience. It's also a good idea to avoid designing instruction based on what you think learners *should* know or be like; instead, determine what learners *are* like and what they *do know*. In addition to analyzing the learners, think about the learning context - where will the instruction be offered? Will the environment adequately support the intended instruction? Remember: many of your learners are adults. Usually, adult learners take classes for a specific reason; make sure you can articulate the relevance of your course materials. How will your learners apply what you're presenting?

What kinds of things do you need to know about your learners? Some instructional design theorists contend that "the most important factor for an instructional designer is specific prior learning." Consider how you can discover what your learners already know about your topic. Think about the prerequisite knowledge your learners must possess before they take your course or instructional unit. It's also important to consider:

- Cognitive characteristics, such as learning aptitude, learning styles, prior knowledge of topic.
- Psychosocial characteristics, such as motivation, attitudes, socioeconomics.
- Physiological characteristics, such as age, race, ethnicity, cultural and linguistic background.

Be aware that we now live, work, and learn in environments that are increasingly culturally diverse. Remember that some cultures may not encourage classroom participation, so some learners may be hesitant to speak up or volunteer information. Nuances of body language and nonverbal communication may vary widely from culture to culture. All of these factors carry implications for selecting your instructional strategy and developing your instructional materials.

Write Learning Objectives

A learning objective is a clear, concise, objective description of what your learners will be able to *do* at the end of a given instructional unit. Of all the activities involved in the instructional design process, developing objectives is one of the most critical.

Purpose

- Learning objectives tell learners what they will know, understand or be able to do at the end of a block of instruction (section, topic, lesson, workshop).
- Objectives should be clear, honest, complete, and correct.
- Well-written objectives should serve as the basis for test items. Well-written objectives tell learners how their performance will be assessed.

Composing

- Determine the *goal* of the learning activity (the terminal objective).
- Determine what learners must demonstrate to achieve that goal (the enabling objectives).
- Write objectives based on the above skills, task, or knowledge.

Parts of

- Begin with a statement such as "Upon the completion of this course/lesson/presentation/CBT, you will be able to . . ." Phrase the objective in terms of what the user will be able to do, not what you are presenting.
- Write objectives that include the following criteria:
 - *Performance Statement:* List the skill or knowledge the user needs to achieve. Ask yourself, "What will the user be able to know or do?"
 - *Criteria Statement:* Continue by stating how well the user should be able to perform. (Not always required.)
 - *Condition Statement:* Describe the conditions that need to exist for the learner to perform the task. (Not always required.)

Select an Instructional Strategy

As you begin to formulate your instructional strategy, it may be helpful to use R. Gagne's "nine events of instruction" as an organizational tool. Gagne outlined a process of learning that includes the following nine events:

- Gain attention
- Inform learners of objectives
- Stimulate recall of prior learning
- Present the content
- Provide learner guidance
- Elicit learning/practice
- Provide feedback
- Assess learning
- Enhance retention and transfer

Although you may not need or choose to incorporate each discreet event presented here in your own instruction, you may want to refer to this hierarchy as you develop your course or instructional materials. Remember that, depending on your course delivery, integrating these instructional events may present challenges. For instance, if you are developing a distance education or self-study course via electronic or paper-based materials, your instructional materials need to gain learners' attention, as well as provide feedback and guidance.

Depending on your instructional goal and course content, you may need to test your learners' knowledge. So, as part of your instructional strategy, you may need to think about creating tests or other *assessment* tools. How will you - and your learners - know when the required objectives have been achieved?

It may seem unusual to suggest that you begin to create assessment instruments in the middle of the design process, rather than at the end. However, the best time to develop test items is after developing learning objectives. Your assessment instruments, then, will be more likely to actually measure what you want your learners to accomplish.

Remember, too, that assessment doesn't only occur at the end of an instructional unit. Think about how to integrate formative assessment during instruction. Check in with your students by frequently asking questions and soliciting feedback.

Develop Materials

Instructional materials are any tools you use during the instructional process. An instructional package usually consists of a student manual, instructional materials, pre- and post-tests, and an instructor's manual. You may choose to employ worksheets, handouts, job aids, computer-based training, the Internet, laboratory work, learning objects, learning portals, or audio/video material.

Prior to developing your instructional materials, consider your intended development and delivery mode. Will your delivery mode be self-paced and instructor-independent, such as online learning? Will your delivery be a combination of instructor presentation and use of materials? Think about how you will cover all required instructional events. Consider, too, the resources and budget you have available.

Also, consider whether you wish to create your own instructional materials or whether you want to use materials that already exist. Remember, though, to avoid using material just because it's available; make sure the material is appropriate for your instructional goals.

When developing your instructional material, think about using the following steps:

1. Review your instructional strategy.
2. Research existing literature or fellow subject matter experts; determine what material is available.
3. Consider how you can adapt existing material.
4. Determine whether you need to design new materials.
5. Consider the best media for presentation. How can you best monitor practice and feedback, evaluate learner learning, and guide student learning?
6. Based on your instructional strategy, build your instructional material.
7. Review each completed instructional unit for flow, clarity, and information-chunking. Keep your learner analysis in mind.
8. Develop a student manual or student instructions; provide a syllabus or outline that informs learners of objectives and assignments.

Evaluate Instruction

How can you make sure that your instruction is effective? If your particular situation allows, the best way to test your instruction is by employing a system of evaluation. Of course, your learners are your best test audience; however, it's also a good idea to ask available fellow subject matter experts to provide a peer review of your instructional materials and strategy.

Don't confuse *evaluation* with *assessment*. Usually, assessment methods concentrate on learner learning; evaluation, on the other hand, has a wider scope. *Evaluation* implies an examination of the entire instructional unit you have been developing. A peer review from your colleagues is one way of evaluating the effectiveness of your class, presentation, or self-study materials.

To some extent, you may be evaluating your instruction throughout the development and delivery process. Considering the needs of your target audience, for instance, is one way you evaluate what strategies or materials are appropriate. *Formative* evaluation, evaluating instruction as you develop and deliver instruction, enables you to make critical decisions on how to revise and thereby improve your instruction. This will help you more effectively meet the needs of your learners. *Summative* evaluation comes after delivery or after full development of the instructional unit.

It may help to use tables or questionnaires to gather valuable data from your test audience, whether your audience consists of potential learners, fellow subject matter experts, or learning specialists. Use the documents and Web sites referenced in the *Tools* and *Online References* section to adapt and create your own tables and questionnaires.