

# 1

## Online Learning Approach

### Guiding Questions

- Why is congruency important?
- Why are planning, presentation and practice keys to successful online learning?
- Why is planning the central activity of instructional design?
- What are the limitations of content presentation?
- Why is it important for learners to be active?
- What is the role of instructional support?

### Chapter Overview

In this chapter, the specific online learning approach that has been adopted for this text is described. The approach focuses on three phases: planning, presentation, and practice. By implementing these three phases of instructional

design, you will ensure the development of quality online learning. In the planning phase, you will decide what to teach. In the presentation phase, you will decide how to share content with the learner. Finally, in the practice phase, you will give the learner an opportunity to perform. Online learning should focus on the learner actively thinking and responding. This idea is pursued throughout this chapter and the entire text.

## Nothing Is Left to Chance

Many people are surprised when confronted with the number of factors that must be considered when designing instruction. A good classroom teacher/trainer will implicitly take care of many of these factors “on the fly.” However, in an online learning environment you must plan to account for these details. In fact, there are so many details that require consideration that you will need to follow a systematic method to ensure you have not overlooked them. The variables that have to be considered when designing online learning are derived from science, logic, and feedback.

### Science

Science will give you some ideas, but you will have to try out many strategies. Some will work, some will not. You will be presented with many principles from the science of learning; however, as you continue to develop your skills, you should try to read as much as possible from the research base. The important thing is that you should be continuing to look to science for ideas and strategies; you should continually be keeping yourself up-to-date.

Instructional designers use the science from behavioral and cognitive psychology as a foundation to guide our decisions. However, the science from these fields only offers general guidance. Every instructional situation is unique. You will have to tailor your instruction to accommodate your particular circumstances. Every instructional project has to consider different types of content, different learners, and different environments. There is rarely a single best method for doing anything in online learning.

### Logic

Once you have some ideas from the science of learning, you will have to apply them. The important thing is that your instructional design not be

capricious. You should document every decision you make and have a rationale for every decision. You may be surprised at how many decisions you actually make in a design project; documenting them forces you to not to overlook any of them. You should have a reason for every objective, every presentation, and every interaction. Be prepared to defend your instructional decisions and choices.

In this text you will encounter many examples of instructional decisions. You will notice that a concerted effort has been made to provide explanations for every decision. Use these notes as an opportunity to test yourself. Ask yourself whether you agree with the rationale. If you do not agree with the rationale, try to think of another method.

## Feedback

Instructional design is about making quality instructional decisions, testing out those decisions, and being prepared to modify your instruction accordingly. Ask yourself whether your designs actually help the learner learn effectively and efficiently. Instruction is worthless unless it accomplishes this goal. It takes a strong will, not only to ask whether your designs make a difference, but also to replace or revise them if they do not. The craft of instructional design requires that you marshal science, logic, and feedback to create the best instruction possible.

## Instruction Is an Investment

Online learning requires an investment for the designer and for the learner. Both you and your learners could be doing other valuable things with your time. It is not acceptable to waste your time or theirs. It is also important for you to remember that there may be others with who have invested in your online learning efforts.

If you build online learning for schools or universities, you are answerable to the community. In the same way, if you work for a business or a non-profit, you can be assured that they have a stake in the training they sponsor. These communities and organizations are making an investment, and they expect you to verify that, not only have you constructed instruction, but also that your instruction prepared your learners to meet the needs of the organization.

Schools, universities, businesses, and government agencies are all institutions and exist under what is called the “institutional imperative.” The institutional imperative is essentially a requirement that their activities, instructional and otherwise, further their respective missions. Therefore, they have a responsibility to document these activities and evaluate them. They must produce evidence that their institutional actions are meeting the goals of the organization.

When an organization makes an investment, it has expectations of a return on that investment. You need to gather evidence to demonstrate that training has changed and improved the participants’ skills. Institutions, whether corporate or otherwise, must determine a return on investment (ROI).

You must compare the time, effort, and expense of instruction, to the net benefit generated by instruction. You can measure this for an organization by the money that they made or saved because of the training. If you work for a non-profit organization, you can measure the ROI by the degree to which performance is improved as compared to other possible interventions.

If you are going design instruction, you should make sure that it pays off as an investment. You have not completed your work until the learners can demonstrate they have learned, and that the organization or institution sponsoring the instruction can verify the results. If you cannot verify results to the sponsoring organization and to the learner, then you cannot consider your online learning a success.

My approach to online learning is, essentially, begin with science of learning, use logic to apply those principles to unique circumstances, get feedback on what works, modify your application in response, and, finally, treat online learning as an investment. If you cannot justify the investment, you should look to alternatives.

## **Planning, Presentation, and Practice**

The principles above define the text’s online learning approach. The rest of the text implements these principles through three basic instructional design phases: (1) planning, (2) presentation, and (3) practice. By attending to these phases, you can ensure that your instruction is as effective,

efficient, and appealing as possible. All three of these activities should occur systematically and congruently.

## **Goals Are Important (Planning)**

Planning is the process of systematizing the design activities so that each instructional decision is informed by previous decisions. For example, once you identify instructional needs, the next step is to clearly articulate learning objectives. These learning objectives are unambiguous statements of what the learners will be able to do once they have concluded instruction. However, selecting appropriate phrasing for learning objectives can be difficult, and there is the temptation to describe them broadly in an attempt to ease the difficulty of the task. What often ends up happening in these cases is that the objectives no longer reflect the intent of the needs analysis. Likewise, test items should reflect the intent of the learning objectives. Some types of test items are simply easier to write, and there is the temptation to do what is easiest. Again, if this occurs, then the result is a loss of congruency.

Not only must the instructional design process be congruent, but it also must be appropriate. By appropriate I mean that, whatever the learning task is, you can categorize it and that category choice will lead to specific instructional interventions and not others. You can ensure that instruction is appropriate by appropriately categorizing it.

## **The Learner Must Be Supported (Presentations)**

If content was comprehensible to learners without additional support, then there would be no need for instruction. As it is, most learners require varying degrees of support to understand information. The type and extent of support that you provide learners is presented through instructional strategies. When using Flash as your delivery platform, you should have specific presentation strategies in your instructional arsenal. You need to know how you are going to organize, order, and display content to the learner. It is not sufficient to state that you will “tell the learner”; you should have a plan of action. You need to decide what definitions you will use, what examples will best illustrate your points, what graphics will enhance your message. None of these decisions should be capricious.

## **The Learner Must Be Overtly Active (Practice)**

Perhaps the most important instructional principle is that the learner should be overtly active. If you are investing in online learning, you have a stake in ensuring that your learners have learned. You cannot be sure that they have learned unless they can provide evidence of their capabilities. Further, learning is, more often than not, hierarchical: new skills build on previous skills. If a learner has acquired a skill incompletely or inadequately, or if the learner has persistent misconceptions, then he or she has endangered the development of subsequent skills.

The only way to determine whether learners have mastered a prerequisite skill is to have them engage in a performance. In essence, learning is a matter of doing things and getting feedback. The more opportunities they have to perform and get feedback the better. Practice-sequences are the most important factor in this text. Online learning is a practice-centric task.

## **Design Model**

The instructional presentations and practice sequences both emerge from the planning process. The planning process tells us what our goals are; those goals need to be funneled into a system that leads to results. The instructional design model provides that system. The instructional design model used in this text is based on what is known regarding human information processing. The human information-processing model hypothesizes three primary memory structures: (1) sensory, (2) working memory, and (3) long-term memory (Ashcraft, 1989). Sensory memory describes one's ability to make contact with the environment through the senses. It is characterized by one's ability to select or attend to a small amount of stimuli relative to the enormous amount of information that reaches the senses. Working memory is the area in which one's conscious thinking occurs. It is characterized by its relatively small capacity. Miller's (1956) study confirming that working memory is limited to approximately seven units forms the foundation for much of the field of cognitive psychology, including the idea of cognitive load. Cognitive load refers to the working memory's capabilities. Evidence supports the idea of reducing or controlling cognitive load to improve learning (Hogg, 2006).

**Table 1.1. Presentation and Practice Model**

	<i>Sensory Memory</i>	<i>Working Memory</i>	<i>Long-Term Memory</i>
Presentation	Attention management	Cognitive load management	Structural management
Practice	Fading attention support	Fading cognitive load support	Fading structural support

Finally, long-term memory appears to be of unlimited capacity. The primary instructional challenge with regard to long-term memory is integrating new material with the learner's neuron structure (Ausubel, 2000; Zull, 2002).

These memory structures form the foundation of both the presentation strategies and the practice sequences in this text. Essentially, instruction is an attempt to artificially create conditions that assist and support the learning process and then, eventually, to prepare learners to perform under non-artificial conditions. Different presentation methods for supporting the learner associate with each of the three memory structures discussed above. Likewise, there are practice sequences that lead to performance in real-world conditions that associate with each memory structure. In general, presentation strategies create artificial conditions that support learning, while practice sequences seek to remove the use of artificial support. The two combine to create a holistic learning event. Table 1.1 illustrates the relationship between memory structures, presentations, and practice sequences.

This model will be used throughout the text to guide design and production decisions.

## Summary

The important ideas in this chapter include:

- It is important to keep up with the changes in the science of learning.
- All instructional decisions must have a logically considered rationale.

- You will not know whether your instruction works if you have not tested it out.
- Online learning is an investment, and you should expect a return on your investment.
- Instructional strategies can be organized around the human memory system.
- The point of presentations is to provide the learner with support.
- The point of practice sequences is to remove learner support.

### **COMING UP: PLANNING**

In the next chapter, the specifics of planning for instruction will be reviewed. You will be presented with a systematic model of instruction that you can follow as you work through this text and your own instructional design problems. Specifically, the analysis phase of the model, which includes (1) analyzing needs, (2) identifying tasks, (3) creating objectives, (4) classifying objectives, and (5) creating test items, will be reviewed.