



# **Instructional Design Strategies and Tactics**



**Cynthia B. Leshin • Joellyn Pollock • Charles M. Reigeluth**



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## INTRODUCTION

Instructional systems development (ISD) is traditionally taught as a process, an ordered set of activities that one performs to develop instructional systems. The “standard bearer” is the IPISD (Interservice Procedures for Instructional Systems Development) generated by Robert Branson and others at Florida State University in 1975. Although there are many other ISD models, they all possess far more similarities than differences. They also tend to share some important shortcomings. This book builds on the “tried and true” activities represented by those models, but extends them in ways that address many of the shortcomings. Primary among the shortcomings is that traditionally ISD models have not included any guidance for the selection and use of instructional strategies and tactics. They have totally ignored guidance as to what makes good instruction. So you could faithfully follow all the steps in a traditional model and still end up with poor instruction. Since the purpose of an ISD model is to help you produce good instruction (when instruction is indeed needed), this is a serious problem. Other shortcomings include:

- There has been too much emphasis on what to do (procedures) and not enough on why to do it (principles).
- Interdependencies among activities are seldom identified, to the extent that some unnecessary activities are prescribed and some necessary ones are overlooked.
- Guidelines for media selection and utilization are often omitted.

In this book, these shortcomings are addressed, and the ISD process is updated to incorporate recent advances in the field. The following are some of the uncommon features represented in this book:

- Research-based instructional strategies and tactics are included for a wide variety of types of learning, some of which have only recently been investigated (e.g., understanding and higher-level thinking).



- The approach to sequencing instructional content goes beyond the traditional hierarchical approach by utilizing recent research about how new knowledge is incorporated into existing schemata or formed into new schemata.
- Understanding of the ISD process is fostered by the inclusion of guidelines or principles, as well as steps or procedures.
- Interdependencies among activities are clearly identified, and activities tied together as a coherent, systemic design process.
- The book addresses a variety of types of media.

## **Instructional Strategies and Tactics**

Instructional strategies and tactics are methods of instruction. They are anything one can use to enhance learning. If something influences learning but is beyond the control of the designer or teacher, then it is a condition, not a method. Conditions often influence which methods will work best.

The difference between instructional strategies and instructional tactics is what might be expected from the military use of the terms. Strategies are broader in scope. A variety of tactics can be used to implement a single strategy. Presenting an example is a tactic, whereas using an inductive approach by presenting examples followed by a generality which governs them is a strategy.

It is helpful to be aware of the different kinds of strategies and tactics, so you can be sure not to overlook important ones. The most commonly known kind of strategy is called a micro strategy. It pertains to very small chunks of content (such as how to teach a single concept or attitude). Another well-known kind of strategy is called a macro strategy. As its name implies, it pertains to large chunks of content (such as the selection and sequencing of content). Recently there has been recognition of an intermediate level of strategy. This mid-level kind of strategy

pertains to medium-sized chunks of content (such as whether to use a discovery approach or a hands-on approach for several related ideas). These three have all been referred to as strategies for organizing the content, but one must also consider strategies for mediating it (media selection and utilization) and for managing it (controlling the instructional process).

Many instructional strategies may work; that is, they may eventually result in the desired learning. Our interest is in selecting optimal strategies—that is, strategies that work better than any others of which we are aware. To select methods, we must have some basis for selection. We must understand what factors influence the effects of each strategy. A statement that identifies the best known method for a given situation is called a prescriptive principle of instruction, or just a prescription or guideline.

## Sequencing Instructional Content

Most ISD models advocate the use of two strategies to sequencing instructional content: the hierarchical approach and the procedural (“information processing”) approach. Both are firmly rooted in behavioral psychology and are piecemeal in nature. The learner is taught the task one piece at a time, and it is not until the very end of the instruction that the learner sees and has an opportunity to practice the whole task. These sequencing strategies work well for simple, short tasks; but they do not work well for complex cognitive tasks that take more than 10-20 hours to master. An alternative has been developed in the form of the Elaboration Theory’s “Simplifying Conditions Method.” This sequencing strategy entails identifying the simplest kind of case an expert encounters in the real world, and starting the instruction with examples and practice on that kind of case. Even for complex cognitive tasks, this simplest kind of case is usually simple enough to teach within a 10-hour module of instruction. Next, you identify the conditions which make that kind of case simpler than the most complex kind of case for performing the task. Those simplifying conditions can then be relaxed one at a time, with a module of instruction for each.

In this manner, the learner is able to perform as well as an expert from the very first week of the instruction — for that one simple kind of case. The learner acquires a holistic vision of the task, albeit necessarily simplified and limited at the moment. And that holistic vision is a schema that the learner proceeds to elaborate as the instruction progresses. This is a simple yet powerful sequencing strategy that enhances motivation, as well as understanding, transfer, and retention.

### **The ISD Process and Its Interdependencies**

The traditional ISD model is generally viewed as a linear process. For example, one performs a task or content analysis and then decides how to sequence the instruction. The problem is that different sequencing strategies are required for different situations, and each sequencing strategy is based on a different type of relationship in the content. For example, Gagné's hierarchical sequence is based on the learning prerequisite relationship among skills; the procedural sequence is based on the order relationship among steps in a procedure; the chronological sequence is based on the time relationship among historical events; and the elaboration theory's "simplifying conditions" sequence is based on the relationship of relative amounts of complexity among different versions of a task. Because each type of sequence is based on a different type of relationship within the task or content, a different type of analysis is required in order to design each sequence.

In sum, you have to make some design decisions before you can decide what kind of analysis is needed, and that analysis must be performed before a related design activity can be performed. Therefore, the ISD process is far more of a cyclical, systemic process, rather than a linear process; and each part of the ISD process must be designed to meet the needs of each of the other parts of the process.

However, there are input-output relationships among general activities in the ISD process. For example, some sort of analysis precedes each design decision. For easy reference, we have numbered those activities according to the general input-output relationships, and we have labeled each as a step. Each step has substeps and guidelines (or prescriptive

principles) to help you to perform it well. However, please keep in mind that, in spite of the superficial appearance of a linear process, this ISD model is very much a cyclical, systemic design process.

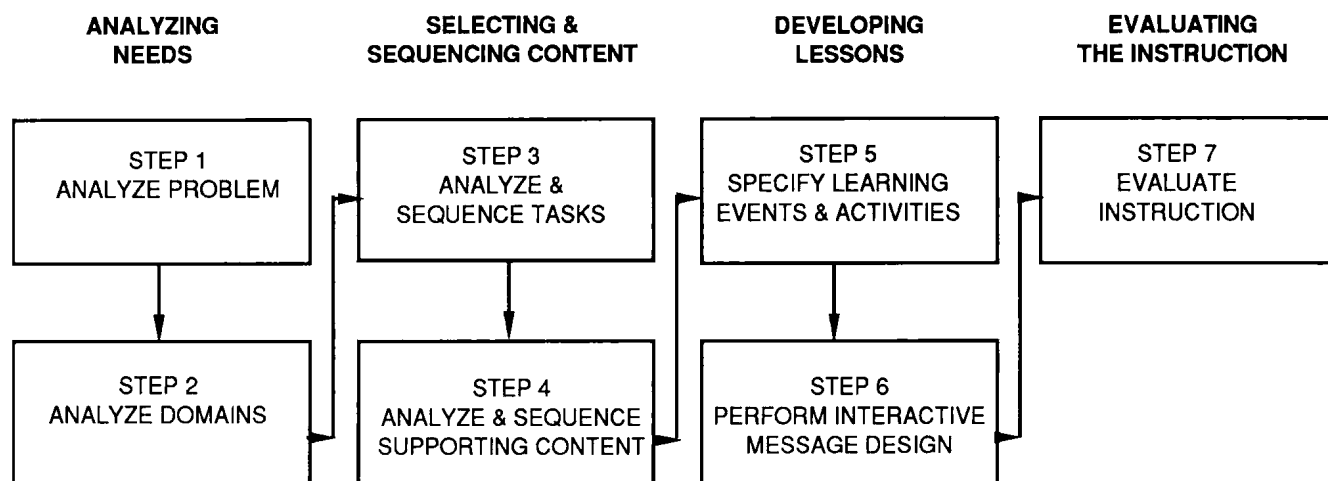
## **Media Selection and Utilization**

Media selection and utilization are an excellent example of the interdependence among parts of the ISD process. Rather than being a step that comes after instructional strategy selection in a linear process, it is a design decision that influences all other aspects of the systemic design process. It influences the kinds of analysis required, the kinds of strategies that will be most effective, the nature of the subsequent development and production activities, and even the nature of the formative evaluation and implementation activities.

Based on Romiszowski's work, we incorporate media selection as a gradual process that occurs throughout much of the larger ISD process. And proper utilization of a medium may entail use of some very different strategies or tactics than would be most appropriate for a different medium.

## **The Format and Use of This Book**

This book is designed for both educators and trainers. Educators will usually start with Step 3, because many of the front-end decisions have already been made by the administrative and governance systems. On the other hand, trainers will usually need to start with Step 1, because instruction may not be the best solution to the problem and fewer front-end decisions are likely to already have been made.

**Figure 1. Overview of the Instructional Systems Development (ISD) Process**

# **UNIT 1**

## **ANALYZING NEEDS**

## UNIT 1 PREFACE

The purpose of instruction is to provide knowledge and skills that will benefit the learner and, in many cases, will also benefit an organization. Instruction has been defined as a goal-directed teaching process that has been more or less pre-planned. In much the same way that an architect creates a blueprint before he builds a house, you (the instructional developer) must first design an *instructional blueprint*. You create this blueprint through an iterative process of analysis and design whereby the appropriate content is selected and sequenced, appropriate instructional strategies are selected and sequenced, and appropriate media are selected and utilized.

You begin the ISD (instructional systems development) process by analyzing the underlying problem. Regardless of whether the problem involves a performance deficiency, as may be found in training, or an information deficiency, often found in education, the primary purpose of this step is to help determine whether instruction is an appropriate solution or only part of the solution. We will distinguish between education and training projects in STEPS 1 and 2 only. The focus and methods for problem analysis will be different for an educational context than for a training context. Following STEPS 1 and 2, the purpose and use of the remaining ISD steps is the same for both contexts.

After the underlying nature of the problem has been analyzed, you need to identify any and all domains<sup>1</sup> of knowledge to solve the problem, identify component tasks for each, and develop a corresponding performance objective for each task. These objectives guide the design process and help you select and sequence content, instructional strategies and tactics, and media.

The front-end analysis, therefore, is the critical link between individual or organizational needs and instructional development efforts. Without properly analyzing those gaps, even the most well-constructed instructional programs will not be cost-effective in meeting the needs.

The steps in this analysis process are the following:

STEP 1: Analyze the problem to identify the needs.

STEP 2: Analyze the domains (jobs or subject areas) to identify deficiencies.

<sup>1</sup> For training contexts, domains are frequently called jobs. For educational contexts, they are called subject areas.

## **STEP 1**

### **ANALYZE THE PROBLEM**



## STEP 1: ANALYZE THE PROBLEM.

### OVERVIEW

Listed below are two examples of problems that require analysis. One represents a training project and the other an educational project.

#### **Scenario 1 — Training Project**

Your manager has asked you to develop a training program for employees within your company to improve their job performance. As a trainer you:

- (1) are not certain why your manager has requested this program;
- (2) understand that there are many factors that affect employee performance;
- (3) recognize that training is not always the solution to an organizational problem;
- (4) recognize that organizational changes or new incentives may also be needed; and
- (5) know that, frequently, courses may already exist that could be modified to meet training needs.

Before spending a great deal of the company's money on a training program, you determine that the best approach to take is to:

- Understand why your manager has requested this training program.
- Determine the problem or performance deficiency.
- Analyze the target population of performers to determine whether training is needed.
- Identify any additional organizational changes that are needed.