



Principles of Instructional Design, 5th Edition

by Robert M. Gagne, Walter W. Wager, Katharine C. Golas, and John M. Keller
reviewed by James D. Russell

This book is a classic reborn—an update that has been a classic in our field since it was first published in 1974. The current edition is dedicated to the memories of Robert M. Gagne and Leslie J. Briggs for their many contributions to educational psychology and instructional systems design. It is the first new edition in over a decade, but it was worth waiting for.

New to this edition are two chapters: one about online learning and another on technology. All chapters have been rewritten and updated. I like the authors' informal writing style. A valuable feature of the book is its many tables and figures. The tables facilitate learning for the novice and serve as excellent job aids for the experienced professional.

Rather than a step-by-step procedure, this book presents instructional design (ID) based on learning principles—as the title states. The principles are supported by research. The chapters have anywhere from 10 to more than 50 references. They include a combination of classic and current references. The book provides a solid base of research and applications from the last several decades and provides insight into the future of ID.

The Book's Content

Chapter 1. Introduction to Instructional Design

This first chapter provides the basics of the authors' approach to designing instruction and their assumptions about ID. They introduce four fundamental principles of human learning that form the basis of instructional design. Gagne's Conditions of Learning are discussed along with the five general categories of learning outcomes (intellectual skill, cognitive strategies, verbal information, motor skills, and attitudes) that are used throughout the rest of the book. The chapter concludes with a rationale for ID.

Chapter 2. Designing Instructional Systems

The chapter provides an excellent introduction to instructional systems design and how it relates to human performance technology. The authors use the Analysis-Design-Development-Implementation-Evaluation (ADDIE) model to introduce ID—a good choice because it is the basis of most ID models. The chapter concludes with an interesting discussion of the use of models as a process versus a representation of the process. Because most educational systems are social institutions, the authors discuss the effects of politics on design decisions.

Chapter 3. The Outcomes of Instruction

Goals and objectives are related to the five categories or types of learning that were introduced in Chapter 1. Outcomes lead to goals that are translated into capabilities (knowledge, skills, and attitudes). The next step is objectives that lead to learning conditions. Each type of learning is clearly described with examples; the chapter includes samples of performance for each type of learning outcome.

Chapter 4. Varieties of Learning: Intellectual Skills and Strategies

Classification of content into types of learning is not an academic exercise, but there are different strategies and approaches for teaching different types of learning. The chapter also presents internal and external conditions for each type of learning. For example, tables that include descriptions of each type of learning and the internal conditions (internal to the learner or a state of mind) and external conditions (the learning environment and management of the learning required to deliver it) are provided for intellectual skills and cognitive strategies.

Chapter 5. Varieties of Learning: Information, Attitudes, and Motor Skills

This chapter follows the format of the previous chapter, but attention is devoted to the three remaining types of learning: information, attitudes, and motor skills. The authors provide an interesting distinction among “data,” “information,” and “knowledge” and discuss the impact of the digital age on knowledge as it relates to learning. An extensive listing of guidelines for changing attitudes is included. The authors relate the importance of these types of learning to higher-order learning.

Chapter 6. The Learner

The learner should be the focus of all instruction and learning. Chapter 6 contains principles that support a learner-centered approach to ID. The authors include an extensive discussion of learner characteristics. Motivational factors are included, with an emphasis on Keller’s ARCS (Attention, Relevance, Confidence, and Satisfaction) model. In regard to designing instruction for learner differences, the chapter discusses learners’ abilities and traits and how they affect learning. The chapter concludes with a very helpful table showing how different learner characteristics should influence ID.

Chapter 7. Defining Performance Objectives

Chapter 7 provides reasons for defining objectives with appropriate considerations of constructivist concerns. The authors’ position is fair and appropriately explained. They rightly state “both approaches (constructivist and instructivist) are means to ends, not ends in themselves” (p. 133). The chapter explains and provides examples for how to write objectives that communicate. There are excellent examples of the five-part objectives recommended by the authors. For each type of learning the authors recommend a learned capability verb and an action verb.

Chapter 8. Analysis of a Learning Task

This chapter explores two analysis procedures: information-processing analysis and learning-task analysis. A new concept to this edition of the book is “multiple integrated objectives,” which was initially conceptualized by Gagne and Merrill. There are eight diagrams of different types of

analysis in the chapter. The essential and supportive prerequisites for each of the five types of learning outcomes are discussed and summarized in a table as well. The authors introduce instructional curriculum maps that show the relationships among instructional objectives.

Chapter 9. Designing Instructional Sequences

Various sequencing strategies are discussed: hierarchical, knowledge based, and spiral. Instructional curriculum maps—introduced in the previous chapter—are revisited with four examples. The authors illustrate five levels of objectives: enabling, specific performance objective, unit, end-of-course, and lifelong. Knowledge-based sequencing is new to this edition and relates to software engineering, hypermedia design, and sequencing content for online learning. The chapter includes references for further study about computer-based sequencing programs that select the next task for the learner based on a number of factors.

Chapter 10. The Events of Instruction

One of the most helpful principles for designing instruction has long been, and continues to be, the events of instruction. This chapter includes an informative discussion of the nine events of instruction based on learning principles. The events are external to the learner and supplied by the teacher, text, or other media. All of the nine events are well explained with relevant examples. A table summarizes the function of events 3, 4, and 5 (stimulate recall of prior learning, present stimulus material, provide learner guidance) for each of the five domains of learning objectives. The authors discuss and demonstrate how the events of instruction can be used in lesson planning.

Chapter 11. Technology—Affordances

An interesting chapter title! The authors define *affordances* as “the properties or functions of technology that extend our learning and perceptual capabilities” (p. 208). They discuss how technology, especially the Internet, is affecting learning and teaching. Learning in the Digital Age affects *what* people learn, *how* they learn, and *where* and *when* they learn. The authors remind the reader that the Internet is still subject to the same design principles as traditional education and training. Technology and its use should not be an end in itself, but a means to an end. The chapter looks at future learning technologies, integrative immersion technologies, virtual reality, and wireless computing.

Chapter 12. Designing the Individual Lesson

This chapter describes how to plan a lesson using the events of instruction to guide the development of learning activities. The authors recommend several steps: classify objectives by learning outcomes, sequence objectives, include appropriate events of instruction, and then incorporate the relevant conditions of learning. A table lists the most effective

tive learning conditions for the various types of lesson objectives. The authors show an example instructional curriculum map and the objective versus timeline sequence for a lesson with a description of the individual activities.

Chapter 13. Assessing Student Performance

Assessment can show whether instruction has met its objectives. The authors use assessment as a measure of performance evaluation—the collection and analysis of data for the purpose of making decisions. They describe several methods of assessment including authentic assessment and its relation to ID. Assessment rubrics are included with examples. The various purposes of performance measures are discussed along with procedures for developing objective-based assessment. They discuss the old but not well-known concept of mastery, including how to determine mastery criteria for each type of learning objective.

Chapter 14. Group Learning Environments

The nature of instruction should be determined by the size of the group. Various sizes of groups are discussed: two person, small (3-8 participants), and large (9 or more people). The authors present ways to incorporate the nine events of instruction into tutoring sessions, small groups, and large classes. Techniques for using digital technologies in large-group instruction are also discussed. The authors describe how learning can be enhanced through the use of electronic classrooms.

Chapter 15. Online Learning

This new chapter explores the advantages and challenges of designing online learning. It discusses trends, technological capabilities, and development strategies along with issues to be considered when designing online instruction. Also included is an informative discussion of the Internet and factors to consider when planning for online learning. An interesting section describes new capabilities designers may need to design and develop instruction and includes a list of required capabilities for designing online courses.

Chapter 16. Evaluating Instruction

The highlights of this chapter are basic techniques for evaluating ID products and procedures. Evaluation processes for instructional materials and activities include expert review, developmental tryout, pilot test, and field trial. Variables and their effects that influence learning outcomes are explored. Examples of evaluation studies are included to illustrate the importance of controlling variables that might affect the outcomes of an instructional program.

Summary

Possible audiences for this book include teachers, trainers, and students of ID (particularly those in advanced courses). The book could be used for a beginning ID course, but I have

used it for advanced ID courses at Purdue and Florida State Universities and would recommend it for similar uses. Professionals who have been introduced to the ID process can use the book to expand their skills and understanding of the process, as well as to expand their repertoire of techniques. This book is one that uses a principles approach rather than a cookbook approach; thus there is no model here. Yes, in a model-prevalent field, it is an excellent book—with no model. *Principles of Instructional Design* is an enduring work that has had a tremendous impact on instructional theory and practices internationally. This fifth edition provides an important update in terms of technology, but it still maintains the strong educational foundations of our field.

If I were to offer a suggestion for a sixth edition, I would recommend the inclusion of a glossary. A glossary would be helpful for beginners in the field because of the numerous technical terms used in the book. For the veteran, a glossary would help because many terms in our field are frequently used differently by different individuals.

That being said, I contend that all ID and performance improvement professionals would benefit from reading, contemplating, and applying the material in this foundational work, whether it is a person's first look or a revisiting of *Principles of Instructional Design*. 🌟

Reference

Dick, W., Carey, L., & Carey, J. (2004). *Systematic design of instruction*. Upper Saddle River, NJ: Pearson Education.

Publisher Information

ISBN: 0-534-58284-2

Thomson/Wadsworth

Phone: 800-423-0563

www.wadsworth.com

Author Bios

The late **Robert Gagne** is truly one of the founding fathers of our field. His principles and theories still are used widely today. **Walter Wager** was one of the early coauthors of this text. He is currently the Coordinator of Instructional Development Services at Florida State University. **Katharine Golas**, a student of Gagne, is currently Vice President of Training, Simulation, and Performance at Southwest Research Institute. **John Keller**, Professor of Educational Psychology and Learning Systems at Florida State, is best known for his research in motivation. The author team provides a diversity of backgrounds and experiences that contribute well to the text.

Reviewer Bio

Jim Russell is Professor Emeritus of Educational Technology at Purdue University. He continues to teach part-time and works for Purdue's Center for Instructional Excellence. During the spring semesters he teaches at Florida State University. He has been teaching ID courses at Purdue since 1976. He has taught the course at Florida State University using a previous edition of the book since 1998. Jim continues to coauthor textbooks titled *Instructional Technology and Media for Learning* (8th edition) and *Instructional Technology for Teaching and Learning* (2nd edition). He may be reached at jrussell@purdue.edu.