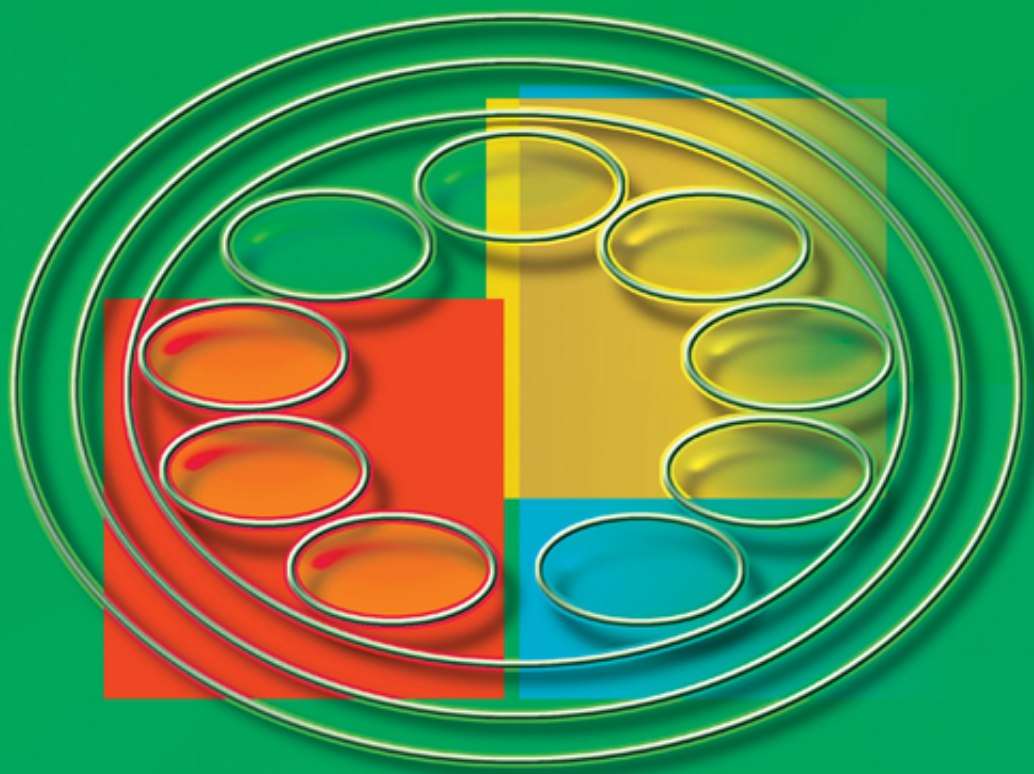


EIGHTH EDITION

# DESIGNING EFFECTIVE INSTRUCTION



MORRISON | ROSS | MORRISON | KEMP

WILEY



## TAXONOMY OF INSTRUCTIONAL DESIGN FUNCTIONS

Design Functions	Components	Description
Identifying instructional problems	Needs assessment	Normative, comparative, felt, expressed, future, critical incident needs
	Goal analysis	Aim, goals, refinement, rank, final rank
	Performance assessment	Knowledge or skills, motivation or incentive, environmental, management, interpersonal
Design Functions	Components	Description
Learner analysis	General characteristics	Age, grade level
	Specific entry competencies	Ability to understand abstract information
Contextual analysis	Orienting context	Learner's perspective
	Instructional context	Lighting, noise, seating
	Transfer context	On-the-job support
Design Functions	Components	Description
Task analysis	Topic analysis	Knowledge, concepts, principles
	Procedural analysis	Steps and knowledge, concepts, principles
	Critical incident method	Interpersonal communication
Design Functions	Components	Description
Objectives	Behavioral	Verb, criterion, condition
	Cognitive	General instructional objective, samples of performance
Expanded performance-content matrix	Content	Fact, concept, principle or rules, procedure, interpersonal, attitude
	Performance	Recall, application
Design Functions	Components	Description
Sequencing	Learning related	Identifiable prerequisites, familiarity, difficulty, interest, and development
	World related	Spatial, temporal, physical
	Concept related	Class, propositional, sophistication, logical prerequisites
	Content expertise	Conceptual sequence, theoretical sequence
	Task expertise	Simplifying conditions
Design Functions	Components	Description
Strategies	Recall	Rehearsal, mnemonics
	Integration	Paraphrasing, generating questions
	Organizational	Outlining, categorization
	Elaboration	Mental images, diagrams, sentence elaborations
Design Functions	Components	Description
Preinstructional strategies	Pretest	Alerts learner
	Objectives	Precisely inform learner
	Overview	Prepares learner
	Advance organizer	Clarifies content

<b>Design Functions</b>	<b>Components</b>	<b>Description</b>
Message design	Signals	Explicit, typographical
	Pictures	Decoration, representation, organization, interpretation, transformation
<b>Design Functions</b>	<b>Components</b>	<b>Description</b>
Development	Concrete	Pictures/images
	Step size	Terminology, references
	Pacing	Examples and elaborations
	Consistency	Terminology used
	Cues	Highlighting points
<b>Design Functions</b>	<b>Components</b>	<b>Description</b>
Formative evaluation	Planning	Purpose, audience, issues, resources, evidence, data-gathering techniques, analysis, reporting
	Techniques	Connoisseur-based, decision-oriented, objectives-based, public relations-inspired studies
Summative evaluation	Planning	Specify objectives
	Techniques	Determine evaluation design for each objective
		Develop data collection instruments
		Carry out evaluation
		Analyze results
Interpret results		
Confirmative evaluation	Educational programs	Appropriateness of courses, competencies, benefits
	Training programs	Appropriateness of training, competencies, benefits
Assessment	Standards of achievement	Relative and absolute standards
Student self-evaluation	Pretesting	Testing for prerequisites, improved performance
<b>Design Functions</b>	<b>Components</b>	<b>Description</b>
Testing for knowledge items	Objective tests	Multiple choice, true/false, matching, constructed-response items
Testing for skills and behavior	Direct analysis of naturally occurring results Ratings of performance Rubrics Anecdotal records Indirect checklist Portfolio assessment Exhibitions	
Testing for attitudes	Observation/anecdotal records	Rating scale
	Assessment of behavior	Observation, questionnaire/survey, interview

<b>Design Functions</b>	<b>Components</b>	<b>Description</b>
Proposal preparation	Purpose	Each proposal should include this information. If no format is provided by the funding group, these tools can also serve as the headings
	Plan of work	
	Milestones and deliverables	
	Budget	
	Schedule	
Project planning	Staffing	Prepared prior to beginning the work
	Scope of work	
	Scheduling	
Management	Budgeting	Used to monitor, report, and revise the project planning materials
	Managing resources	
	Tracking	
	Reporting	
<b>Design Functions</b>	<b>Components</b>	<b>Description</b>
Project team	Instructional designer	Designs the instruction
	Media production	Graphic artist, scriptwriter, video production staff, still photographers, programmers, network administrator
	Evaluator	Develops evaluation plan
	Performance consultant	Helps with nontraining interventions
	Subject-matter expert	Provides content information
<b>Design Functions</b>	<b>Components</b>	<b>Description</b>
Implementation plan	CLER model	Configurations, linkages, environment, resources
	Development/information decision-making models	Awareness, information seeking, visualization, tryout, and acceptance
Implementation decisions	Instructional delivery	Classroom facilities, media equipment, other equipment, transportation, housing, and food
	Materials	Packaging, duplicating, warehousing, and shipping
	Instructors	Scheduling, training



# Designing Effective Instruction

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# Designing Effective Instruction

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Eighth Edition

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*Dedicated to the memory of Jerry Kemp (1921–2015)*



# P R E F A C E

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The eighth edition of *Designing Effective Instruction* has evolved from one of Jerry Kemp's early textbooks. In 1971, *Instructional Design: A Plan for Unit and Course Development* was published by Fearon Publishers. In the preface Jerry wrote, "Planning for student learning should be a challenging, exciting, and gratifying activity." Almost 50 years later, experienced instructional designers would agree with Jerry's statement. We believe that this edition of our textbook will help instructional designers to accept the challenge of designing effective and efficient instruction that is exciting and interesting, to find that the process is stimulating, and to believe that there is a great deal of satisfaction to gain from completing an instructional design project.

## CONCEPTUAL FRAMEWORK

The model presented in this book is eclectic in that it borrows ideas from many different disciplines and approaches to instructional design. We believe that there is never one perfect approach to solving an instructional design problem. As a result, we have incorporated both behavioral and cognitive approaches into the model so that we can reap the benefits of each. The basis for the design decisions in this book are based on research rather than personal preferences.

An effective instructional design model is both flexible and adaptable. No two designers will approach a problem in the same manner, and no two problems are exactly alike. The model in this book is circular rather than a more traditional linear flowchart. Our experience has shown that projects start and end at different places in the design process. Often, designers are not able to complete each and every step because of external constraints. Other times, it is not efficient or necessary to complete each step. The design model must be flexible to accommodate the demands of the job yet maintain the logic to produce an effective product. A design model must grow with the instructional designer. We have approached instructional design as the application of heuristics that one can apply to a variety of instructional problems. These heuristics are modified and embellished based on each instructional designer's experiences, observations, and interpretations of the literature. This approach to instructional design allows designers to both modify and add to our list of heuristics. We continue to provide a strong emphasis on designing instruction in a business setting. Our approach in this text is one that is applicable to designers in business, military, medical, and government settings as well as to those in higher education and P-12 classrooms. Designers in each of the environments will take different approaches because of the opportunities created and the constraints imposed by each situation. However, instructional designers will have the common goal of using the instructional design model to guide them in the development of effective instruction.

## INTRODUCTION TO THE EIGHTH EDITION

With each of our editions, several of our colleagues strongly encouraged us to maintain the integrity of our model. With each edition, there is always the consideration of how and where to expand the book. We have carefully considered various options and suggestions. Our focus in this book is on the basics of instructional design that will help a student develop a

solid foundation in the design process. Students and designers can then use and adapt these basic skills in a variety of settings, such as multimedia, classroom, and distance-education instruction.

The organization of this book allows the instructor to adapt the sequence to the class as well as to the instructor's own perspective. An instructor can also vary the emphasis in each chapter. For example, an introductory course might place the most emphasis on Chapters 2 through 13 the basic design process. An advanced course might place more emphasis on Chapters 10–16 (evaluation, design of technology-based instruction, project management, role of the designer, and implementation). Another approach is to start with the chapters on evaluation and assessment (11–13) or project management (16), then teach the basic design process (2–9), and end with the chapter on designing for technology-based instruction. Other instructors might decide to start with a theoretical foundation (Chapter 14) and then teach the basic design process (2–13). Each instructor should feel free to adapt the sequence to match their approach.

## What's New

In this edition, we have made significant updates to all the chapters to include recent trends and research. The updates are consistent with our approach to instructional design and reflect the trends in both practice and research. We have also added a section on Lean Instructional Design. Although we would all like the time and resources to do each step of the design process at our selected pace, we realize that there are times when time and resources place limitations on what we can do. The lean instructional design section of chapter discusses strategies to reduce time and resources on each step.

**Pedagogical features** We have created a design for this textbook that includes various features to stimulate thinking and to provide additional explanations.

**Getting started** Each chapter begins with the “Getting Started” section, which provides a real-world scenario of an aspect of the chapter. Instructors can use these scenarios as stimulus for discussion during class time or as part of a discussion conducted via a mailing list or online forum discussion.

**Expert's edge** What happens when an instructional designer tries to design a project in the real world? The “Expert's Edge” pieces were contributed by practicing instructional designers and scholars who share their knowledge, successes, failures, and perspectives from the real world. The “Expert's Edge” pieces reflect an international perspective as well as different contexts in which instructional design is conducted.

**The ID process** Instructional design (ID) texts, like most scholarly texts, tend to take a sterile approach to writing. The “ID Process” sections allow us to present a “here's how it is really done” discussion of each element of the model.

**Applications and answers** At the end of each chapter, we present one or two exercises for the readers to test their skills and knowledge. Many of the chapters present the reader with realistic problems where they can apply and expand their knowledge.

**Quality management** This section will help the designer conduct a quick quality check of the design project. Key questions and issues are presented to help the designer keep the project aligned with solving the instructional problem. If you require your students to develop a project as part of this course, they can use this feature to do a quality check during the design and development process.

**Instructional design: Decisions and choices** This section tracks an instructional design project through the ID process. Our approach is to provide a realistic example of the instructional design process along with commentary from the designer on the decisions and choices made at each step of the process.

# ACKNOWLEDGMENTS

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Since the first edition of this text in 1994, we have received feedback, ideas, and encouragement from colleagues far and near. Although the list is too long to name each individual, we would like to thank each of you for your ideas and suggestions and encourage you to continue to provide us with your feedback. Last, we would like to thank the numerous students in our classes and those of our colleagues who have provided us with valuable insights into ways of improving the book.



# ABOUT THE AUTHORS

---

**Gary R. Morrison** Received his doctorate in instructional systems technology from Indiana University in 1977. Since then, he has worked as an instructional designer at the University of Mid-America, Solar Turbines International, General Electric Company's Corporate Consulting Group, and Tenneco Oil Company and as a professor at the University of Memphis and Wayne State University. He is currently a professor emeritus at Old Dominion University and a senior research associate with the Center for Research and Reform in Education at Johns Hopkins University. His credits include print projects, multimedia projects, and over 30 hr of instructional video programs, including a five-part series that was aired nationally on PBS-affiliated stations.

Gary has written more than 50 journal articles on topics related to instructional design and computer-based instruction, as well as contributing to several book chapters and instructional software packages. He is coauthor of *Integrating Computer Technology into the Classroom*. He was the editor of the *Journal of Computing in Higher Education*, associate editor of the research section of *Educational Technology & Development*, editorial board member and reviewer for several journals, and a past president of the Association for Educational Communication and Technology's (AECT) Research and Theory, Design and Development, and Distance Learning Divisions.

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# Designing Effective Instruction

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# Introduction to the Instructional Design Process

## GETTING STARTED

At last, you have finished your degree and are now ready to start practicing instructional design at your new job with a Fortune 25 company. Your first day on the job, however, holds a few surprises. Of most concern is that the manager you thought you were going to work for has transferred to a different division. Your new manager does not have a background in instructional design, but rather has worked as a chemical engineer and project manager for this corporation for the past 15 years. Needless to say, you are a little apprehensive about your predicament, considering that you are the *first* instructional designer hired by this corporation. Shortly after the morning coffee break, your manager invites her staff in for an introductory meeting. The staff includes three trainers who have more than 35 years' combined experience in teaching courses for the corporation, an administrative assistant who schedules and makes arrangements for courses, two engineers who write new curricula and deliver courses (each of whom has worked in the department for 4 years), and you. The meeting starts with each individual describing his or her background and role in the department. The other staff members can easily impress the new manager with their mastery of company lingo and the number of hours of training they deliver each quarter.

Turning slowly, the manager sizes you up and asks you to describe your background and your role in *her* new department. The manager and other staff members are not impressed by your degree in instructional design or the fact that you received it from a leading program in the area—probably because they have never heard of instructional design (although one of the engineers was familiar with your university's field hockey team). After a brief pause and a few frowns, one of the senior trainers asks you to explain exactly what it is that you do—it's as if they all think you are an *interior* designer, there to spruce up their offices and classrooms.

The next few minutes are critical. You can either win over this manager and staff to a new way of viewing training, or you can overwhelm them with your knowledge so they decide you are one of those intellectual types. What will you say to this group that will help ensure your longevity with the company?

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## QUESTIONS TO CONSIDER

“Why examine the teaching/learning process?”

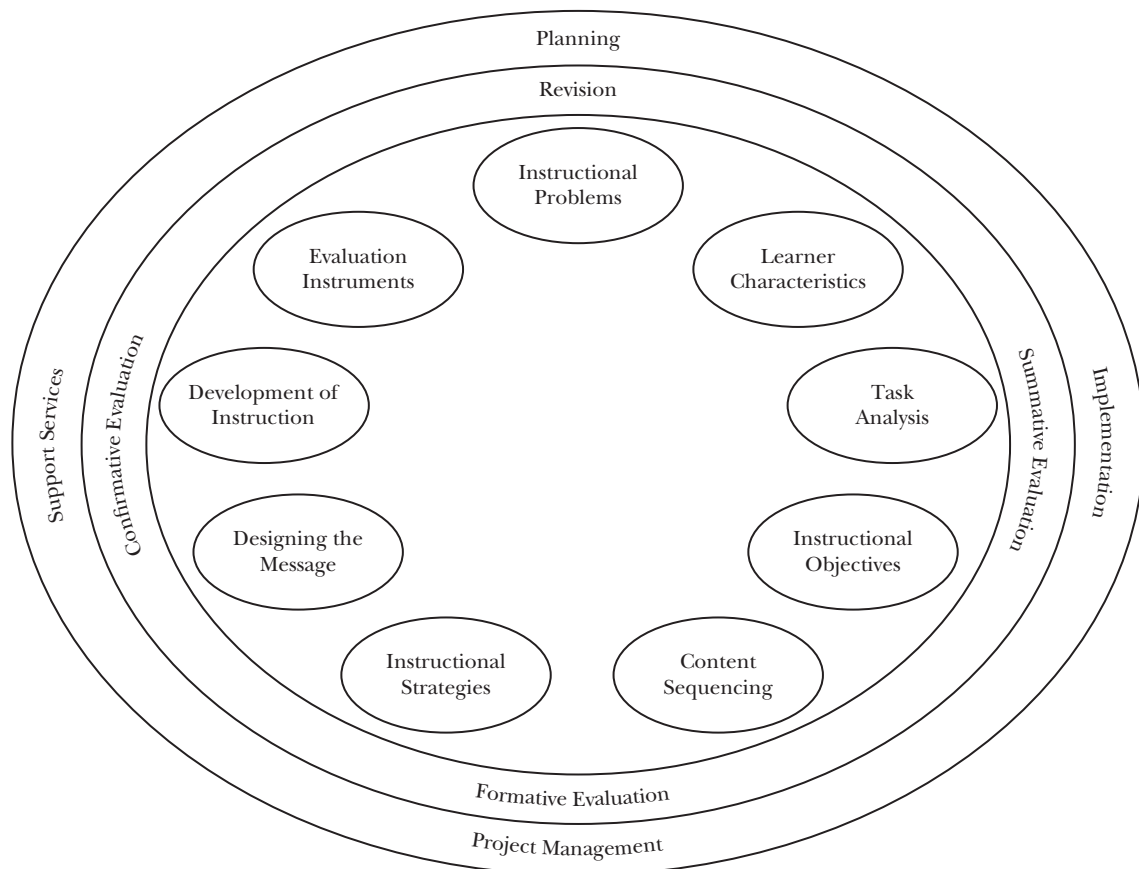
“What are the components of a comprehensive instructional design plan?”

“What premises underlie the instructional design process?”

“What benefits can result from applying the instructional design process?”

“What is the value of instructional design to teachers?”

“What is the relationship between instructional design and human performance technology?”



The Questions to Consider represent the important concepts treated in this introductory chapter. Understanding them is the basis for systematic instructional design.

## WHY INSTRUCTIONAL DESIGN?

The goal of instructional design is to make learning more efficient, more effective, and less difficult. Often, well-designed instruction saves time and money. One of the best-documented cases of the value of instructional design is a case study conducted at AT&T in the 1960s and 1970s. AT&T offered a course for long lines craftsmen (Mager, 1977) that was 45 days in length, that is, 9 weeks of classroom time away from the job. To the dismay of local managers, individuals taking this training were unavailable to repair telephone lines for over 2 months.

In an effort to improve the training, an instructional design team conducted a task analysis to determine the essential content for the course. The results of this analysis revealed that 25 days of the course focused on irrelevant content. Additional instructional design techniques were applied to reduce the course duration from 9 weeks to 9 days, an 80% reduction in training time. The cost of developing this new course in the 1960s was \$350,000 but resulted in savings of \$37 million over a 5-year period between 1968 and 1973.

Why instructional design? We do not mean to imply that each instructional design project will yield the same return as described by AT&T's example. Of more relevance is the fundamental difference between the initial course and the revised course. The instructional designers focused on improving human performance to solve an instructional problem. By narrowing the content to the information and skills needed to perform the tasks or job, they were able to reduce the instructional time from 45 days to just 9 days. Sometimes, as we have found in our work, there is not a cost savings but rather a significant improvement in course quality as a result of the improved focus as described in the AT&T example.

A subject-matter expert or instructor often approaches the design of a course from a content perspective, that is, what to cover in the time allocated. In contrast, an instructional designer approaches the task by first defining the problem and then determining what knowledge and skills are needed to solve the instructional problem. This difference between a subject-matter expert's approach of determining what to cover and the instructional designer's approach of first defining the problem and identifying an instructional need offers insight into the course revision and subsequent cost savings in the AT&T example. The instructional design process focuses on what the learner "needs to know" and avoids including nonessential content that is "nice to know." There are times when the problem is not one that is best solved through an instructional intervention. A competent instructional designer can identify a variety of problems and then determine the most effective solution even when it means other individuals are needed for the solution.

## Why Do Instructional Design?

Training is expensive, yet it is essential to the healthy functioning of any organization. In 2017, *Training Magazine's* Industry Report found that typical companies provided employees with 47.6 hr of training a year, an increase of 4 hr over reported times in 2016. In addition, the cost of providing training increased from \$814 per learner in 2016 to \$1,075 in 2017 (Training Magazine, 2017). Of importance to us as instructional designers is the cost per learning hour produced, which averaged \$1,415. If we consider the training investment of a single company, the costs in time and expense are overwhelming. For example, IBM estimated it would spend approximately \$700 million on training its

workforce in 2005, with employees spending more than 15 million hours engaged in training (Davenport, 2005). The costs for employee training in business in the United States grew from approximately \$63 billion in 1999 to over \$117.5 billion in 2007 (ASTD, 2011). This increasing cost signals the importance of designing efficient and effective training.

Given that the cost of training includes not only development costs but also the time participants are away from their jobs, it is important that the instruction is effective, efficient, and on target. Thus, the goal for the instructional designer is to design and develop instruction that will improve performance in the most effective and efficient manner. Instructional designers want to avoid developing a course similar to the original AT&T linesman course, one that had irrelevant content and required workers to spend extra hours (actually weeks) away from the job. Given the more than 30 years since the publication of the AT&T case study, it is surprising that we continue to hear about and observe similar mistakes being made today.

## What Are the Benefits of Instructional Design?

Given that the investment needed to develop training is quite substantial, what are the benefits of using an instructional design approach to develop the training?

First, let's consider the financial benefit of instructional design. The AT&T case study reported a savings of \$37,800,000 over a period of 5 years based on an initial investment of \$350,000, or a savings of \$108 for each development dollar spent (Mager, 1977). In another example, Motorola reported a return of \$33 for every dollar spent on training (Wiggenhorn, 1990). This calculated return rate also included the wages of the participants who attended the training.

Second, let us consider how you as an instructional designer can improve the return on the investment in training, whether it is for a Fortune 500 company or your classroom of third-grade students. Instructional design is a process for solving skills and knowledge deficiencies, whether it be troubleshooting an aircraft engine or learning the 50 U.S. states and their capitals. The process starts by identifying the performance problem of the worker or student and then determines whether instruction is the appropriate solution. If instruction is required, the designer then uses a systematic process to design the instruction. The process described in this book is similar in many ways to the one used in the AT&T course, which can be contrasted to the "What content should we include?" approach used for the original linesman course. In contrast, a systematic instructional design process asks, "What information and skills are needed to perform the task?"

Third, effective instructional design results in greater learning gains than training that is poorly designed. A meta-analysis of design features found an effect size of 0.62 for instruction that was properly designed (Arthur, Bennet, Edens, & Bell, 2003), suggesting a medium to large effect size. Another meta-analysis of error management training also found a positive and significant effect size for training (Keith & Frese, 2008). Last, a meta-analysis of team training in healthcare reported significant effect sizes for team training over no training (Hughes et al., 2016). An effect size indicates the number of standard deviations by which the intervention (treatment) group surpasses the comparison (control) group in performance. In educational research, effect sizes above .50 (one-half standard deviation) are considered to be highly impactful. For example, an effect size of +1.00 (a full standard deviation) would place the average intervention group student at approximately the 84th percentile of the comparison group. Aguinis and Kraiger (2009) found similar supporting studies in their analysis of training. However, they strongly encouraged practitioners and researchers to conduct more evaluation studies of the effectiveness of instructional design interventions.

## Applying the Process to Both Academic Education and Training Programs

Specific job training has precise, immediate requirements with identifiable and often measurable outcomes. The instructional program must stress the teaching of knowledge and skills for the performance of assigned tasks. Formal education, on the other hand, often has broad purposes and more generalized objectives. Application of the knowledge and skills taught may not become important until sometime in the future.

Whether one is studying history or carpentry, the identical principles of learning apply to structuring experiences for individuals. Although the emphasis, terminology, and details differ, both situations involve similar elements of the instructional design plan. Thus, the process presented in this book can be effective for either an academic or a training situation. Where particulars differ, special explanations and examples are included in either the academic instruction or the planning for training.

**Benefits of instructional design in business** The benefits of the application of instructional design in business can take many forms. Results can vary from simply reducing the amount of time it takes to complete a course to solving a performance problem by designing effective instruction that increases worker productivity. The role of instructional design and training varies from company to company, as do its benefits. For example, Speedy Muffler King, which experienced high revenues and profits for 1994, made extensive use of training. During 1994, the company provided more than 100,000 hr of employee training to improve customer satisfaction and loyalty (Canada NewsWire, personal communication, February 1996). Appropriate training can produce a return on investment for both tangible (e.g., increased output) and less tangible (e.g., worker loyalty) measures. A contemporary organizational view of training is one that views training as value driven rather than a more traditional view as an operational function or cost center. For example, PricewaterhouseCoopers cut costs in many areas, but increased its investment in employee training. Similarly, Booz Allen Hamilton sees employee training as an investment that gives them a long-term advantage (Fox, 2003). IBM (2014) found that teams who received 40 hr of training per member were more likely to meet their project goals three times as often as those who received 30 hr or less.

**Benefits of instructional design in PK–12 education** Do PK–12 teachers have to be instructional designers in addition to their traditional roles of classroom manager, presenter-lecturer, and mentor? Our definitive answers are “to some degree” and “it all depends.” By saying “to some degree,” we mean that textbooks, workbooks, basal readers, and other standard instructional resources rarely, if ever, are sufficient to satisfy benchmarks and standards while keeping students engaged and interested. There are numerous occasions (many teachers might say “every day”) when the need for teacher-developed materials—drill-and-practice exercises, remedial lessons, problem-based lessons, or even full-fledged instructional units—arises. Knowing the basic principles of instructional design can help to ensure that what is produced serves a necessary purpose, meets the needs of students, is attractive and well organized, is delivered in an appropriate mode, and is continually evaluated and improved. Unlike professional instructional designers, however, the typical teacher is not likely to need formal expertise in the various instructional design processes. However, basic familiarity with major principles and procedures (e.g., how to present text, design and deliver a lecture, and prepare a test) can be extremely helpful, both for the teacher’s own work and for the evaluation of commercial educational products.

How teachers use the instructional design process also depends a great deal on situational factors. Teachers working in today’s restructured schools may find themselves

increasingly involved in design activities. Specifically, in recent years, national initiatives for educational reform have generated support for both teacher-centered instruction and activity-oriented, student-centered methods of teaching that stress meaningful learning applied to real-world problems (see Desimone, 2009; Rowan, Camburn, & Barnes, 2004). The choice between these approaches often depends on school preference, instructional needs, the nature of instructional objectives, the instructional time available (student-centered learning approaches take longer to implement), and available resources. Given the importance of designing contemporary educational programs to address technological literacy and twenty-first-century learning skills, Morrison and Lowther (2010) provide an inquiry-based instructional design model for teachers to use in integrating computer technology into classroom instruction.

Implementing these approaches obviously requires well-designed instructional activities and projects. Where do they come from? For the most part, the responsibility of design falls on individual teachers. Not surprisingly, however, many teachers find themselves unprepared for the task, and the implementations of the new strategies suffer as a result (Desimone, 2009; Fischer, et al., 2018; Mishra & Koehler, 2006). By learning more about instructional design, teachers should become better equipped either to create high-quality, student-centered lessons or to adapt commercial materials to fit their course needs. An analysis of factors affecting successful school improvement found that schools seeking to improve student achievement need both an effective implementation strategy and effective instructional design (Rowan, Correnti, Miller, & Camburn, 2009).

In the remainder of this chapter, we introduce the instructional design process by examining the context in which it is used and the premises underlying the process; we also introduce you to the model described in this book.

### Expert's Edge

## A Fresh Look at Instructional Design

There are many exciting things about being an instructional designer. One that excites me most is how versatile the field is; almost every company and every industry needs an expert who can help develop and implement effective training practices. For example, Fortune 500 companies need instructional designers to work with human resources departments, instructional designers can be employed in the restaurant industry to establish training procedures, or professors in an online program can benefit from the skills of an instructional designer. This variety of opportunities results in a dynamic field for instructional designers. In my own experience, I work with different subject-matter experts and content within an online higher education program, which makes my everyday work refreshing and exciting, yet the change of content provides new and rewarding challenges.

Another reason why it's exciting to be an instructional designer is that it provides opportunities to work with both people and technology. At times, I work with instructors and professors who are not always confident in applying technology and learning tools to their online courses. Being able to break down difficult concepts so that they can see how technology can benefit their teaching strategy is rewarding, especially when implementation and understanding of the technology are a success.

It's exciting to assist in adjusting pedagogy so that learning is more effective and appealing to different learning styles. I advocate for learners so that they can achieve their learning

objectives in a way that is appropriate for their capabilities. Today's diverse student body and workforce have resulted in a variety of learning needs, including those of individuals with impairments. Instructional design plays an integral role in assuring that all learners have a chance to succeed in their educational goals.

Finally, with the advancement in learning technologies and the drive of learners to obtain knowledge, instructional design is exciting because of the chance it affords to innovate. In my work, I'm asked to evaluate new technologies to determine if their use would be beneficial to the overall learning goals of the institution. As an instructional designer, I enjoy being part of a driving force of change in education.

**What Difference Does Instructional Design Make?** Utilizing instructional design principles and models can result in significant change in the overall learning process. Instructional design bridges the gap between content and learning by evaluating the current state and needs of a learner and setting appropriate goals for instruction. In addition, instructional design results in the creation of an "intervention" to facilitate the newly defined instructional goals.

Instructional design focuses on the learner, the instructor, and the dissemination of content by adjusting pedagogies that result in efficient, effective, and appealing learning situations for a variety of learning types. Learning is no longer a one-way street where learners are "talked at" and asked to recite material verbatim. Instructional design makes a difference in establishing the best way to articulate and assess learning.

**What Do You Hope to Achieve Through Instructional Design Work?** My goals in doing instructional design work include improving the way learning is done by advocating the needs of the learner. I also hope to improve learning by inspiring instructors, trainers, and professors on how they can branch out from the typical course lecture (talking head) to a more interactive course environment. In doing so, I hope to stimulate effective learning that leads to the overall retention and success of adult learners. On a greater scale, I hope to take part in innovative research that continues to shape how learners, instructors, and content interact.

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## WHAT IS INSTRUCTIONAL DESIGN?

Using a systematic design process is termed *instructional design* (often abbreviated *ID*). It is based on what we know about learning theories, information technology, systematic analysis, educational research, and management methods. Dewey (1900) saw a need in the early part of the twentieth century for a science that could translate what was learned through research into practical applications for instruction. This science would make decisions about instructional practices based on sound research rather than intuition. Snellbecker (1974) and others have proposed that instructional design is the linking science described by Dewey. We agree with Snellbecker and see instructional design as the process for designing instruction based on sound practices.

Instructional design starts by first identifying the performance problem and *never* assumes that instruction is the answer to *all* problems. *If* instruction is the most appropriate solution, *then* the design process can begin. The instructional design approach considers



instruction from the perspective of the learner rather than from the perspective of the content. The traditional approach simply asks, “What information should I include in this course?” In some courses, the chapters in the textbook determine the content. In contrast, the ID approach focuses on many factors that influence learning outcomes, including the following:

- What level of readiness do individual students need for accomplishing the objectives?
- What instructional strategies are most appropriate in terms of objectives and learner characteristics?
- What technology or other resources are most suitable?
- What support is needed for successful learning?
- How is achievement of the objectives measured?
- What revisions are necessary if a tryout of the program does not match expectations?

Other issues inherent in the instructional design process also influence student learning. This process is applicable for designing instruction in public education, higher education, and the workplace. The information, concepts, and procedures presented here can aid teachers and instructors, instructional designers, and planning teams—anyone who wants to develop effective, appealing instruction.

How would you answer this question: “If you were about to start planning a new unit in a course or training program, what issue would first receive your attention?” Various individuals might answer as follows:

**Primary-grade teacher:** “I think first about the common core standards and how this content aligns with those standards. Then, I would ask, *How well prepared are my students to learn it (physically, emotionally, intellectually)?*”

**High school teacher:** “First, I would start by identifying the relevant standards for the particular course, then I’d start writing down what I want to accomplish in teaching the unit to meet these standards. These statements become the goals around which I’ll plan the instruction.”

**College professor:** “My approach is to list the content that needs to be covered relative to the selected topic. This list would include the terms, definitions, concepts, and principles that I feel need to be communicated to my students.”

**Instructional designer in industry:** “I would start by determining whether the problem the training is to address is an instructional problem. If instruction will help solve the problem, then it’s important to start by listing the skills and knowledge the trainees are to develop as a result of this instruction. These goals would translate to the outcomes or objectives to be accomplished.”

The foregoing replies represent a sampling of approaches that might be taken as different individuals initiate their instructional planning. There could be other replies to the question. For example, one community college instructor always starts by writing the final examination for a new unit. He believes that passing the final exam is the students’ greatest concern. Therefore, he writes questions that indicate what should receive emphasis in his teaching. His reasoning seems plausible.

As you read the replies to the question and formulate your own answer, two conclusions become apparent. First, a number of different considerations appeal to educators and instructional designers as each starts planning. Second, each of us selects an order or sequence of our own to treat these elements.

*Instructional design* is a systematic process for creating instruction based on scientific research that produces effective, efficient, and reliable instruction. *Instructional development*