

PREFACE

The primary goal of instructional design is improving the quality of learning and instruction. Instructional designers have focused on a number of areas of critical concern and developed a variety of techniques to achieve this goal (Reigeluth, 1983, 1999). Critical areas of concern for those who plan, implement and manage instruction include (a) needs assessment (identifying gaps or deficiencies in knowledge and performance to be addressed in instruction); (b) task analysis (identifying the types of knowledge, skills and attitudes to be developed during instruction); (c) learner analysis (determining who the learners are, what they know, relevant differences, etc.); (d) instructional strategies (developing strategies appropriate for the task and learners involved); and (e) assessment and evaluation (determining how to assess individual progress and evaluate programs). There are many books already in print that treat the general domain of instructional design, as well as texts that target each of these areas of concerns. Why then another book on these issues?

There are several answers to this question. Many of the available books treat instruction as a formal process that proceeds according to specific and detailed instructional systems development models (see for example, Dick, Carey & Carey, 2005). Indeed, the US military has created a series of handbooks specifying details of the various instructional development processes (see Department of Defense, 1999). While these models are helpful to those new to the world of instructional design and can be used to ensure basic quality control of large-scale instructional development efforts, they do not provide practical instructional development guidance that is grounded in research and theory and derived from the underlying principles of learning and instruction.

Moreover, those books that do focus on very practical instructional development guidance generally do not provide the theoretical foundation and empirical support behind the guidance, which proves useful when designers and developers need to modify or elaborate design heuristics instructional strategies. Likewise, those books and articles that focus on theory and research findings often ignore practical implications for instructional design.

In short, there are not very many books that develop a practical approach to instructional development from a psychological perspective. One exception to this is van Merriënboer's (1997) *Training Complex Cognitive Skills*, which provides a very solid psychology foundation for an instructional design model appropriate for complex domains. While van Merriënboer's *Training Complex Cognitive Skills* provides an excellent model of theoretically and empirically grounded instructional design principles, it is now somewhat dated and it lacks sufficient emphasis on the

practical aspects of applying the model and does not carry the breadth of domain coverage of this volume.

The current volume strikes a nice balance between theory and practice and provides a straightforward model of instruction that is easily connected with relevant research but equally easy to apply to instructional development projects. The model is developed in Chapter 1 and is based on a combination of product or outcome characteristics (e.g., types of knowledge to be acquired) and process considerations (e.g., acquisition processes as well as automaticity and transfer concerns). The middle chapters of the volume correspond to the four knowledge domains: cognitive, psychomotor, affective and interpersonal. There is a chapter dedicated to the integration of technology and a final chapter that summarizes the main points developed along the way.

The initial discussion of descriptive principles derived from learning theory and cognitive science research intertwined with prescriptive instructional strategies resonates with well-established instructional design thinking (Reigeluth, 1983). The organization framework around traditional types of knowledge provides familiar categories to help readers orient their thinking (Dick, Carey, & Carey, 2005). The detailed treatment of the interpersonal domain and the emphasis on technology integration clearly distinguish the book as a modern treatment of instructional development that goes well beyond traditional instructional system development models.

The pervasive insistence in this volume on connecting practice with theory establishes a standard of evidence-based practice that makes this book well worth reading. Indeed, in order for instructional design to continue to progress and contribute to the improvement of learning and instruction, such evidence-based practice will be critical. Providing guidelines for instructional development that are not grounded in theory and empirical research does not help individual designers and developers develop an understanding for when and why different instructional strategies are appropriate or how they might be modified to be more effective. Likewise, simply publishing empirical research on learning outcomes to be read and discussed among educational researchers and academics will not contribute much to improved practice. Therefore, this volume should provide a well-grounded and useful tool for instructional developers.

When Robert M. Gagné was asked why he became an instructional researcher, he answered without hesitation that it was to improve learning (see the *Tribute to Gagné* DVD available from the Association for Educational Communications and Technology – <http://www.aect.org>). Instructional designers are in the business of helping to improve learning. This book will help them accomplish this important goal.

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ENDNOTES

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