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UNDER REVIEW

Cambridge Handbook of Multimedia Learning

By R.E. Mayer (Editor)

Format: Paperback, 663 pp. ISBN: 0-521-54751-2

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Think of multimedia as the presentation of words and pictures. Think of multimedia learning as building mental representations from those words and pictures. Finally, think of multimedia instruction as presenting words and pictures in ways that are meant to promote learning. Partially as a result of the advance in sophistication and ease of use of computer graphics and visualization technologies, research and development in multimedia learning and instruction has rapidly expanded over the past 20 years. The *Cambridge Handbook of Multimedia Learning* is essentially the first comprehensive anthology of research and theory in this emerging field.

Mayer describes the *Handbook* as focusing on “how people learn from words and pictures in computer-based environments” (p. ix). The *Handbook* is not one of the many written pieces that provide directions on how to design multimedia learning environments based on handy advice or insights of the authors, nor does it simply describe the development of some multimedia learning environment or another. Mayer stresses the fact that the *Handbook* includes works that are based largely on scientific research. That is, the editor asked contributors to author chapters on areas in which they have conducted empirical research. The authors of these chapters are some of the leading researchers in the field. Mayer describes the defining features of the reports in the *Handbook* as research based, theory grounded, educationally relevant, comprehensive, timely, and readable.

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The *Handbook* is divided into an introduction and five major sections (parts). The first part, *Theoretical Foundations*, contains four chapters that describe theoretical models related to multimedia learning (i.e., cognitive load theory, or cognitive theory of multimedia learning). The second and third parts, *Basic and Advanced Principles of Multimedia Learning*, deal with 17 principles of multimedia learning. An example of such a principle is the modality principle that describes how “presenting some information in a visual mode and other information in an auditory mode under certain, well-defined conditions can expand working memory capacity and so reduce the effects of an excessive cognitive load” (p.147). Part 4 encompasses *Multimedia Learning in Content Areas*. The chapters in this section describe researched perspectives on digital multimedia with a focus on learning content areas ranging from reading to mathematics to the learning of cognitive skills. The final part, *Multimedia Learning in Advanced Computer-Based Contexts*, includes five chapters that examine research on multimedia learning in environments driven by advances in computer technologies such as hypermedia, simulations, and virtual reality.

Overall, the content of the *Handbook* is clear and informative. The larger research agenda discussed in its pages is promising, although almost all of the authors are realistic in pointing out areas (there are plenty) that require further research. The book can be used as a guide for future researchers who follow in the well-placed footsteps of the authors. In addition, although the contents read a bit more like an academic collection than a practical guide, practitioners (designers and instructors) can benefit from the carefully studied principles elucidated in the *Handbook*.

References

Mayer, R.E. (Ed.). (2005). *The cambridge handbook of multimedia learning*. New York, NY: Cambridge University Press.