

and planning, strategies and tactics. This is essential in such an interdisciplinary area as educational technology and communications.

- A synthesis of the instructional design area which combines the strengths of many major theories.

- Numerous examples of the strategies and tactics are described. The guidelines presented are viable. They work.

As for the weaknesses, I found two issues irksome.

- A not insignificant amount of the content is reiterated from *Designing Instructional Systems*. While this may be in part unavoidable, it is disappointing for those who have read and used the earlier book.

- Romiszowski's use of pronouns would have one believe that the female gender is not included in the general profession of educational technology and communications. The author also clings to stereotypical gender classifications in providing examples, as in referring to a salesclerk as "she" and insurance salesperson as "he". Aside from reference to specific examples, all references are to a masculine entity. The content of the text is of the future — the language, however, is outdated.

In summary, go out and buy this book. Recommend it to your students. As a synthesis and evaluation of the methodology of instructional production it will be referred to again and again.

REFERENCE

Romiszowski, A. J. (1981). *Designing instructional systems*. London: Kogan Page.

Styles of Learning and Teaching, by Noel Entwistle. New York: John Wiley and Sons, 1981. 293 pages.

Reviewed by Rob Dainow

Noel Entwistle has done an effective job of building a model of student learning that is grounded in both educational and psychological research. He weaves a convergence of evidence from differing areas to substantiate the main elements of his model while recognizing the limitations of our knowledge in these complex cognitive and social areas. The goal is not to prove the truth or validity of the model; rather, it is to "build up a coherent framework within which to understand the learning process" (p. ix) with the objective to help readers "consider critically their own ways of learning and thinking" (p. xi). In this he succeeds admirably - in fact, a more appropriate title might be "Styles of Learning and Thinking: An Integrating Framework".

Part I sets the stage; Part II builds up the model based on a small group of related studies of (college) student learning; Part III draws support for the model from the (educational) psychology literature; and Part IV provides an overview of suggested applications of the model in various teaching situations.

In setting the stage, chapter 1 serves as an advance organizer by outlining the main themes of the book (intellectual and cognitive development, the importance of individual differences in personality and styles of learning, and the importance of activity in learning) and the use of different forms of evidence from different areas to uncover a convergence of ideas. The discussion of scientific versus, humanistic evidence is well presented and is

further developed in chapter 2 with a review of different types of research evidence. All support the following frequent statement: "the interplay of objective evidence and sensitive interpretation from personal experience is a continuing theme" (p. 30). However, one important theme of the book that is not stated in advance is the creative tension between opposing forces - a theme that is developed in the later chapters and is chosen as the message of the closing paragraph of the book. A perhaps more important criticism of this introduction as an advance organizer is that the model developed after chapter 5, which is the core of the book, is neither presented nor described at the beginning. I, for one, would have found an overview of the model helpful at this point.

The concluding sections of Part I are among the strongest parts of the book. The presentation of the writings of early theorists on thinking (Watts on learning styles, James on learning by association, and Dewey on thinking as analysis) are not only stimulating in their own right, but also serve as a reference point for more recent evidence presented in later chapters. It is a skillful and interesting way to link present and past to illustrate the continuity in the development of ideas. It also shows the value of introspection in the continuum of types of research evidence. The "learning experiment" presented in the "bridge" section that concludes Part I serves to introduce another view of thinking (Wertheimer's imaginative reconstruction) at the same time that it actively involves the reader through a study styles inventory questionnaire which follows the Wertheimer excerpt. The interpretation of results provided in the Appendices provides the reader with a personal perspective for considering the ideas presented in Part II. Although the suggested time requirement of 2 hours may intimidate some readers and is probably more than necessary, the benefits in both personal insight and heightened involvement in the ensuing reading are well worth the effort. Other creative activities like this would enhance reader involvement and increase the usefulness of this book as a course text.

Part II is really the core of the book, for it is here that Entwistle builds the main elements of his learning model. Drawing primarily from research about styles of studying and learning by Heath, Perry, Marton, Pask, and his own work, he sees a convergence of findings and selects Marten's classification of deep and surface learning as two main styles, adding achievement motivation as the third one. Thus, Marton's deep approach is seen as similar to Pask's holist and Perry's "contextual relativistic reasoner". Further discussion of these studies highlight the influence of personality factors and task content and context on learning style. It is in this latter area that his model suggests that the teacher has a major influence.

Thus, in its simplest terms, the model suggests that student characteristics interact with task content and context to influence the learning process and determine the extent and quality of the learning that occurs. The focus is on the individual and the task, in recognition of the variability in both of these dimensions. By describing the basic studies in some detail, and the ensuing descriptions of related educational psychology studies in Part III, Entwistle enriches what might otherwise appear as a rather simplistic model.

In effect, chapters 4 and 5 flow together. In fact, I found the division awkward and would have been more comfortable to see the discussion of styles of learning included in chapter 4, with chapter 5 focusing on the elements of the model that influence learning style. This, in turn, would have allowed more opportunity to develop the section on personality factors into a broader introduction to the range of student characteristics shown in the model, as well as an introduction of teacher characteristics and their influence on students' task perception and choice of learning style. In this way the model would have been more consistent with the material presented. As it stands, the model appears as almost an adjunct to the discussion rather than the culmination of it, an impression further reinforced by its presentation in a separate "bridge" section rather than as an integral part of

the chapter. I also would have dispensed with the presentation of his "Academic Achievement Game" which struck me as a digression that served to disrupt rather than enhance the flow of ideas. A more appropriate bridge might have been to show a specific application of the model that would involve the reader in identifying the psychological issues to be dealt with in Part III.

Part III reviews the educational psychology topics that Entwistle sees as important to enriched understanding of, and support for, his model (memory processes, intellectual abilities and their development, concept formation, cognitive style, and personality and motivation). The discussions present the differing perspectives and the frequent lack of consensus in these fields (e.g., cognitive style). Some of the material is clearly related to learning styles and what influences them while in other cases the connections are more obscure. In the memory processes (chapter 6), he makes interesting connections between association and overlearning as similar to rote, or surface, learning; while the process of transfer into semantic long term memory is seen as similar to more meaningful, or deep, learning. On the other hand, the discussion of intellectual abilities (chapter 7) discusses IQ testing at length to provide support for a hierarchy of cognitive abilities and their division into associative, analytical, and creative thinking. Over 10 pages of discussion seems unduly long to conclude that the distinction between associative and analytic thinking is useful, especially when it is admitted that this view is not widely accepted in that field.

The above examples serve to illustrate my overall impression of Part III: the selection of topics is relevant to the styles of learning model, but their treatment is often too wide to provide a clear focus on their relevance. Although there is certainly important value to presenting the differing views in each area, there is a need to relate these to the central topic, viz, learning styles and how they are influenced. Part III covers 106 pages while Part II, the core of the book, is only 54 pages and Part IV, on applications, is 48 pages. A shorter and more focused treatment would have improved my integration of psychology's contribution to the understanding of styles of learning.

Part IV is, unfortunately, the weakest section. It is here that the use of the model for teaching and learning was expected. Instead, the presentation is more general in its review of different approaches to teaching (behavior modification, mastery learning, discovery learning; formal and informal approaches) and chapter 11 concludes by stressing the need for versatility in accommodating teaching to task and student characteristics. Although chapter 12 brings together much of the previously cited research in discussing issues at the primary, secondary, and tertiary levels, there was some feeling of disappointment at the end that the integrating framework proposed at the outset had not been fully demonstrated in a sufficiently explicit fashion.

Despite some of the criticisms and concerns noted in this review, the book is an ambitious synthesis that provides a great deal of information and stimulation for both students and teachers. My criticisms may well result from my own learning style that seeks structure and practical application. Although this book could use more activities or exercises like the bridge following chapter 3 in order to be used easily as a teaching text, it is unquestionably a rich source for introspection on learning and teaching styles and provides a framework for relating this introspection to a wide range of empirical investigations.

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