Cognitive Psychology and Its Implications

John R. Anderson
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Cognitive Psychology and Its Implications is an introduction to cognition, intended for undergraduates in their first course in cognitive psychology. Relative to other such texts, it is extremely readable and enjoyable. Furthermore, it is well-organized within a theoretical framework that should facilitate the long-term retention of many of the basic principles and findings in the field.

The book differs from previous cognition textbooks in several important ways: other texts typically devote considerably more space to discussions of perception and attention. Anderson, on the other hand, has collapsed the topics of sensory memory, attention, pattern recognition, contextual effects, and perceptual organization into a 40-page chapter relegated to the introduction to the main body of the text. He has deemphasized the intake of information from the external environment and, instead, stressed the importance of the internal representation and manipulation of knowledge. Whereas other texts often present a relatively cursory treatment of thinking, reasoning, and problem-solving, Anderson has explored these topics extensively in three chapters spanning more than 100 pages. The comprehension and generation of language has been reviewed in depth, and an attempt has been made to clarify the relationship of language to thought. Furthermore, the section of the text concerned with memory and learning includes a chapter devoted exclusively to the learning of cognitive skills (i.e., knowledge of procedures), whereas other texts often focus only upon the storage and retrieval of declarative knowledge.

Much of Anderson's treatment of the domain of cognitive psychology is founded upon the notion that most of the information in memory is represented in the form of *propositions.* Propositional representation implies that only the meaning of an event is preserved in memory. A proposition is considered to be "the smallest unit of knowledge that can stand as a separate assertion, that is the smallest unit about which it makes sense to make the judgment true or false" (pp. 101-102). Propositions are regarded as the building-blocks from which associative networks, schemas, and other higher-order knowledge structures are

created. Another cognitive element of importance is the *production,* which is a learned rule relating certain antecedent conditions to a sequence of responses. The concept of production is an improvement over the concept of a stimulus-response bond, in that the new approach is general, it can relate configurations of features and responses, and it can refer to mental as well as external objects. As with the proposition, the production is used as a foundation for explanations of higher-order cognitive activities, such as language generation or problem-solving. By employing a few basic elements such as these, Anderson has been able to maintain considerable theoretical consistency throughout the text.

This book is very well-written; the discussion flows freely and logically from point to point, so that the reader may often be surprised at how quickly a chapter has been consumed. In the course of writing the book, Anderson clearly used the learning principles he has reviewed: Concepts are stressed, rather than particular authors or experiments, and the keywords for these concepts are italicized to stand out when they are introduced. Each chapter begins with a summary outline and definitions for the major concepts to be discussed. Theoretical arguments are frequently illustrated with examples from everyday life, and almost every chapter concludes with an analysis of the implications which the reviewed material has for improving the learning skills of the student. Finally, descriptions of research methodology are minimized whenever it is possible to do so without sacrificing comprehensibility.

My only real objection to the book is that some of the material seems too advanced for an introductory text on cognition. For example, the chapters on deductive and inductive reasoning, which are primarily concerned with the manner in which subjects' judgments depart from logical prescriptions, include rather lengthy discussions of Bayes' theorem and the use of truth tables and Venn diagrams in formal logic. These sections are bound to be tedious for many students. Nevertheless, these topics are presented clearly and sufficiently, so that the diligent student need not consult other sources in order to comprehend the major issues at hand. Overall, *Cognitive Psychology and Its Implications* is an excellent textbook for an undergraduate course in cognition.