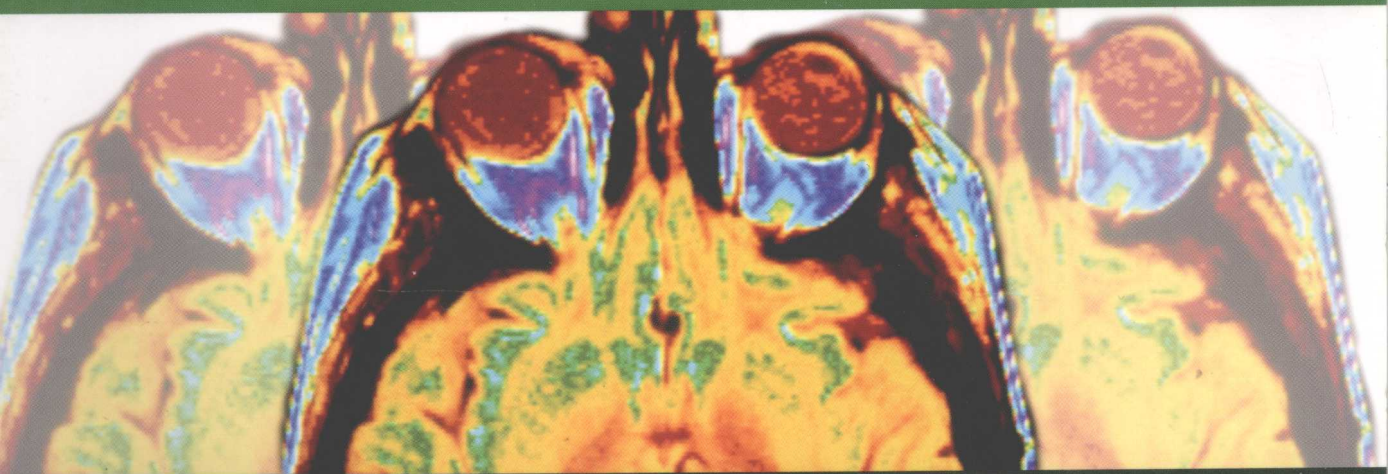


FUNDAMENTALS OF COGNITIVE PSYCHOLOGY



RONALD T. KELLOGG



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RONALD T. KELLOGG

Saint Louis University



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For information:



Sage Publications, Inc.
2455 Teller Road
Thousand Oaks,
California 91320
E-mail: order@sagepub.com

Sage Publications Ltd.
1 Oliver's Yard
55 City Road
London EC1Y 1SP
United Kingdom

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PREFACE

Cognitive psychology has evolved over the past half century to become the dominant approach to virtually all aspects of human psychology. Its influence is strong in clinical, assessment, developmental, social, comparative, and physiological psychology, among other areas. Alternative approaches such as psychoanalysis, behaviorism, and humanistic psychology carry less force not only in psychology but in related fields as well. Linguistics, computer science, philosophy, anthropology, and the other sister disciplines of cognitive psychology are part of a remarkably encompassing and exciting enterprise known as cognitive science. During the early years of the twenty-first century, the cognitive approach has become so integrated into psychology it is invisible and taken for granted.

It is important, therefore, for all students of psychology to receive a solid introduction to the fundamental concepts of cognitive psychology. The aim of this book is to present a readable, relatively brief survey of the discipline. It is designed to meet the needs of instructors and students in introductory courses to the field. It is divided into 10 chapters that can readily be covered in a single term, even in a quarter system with less time available than in a semester system.

In the introductory chapter, *Fundamentals of Cognitive Psychology* prepares students to understand the exciting discoveries of cognitive neuroscience along with the history, scope, and methods of the discipline as a whole. Perception and then attention are covered in Chapters 2 and 3 as fundamental aspects of cognition. Chapter 4 introduces memory by covering the multistore model that has been the standard of the field for over 50 years. The working memory system that supports language production, comprehension, and thinking is then introduced by integrating the short-term store with attentional components. The architecture of the long-term system is described next in Chapter 5, distinguishing, for example, between declarative or explicit and nondeclarative or implicit components. Also, in Chapter 5, episodic memory—one kind of explicit memory—is treated fully. The ways in

which memory can be distorted through forgetting and false recollection are discussed in detail in Chapter 6. Knowledge representation in semantic memory and concept learning are presented in Chapter 7. The treatment of language in Chapter 8 omits the topic of speech production. However, the chapter provides a thorough discussion of the nature of language; the ways in which language is represented, including its neurobiological substrate in the brain; and the means by which language is comprehended. Problem solving is covered in Chapter 9 and reasoning and decision making in Chapter 10. Perception, attention, memory in all its forms, and language are the platforms on which higher-order thinking processes unfold in problem solving, reasoning, and decision making.

As a text for an advanced undergraduate or graduate level course, my earlier book titled *Cognitive Psychology* (2nd ed.) is recommended instead of *Fundamentals of Cognitive Psychology*. The earlier book provides a deeper introduction to cognitive neuroscience with a separate chapter on functional neuroanatomy and connectionist modeling. It also provides a fuller treatment of language and higher level cognition, including coverage of intelligence, as well as a separate chapter on concept learning and the development of skills and expertise. These topics lie beyond the fundamentals of cognitive psychology.

As in *Cognitive Psychology* (2nd ed.), I seek here to provide a synthesis of cognitive psychology at its best rather than a chronicle of its arguments and conflicts. Certainly, the difficult struggle of cognitive approaches in psychology during the past 100 years deserves coverage, as do the many disagreements in contemporary theories and findings. But controversy can easily be overdone to the point of befuddling students. More advanced courses can dig deeper into the many controversies in the field, and students can consult the primary sources cited throughout the text or supplemental readings assigned by the instructor. Here, I seek to encapsulate the relevant background, theory, and research within each chapter. For example, details about the development of language, memory, and perception are covered in their respective chapters rather than culled and packaged as cognitive development.

Findings from cognitive neuroscience are frequently cited throughout the book. The methods of cognitive neuroscience, particularly neuroimaging of the brain as a person perceives, attends, learns, remembers, and thinks, are now fundamental concepts that are rapidly advancing the state of the science. With these new methods has come a focus on the relation between emotion and cognition, on how the bodily, visceral experiences of emotion color our memories and thoughts. Understanding cognitive psychology and, more broadly, cognitive science now requires a deeper understanding of the brain and emotion than was the case in the past. The approach taken here is

that cognition cannot be understood without reference to both its development and its biological bodily substrate.

Applications of the fundamental concepts are also emphasized in this book. For example, research on the encoding and retrieval processes involved in false memories have important applications for eyewitness testimony in police and court proceedings. Applications are integrated into the narrative of the text itself, rather than set off in boxed material that students are tempted to ignore or regard as unnecessary detail. Another important pedagogical feature is the inclusion of margin notes. These notes summarize important concepts and are of great benefit in previewing and reviewing each chapter. Key terms are listed at the end of each chapter and each is defined clearly in the glossary at the end of the book. Each chapter is summarized to help students effectively integrate the material. In addition, an Instructor's Resource CD provides materials for PowerPoint presentations, interactive demonstrations, Web resources, suggestions for further reading, and test questions, and the Companion Student Study Site includes Internet exercises and Web resources, flashcards containing key terms and definitions, self-quizzes, and links to Sage journal articles. Visit <http://www.sagepub.com/kelloggfcstudy> to access these materials.

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Stacy Birch
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Tim Curran
University of Colorado at Boulder

Simon Farrell
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F. Richard Ferraro
University of North Dakota

Robin Flanagan
Western Connecticut State University

D. Kristen Gilbert
University of Montevallo

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West Virginia University

Rayne A. Sperling
The Pennsylvania State University

Constance Toffle
West Virginia University

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San Jose State University

W. Richard Walker
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In memory of my mother, Patricia Elaine Johnson Kellogg

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