

1997

This bibliography contains an eclectic array of topics that fall under the broad categories of human cognition and emotion. The references on cognition are more extensive than the references on emotion, in part due to the cognitive revolution begun with the 1956 publication of *A Study of Thinking* by Bruner, Goodnow, and Austin. During the past forty years the study of cognition has grown dramatically, while only a few researchers have shown interest in the subject of emotion.

The bibliography presents academic references from psychology and anthropology, as well as books that specifically refer to design practice and education. Collectively they reflect the increasing interdisciplinarity of both design and cognitive science. There has been no attempt to demarcate the relevance of references to individual design disciplines; people are people, whether using a product, engaging in communication, or experiencing an environment.

LIZ SANDERS THE OHIO STATE UNIVERSITY

Liz Sanders holds bachelor's degrees in psychology and anthropology and a PhD in cognitive psychology from The Ohio State University. She is a vice president at Fitch, an international firm known for interdisciplinary design research. She also teaches graduate courses in the Industrial Design Department at The Ohio State University.

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A-D

	action / practice	cognition	cognitive maps / mental models	connectionism	consciousness	emotion	evolution	information processing	language / psycholinguistics	memory	metaphor	perception	representation	visual thinking	
The Act of Creation		•				•	•						•	•	Koestler, Arthur
Actual Minds, Possible Worlds		•				•		•		•	•	•			Bruner, Jerome S.
After Thought: The Computer Challenge to Human...		•					•	•					•	•	Bailey, James
An Anthropologist on Mars: Seven Paradoxical Tales	•	•				•			•		•	•	•		Sacks, Oliver
The Art of Human-Computer Interface Design	•	•												•	Laurel, Brenda
Beginning to Read: Thinking and Learning about...	•	•						•	•				•		Adams, Marilyn J.
Child Language		•							•				•		Elliot, Alison J.
Child's Talk: Learning to Use Language		•							•				•		Bruner, Jerome S.
Children Drawing	•	•							•				•	•	Goodnow, Jacqueline
Children's Talk		•							•						Garvey, Catherine
Cognition and Affect: A Developmental...		•				•	•	•	•						Simon, Lawrence
Cognition and Categorization		•						•	•			•	•		Rosch, Eleanor
Cognition and Reality: Principles and...	•	•	•							•		•	•		Neisser, U.
Cognition in the Wild	•	•	•							•		•	•	•	Hutchins, Edwin
Cognitive Processes in Spelling		•						•	•	•			•		Frith, Uta
Cognitive Psychology		•						•	•	•		•	•		Reynolds, Allan G.
Cognitive Psychology		•	•					•	•	•		•	•		Solso, Robert L.
Connectionist Models and the Implications...		•	•					•	•				•		Waltz, David
Creativity: Flow and the Psychology of Discovery...		•				•			•				•	•	Csikszentmihalyi, Mihaly
Cultural Models in Language and Thought	•	•	•						•		•	•	•		Holland, Dorothy
Descartes' Error: Emotion, Reason, and...		•					•		•	•			•		Damasio, Antonio R.
Drawing on the Right Side of the Brain	•	•				•				•	•	•	•		Edwards, Betty
Dynamic Memory: A Theory of Reminding and...		•								•			•		Schank, R.C.

E-M

	action / practice	cognition	cognitive maps / mental models	connectionism	consciousness	emotion	evolution	information processing	language / psycholinguistics	memory	metaphor	perception	representation	visual thinking	
Early Language		•							•						De Villers, Peter A.
The Embodied Mind: Cognitive Science and Human...	•	•			•		•				•	•	•		Varela, Francisco J.
Emotional Intelligence	•					•	•						•	•	Goleman, Daniel
Errors in Linguistic Performance: Slips of the Tongue...	•							•	•	•			•	•	Fromkin, Victoria A.
Everyday Cognition: Its Development in Social Context	•	•					•						•	•	Rogoff, Barbara
Flow: The Psychology of Optimal Experience	•	•				•	•						•	•	Csikszentmihalyi, Mihaly
Foundations of Cognitive Science	•	•		•				•	•			•	•	•	Posner, Michael
Frames of Mind: The Theory of Multiple Intelligences	•	•					•	•	•				•	•	Gardner, Howard
Hamlet on the Holodeck: The Future Narrative in...	•	•					•						•	•	Murray, Janet H.
Human-Machine Thinking	•							•					•		Johnson-Laird, Philip N.
Humor: Its Origins and Development	•					•		•	•				•		McGhee, Paul E.
The Image of the City	•	•											•	•	Lynch, Kevin
In the Mind's Eye: Visual Thinkers, Gifted People...								•					•	•	West, Thomas G.
Inevitable Illusions: How Mistakes of Reason Rule...	•	•						•					•	•	Piatelli-Palmarini, M.
Influence: The Psychology of Persuasion	•					•									Cialdini, Robert B.
Kinds of Minds: Toward an Understanding of...	•				•		•						•		Dennett, Daniel C.
Language Acquisition: The State of the Art	•								•	•			•		Wanner, Eric
Language and the Developing Child									•				•	•	De Hirsch, Katrina
Language in Thinking	•								•						Adams, Parveen
Life on the Screen: Identity in the Age of the Internet	•	•				•	•		•			•	•	•	Turkle, Sherry
Maps of the Mind: Charts and Concepts of the Mind...			•		•	•		•					•	•	Hampden-Turner, C.
The Mechanism of Mind	•	•				•		•		•			•	•	DeBono, E.
Media Virus: Hidden Agendas in Popular Culture	•						•						•		Rushkoff, Douglas

M-S

	action / practice	cognition	cognitive maps / mental models	connectionism	consciousness	motion	evolution	information processing	language / psycholinguistics	memory	metaphor	perception	representation	visual thinking	
Mental Models	•	•										•	•	Gentner, Dedre	
Mental Models: Towards a Cognitive Science of...	•	•	•					•	•	•		•		Johnson-Laird, Philip N.	
Metaphors We Live By	•	•						•			•	•		Lakoff, George	
The Mind's New Science: A History of the Cognitive...	•	•	•			•	•	•	•			•	•	Gardner, Howard	
Multiple Intelligences: The Theory in Practice	•	•				•	•	•				•	•	Gardner, Howard	
Neuromancer	•	•	•		•	•					•	•	•	Gibson, William	
On Aesthetics in Science	•	•									•	•	•	Wechsler, Judith	
The Origin of Consciousness in the Breakdown of the...	•				•	•	•				•	•	•	Jaynes, Julian	
Out of Control: The New Biology of Machines, Social...	•		•			•						•	•	Kelley, Kevin	
The Perceptual World of the Child											•	•	•	Bower, T.G.R.	
Perspectives on Cognitive Science	•	•	•					•	•	•	•	•	•	Norman, Donald	
Plans and Situated Actions: The Problem of Human...	•	•						•				•		Suchman, Lucy A.	
Plans and the Structure of Behavior	•							•		•		•		Miller, George	
Playing the Future: How Kids...	•	•					•					•	•	Rushkoff, Douglas	
Processing of Visible Language(Volumes I and II)	•					•		•				•	•	Kolers, Paul A.	
Psychology and Language: An Introduction to...	•	•						•	•	•		•	•	Clark, Herbert H.	
The Psychology of Everyday Things	•	•										•		Norman, Donald	
Psychology of Language								•	•			•		Paivio, Allan	
The Psychology of Left and Right	•				•	•		•	•			•	•	Corballis, Michael C.	
The Second Self: Computers and the Human Spirit	•	•					•	•				•	•	Turkle, Sherry	
Semantics and Cognition	•									•	•	•		Jackendoff, Ray	
The Social Brain: Discovering the...	•			•		•		•	•			•	•	Gazzaniga, Michael S.	
The Society of Mind	•		•								•	•	•	Minsky, Marvin	
Spatial Abilities: Development and Physiological...	•	•								•		•	•	Portegal, Michael	
A Study of Thinking	•						•					•	•	Bruner, Jerome S.	

T-W

	action / practice	cognition	cognitive maps / mental models	connectionism	consciousness	motion	evolution	information processing	language / psycholinguistics	memory	metaphor	perception	representation	visual thinking	
The Technology of Text: Principles for Structuring,...	•	•						•	•						Jonassen, David H.
Thinking in Pictures and Other Reports from...	•	•	•			•		•				•	•	•	Grandin, Temple
The Third Word War: Apostrophe Theory	•										•	•	•		Lee, Ian
Thought as a System	•	•				•				•		•	•		Bohm, David
The Tree of Knowledge: The Biological Roots...	•				•		•					•			Maturana, Humberto R.
Understanding Comics: The Invisible Art	•											•	•	•	McCloud, Scott
Virus of the Mind: The New Science of the Meme	•	•						•	•	•					Brodie, Richard
Wholeness and the Implicate Order	•				•		•						•	•	Bohm, David
Women, Fire, and Dangerous Things	•	•	•						•	•	•		•		Lakoff, George

Marilyn J. Adams, **Beginning to Read: Thinking and Learning about Print**
Urbana-Champaign, The Reading Research and Education Center, 1990

Adams has brought together a vast body of the research on the reading process into a concise statement about how children acquire reading skills. She also draws implications from the research and states clearly how these skills should be taught in the classroom. This is one of the few truly enjoyable books written about the process of reading.

Parveen Adams, ed., **Language in Thinking**
Great Britain, The Chaucer Press, 1972
An excellent selection of articles on the ways in which language relates to thinking and how language can affect the manner in which we perceive and act in the world. Parveen contrasts different theoretical perspectives on these issues and provides experimental work related to each as well. The contributors, among others, include Piaget, Whorf, Vygotsky, Lenneberg, and Chomsky.

James Bailey, **After Thought: The Computer Challenge to Human Intelligence**
New York: Basic Books, 1996
Bailey analyzes the major shifts of human thought as a result of the history of computation and science. He explains how computers are now changing what we do, but also how we think and what we think about. His ideas are accessible to a general audience.

David Bohm, **Wholeness and the Implicate Order**
London, ARK Paperbacks, 1980
Bohm explores issues such as understanding the nature of reality in general (and consciousness in particular), as well as the relationship of thinking to reality. He argues for the view that the universe and the mind are undivided wholes, each inseparable into their constituent parts. This is a difficult, yet often cited, work.

David Bohm, **Thought as a System**
New York, Routledge, 1992
This book is essentially a description of a seminar that took place in Ojai, California, in 1990. Written in the conversational mode of the seminar, the book is, perhaps, the most accessible of Bohm's works. In it, he explores the manner in which thought actively participates in forming our perceptions, our sense of meaning, and our everyday activities.

T.G.R. Bower, **The Perceptual World of the Child**
Cambridge, Massachusetts, Harvard University Press, 1977
Bower reviews experimental research findings on how the very young child perceives the world around him and how he grows in his ability to make sense of what he perceives. Bower draws implications with regard to how we should provide stimulation for normal infants, as well as for how to overcome sensory deficits in handicapped children.

Richard Brodie, **Virus of the Mind: The New Science of the Meme**
Seattle, Washington, Integral Press, 1996
This is a very good introduction to the study of the meme (the basic unit of cultural transmission, or imitation), and the field of memetics (the study of the workings of memes: how they interact, replicate, and evolve.) It is well written and easy to understand, with many good applications and examples.

Jerome S. Bruner, Jacqueline Goodnow, and George Austin, **A Study Of Thinking**
New York, John Wiley, 1956
This book may possibly be the earliest challenge to the behaviorist tradition. The authors investigated classification and categorization. But instead of treating the experimental subjects like laboratory animals, the authors treated them as active, constructive problem solvers, and found they were using a variety of strategies to solve problems.

Jerome S. Bruner, **Child's Talk: Learning to Use Language**
New York, W. W. Norton & Company, 1983.
In this delightful little book, Bruner explores the child's acquisition of language, not in the laboratory, but in the home, in order to understand the issues of context sensitivity and the format of the mother-child interaction. Of particular interest is his analysis of the game "peek-a-boo."

Jerome S. Bruner, **Actual Minds, Possible Worlds**
Cambridge, Massachusetts, Harvard University Press, 1986
In a series of essays, Bruner examines and compares two modes of thought: the logico-scientific and the narrative, because "as with the stereoscope, depth is better achieved by looking from two points at once."

Robert B. Cialdini, **Influence: The Psychology of Persuasion**
New York, William Morrow and Company, Inc., 1993
First published in 1984, this new edition includes contributions from readers of the first edition. Cialdini explores the persuasion process at work in today's marketplace. His evidence comes from a provocative mixture of experimental studies and participant observation. The book is organized around six basic principles of human behavior: consistency, reciprocity, social proof, authority, liking, and scarcity.

Herbert H. and Eve V. Clark, **Psychology and Language: An Introduction to Psycholinguistics**
New York, Harcourt Brace Jovanovich, Inc., 1977
An introduction to psycholinguistics (the psychology of language), this textbook does not require technical knowledge of either psychology or linguistics. It is a readable overview of the field organized around three primary processes: comprehension (i.e., the study of listening), production (i.e., the study of speaking), and acquisition (i.e., how children learn to listen and speak). It also contains a useful glossary of terms.

Michael C. Corballis and Ivan L. Beale, **The Psychology of Left and Right**
Hillsdale, New Jersey, Lawrence Erlbaum Associates, 1976

The authors set out to investigate what it means to tell left from right, starting with the psychological literature, and found themselves exploring philosophy, anthropology, biochemistry, and theoretical physics as well. This fascinating book does not require a background in psychology to enjoy it.

Mihaly Csikszentmihalyi, **Flow: The Psychology of Optimal Experience**
New York, Harper & Row, 1990
In *Flow*, Csikszentmihalyi reports on over 25 years of psychological research on happiness. He identifies a phenomenon which he calls "flow"—a state of consciousness that people report when they are engaged in fun, challenging, and often creative, activities. He describes individuals who lead relatively happy and meaningful lives by having harnessed the power of flow experiences.

Mihaly Csikszentmihalyi, **Creativity: Flow and the Psychology of Discovery and Invention**
New York, HarperCollins Publishers, 1996
Csikszentmihalyi interviewed over ninety people, i.e., artists, authors, scientists, etc., who have transformed our culture, in order to understand the ways in which creativity has been a force in their lives. He builds on his "flow" theory (see Csikszentmihalyi, 1990) by addressing the ways these people have made flow a permanent feature of their lives.

Antonio R. Damasio, **Descartes' Error: Emotion, Reason, and the Human Brain**
New York, Avon Books, 1994
Damasio describes a "connecting trail . . . from reason to feelings to body." Starting from evidence based on neurological patients affected by brain damage, Damasio shows how emotions and feelings are critical to rational thinking. He also argues that the essence of a feeling is a direct perception of the state of the body. A fascinating book, accessible to a general audience.

E. DeBono, **The Mechanism of Mind**
New York, Simon & Schuster, 1969
DeBono introduced a theory in the late 1960s of how the mind handles information; the theory was not acknowledged by other psychologists until at least 20 years later. In the meantime, DeBono put his ideas about "lateral thinking" to use by writing and teaching on the topic at a global scale.

Katrina De Hirsch, **Language and the Developing Child**
Baltimore, Maryland, The Orton Dyslexia Society, 1984
This is a collection of writings on child language development from one of the pioneers in the field of learning disabilities. It is written not only for clinicians, but for parents and teachers, as well. Among the issues addressed are dyslexia, autism, and stuttering.

Peter A. and Jill G. De Villiers, **Early Language**
Cambridge, Massachusetts, Harvard University Press, 1979
The authors describe the language acquisition process, from birth to school age, using many informative and amusing examples. They pay special attention to the child's propensity toward linguistic inventions and systematic errors. This book is written for parents, educators, child-care professionals, and students.

Daniel C. Dennett, **Kinds of Minds: Toward an Understanding of Consciousness**
New York, Basic Books, 1996
Dennett, a philosopher, explores the questions, What is a mind and who else has one? He takes an evolutionary approach to this question as he explores human, machine, and animal minds.

Betty Edwards, **Drawing on the Right Side of the Brain**
New York, G.P. Putnam's Sons, 1989.
This is actually a widely read drawing-instruction book. Edwards applies current findings and theories in brain research, particularly recent discoveries about the right hemisphere, to the teaching of drawing skills. The notes and quotes in the side bars are especially good.

Alison J. Elliot, **Child Language**
New York, Cambridge University Press, 1981
Elliot looks at the linguistic development of the child, within the context of the child's general development. She reviews the research of Chomsky, Brown, and Piaget, among others.

Uta Frith, ed., **Cognitive Processes in Spelling**
Academic Press, 1980
This book attempts to answer questions such as, How is spelling knowledge acquired? How is it used? Why do some people lose it or never acquire it at all? The authors explore the spelling process in children, normal adults, adult illiterates, and in children with special problems such as dyslexia.

Victoria A. Fromkin, ed., **Errors in Linguistic Performance: Slips of the Tongue, Ear, Pen and Hand**
New York, Academic Press, 1980
Fromkin has put together the works of linguists, psychologists, neurologists and aphasiologists on the topic of "deviant linguistic performance data." She also brings in Freud's hypotheses concerning the possible causes underlying "slips." This is one of the earliest cross-disciplinary looks at slips.

Howard Gardner, **Frames of Mind: The Theory of Multiple Intelligences**
New York, Basic Books, 1983
In a bold move away from the then-acceptable views of human intelligence, Gardner proposed that there are multiple varieties of intelligence including linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal. His fellow psychologists largely ignored his work, but the community of professional educators, parents, and the business community did not. (See also Gardner, 1993.)

Howard Gardner, **The Mind's New Science: A History of the Cognitive Revolution**
New York, Basic Books, 1987

For someone wishing to become familiar with the origins and evolution of the cognitive science, this is the book to begin with. Gardner took a "long view," returning to the philosophical origins, and to the histories of the various disciplines involved. His work is based not only upon a reading of the literature, but also upon extensive, informal interviews with the leaders in the field. A wonderful and readable book!

Howard Gardner, **Multiple Intelligences: The Theory in Practice**
New York, Basic Books, 1993

Ten years after the publication of *Frames of Mind*, Gardner brings together both previously published, as well as original, essays to provide a picture of what has been learned about the educational applications of the Multiple Intelligences Theory from both research and from in-school experiences.

Catherine Garvey, **Children's Talk**
Cambridge, Massachusetts, Harvard University Press, 1984

Garvey looks at the importance of talk to the child's overall cognitive and social development. She shows, through example, that talk is an integral part of the child's life and that it reveals their thinking and social interactions. This book is written for parents, educators, child-care professionals, and students.

Michael S. Gazzaniga, **The Social Brain: Discovering the Networks of the Mind**
New York, Basic Books, Inc., 1985
Gazzaniga broke from the traditional scientific style in this chronological narrative of his discoveries during his 25 years of brain research. He proposes a modular view of brain function, a social brain made up of a confederation of mental systems within each of us.

Dedre Gentner and Albert L. Stevens, eds., **Mental Models**
Hillsdale, New Jersey, Lawrence Erlbaum Associates, 1983

Two books titled "Mental Models" were published in 1983. (See also Johnson-Laird, 1983.) This volume offers attempts to capture naturalistic domain knowledge from a wide variety of domains including physical systems, mechanical systems, interactive devices, as well as in navigation.

William Gibson, **Neuromancer**
New York, Ace, 1984
This is a science fiction novel that has had a profound impact on our understanding of feelings about cyberspace, as Gibson called the information space that exists within and between computers. It paints a futuristic picture of the connections that exist among the social, commercial, and political institutions as seen through the eyes of the hacker hero, Case, a cowboy of information space.

Daniel Goleman, **Emotional Intelligence**
New York, Bantam Doubleday Dell Publishers, 1995
Goleman introduces the concept of *EQ* (emotional intelligence) in order to compare and contrast the relative contributions of emotional and intellectual (i.e., *IQ*) abilities. He argues that high *IQ* alone does not guarantee success in life, and that *EQ* is, perhaps, a more important contributor to success in relationships, work, and physical well-being.

Jacqueline Goodnow, **Children Drawing**
Cambridge, Massachusetts, Harvard University Press, 1977
Goodnow investigates what it is about the child's mind that leads him to draw as he does. This is a well-researched book that is at the same time fascinating to read. It is full of examples of children's drawings. Every parent should read it. This book is written for parents, educators, child-care professionals, and students.

Temple Grandin, **Thinking in Pictures and Other Reports from My Life with Autism**
New York, Doubleday, 1995

This is a fascinating view of the world from a "visual thinker who has pictures for thoughts." Temple Grandin is an assistant professor of animal sciences at Colorado State University. She is autistic, yet has been able to describe in writing how her visual mind works and how she was able to make the connection between her impairment and animal temperament, resulting in her remarkable ability to design humane livestock-handling facilities.

Charles Hampden-Turner, **Maps of the Mind: Charts and Concepts of the Mind and Its Labyrinths**

New York, Macmillan Publishing Company, 1981
The author has collected, described, and drawn in map-like form the most important concepts put forth about the human mind by the world's greatest thinkers, writers, scientists, artists, and philosophers. This book is remarkable in its breadth of scope and clarity of explanation. Each of the 60 "maps" is supported by bibliographic information as a starting point for further discovery.

Dorothy Holland and Naomi Quinn, eds., **Cultural Models in Language and Thought**
New York, Cambridge University Press, 1987
This volume brings together contributors from anthropology, linguistics, and psychology to discuss the role that cultural knowledge (shared presuppositions about the world) plays in human understanding.

Edwin Hutchins, **Cognition in the Wild**
Cambridge, The MIT Press, 1994
Hutchins demonstrates how anthropological methods combined with cognitive theory can give rise to a new perspective on cognitive science. He uses his background as both a sailor and an anthropologist to provide an approach to studying activities in their naturally occurring contexts, i.e., "in the wild."

Ray Jackendoff, **Semantics and Cognition**
Cambridge, Massachusetts, The MIT Press, 1983
Jackendoff explores the role of semantics (i.e., the meaning of things) as a bridge between the theory of language and theories of other cognitive capacities such as motor control and visual perception.

Julian Jaynes, **The Origin of Consciousness in the Breakdown of the Bicameral Mind**
Boston: Houghton Mifflin Company, 1976
Jaynes combined literature and science to develop a theory of the evolution of consciousness. Jaynes argues that human consciousness is a learned process that was brought about only 3,000 years ago. Jaynes asserts that until then, men had no consciousness but were automatically obeying the voices of gods. A delightful book to read.

David H. Jonassen, ed., **The Technology of Text: Principles for Structuring, Designing, and Displaying Text (Volumes I and II)**
Englewood Cliffs, New Jersey, Educational Technology Publications, 1982
This book focuses on principles (supported by years of research in psychology, reading, instructional design, and typography) for organizing, designing, and displaying text. The authors of the various chapters were, at the time of publication, active in the field of designing textual materials.

Philip N. Johnson-Laird, **Mental Models: Towards a Cognitive Science of Language, Inference, and Consciousness**
Cambridge, Massachusetts, Harvard University Press, 1983.
Two books titled "Mental Models" were published in 1983. (See also Gentner and Stevens, 1983.) This volume offers a "unified theory of the major properties of mind: comprehension, inference, and consciousness." Johnson-Laird argues that the mind is a model-building device that can itself be modeled on a computer.

Philip N. Johnson-Laird, **Human-Machine Thinking**
Hillsdale, New Jersey, Lawrence Erlbaum Associates, 1993

This book is written with the goal of reaching an understanding of how the mind carries out three sorts of thinking—deduction, induction, and creation—in order to consider what goes right and wrong, and to explore computational models of these kinds of thinking.

Kevin Kelly, **Out of Control: The New Biology of Machines, Social Systems and the Economic World**
New York, Addison-Wesley Publishing Company, 1994

This book describes the new age we are entering in which, in Kelly's words, "the realm of the born (all that is nature) and the world of the made (all that is humanly constructed) are becoming one." The implications for humanity are profound. According to the author, his friends claim that the 28-page annotated bibliography is the best part of the book. But I certainly would not skip the rest of the book.

Paul A. Kolers, Merald E. Wrolstad, and Herman Bouma, eds., **Processing of Visible Language (Volumes I and II)**
New York, Plenum Press, 1980
An excellent selection and collection of articles by both researchers and practitioners concerning the display and acquisition of visible language. The second volume contains more that is relevant to interactions between people and computers. The contributors include J. Doblin, P. Wright, and A. Newell, among others.

Arthur Koestler, **The Act of Creation**
London, Penguin Books, 1964
This classic work is made up of two books. Book One is aimed at the general reader. In it, Koestler proposes a theory of the act of creation by looking at the processes underlying scientific discovery, artistic originality, and humor. Book Two is more technical in its exploration of the basic principles operating in the act of creation.

George Lakoff and Mark Johnson, **Metaphors We Live By**
Chicago, The University of Chicago Press, 1980
Lakoff and Johnson demonstrate that metaphor is not merely a poetical or rhetorical phenomenon, but that metaphor permeates virtually every aspect of human thought, including how we perceive, think, and act. A classic.

George Lakoff, **Women, Fire and Dangerous Things: What Categories Reveal About the Mind**
Chicago, The University of Chicago Press, 1987
The title of this book was inspired by an aboriginal language of Australia which has a category, *balan*, that actually includes women, fire, and dangerous things, for as Lakoff declares "there is nothing more basic than categorization to our thought, perception, action and speech." The book is divided into two parts: the first covers the theoretical groundwork, and the second presents three case studies to exemplify the issues addressed.

Brenda Laurel, ed., **The Art of Human-Computer Interface Design**
New York, Addison-Wesley Publishing Company, Inc., 1990
This is a large collection of ideas and opinions from leading thinkers in the computer industry on the field of human-computer interaction. It is a good example of applied cognitive science. The contributors include, among others, D. Norman, T. Nelson, A. Kay, N. Negroponte, and T. Leary.

Ian Lee, **The Third Word War: Apostrophe Theory**
New York, A&W Visual Library, 1978
This is an unusual and provocative look at the pun. Lee communicates his ideas in simultaneous visual and verbal modes.

Kevin Lynch, **The Image of the City**
Cambridge MA. The MIT Press, 1960

Lynch introduces the construct of a "public image of a city which is the overlap of many individual images." This is the seminal work in the field of cognitive mapping. Lynch introduces the five types of elements that people use to describe their cognitive images of the built environment: paths, edges, districts, nodes, and landmarks—concepts relevant also to the design of user environments such as user interfaces.

Humberto R. Maturana and Francisco J. Varela, **The Tree of Knowledge: The Biological Roots of Human Understanding**

Boston: New Science Library, Shambhala Publications, Inc., 1987

Best stated by the authors, this book is "a complete outline for an alternative view of the biological roots of understanding. . . . We will propose a way of seeing cognition not as representation of the world "out there," but rather as an ongoing bringing forth of a world through the process of living itself." As such, this work establishes a new paradigm beyond cognition.

Scott McCloud, **Understanding Comics: The Invisible Art**

New York: HarperCollins/Kitchen Sink Press, 1994

While this book is ostensibly about the ways in which graphic artists convey information in comics, the author has, as he states in the Introduction, "even put together a new comprehensive theory of the creative process and its implications for comics and art in general," even though he is "kind of young to be doing that sort of thing." This book is expressed in comics, as well. Destined to become a classic.

Paul E. McGhee, **Humor: Its Origin and Development**

San Francisco, W. H. Freeman and Company, 1979

This book examines the nature and development of children's laughter and humor. McGhee traces the evolution of humor within the human species as well as its growth in the individual. Written as an undergraduate text, this book requires no specialized knowledge or background in order to enjoy it.

George Miller, Eugene Galanter, and Karl Pribram, **Plans and the Structure of Behavior**

New York, Holt, Rinehart and Winston, 1960

The book that revealed the inadequacies of behaviorism, Plans is often credited with beginning the cognitive revolution in psychology. The authors proposed a cybernetic approach to behavior and, for the first time, described human beings in terms of plans, images, and goals.

Marvin Minsky, **The Society of Mind**

New York: Simon & Schuster, 1987

Minsky explores the idea of mind as a "society." He describes the mind as an emergent system of agents, each of whom has a very limited point of view. Complexity of behavior, emotion, and thought are shown to emerge from the interplay of the interactions and opposing views of these agents. Minsky provides an interesting, if not esoteric, glossary, as well.

Janet H. Murray, **Hamlet on the Holodeck: The Future Narrative in Cyberspace**

New York, The Free Press, 1997

Murray takes a look at how technology is changing and will continue to change storytelling. She claims that there will be an end to storytelling as we know it with the advent of new computer technologies that offer interactive tales, skips in time and space, and truly immersive environments.

U. Neisser, **Cognition and Reality: Principles and Implications of Cognitive Psychology**

San Francisco: W.H. Freeman & Co., 1976

Neisser presents an "ecologically valid" theory of human cognition, i.e., one that has something to say about what people do in real, culturally significant situations. He uses both everyday examples and experimental findings to support his theory. Readers need no previous training in psychology to read this book. A highly recommended classic.

Donald Norman, ed., **Perspectives on Cognitive Science**

Hillsdale, New Jersey, Lawrence Erlbaum Associates, 1981

Ten invited speakers came together in 1980 to share their very different perspectives on the birth and the future of cognitive science. This book is a result of that conference with contributions by Simon, Newell, Minsky, Schank, Lakoff, Johnson, and others.

Donald A. Norman, **The Psychology of Everyday Things**

New York, HarperCollins Publishers, Inc., 1988

With this book (originally published under the title, *The Design of Everyday Things*), Norman can be credited with having introduced the field of cognitive psychology to the general public. In it, Norman tackles poorly conceived and poorly designed objects that we use every day, making the reader keenly aware of the necessity for consideration of the user during the product development process.

Allan Paivio and Ian Begg, **Psychology of Language**

New Jersey, Prentice-Hall, Inc., 1981

A graduate-level textbook for courses in psychology and/or psycholinguistics, the book takes a historical and interdisciplinary approach to the study of language. The authors refer to psycholinguistic theories as fads that come and go over time, choosing to emphasize the enduring contributions from the field to serve as guides for students to follow.

Massimo Piatelli-Palmarini, **Inevitable Illusions: How Mistakes of Reason Rule Our Minds**

John Wiley & Sons, 1994

Palmarini delves into a provocative area about our subconscious thought processes. Using real-life examples, he demonstrates how the human mind is predisposed to make mistakes in judgment, mistakes that function as mental blinders. These psychological mechanisms affect all individuals everyday without their realizing it. Our spontaneous judgments are examined in a whole new light.

Michael Portegal, ed., **Spatial Abilities: Development and Physiological Foundations**

New York: Academic Press, 1982

With so much of cognitive psychology focused on linguistic performance, this book is a much-needed collection of theories and research on spatial abilities (an area certain to grow in the future). From the multidisciplinary contributors, the following topics were addressed: the sensory bases of spatial orientation, the development, and the role of heredity and gender in spatial orientation.

Michael Posner, ed., **Foundations of Cognitive Science**

Cambridge, The MIT Press, 1993

This is a relatively readable overview of the field of cognitive science, including its origins in philosophy, linguistics, cognitive psychology, and neuroscience. The methods for studying mind and brain are also covered. The foundations of the approach are applied to the major cognitive domains.

Allan G. Reynolds and Paul W. Flagg, **Cognitive Psychology**

Cambridge, Massachusetts, Winthrop Publishers, Inc., 1977

This is an undergraduate textbook that presupposes no previous sophistication in psychology and is, thus, an excellent starting point for someone wishing to see the field from the vantage point of the late 1970s.

Barbara Rogoff and Jean Lave, eds., **Everyday Cognition: Its Development in Social Context**

Cambridge, Massachusetts, Harvard University Press, 1984

The contributors, leading scholars in developmental psychology, cognitive science, and anthropology, examine the ways in which thinking occurs not only in the laboratory but also in the real world of home, school, and the workplace. This contextual perspective to development challenges the fixed stages of Piaget.

Eleanor Rosch and Barbara B. Lloyd, eds., **Cognition and Categorization**

Hillsdale, New Jersey, Lawrence Erlbaum Associates, 1978

The outcome of an interdisciplinary (i.e., psychology, linguistics, and anthropology) conference, this book includes a range of perspectives on the principles of categorization. The three sections cover real-world categories, the cognitive processes underlying categorization, and the nature of representation.

Douglas Rushkoff, **Media Virus: Hidden Agendas in Popular Culture**

New York, Ballantine Books, 1996

Rushkoff examines the effects that popular media is having on us and the ways in which we use media to influence and manipulate.

Douglas Rushkoff, **Playing the Future: How Kids' Culture Can Teach Us to Thrive in an Age of Chaos**

New York, HarperCollins Publishers, Inc., 1996

A fascinating perspective on youth culture from a member sitting on the edge. Rushkoff describes the lifestyles and thinking processes of today's children and teenagers (or, as he calls them "screenagers"), and explains how they have not only adapted to, but learned to thrive in the context of information explosion and media manipulation.

Oliver Sacks, **An Anthropologist on Mars: Seven Paradoxical Tales**

New York, Random House, Inc. 1995

Sacks tells the stories of seven unique individuals, each of whom has a different neurological condition. (One of them is Temple Grandin, the autistic professor who told him she feels like "an anthropologist on Mars." See the bibliography entry by Grandin.) Sack's narratives are based not only on clinical observations, but also, and more important, on his visiting and becoming friends with each of them.

R.C. Schank, **Dynamic Memory: A Theory of Reminding and Learning in Computers and People**

New York: Cambridge University Press, 1982

Based on his work in artificial intelligence, Schank proposes a new theory of memory, a dynamic memory, that applies to people as well as computers. He starts from the question of why people are reminded of an old experience by a new one, then describes the kind of memory organization they must have in order to be reminded. For a book about memory, this one is most readable.

Lawrence Simon, **Cognition and Affect: A Developmental Psychology of the Individual**

Buffalo, New York: Prometheus Books, 1986

In discussing the apparent wide fragmentation of personality theory, Simon puts forth an argument for unifying disparate views. A broad range of earlier theories and works is glued together to allow insights, then Simon introduces his own integrative theory: Cognitive-Affective-Developmental-Interpersonal theory (CADII). Though he attempts to make one final unifying theory of psychology, it doesn't stray too far beyond earlier versions of related ideas of personality theory and development, and is without heavy use of empirical research.

Robert L. Solso, **Cognitive Psychology**

Boston, Massachusetts: Allyn & Bacon, 1995

This is an updated version of the classic 1988 undergraduate textbook. This new version includes expanded coverage of physiologically related topics as well as an introduction to connectionism and parallel distributed processing.

Lucy A. Suchman, **Plans and Situated Actions: The Problem of Human-Machine Communication**

Cambridge, Cambridge University Press, 1987

One of the first applied anthropologists to use ethnography in the study of man-machine interaction, Suchman examines the interaction between novice users and an intelligent machine, a copier. She argues persuasively for the need to take into account the situatedness of most human social behavior.

Sherry Turkle, **The Second Self: Computers and the Human Spirit**

New York: Simon & Schuster, 1984

Turkle explores the identity-transforming relationship between people and computers that was taking place in the 1980s, before the pervasive impact of the Internet. She introduces the distinction between "hard" and "soft" styles of mastery over the computer.

Sherry Turkle, **Life on the Screen: Identity in the Age of the Internet**

New York: Simon & Schuster, 1995

Turkle uses ethnographic and clinical observation approaches (i.e., listening to people explain how they make sense of the Internet), in order to capture how the culture of computer communication and simulation is affecting our understanding of our minds and our bodies. It is a timely integration of technology and sociology.

Francisco J. Varela, Evan Thompson, and Eleanor Rosch, **The Embodied Mind: Cognitive Science and Human Experience**

Cambridge, MA. The MIT Press, 1991

The authors argue that it is only by having a sense of common ground between mind in science and mind in experience that our understanding of cognition can become more complete. They do so by blending insights from cognitive neuroscience with the Buddhist theory of mind.

David Waltz and Jerome A. Feldman, **Connectionist Models and their Implications: Readings from Cognitive Science**

Norwood, New Jersey, Ablex Publishing Company, 1988

Connectionist models are based on the assumption that design constraints derived from neurophysiological considerations may provide useful insights about certain psychological phenomena. This collection of articles explores the application of connectionist models to word perception; language production; and interpretation, memory, learning, and concept formation.

Eric Wanner and Lila R. Gleitman, eds., **Language Acquisition: The State of the Art**

Cambridge, Cambridge University Press, 1982

This is a comprehensive overview of the field of language development in the early 80s. It demonstrates the wide and often conflicting range of theoretical perspectives on this topic. The editors do a good job of identifying the emerging trends, both theoretical and methodological.

Judith Wechsler, ed., **On Aesthetics in Science**

Boston, Birkhauser, 1988

Wechsler demonstrates, through a unique and eclectic collection of articles, that the processes of invention and discovery in art and in science are not as different as one might have thought.

Thomas G. West, **In the Mind's Eye: Visual Thinkers, Gifted People with Learning Difficulties, Computer Images, and the Ironies of Creativity**

Buffalo, New York, Prometheus Books, 1991

West reports on the curious links between creative ability, visual thinking, and academic learning difficulties, and profiles eleven famous people who exhibited these connected traits (e.g., Einstein, Churchill, and Yeats.) He describes opportunities for such visual thinkers with the advent of the emerging computer visualization technologies.