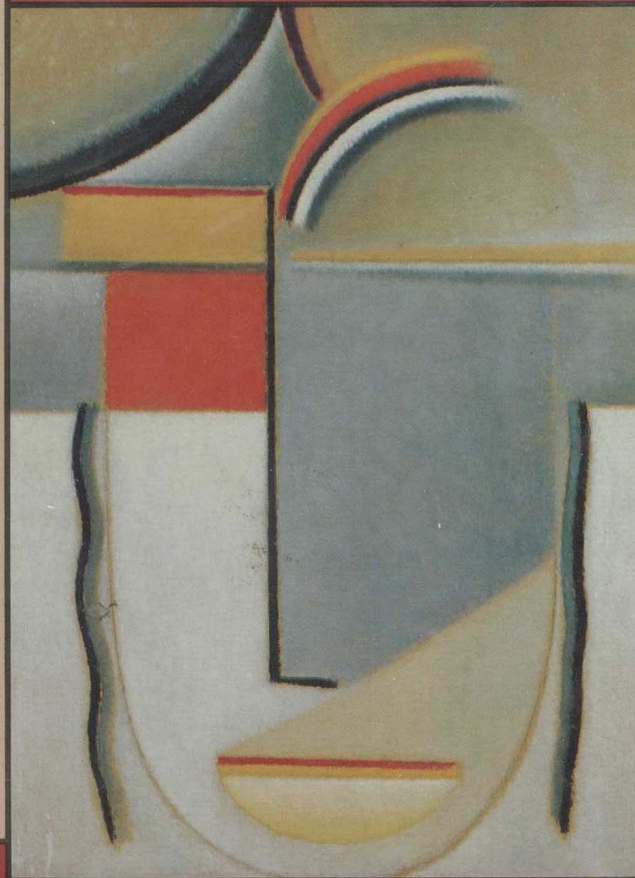


EIGHTH EDITION



INTRODUCTION TO
PSYCHOLOGY**Y**

RITA L. ATKINSON

RICHARD C. ATKINSON

ERNEST R. HILGARD

INTRODUCTION TO PSYCHOLOGY

EIGHTH EDITION

RITA L. ATKINSON

RICHARD C. ATKINSON

University of California, San Diego

ERNEST R. HILGARD

Stanford University



HARCOURT BRACE JOVANOVIĆ, PUBLISHERS
San Diego New York Chicago Washington, D.C. Atlanta
London Sydney Toronto

Copyright 1953, © 1957, 1962, 1967, 1971, 1975, 1979, 1983
by Harcourt Brace Jovanovich, Inc. Copyright renewed 1981
by Ernest R. Hilgard.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

Requests for permission to make copies of any part of the work should be mailed to: Permissions, Harcourt Brace Jovanovich, Publishers, 757 Third Avenue, New York, NY 10017

ISBN: 0-15-543677-5

Library of Congress Catalog Card Number: 82-82436

Printed in the United States of America

ACKNOWLEDGMENTS AND COPYRIGHTS

COVER: Painting by Alexei Jawlensky, "Sounds of Winter" 1927, courtesy The Blue Four Galka Scheyer Collection, Norton Simon Museum, Pasadena, California.

New technical art: Jeanne Mulderig

Text, figure, and picture credits appear on pages 681–86, which constitute a continuation of the copyright page.

PREFACE

There is an old story concerning a peasant woman whose shawl kept unraveling at one end, and who kept knitting on an equivalent amount at the other end. After all the material had changed, was it the same shawl? A similar question may be asked of a textbook going into its eighth edition, with each edition thoroughly revised. Is it still the same textbook? The reply in each case is a conditional “yes,” because both shawl and book serve the same purposes today that they served in the past. There is continuity in the midst of change. The purpose of this book has always been to introduce contemporary psychology to the beginning student, in full recognition that between editions both psychology and students change. As a simple measure of the amount of change that occurs in psychology, we note that about 40 percent of the references are new to this edition.

Students take introductory psychology for a variety of reasons, but few of them are motivated by the desire to know what psychologists are doing. Most students are concerned with what is relevant to their lives and their futures and with the problems confronting society. As in previous editions, we have attempted to write for the student but in a manner that will satisfy the critical psychologist as well. Our goal has been to be responsive to student interests without sacrificing scientific rigor or scholarship.

To accomplish this goal, we have relied on consultation and feedback from three sources—students, instructors, and specialists in various areas of psychology. To make certain our subject matter was readily comprehensible to students and pertinent to the human issues with which they are concerned, we asked a number of students to comment on each section of the manuscript in terms of interest value, clarity, and level of difficulty. Their responses were helpful and enlightening.

Several college instructors who specialize in teaching the introductory course read the manuscript as it evolved, commenting on its suitability for their students and on any problems they foresaw in teaching the material to beginning psychology students. We also benefited from the many comments and suggestions we received from users of previous editions.

To keep abreast of developments in psychological theory and research, we asked experts to review each chapter. Typically, several specialists commented on each chapter in the early stages of revision and in its final form. By such consultation, we sought to ensure that the material represents accurately the current state of knowledge in psychology.

We have tried to cover contemporary psychology in a textbook of reasonable length. But each instructor must design his or her course according to course objectives, type of students, and available time. Even if all chapters are not assigned, students will at least have them for reference. For a short course, we believe that it is better to treat fewer chapters fully than to cover the entire text. Two possible 14-chapter courses are proposed below—one for a course with an experimental–biological emphasis; the other for a course with a personal–social emphasis. These outlines only illustrate possible combinations, however.

CHAPTER	EXPERIMENTAL– BIOLOGICAL EMPHASIS	PERSONAL– SOCIAL EMPHASIS
Nature of Psychology	1	1
Neurobiological Basis of Psychology	2	—
Psychological Development	3	3
Sensory Processes	4	—
Perception	5	5
States of Consciousness	6	6
Learning	7	7
Memory	8	8
Language and Thought	9	—
Basic Drives and Motives	10	—
Motivation and Emotion	—	11
Mental Abilities and Their Measurement	12	12
Personality and Its Assessment	13	13
Conflict and Stress	14	14
Abnormal Psychology	—	15
Methods of Therapy	—	16
Individual Social Behavior	17	17
Social Influence	—	18

The order of chapters can be changed. For example, some instructors feel that student interest can be better aroused by beginning the course with material on personality, abnormal, and social psychology while leaving more experimental topics such as memory, perception, and physiological psychology until later. The authors have tried this approach but have not found it satisfactory. Beginning with the more personally relevant and intriguing topics may get the course off to a fast start, but it often gives the students a distorted idea of what psychology is about. In addition, many students are ill prepared for, and disgruntled by, the more difficult experimental material when it is sprung on them later in the course. Our preferred approach is to cover the chapter on developmental psychology early in the course, thereby exposing students to a range of provocative topics in psychology. Then we turn to the more technical areas like perception, memory, and motivation, and end the course with per-

sonality, abnormal, and social psychology. But each instructor must choose the order of topics he or she finds congenial; the book has been written so that a variety of arrangements is possible.

The many decisions that must be made in teaching the introductory psychology course are discussed in the *Instructor's Handbook*. Instructors are urged to obtain a copy of this handbook, which is useful for both beginning and experienced instructors, as well as for teaching assistants. As further instructional aids, we have again provided a thoroughly revised *Study Guide* for students and an expanded set of test items.

We are again pleased to include the contributions of our former colleagues at Stanford University, Edward E. Smith and Daryl J. Bem. Professor Smith, who is now at Bolt, Beranek, and Newman, Inc., and Harvard University, was responsible for Chapter 8 (Memory) and Chapter 9 (Language and Thought). Professor Bem, now at Cornell University, has reorganized his two chapters on social psychology. Chapter 17 (Individual Social Behavior) is concerned with how people process social information; Chapter 18 (Social Influence) focuses on group and environmental influences on behavior. These chapters, from two outstanding scientists and teachers, add immeasurably to the quality of this book.

Among the individuals acknowledged on pages ix–xii, we owe special thanks to John Foley, University of California, Santa Barbara, for his contributions to Chapters 4 and 5, and to Edmund Fantino, University of California, San Diego, for his contributions to Chapter 7.

RITA L. ATKINSON
RICHARD C. ATKINSON
ERNEST R. HILGARD

ACKNOWLEDGMENTS

Over the years we have been helped immeasurably by countless people who have shared with us their scholarly and pedagogical expertise. It is impossible to thank them all individually, but they have our continuing gratitude.

A number of professors teaching introductory psychology offered us invaluable chapter-by-chapter comments on the seventh edition as inputs for our planning of the eighth edition:

Douglas W. Atwood, Southeast Missouri State University	Donna F. Cruse, Oregon State University
Raymond Baird, University of Texas—San Antonio	Suzanne Davis, Westfield State College
Elizabeth Barton, Southeast Missouri State University	Peter J. Donovanick, State University of New York, Binghamton
Don E. Batten, Lewis and Clark College	Donald D. Dorfman, University of Iowa
Raymond M. Bragiel, Franklin College	Vern Dorschner, Brainerd Community College
Martin Brown, Montclair State College	Karen G. Duffy, State University of New York, Geneseo
David Burrows, Skidmore College	Janis L. Dunlap, Tulane University
William H. Calhoun, University of Tennessee at Knoxville	Louis L. Elloie, Jr., San Diego Mesa College
Nicholas J. Cavoti, Washington and Jefferson College	V.P. Estes, Jr., San Antonio College
André Cedras, Macomb County Community College	Frank T. Etscorn, New Mexico Institute of Mining and Technology
James P. Chaplin, St. Michael's College	Philippe Falkenberg, Wake Forest University
R.J. Christman, Utica College	Michael S. Fanselow, Rensselaer Polytechnic Institute
Robert A. Cicerone, Montclair State College	Karen B. Feniello, Washington and Jefferson College
Lowell W. Coutant, Eastern Oregon State College	Edna Fiedler, St. Mary's University

- Helen L. Field, Holyoke Community College
 William F. Ford, Bucks County Community College
 David Gerbing, Baylor University
 L.I. Gerstman, Erie Community College
 Zulfiqar H. Gilani, William Paterson College
 Seymour Giniger, Baruch College, City University of New York
 Carlos Goldberg, Indiana University—Purdue University at Indianapolis
 Charles Graessle, Olivet College
 Judith Green, William Paterson College
 R. Lee Greene, Grossmont College
 Larry Gregory, New Mexico State University
 Andrew Harver, Ohio University
 John C. Hay, University of Wisconsin—Milwaukee
 M.A. Hering, Henry Ford Community College; University of Michigan—Dearborn; Wayne County Community College
 Steve Hinkle, Miami University
 Morton Hoffman, Metropolitan State College
 W.G. Hughes, U.S. Naval Academy
 George Janzen, Ferris State College
 Michael C. Kaufman, City Colleges of Chicago—Richard J. Daley College
 John P. Keith, Clark County Community College
 Khalil Akhtar Khavari, University of Wisconsin—Milwaukee
 Richard K. Kimball, Muhlenberg College
 David W. King, Howard Payne University
 Melvyn B. King, State University of New York at Cortland
 David L. Kohfeld, Southern Illinois University at Edwardsville
 Ronald L. Koteskey, Asbury College
 Kenneth Kotovsky, Community College of Allegheny County
 Shari Kuchenbecker, Chapman College
 Hella Lange, Normandale Community College
 Michael R. Leippe, St. Norbert College
 Keith J. Lindsay, Angelo State University
 Emma Lou Linn, St. Edwards University
 Thomas F. Lohr, Muhlenberg College
 Lola Lopes, University of Wisconsin—Madison
 Katherine A. Loveland, Rice University
 Geula Lowenberg, University of Wisconsin—Parkside
 Frances Lucas, Albion College
 Gary A. Lucas, Indiana University
 Ruth G. Lyell, San José State University
 H.L. Madison, University of Wisconsin—Milwaukee
 William A. Mahler, Ferris State College
 Steven F. Maier, University of Colorado at Boulder
 Theodore Maiser, Muhlenberg College
 Richard G. Marriott, Lamar University
 Dorothy L. Mattson, Lakewood Community College
 Loren K. McBride, Willamette University
 Michael McBride, Gonzaga University
 Warren McClintock, West Hills College
 Rick McNeese, Sam Houston State University
 Ken Merrifield, Grand Canyon College
 Ralph R. Miller, State University of New York at Binghamton
 Rowland S. Miller, Sam Houston State University
 James C. Mitchell, Kansas State University
 Alberto Montare, William Paterson College
 Maribel Montgomery, Linn-Benton Community College
 James R. Moore, Prairie State College
 Gerald Moverman, Community College of Rhode Island
 Jeffrey Nagelbush, Ferris State College
 Gary B. Nallan, Benedictine College
 William Newman, Lehigh University
 Teri L. Nicoll-Johnson, Modesto Junior College
 Patricia Owen, Southeast Missouri State University
 Joseph J. Palladino, St. Francis College

Edward J. Pavur, Jr., University of New Orleans	Dee Stroub, Truckee Meadows Community College
Thomas P. Petzel, Loyola University	Robert Sturgeon, Abilene Christian University
Richard Pisacreta, Ferris State College	Elizabeth V. Swenson, John Carroll University
Terry Pruitt, David Lipscomb College	Anthony J. Testa, Community College of Rhode Island
G. Ray Reglin, Mid-America Nazarene College	Stephen Truhon, Valparaiso University
D.B. Reutener, Smith College	Barbara Tversky, Stanford University
Samuel Roll, University of New Mexico	Vern Tyler, Western Washington University
Douglas A. Ross, Indiana University of Pennsylvania	Martha H. Tyson, University of Houston—Downtown College
Stephen Royce, University of Portland	William S. Verplanck, University of Tennessee—Knoxville
Timothy Schallert, University of Texas at Austin	David Volckmann, Whittier College
Lowell Schipper, Bowling Green State University	Phyllis A. Walrad, Macomb County Community College
David J. Schneider, University of Texas at San Antonio	Wilson J. Walthall, Jr., University of Wyoming
Alan Searleman, St. Lawrence University	Malcolm W. Watson, Brandeis University
P. Selkow, William Paterson College	Chris Wickers, University of Illinois
Alice Sheppard, Eastern Oregon State College	Kipling D. Williams, Drake University
Charlotte Simon, Montgomery College	Elaine Hauff Wilson, Minneapolis Community College
Lora S. Simon, Holyoke Community College	Larry Wise, Mt. Hood Community College
William P. Smotherman, Oregon State University	Steven Zecker, Hamilton College
George R. Soika, University of Wisconsin—Oshkosh	Shea Zellweger, Mount Vernon College
K.W. Steere, Manchester Community College	Claire Zimmerman, Wellesley College
Gwendolyn Stevens, Southeast Missouri State University	Rudolph L. Zlody, Holy Cross College

Critical and technical reviews of various aspects of the book (in some cases, chapters; in others, parts or sections) were generously provided by the following people:

Lynn L. Atkinson, Medical College of Virginia	Eve V. Clark, Stanford University
Albert Bandura, Stanford University	Herbert H. Clark, Stanford University
Ellen S. Berscheid, University of Minnesota	Frank Costin, University of Illinois at Urbana—Champaign
Thomas J. Bouchard, Jr., University of Minnesota	Ian N. Creese, University of California, San Diego
Gordon H. Bower, Stanford University	Gerald C. Davison, University of Southern California
Robert M. Boynton, University of California, San Diego	David M. Drucker, Medical College of Virginia
Nancy S. Breland, Trenton State College	Edmund Fantino, University of California, San Diego
Rae Carlson, Rutgers University	

John Foley, University of California, Santa Barbara	Ulric Neisser, Cornell University
Merrill F. Garrett, Massachusetts Institute of Technology	Leon H. Rappoport, Kansas State University
Kenneth J. Gergen, Swarthmore College	Joseph Rychlak, Purdue University
Richard Griggs, University of Florida	Sandra Scarr, Yale University
Ronald Growney, University of Connecticut	Evalyn Segal, San Diego State University
Patrick R. Harrison, U.S. Naval Academy	Jerome L. Singer, Yale University
Steven A. Hillyard, University of California, San Diego	Richard L. Solomon, University of Pennsylvania
Keith W. Jacobs, Loyola University in New Orleans	Albert J. Stunkard, University of Pennsylvania
Walter Kintsch, University of Colorado	Carl E. Thoresen, Stanford University
Ellen M. Markman, Stanford University	Barbara Tversky, Stanford University
Gerald Murch, Portland State University	Richard A. Weinberg, University of Minnesota
	Christopher D. Wickens, University of Illinois at Urbana—Champaign
	Jeffrey Wine, Stanford University

CONTENTS

Preface	v
Acknowledgments	ix

Part one

PSYCHOLOGY AS A SCIENTIFIC AND HUMAN ENDEAVOR

I NATURE OF PSYCHOLOGY

Approaches to Psychology	6
Scope of Contemporary Psychology	14
Research Methods	18
Measurement in Psychology	22
Overview of the Book	25

4



Part two

BIOLOGICAL AND DEVELOPMENTAL PROCESSES



2 NEUROBIOLOGICAL BASIS OF PSYCHOLOGY 30

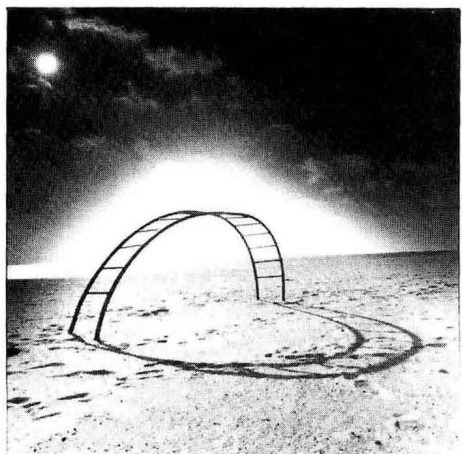
Basic Units of the Nervous System	32
Organization of the Nervous System	35
Hierarchical Structure of the Brain	38
Cerebral Cortex	41
A Divided Brain	44
Autonomic Nervous System	50
Endocrine System	52
Genetic Influences on Behavior	53

3 PSYCHOLOGICAL DEVELOPMENT 60

Factors Governing Development	62
Early Years	65
Cognitive Development	69
Personality and Social Development	73
Identification	86
Adolescence	92
Development as a Lifelong Process	96

Part three

PERCEPTION AND CONSCIOUSNESS



4 SENSORY PROCESSES 104

Thresholds	106
Visual Sense	110
Pattern Vision	116
Auditory Sense	121
Other Senses	127

5 PERCEPTION 132

Distance Perception	133
Motion Perception	136
The Whole Percept	138
Cognitive Processes in Perception	146

Eye Movements and Reading	150
Role of Learning in Perception	154
Extrasensory Perception	158

6 STATES OF CONSCIOUSNESS 164

Consciousness	165
Daydreams	168
Sleep and Dreams	168
Meditation	174
Psychoactive Drugs	176
Hypnosis	180
Unfounded Claims for the Mind	186

Part four

LEARNING, REMEMBERING, AND THINKING

7 LEARNING 192

Classical Conditioning	194
Operant Conditioning	200
Concept of Reinforcement	208
Cognitive Learning	212
Computer-Assisted Learning	215

8 MEMORY 220

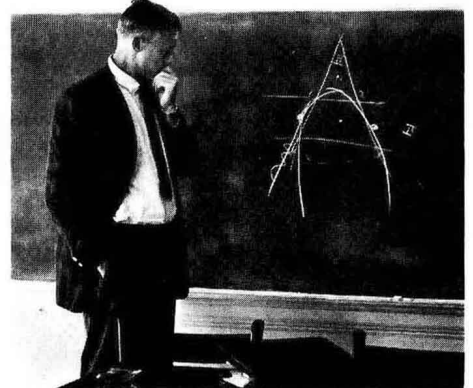
by Edward E. Smith
Bolt, Beranek, and Newman, Inc., and Harvard University

Distinctions About Memory	221
Short-Term Memory	222
Long-Term Memory	229
Improving Memory	238
Relationship Between Short- and Long-Term Memory	243
Constructive Memory	246

9 LANGUAGE AND THOUGHT 252

by Edward E. Smith
Bolt, Beranek, and Newman, Inc., and Harvard University

Concepts	253
Language and Communication	261
Development of Language	265
Visual Thinking	274
Problem Solving	276



Part five

MOTIVATION AND EMOTION



10 BASIC DRIVES AND MOTIVES 282

- Theoretical Approaches to Motivation 283
- Hunger 288
- Obesity 293
- Sex 298
- Other Basic Motives 308
- Current Status of Motivational Concepts 313

11 MOTIVATION AND EMOTION 316

- Theories of Motivation 318
- Motivational Factors in Aggression 321
- Emotion 331
- Theories of Emotion 337
- Optimal Level of Arousal 343

Part six

PERSONALITY AND INDIVIDUALITY



12 MENTAL ABILITIES AND THEIR MEASUREMENT 348

- Types of Ability Tests 350
- Requirements for a Good Test 353
- Tests of Intellectual Ability 355
- Predictive Validity of Tests 360
- Nature of Intelligence 366
- Genetic and Environmental Influences on Ability 373
- Ability Tests in Perspective 378

13 PERSONALITY AND ITS ASSESSMENT 382

- Shaping of Personality 384
- Trait Approach 388

Social Learning Approach	392
Psychoanalytic Approach	395
Phenomenological Approach	399
Personality Assessment	403
Consistency of Personality	410
Toward an Integrated View of Personality	416

Part seven

CONFLICT, ADJUSTMENT, AND MENTAL HEALTH

14 CONFLICT AND STRESS

422

Frustration	423
Reactions to Frustration	426
Anxiety	431
Defense Mechanisms	433
Stress	438

15 ABNORMAL PSYCHOLOGY

450

Abnormal Behavior	451
Anxiety Disorders	456
Affective Disorders	463
Schizophrenia	470
Personality Disorders	479
Alcoholism and Drug Dependence	484

16 METHODS OF THERAPY

492

Historical Background	493
Techniques of Psychotherapy	497
Effectiveness of Psychotherapy	513
Biological Therapies	516
Enhancing Mental Health	520



Part eight

SOCIAL BEHAVIOR



17 INDIVIDUAL SOCIAL BEHAVIOR 528

by Daryl J. Bem, Cornell University

Social Information Processing 530
 Attitudes 543
 Interpersonal Attraction 551

18 SOCIAL INFLUENCE 560

by Daryl J. Bem, Cornell University

The Presence of Others 562
 Conformity and Obedience 569
 Persuasion 580
 Environmental Psychology 584

APPENDICES 591

I Brief History of Psychology 593
 II Statistical Methods and Measurement 602
 III Psychology Journals 616

Glossary 619

References and Index to Authors
 of Works Cited 643

Index 687

INTRODUCTION TO PSYCHOLOGY

EIGHTH EDITION