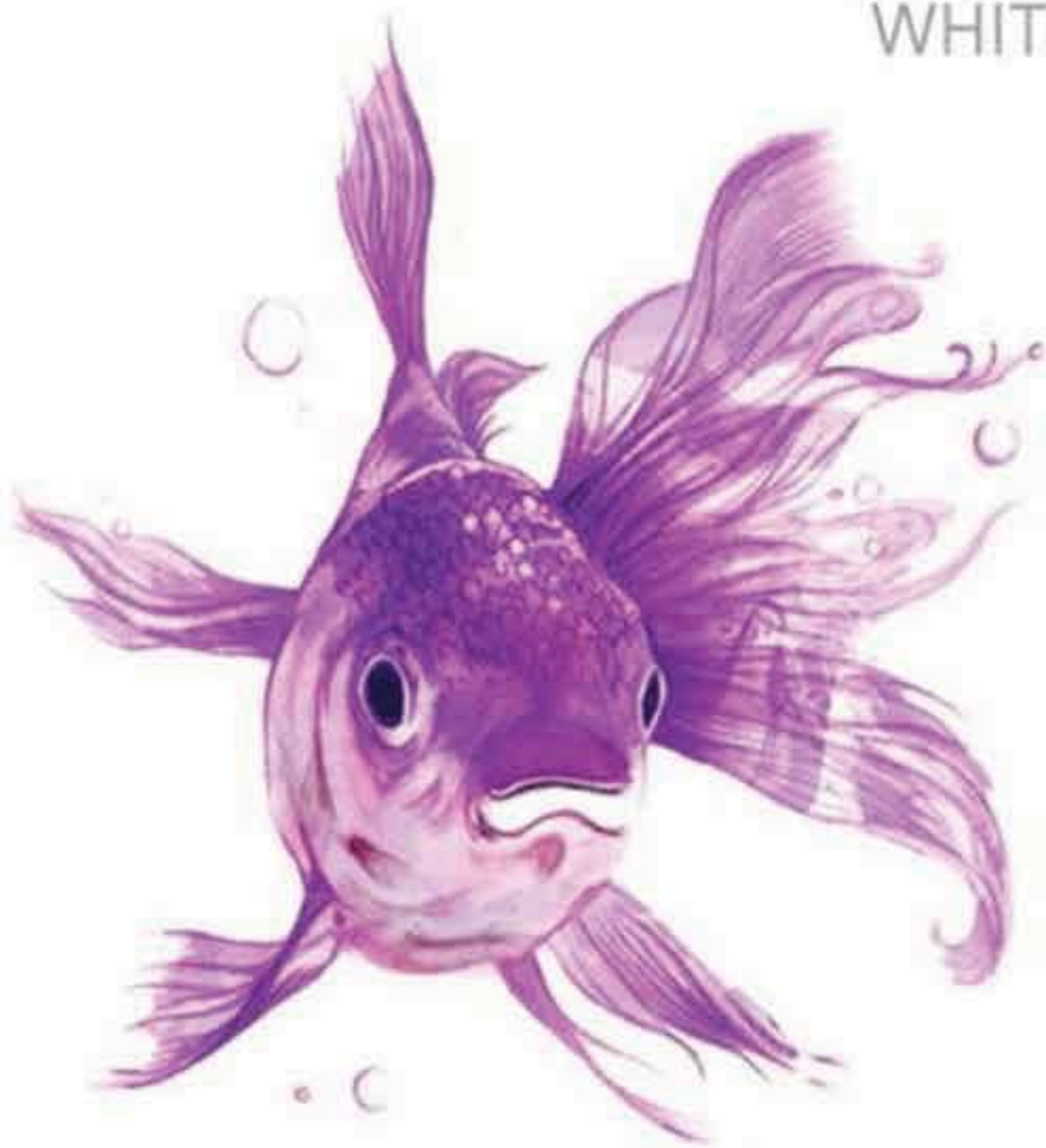


CICCARELLI  
WHITE



FOURTH EDITION  
**psychology**

MyPsychLab™

# psychology

fourth edition

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Gulf Coast State College

**J. NOLAND WHITE**

Georgia College



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# brief contents

## psychology in action

Secrets for Surviving College and Improving Your Grades **PIA-2**

**1** The Science of Psychology **2**

**2** The Biological Perspective **44**

**3** Sensation and Perception **90**

**4** Consciousness **134**

**5** Learning **174**

**6** Memory **218**

**7** Cognition: thinking, intelligence, and language **260**

**8** Development Across the Life Span **304**

**9** Motivation and Emotion **352**

**10** Sexuality and Gender **386**

**11** Stress and Health **418**

**12** Social Psychology **452**

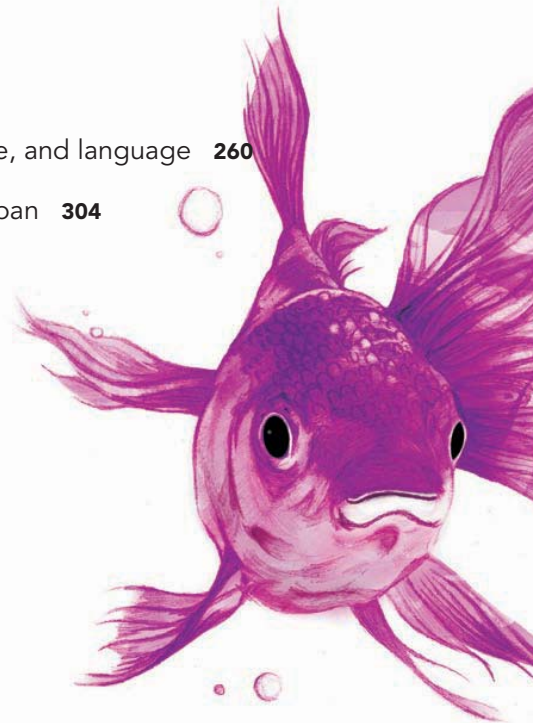
**13** Theories of Personality **500**

**14** Psychological Disorders **536**

**15** Psychological Therapies **574**

**appendix A** Statistics in Psychology **A-1**

**appendix B** Applied Psychology and Psychology Careers **B-1**



# contents

Preface x

About the Authors PIA-1

## psychology in action secrets for surviving college and improving your grades PIA-2

### Study Skills PIA-4

Study Methods: Different Strokes for Different Folks PIA-4

When and Where Do You Fit in Time to Study PIA-5

### Mastering the Course Content PIA-6

Reading Textbooks: Textbooks Are Not Meatloaf PIA-6

Getting the Most Out of Lectures PIA-9

### Demonstrating Your Knowledge: Tests and Papers PIA-11

Studying for Exams: Cramming is Not an Option PIA-11

Writing Papers: Planning Makes Perfect PIA-14

### Applying Psychology to Everyday Life: Strategies for Improving Your Memory PIA-17

psychology in action summary PIA-18

Test Yourself 1

# 1



## the science of psychology 2

### What Is Psychology? 4

Psychology's Goals 4

### Psychology Then: The History of Psychology 6

In the Beginning: Wundt, Introspection, and the Laboratory 6

Titchener and Structuralism in America 7

William James and Functionalism 7

### issues in psychology: Psychology's African American Roots 8

Gestalt Psychology: The Whole Is Greater Than the Sum of  
Its Parts 9

Sigmund Freud's Theory of Psychoanalysis 10

Pavlov, Watson, and the Dawn of Behaviorism 11

### Psychology Now: Modern Perspectives 13

Psychodynamic Perspective 14

Behavioral Perspective 14

Humanistic Perspective 14

Cognitive Perspective 14

Sociocultural Perspective 15

Biopsychological Perspective 15

Evolutionary Perspective 16

### Psychological Professionals and Areas of Specialization 17

### Psychology: The Scientific Methodology 20

The Five Steps of the Scientific Method 20

Descriptive Methods 22

Correlations: Finding Relationships 27

The Experiment 29

### issues in psychology: Stereotypes, Athletes, and College Test Performance 32

### Ethics of Psychological Research 33

The Guidelines for Doing Research With People 34

Animal Research 35

### Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking 37

Chapter Summary 40 Test Yourself 42

# 2



## the biological perspective 44

### Neurons and Nerves: Building the Network 46

Structure of the Neuron: The Nervous System's Building Block 46

Generating the Message Within the Neuron: The Neural Impulse 48

Sending the Message to Other Cells: The Synapse 51

Neurotransmitters: Messengers of the Network 52

Cleaning Up the Synapse: Reuptake and Enzymes 54

### An Overview of the Nervous System 56

The Central Nervous System: The "Central Processing Unit" 56

### psychology in the news: Fact or Fiction: Focus on the Brain, but Check Your Sources! 58

The Peripheral Nervous System: Nerves on the Edge 60

### Distant Connections: The Endocrine Glands 63

The Pituitary: Master of the Hormonal Universe 63

The Pineal Gland 65

The Thyroid Gland 65

Pancreas 65

The Gonads 65

The Adrenal Glands 65

### Looking Inside the Living Brain 67

Lesioning Studies 67

Brain Stimulation 67

Mapping Structure 68

Mapping Function 69

### From the Bottom Up: The Structures of the Brain 71

The Hindbrain 72

Structures Under the Cortex: The Limbic System 74

The Cortex 77

The Association Areas of the Cortex 80

### classic studies in psychology: Through the Looking Glass—Spatial Neglect 81

The Cerebral Hemispheres: Are You in Your Right Mind? 82

## Applying Psychology to Everyday Life: Paying Attention to Attention-Deficit/Hyperactivity Disorder 85

Chapter Summary 87 Test Yourself 89

# 3



## sensation and perception 90

### The ABCs of Sensation 92

What Is Sensation? 92  
Sensory Thresholds 92  
Habituation and Sensory Adaptation 94

### The Science of Seeing 96

Perceptual Properties of Light: Catching the Waves 96  
The Structure of the Eye 96  
How the Eye Works 99  
Perception of Color 100

### The Hearing Sense: Can You Hear Me Now? 104

Perception of Sound: Good Vibrations 104  
The Structure of the Ear: Follow the Vibes 105  
Perceiving Pitch 106  
Types of Hearing Impairments 107

### Chemical Senses: It Tastes Good and Smells Even Better 109

Gustation: How We Taste the World 110  
The Sense of Scents: Olfaction 112

### Somesthetic Senses: What the Body Knows 113

Perception of Touch, Pressure, Temperature, and Pain 113  
Pain: Gate-Control Theory 114  
The Kinesthetic Sense 115  
The Vestibular Sense 116

### The ABCs of Perception 118

The Constancies: Size, Shape, and Brightness 118  
The Gestalt Principles 118  
Depth Perception 120  
Perceptual Illusions 123  
Other Factors That Influence Perception 126

## Applying Psychology to Everyday Life: Beyond “Smoke and Mirrors”—The Psychological Science and Neuroscience of Magic 129

Chapter Summary 130 Test Yourself 132

# 4



## consciousness 134

### What Is Consciousness? 136

Definition of Consciousness 136  
Altered States of Consciousness 137

### Sleep 138

The Biology of Sleep 138  
The Stages of Sleep 142  
Sleep Disorders 146

### psychology in the news: Murder While Sleepwalking 147

### Dreams 150

Freud’s Interpretation: Dreams as Wish Fulfillment 151  
The Activation-Synthesis Hypothesis 151  
What Do People Dream About? 153

### The Effects of Hypnosis 154

Steps in Hypnotic Induction 154  
Fact or Myth: What Can Hypnosis Really Do? 155  
Theories of Hypnosis 156

### The Influence of Psychoactive Drugs 158

Dependence 158  
Stimulants: Up, Up, and Away 160  
Down in the Valley: Depressants 162  
Hallucinogens: Higher and Higher 165

## Applying Psychology to Everyday Life: Thinking Critically About Ghosts, Aliens, and Other Things That Go Bump in the Night 169

Chapter Summary 170 Test Yourself 172

# 5



## learning 174

### Definition of Learning 176

### It Makes Your Mouth Water: Classical Conditioning 176

Pavlov and the Salivating Dogs 177  
Elements of Classical Conditioning 177  
Putting It All Together: Pavlov’s Canine Classic, or Tick Tock Tick Tock 178  
Conditioned Emotional Responses: Rats! 183  
Biological Influences on Conditioning 184  
Why Does Classical Conditioning Work? 185

### What’s in It for Me? Operant Conditioning 186

Frustrating Cats: Thorndike’s Puzzle Box and the Law of Effect 186  
B. F. Skinner: The Behaviorist’s Behaviorist 187  
The Concept of Reinforcement 187  
Schedules of Reinforcement: Why the One-Armed Bandit is so Seductive 190  
The Role of Punishment in Operant Conditioning 194

### issues in psychology: The Link Between Spanking and Aggression in Young Children 198

Stimulus Control: Slow Down, It’s the Cops 199  
Shaping and Other Concepts in Operant Conditioning 199

**classic studies in psychology: Biological Constraints on Operant Conditioning 200**

Using Operant Conditioning: Behavior Modification 201

**Cognitive Learning Theory 205**

Tolman's Maze-Running Rats: Latent Learning 205

Köhler's Smart Chimp: Insight Learning 207

Seligman's Depressed Dogs: Learned Helplessness 207

**Observational Learning 209**

Bandura and the Bobo Doll 209

The Four Elements of Observational Learning 210

**Applying Psychology to Everyday Life: Can You Really Toilet Train Your Cat? 212**

Chapter Summary 215 Test Yourself 216



**memory 218**

**What Is Memory? 220**

Three Processes of Memory 220

Models of Memory 220

**The Information-Processing Model: Three Memory Systems 222**

Sensory Memory: Why Do People Do Double Takes? 222

Short-Term Memory 225

Long-Term Memory 228

**Getting It Out: Retrieval of Long-Term Memories 235**

Retrieval Cues 235

Recall and Recognition 236

**classic studies in psychology: Elizabeth Loftus and Eyewitnesses 239**

Automatic Encoding: Flashbulb Memories 240

**The Reconstructive Nature of Long-Term Memory Retrieval: How Reliable Are Memories? 241**

Constructive Processing of Memories 242

Memory Retrieval Problems 242

**What Were We Talking About? Forgetting 245**

Ebbinghaus and the Forgetting Curve 246

Encoding Failure 247

Memory Trace Decay Theory 247

Interference Theory 248

**Neuroscience of Memory 249**

Neural Activity, Structure, and Proteins in Memory Formation 249

The Hippocampus and Memory 249

When Memory Fails: Organic Amnesia 250

**Applying Psychology to Everyday Life: Health and Memory 254**

Chapter Summary 256 Test Yourself 257



**cognition: thinking, intelligence, and language 260**

**How People Think 262**

Mental Imagery 262

Concepts and Prototypes 264

Problem-Solving and Decision-Making Strategies 266

Problems with Problem Solving and Decision Making 270

Creativity 271

**Intelligence 274**

Definition 274

Theories of Intelligence 274

Measuring Intelligence 276

**psychology in the news: Neuropsychology Sheds Light on Head Injuries 282**

Extremes of Intelligence 285

**classic studies in psychology: Terman's "Termites" 288**

The Nature/Nurture Controversy Regarding Intelligence 290

**Language 294**

The Levels of Language Analysis 294

The Relationship Between Language and Thought 295

**Applying Psychology to Everyday Life: Mental and Physical Exercises Combine for Better Cognitive Health 299**

Chapter Summary 301 Test Yourself 302



**development across the life span 304**

**Issues in Studying Human Development 306**

Research Designs 306

Nature Versus Nurture 306

**The Basic Building Blocks of Development 308**

Chromosomes, Genes, and DNA 308

Dominant and Recessive Genes 308

Genetic and Chromosome Problems 309

**Prenatal Development 312**

Fertilization, the Zygote, and Twinning 312

**psychology in the news: Abby and Brittany Hensel, Together for Life 313**


The Germinal Period 313


The Embryonic Period 314

The Fetal Period: Grow, Baby, Grow 315

**Infancy and Childhood Development 316**

- Physical Development 317
- Baby, Can You See Me? Baby, Can You Hear Me?  
Sensory Development 317

-  **classic studies in psychology: The Visual Cliff 319**  
Cognitive Development 320

-  **issues in psychology: The Facts and Myths About Immunizations 326**  
Psychosocial Development 328

-  **classic studies in psychology: Harlow and Contact Comfort 331**

**Adolescence 334**

- Physical Development 335
- Cognitive Development 335
- Psychosocial Development 337

**Adulthood 339**

- Physical Development: Use It or Lose It 339
- Cognitive Development 340
- Psychosocial Development 341
- Theories of Physical and Psychological Aging 344
- Stages of Death and Dying 344

**Applying Psychology to Everyday Life: Cross-Cultural Views on Death 346**

Chapter Summary 347 Test Yourself 349

# 9

**motivation and emotion 352****Approaches to Understanding Motivation 354**

- Instincts And The Evolutionary Approach 355
- Approaches Based on Needs And Drives 355
- Arousal Approaches 359
- Incentive Approaches 361
- Humanistic Approaches 361

**What, Hungry Again? Why People Eat 365**

- Physiological Components of Hunger 365
- Social Components of Hunger 367
- Obesity 368

-  **psychology in the news: Cartoon Characters Influence Children's Food and Taste Preferences 369**

**Emotion 371**

- The Three Elements of Emotion 371
- Theories of Emotion 375

-  **classic studies in psychology: The Angry/Happy Man 378**

**Applying Psychology to Everyday Life: When Motivation Is Not Enough 382**

Chapter Summary 383 Test Yourself 384

# 10

**sexuality and gender 386****The Physical Side of Human Sexuality 388**

- The Primary Sex Characteristics 388
- The Secondary Sex Characteristics 389

**The Psychological Side of Human Sexuality: Gender 390**

- Gender Roles and Gender Typing 390

-  **issues in psychology: Sex Differences in Science and Math: A Game Changer? 394**

- Theories of Gender-Role Development 396
- Gender Stereotyping 397
- Gender Differences 397

**Human Sexual Behavior 399**

- Sexual Response 399

-  **classic studies in psychology: Masters and Johnson's Observational Study of the Human Sexual Response 401**

- Different Types of Sexual Behavior 402
- Sexual Orientation 404

-  **issues in psychology: What Is the Evolutionary Purpose of Homosexuality? 408**

**Sexual Dysfunctions and Problems 409**

- Causes and Influences 410
- Prevalence 411

**Sexually Transmitted Infections 411****Applying Psychology to Everyday Life: The AIDS Epidemic in Russia 414**

Chapter Summary 415 Test Yourself 416

# 11

**stress and health 418****Stress and Stressors 420**

- Definition of Stress 420
- What Are Stressors? 420
- Environmental Stressors: Life's Ups and Downs 421
- Psychological Stressors: What, Me Worry? 425

**Physiological Factors: Stress and Health 430**

- The General Adaptation Syndrome 430
- Immune System and Stress 430

-  **issues in psychology: Health Psychology and Stress 434**

- The Influence of Cognition and Personality on Stress 435
- Social Factors in Stress: People Who Need People 441

**Coping With Stress 444**

- Coping Strategies 445



How Culture Affects Coping 447  
How Religion Affects Coping 447

**Applying Psychology to Everyday Life: Becoming More Optimistic 449**

Chapter Summary 450 Test Yourself 451

# 12



## social psychology 452

**Social Influence: Conformity, Group Behavior, Compliance, and Obedience 454**

Conformity 454  
Group Behavior 457  
Compliance 458

**psychology in the news: Anatomy of a Cult 460**

Obedience 461

**Social Cognition: Attitudes, Impression Formation, and Attribution 465**

Attitudes 465  
Attitude Change: The Art of Persuasion 467  
Cognitive Dissonance: When Attitudes and Behavior Clash 468  
Impression Formation 471  
Attribution 473

**Social Interaction: Prejudice and Discrimination 476**

Defining Prejudice and Discrimination 476  
How People Learn Prejudice 477

**classic studies in psychology: Brown Eyes, Blue Eyes 478**

Overcoming Prejudice 479

**Liking and Loving: Interpersonal Attraction 482**

The Rules of Attraction 482

**psychology in the news: Facing Facebook—The Social Nature of Online Networking 483**

Love Is a Triangle—Robert Sternberg’s Triangular Theory of Love 484

**Aggression and Prosocial Behavior 487**

Aggression 487  
Prosocial Behavior 490

**Applying Psychology to Everyday Life: Peeking Inside the Social Brain 494**

Chapter Summary 496 Test Yourself 498

# 13



## theories of personality 500

**Theories of Personality 502**

**The Man and the Couch: Sigmund Freud and the Origins of the Psychodynamic Perspective 503**

The Unconscious Mind 504  
Freud’s Divisions of the Personality 504  
Stages of Personality Development 506  
The Neo-Freudians 508  
Current Thoughts on Freud and the Psychodynamic Perspective 509

**The Behaviorist and Social Cognitive View of Personality 512**

Bandura’s Reciprocal Determinism and Self-Efficacy 512  
Rotter’s Social Learning Theory: Expectancies 513  
Current Thoughts on the Behaviorist and Social Cognitive Views 514

**The Third Force: Humanism and Personality 514**

Carl Rogers and Self-Concept 515  
Current Thoughts on the Humanistic View of Personality 516

**Trait Theories: Who Are You? 518**

Allport 518  
Cattell and the 16PF 518  
The Big Five: OCEAN, or the Five-Factor Model of Personality 519  
Current Thoughts on the Trait Perspective 520

**The Biology of Personality: Behavioral Genetics 521**

Twin Studies 522  
Adoption Studies 522  
Current Findings 523

**classic studies in psychology: Geert Hofstede’s Four Dimensions of Cultural Personality 523**

**Assessment of Personality 525**

Interviews 526  
Projective Tests 526  
Behavioral Assessments 527  
Personality Inventories 528

**Applying Psychology to Everyday Life: Biological Bases of the Big Five 531**

Chapter Summary 533 Test Yourself 534



## psychological disorders 536

### What Is Abnormality? 538

- A Very Brief History of Psychological Disorders 538
- What Is Abnormal? 539
- Models of Abnormality 541

### Diagnosing and Classifying Disorders 543

- Disorders in the DSM-5 544
- How Common Are Psychological Disorders? 544
- The Pros and Cons of Labels 544

### Disorders of Anxiety, Trauma, and Stress: What, Me Worry? 547

- Phobic Disorders: When Fears Get Out of Hand 547
- Panic Disorder 548
- Generalized Anxiety Disorder 549
- Obsessive-Compulsive Disorder 549
- Acute Stress Disorder (ASD) and Posttraumatic Stress Disorder (PTSD) 550
- Causes of Anxiety, Trauma, and Stress Disorders 551

### Disorders of Mood: The Effect of Affect 552

- Major Depressive Disorder 552
- Bipolar Disorders 553
- Causes of Disordered Mood 554

### Eating Disorders 556

- Anorexia Nervosa 556
- Bulimia Nervosa 557
- Binge-Eating Disorder 558
- Causes of Eating Disorders 558
- Culture and Eating Disorders 558

### Dissociative Disorders: Altered Identities 559

- Dissociative Amnesia And Fugue: Who Am I And How Did I Get Here? 559
- Dissociative Identity Disorder: How Many Am I? 559
- Causes of Dissociative Disorders 560

### Schizophrenia: Altered Reality 562

- Symptoms 562
- Causes Of Schizophrenia 563

### Personality Disorders: I'm Okay, It's Everyone Else Who's Weird 565

- Antisocial Personality Disorder 566
- Borderline Personality Disorder 566
- Causes of Personality Disorders 566

### Applying Psychology to Everyday Life: Taking the Worry Out of Exams 568

Chapter Summary 570 Test Yourself 572



## psychological therapies 574

### Treatment of Psychological Disorders: Past to Present 576

- Early Treatment Of The Mentally Ill 576
- Current Treatments: Two Kinds Of Therapy 576

### Psychotherapy Begins 577

- Psychoanalysis 578
- Evaluation of Psychoanalysis and Psychodynamic Approaches 578
- Interpersonal Psychotherapy 579

### Humanistic Therapy: To Err Is Human 579

- Tell Me More: Rogers's Person-Centered Therapy 580
- Gestalt Therapy 581
- Evaluation of the Humanistic Therapies 582

### Behavior Therapies: Learning One's Way to Better Behavior 584

- Therapies Based on Classical Conditioning 584
- Therapies Based on Operant Conditioning 586
- Evaluation of Behavior Therapies 587

### Cognitive Therapies: Thinking Is Believing 588

- Beck's Cognitive Therapy 588
- Ellis and Rational Emotive Behavior Therapy (REBT) 589
- Evaluation of Cognitive and Cognitive-Behavioral Therapies 589

### Group Therapies: Not Just for the Shy 590

- Types of Group Therapies 590
- Evaluation Of Group Therapy 591

### Does Psychotherapy Really Work? 593

- Studies of Effectiveness 593
- Characteristics of Effective Therapy 594

### psychology in the news: Mental Health on Campus 595

- Cultural, Ethnic, and Gender Concerns in Psychotherapy 596
- Cybertherapy: Therapy in the Computer Age 598

### Biomedical Therapies 598

- Psycho pharmacology 598
- Electroconvulsive Therapy 602
- Psychosurgery 603
- Emerging Techniques 604

### Applying Psychology to Everyday Life: Virtual Reality Therapies 606

Chapter Summary 608 Test Yourself 610

**appendix A:** Statistics in Psychology A-1

**appendix B:** Applied Psychology and Psychology Careers B-1

Answer Key AK-1

Glossary G-1

References R-1

Credits C-1

Name Index NI-1

Subject Index SI-1

# learner-centered approach

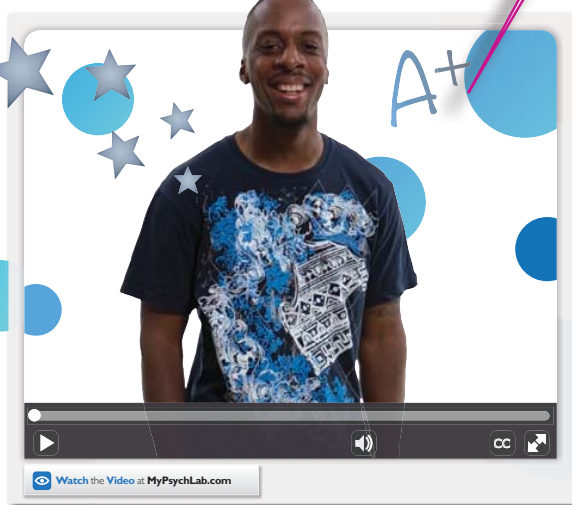
## Curiosity and Dialogue

Our goal is to awaken students' curiosity and energize their desire to learn by having them read and engage with the material. We are delighted with the feedback from students and instructors who have used our text and who tell us this approach is working, and we are pleased to extend that experience in a new eText format with this edition. The new eText format helps content come alive and makes students active participants in their learning.

### 5 learning

Yoshiko's first-grade teacher started a reading contest. For every book read, a child would get a gold star on the reading chart, and at the end of one month the child with the most stars would get a prize. Yoshiko went to the library and checked out several books each week. At the end of the month, Yoshiko had the most gold stars and got to stand in front of her classmates to receive her prize. Would it be candy? A toy? She was so excited! Imagine her surprise and mild disappointment when the big prize turned out to be another book! Disappointing prize aside, Yoshiko's teacher had made use of a key technique of learning called *reinforcement*. Reinforcement is anything that when following a response, increases the likelihood that the response will occur again. The reinforcers of gold stars and a prize caused Yoshiko's reading to increase.

How have you used reinforcement to modify your own behavior or the behavior of others?



#### Chapter opening Student Voice videos

Chapters now open with videos in which psychology students share personal stories about how the chapter theme directly applies to their lives.

#### Success Center

At the start of each chapter students can access Dynamic Study Modules and study tip videos. The **Dynamic Study Modules** use confidence metrics to identify what students do and don't know and deliver question and explanation sets based on individual knowledge needs. Students can study on the go by downloading the Dynamic Study Modules mobile app on their iPhone or Android device.

Seven **Videos**, based on the Psychology in Action introductory chapter, provide practical advice on study methods, time management, reading the text, taking notes during lectures, preparing for exams, paper writing, and tips for improving memory.



#### Success Center

**Study on MyPsychLab**  
Dynamic Study Modules

**Watch the Video on MyPsychLab**

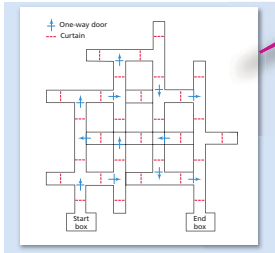
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- Video 2:** Managing Time
- Video 3:** Reading the Text
- Video 4:** Lecture Notes
- Video 5:** Exam Prep
- Video 6:** Paper Writing
- Video 7:** Improve Memory

# Embedded Interactive Content

Interactive content has been fully incorporated into all aspects of the text, allowing students a more direct way to access and engage with the material

206 CHAPTER 5

**Figure 5.9 A Typical Maze**  
This is an example of a maze such as the one used in Tolman's experiments in latent learning. A rat is placed in the start box. The trial is over when the rat gets to the end box.



5.1  
5.2  
5.3  
5.4  
5.5  
5.6  
5.7  
5.8  
5.9  
5.10  
5.11  
5.12  
5.13

certain number of trials, whereas the second and third groups seemed to wander aimlessly around the maze until accidentally finding their way out.

On the 10th day, however, something happened that would be difficult to explain using only Skinner's basic principles. The second group of rats, upon receiving the reinforcement for the first time, *should* have then taken as long as the first group to solve the maze. Instead, they began to solve the maze almost immediately (see Figure 5.10).

Tolman concluded that the rats in the second group, while wandering around in the first 9 days of the experiment, had indeed learned where all the blind alleys, wrong turns, and correct paths were and stored this knowledge away as a kind of "mental map," or *cognitive map* of the physical layout of the maze. The rats in the second group had learned and stored that learning away mentally but had not *demonstrated* this learning because there was no reason to do so. The cognitive map had remained hidden, or latent, until the rats had a reason to demonstrate their knowledge by getting to the food. Tolman called this **latent learning**. The idea that learning could happen without reinforcement, and then later affect behavior, was not something traditional operant conditioning could explain. To see a real-life example of latent learning, participate in the experiment *Learning*.

**Simulation**  
**Learning**  
In this experiment, you will be asked to memorize a series of words presented to you one at a time. Twenty words will be flashed on the screen for a very short time and will be separated briefly by a blank screen. After the last word is flashed on the screen, you will be asked some questions to test your recall.

Go to the Experiment

Simulate the Experiment, Learning on MyPsychLab

Watch **Videos** of topics as they are explained. **Interactive Figures** walk students through some of the more complex processes in psychology.

Reinforce connections across topics with **Interactive Concept Maps**.

293

Explore the Concept at MyPsychLab

**CONCEPT MAP**

**Intelligence**

- individual differences**
  - IQ tests can be used to identify individuals who differ significantly from those of average intelligence
  - giftedness**
    - criteria: IQ > 130 (2 SD above mean)
    - IQ > 140 are called geniuses
    - characteristics: typically grow up to be well-adjusted adults EXCEPT when "pushed" to achieve at younger and younger ages; extreme geniuses may experience social and behavioral adjustment issues as children
  - intellectual disability/intellectual developmental disorder**
    - criteria: IQ < 70 (2 SD below mean)
    - adaptive skills significantly below age-appropriate level
    - classifications: range from mild to profound, depending on severity of deficits or level of support required
    - causal factors:
      - environmental: toxins such as lead or mercury
      - biological: Down syndrome, fetal alcohol syndrome, fragile X syndrome
- emotional intelligence**
  - awareness of and ability to manage one's own emotions, self-emotions, empathy, and social skills
  - may be related to traditional intelligence but data is still being collected
- nature vs. nurture**
  - identical twins reared together show a correlation of .86 between their IQs
  - correlation is not 1.00, so environment also has to play a part
  - heritability estimates apply within groups of people, not between groups. — current heritability estimate is about .50 not to individuals, and only in a general sense

**PRACTICE QUIZ** How Much Do You Remember? ANSWERS AVAILABLE IN ANSWER KEY

Pick the best answer.

- Kyle, age 13, has an intellectual disability complicated by multiple physical and sensory impairments that significantly impact his skills of daily living and ability to communicate. He is unable to take care of himself in any area of life. Kyle would most likely be classified with \_\_\_\_\_ intellectual disability.
  - mild
  - moderate
  - severe
  - profound
- Lewis Terman's study provided evidence that individuals with high IQs
  - are generally weaker and lack social skills.
  - are no better at excelling in their careers than others with average IQs.
  - show little to no signs of mental illness or adjustment problems.
  - have more problems with interpersonal relationships except for those with IQs over 190.
- What were some of the differences between the 100 most successful men and the 100 least successful men in Terman's study?
  - The successful men had higher IQ scores and better parental upbringing.
  - The successful men had higher IQ scores and no family history of mental illness.
  - The successful men had no family history of mental illness and were more motivated in general.
  - The successful men had clearly defined goals and more motivation to achieve them.
- In recent studies, what do some researchers argue is a more accurate means of gauging success in relationships and careers?
  - intellectual intelligence
  - emotional intelligence
  - heredity studies
  - stress surveys
- Which of the following would be an example of a stereotype threat?
  - Joaquim, who believes IQ tests are unfair to Hispanics, something that his IQ score seems to reflect
  - Jasmine, who feels she must excel on her IQ test
  - Tiana, who believes that all testing, no matter the type, is stereotypical and biased
  - Malik, who believes that tests are equal but must excel so as not to be stereotyped by his friends

Take **Practice Quizzes** as you read.

**PRACTICE QUIZ** How Much Do You Remember?

Pick the best answer.

- Learning can best be described as
  - a relatively permanent change in behavior.
  - a permanent change in behavior.
  - due primarily to unconscious motives.
  - momentary changes that require biological changes from within.
- Michael noticed that whenever he moved his dog's food dish, his dog would come into the kitchen and act hungry and excited. He reasoned that because he feeds the dog using that dish, the sound of the dish had become a(n)
  - unconditioned stimulus.
  - conditioned stimulus.
  - unconditioned response.
  - conditioned response.
- Which of the following statements is essential to classical conditioning?
  - The CS and UCS must come close together in time.
  - The CS must come immediately after the CR.
  - The neutral stimulus and UCS must be paired several times before conditioning takes place.
  - The CS should be something highly unusual.

Correct! You answered correctly. Good job.

**Writing Prompts** allow students to write about the chapter content and received auto-feedback.

**Writing Prompt**

Imagine you are asked by a roommate to help him devise a weight loss program to increase his chances of making the football team. Create a one month behavior modification program based on the principles of operant conditioning which will get him started towards his goal. Be sure to describe how you will measure your roommate's progress and what schedules of reinforcement will be included in your program.

Words: 0

Print Feedback

Write the Response on MyPsychLab

# teaching and learning package


## Integration and Feedback

It is increasingly true today that as valuable as a good textbook is, it is still only one element of a comprehensive learning package. The teaching and learning package that accompanies *Psychology*, 4e, is the most comprehensive and integrated on the market. We have made every effort to provide high-quality instructor resources that will save you preparation time and will enhance the time you spend in the classroom.

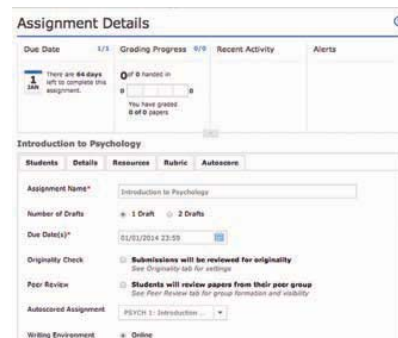
### MyPsychLab

MyPsychLab is an online homework, tutorial, and assessment program that truly engages students in learning. It helps students better prepare for class, quizzes, and exams—resulting in better performance in the course—and provides educators with a dynamic set of tools for gauging individual and class progress. MyPsychLab comes from Pearson, your partner in providing the best digital learning experience.

**NEW! Dynamic Study Modules** Not every student learns the same way and at the same rate. And now, thanks to advances in adaptive learning technology, you no longer have to teach as if they do. The Dynamic Study Modules in MyPsychLab continuously assess student performance and activity in real time, and, using data and analytics, personalize content to reinforce concepts that target each student's strengths and weaknesses.

**Writing Space**  Better writers make great learners—who perform better in their courses. To help you develop and assess concept mastery and critical thinking through writing, we created the Writing Space in MyPsychLab. It's a single place to create, track, and grade writing assignments, provide writing resources, and exchange meaningful, personalized feedback with students, quickly and easily, including auto-scoring for practice writing prompts. Plus, Writing Space has integrated access to Turnitin, the global leader in plagiarism prevention.

**MyPsychLab Video Series.** Current, comprehensive, and cutting edge, the six video segments for every chapter (approximately five minutes each) take the viewer from the research laboratory to inside the brain to out on the street for real-world applications.



 Watch the **Video**, *The Basics: How Thinking Develops: Piaget's Stages*, at [MyPsychLab](https://www.mypsychlab.com)

To learn more about MyPsychLab visit [mypsychlab.com](https://www.mypsychlab.com).

# presentation and teaching resources

## The Instructor's Resource Center ([www.pearsonhighered.com/irc](http://www.pearsonhighered.com/irc))

provides information on the following supplements and downloadable files:

**Instructor's DVD (ISBN 0-205-97235-7):** Bringing all of the fourth edition's instructor resources together in one place, the Instructor's DVD offers Interactive PowerPoints, standard Lecture PowerPoints, and Classroom Response System PowerPoints, along with the Test Bank, and the Instructor's Resource Manual to help instructors customize their classroom experience.

- **Interactive PowerPoint Slides** bring the Ciccarelli/White design into the classroom, drawing students into the lecture and providing appealing interactive activities, visuals, and videos. The slides are built around the text's learning objectives and offer many direct links to interactive exercises, simulations, and activities.
- **Standard Lecture PowerPoint Slides** have lecture notes, photos, and figures.
- **Classroom Response System (CRS) PowerPoint Slides** allow you to integrate clicker technology into your classroom.
- **Peer Instruction Clicker Activities** offered as a PowerPoint presentation for introductory psychology courses is also available on the Instructor's DVD.

**Instructor's Resource Manual**, prepared by Don Lucas, Northwest Vista College, offers detailed Chapter Lecture Outlines, chapter summaries, learning objectives, activities, exercises, assignments, handouts, and demonstrations for in-class use, as well as useful guidelines for integrating the many Pearson media resources into your classroom and syllabus.

The **Test Item File** prepared by Jason Spiegelman, Community College of Baltimore County, contains over 3,200 questions categorized by learning objective and question type (factual, conceptual, or applied). Rationales for each correct answer and the key distracter in the multiple-choice questions help instructors evaluate questions and provide more feedback to students.

**Pearson MyTest (ISBN 0-205-97239-X)**, a powerful assessment generation program, helps instructors easily create and print quizzes and exams. Questions and tests can be authored online, allowing instructors ultimate flexibility! For more information, go to [www.PearsonMyTest.com](http://www.PearsonMyTest.com).

### APA Assessment Bank

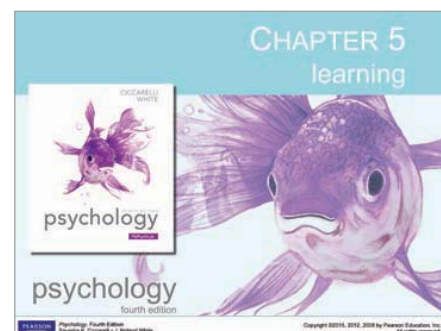
Available within MyPsychLab, a unique bank of assessment items allows instructors to assess student progress against the American Psychological Association's Learning Goals and Outcomes.

### Accessing All Resources

For a list of all student resources available with Ciccarelli/White, *Psychology*, 4e, go to [www.mypearsonstore.com](http://www.mypearsonstore.com) and enter the text ISBN 0-205-97224-1, and check out the "Everything That Goes with It" section under the photo of the book cover.

For access to all instructor resources for Ciccarelli/White, *Psychology*, 4e, simply go to <http://pearsonhighered.com/irc>.

For technical support for any of your Pearson products, you and your students can contact <http://247.pearsoned.com>.



# learning outcomes and assessment

## Goals and Standards

In recent years many psychology departments have been focusing on core competencies and how methods of assessment can better enhance students' learning. In response, the American Psychological Association (APA) established recommended goals for the undergraduate psychology major beginning in 2008 with a set of ten goals, and revised again in 2013 with a new set of five goals. Specific learning outcomes were established for each of the goals and suggestions were made on how best to tie assessment practices to these goals. In writing this text, we have used the APA goals and assessment recommendations as guidelines for structuring content and integrating the teaching and homework materials. For details on the APA learning goals and assessment guidelines, please see [www.apa.org/](http://www.apa.org/).



### learning objectives

Based on APA recommendations, each chapter is structured around detailed learning objectives. All of the instructor and student resources are also organized around these objectives, making the text and resources a fully integrated system of study. The flexibility of these resources allows instructors to choose which learning objectives are important in their courses as well as which content they want their students to focus on.

### learning objectives

<p><b>5.1</b> What does the term <i>learning</i> really mean?</p> <p><b>5.2</b> How was classical conditioning first studied, and what are the important elements and characteristics of classical conditioning?</p> <p><b>5.3</b> What is a conditioned emotional response, and how do cognitive psychologists explain classical conditioning?</p> <p><b>5.4</b> How does operant conditioning occur, and what were the contributions of Thorndike and Skinner?</p> <p><b>5.5</b> What are the important concepts in operant conditioning?</p> <p><b>5.6</b> What are the schedules of reinforcement?</p> <p><b>5.7</b> What is punishment and how does it differ from reinforcement?</p>	<p><b>5.8</b> What are some of the problems with using punishment?</p> <p><b>5.9</b> How do operant stimuli control behavior, and what are some other concepts that can enhance or limit operant conditioning?</p> <p><b>5.10</b> What is behavior modification, and how can behavioral techniques be used to modify involuntary biological responses?</p> <p><b>5.11</b> How do latent learning, insight, and learned helplessness relate to cognitive learning theory?</p> <p><b>5.12</b> What is observational learning, and what are the four elements of modeling?</p> <p><b>5.13</b> What is a real-world example of the use of conditioning?</p>
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175

## 1

**Knowledge Base in Psychology**

Students should demonstrate fundamental knowledge and comprehension of the major concepts, theoretical perspectives, historical trends, and empirical findings to discuss how psychological principles apply to behavioral phenomena. Foundation students should demonstrate breadth in their knowledge and applications of psychological ideas to simple problems; baccalaureate students should show depth in their knowledge and application of psychological concepts and frameworks to problems of greater complexity.

- 1.1 Describe key concepts, principles, and overarching themes in psychology.
- 1.2 Develop a working knowledge of psychology's content domains.
- 1.3 Describe applications that employ discipline-based problem solving.

**Intro:** PIA.1

**Ch 1:** 1.1-1.5,

**Ch 2:** 2.1-2.11 and Applying Psychology to Everyday Life: Paying Attention to Attention-Deficit/Hyperactivity Disorder

**Ch 3:** 3.1-3.11

**Ch 4:** 4.1-4.10

**Ch 5:** 5.1-5.7, 5.9-5.12

**Ch 6:** 6.1-6.13 and Applying Psychology to Everyday Life: Health and Memory

**Ch 7:** 7.1, 7.3, 7.4, 7.6-7.9

**Ch 8:** 8.2-8.5, 8.7-8.11

**Ch 9:** 9.1-9.10

**Ch 10:** 10.1-10.9

**Ch 11:** 11.1-11.9 and Issues in Psychology: Health Psychology and Stress

**Ch 12:** 12.1-12.13

**Ch 13:** 13.1-13.7, 13.9 and Applying Psychology to Everyday Life: The Biological Basis of the Big Five

**Ch 14:** 14.1-14.9

**Ch 15:** 15.1-15.10

Major concepts are reinforced with learning tools: Writing Space, Experiment Simulations, MyPsychLab Video Series, Operation ARA, Visual Brain, and instructor's teaching and assessment package.

## 2

**Scientific Inquiry and Critical Thinking**

The skills in this domain involve the development of scientific reasoning and problem solving, including effective research methods. Foundation students should learn basic skills and concepts in interpreting behavior, studying research, and applying research design principles to drawing conclusions about behavior; baccalaureate students should focus on theory use as well as designing and executing research plans.

- 2.1 Use scientific reasoning to interpret psychological phenomena.
- 2.2 Demonstrate psychology information literacy.
- 2.3 Engage in innovative and integrative thinking and problem-solving.
- 2.4 Interpret, design, and conduct basic psychological research.
- 2.5 Incorporate sociocultural factors in scientific inquiry.

**Ch 1:** 1.6-1.12, 1.14

**Ch 2:** 2.6, 2.12 and Psychology in the News: Fact or Fiction: Focus on the Brain, but Check your Sources; Classic Studies in Psychology: Through the Looking Glass—Spatial Neglect; Applying Psychology to Everyday Life: Paying Attention to Attention-Deficit/Hyperactivity Disorder

**Ch 3:** Applying Psychology to Everyday Life: Beyond "Smoke and Mirrors"—The Psychological Science and Neuroscience of Magic

**Ch 4:** 4.10 and Psychology in the News: Murder While Sleepwalking; Applying Psychology to Everyday Life: Thinking Critically About Ghosts, Aliens, and Other Things That Go Bump in the Night

**Ch 5:** 5.13 and Classic Studies in Psychology: Biological Constraints of Operant Conditioning

**Ch 6:** Classic Studies in Psychology: Elizabeth Loftus and Eyewitnesses and Applying Psychology to Everyday Life: Health and Memory

**Ch 7:** 7.2-7.5 and Classic Studies in Psychology: Terman's Termites

**Ch 8:** 8.1, 8.6, 8.10 and Psychology in the News: Abby and Brittany Hensel, Together for Life; Classic Studies in Psychology: The Visual Cliff; Classic Studies in Psychology: Harlow and Contact Comfort

**Ch 9:** Psychology in the News: Cartoon Characters Influence Children's Food and Taste Preferences; Classic Studies in Psychology: The Angry/Happy Man

**Ch 10:** 10.6 and Issues in Psychology: Sex Differences in Science and Math: A Game Changer?; Classic Studies in Psychology: Masters and Johnson's Observational Study of the Human Sexual Response; Issues in Psychology: What is the Evolutionary Purpose of Homosexuality?

**Ch 12:** Psychology in the News: Anatomy of a Cult; Classic Studies in Psychology: Brown Eyes, Blue Eyes; Psychology in the News: Facing Facebook—The Social Nature of Online Networking

**Ch 13:** 13.8 and Classic Studies in Psychology: Geert Hofstede's Four Dimensions of Cultural Personality

**Appendix A: Statistics in Psychology**

Scientific methods are reinforced with learning tools: Writing Space, Experiment Simulations, MyPsychLab Video Series, Operation ARA, Visual Brain, and instructor's teaching and assessment package.



## 3

**Ethical and Social Responsibility**

The skills in this domain involve the development of ethically and socially responsible behaviors for professional and personal settings. Foundation students should become familiar with the formal regulations that govern professional ethics in psychology and begin to embrace the values that will contribute to positive outcomes in work settings and in society. Baccalaureate students should have more direct opportunities to demonstrate adherence to professional values that will help them optimize their contributions.

- 3.1 Apply ethical standards to psychological science and practice.
- 3.2 Build and enhance interpersonal relationships.
- 3.3 Adopt values that build community at local, national, and global levels.

**Ch 1:** 1.13

**Ch 5:** 5.8 and Issues in Psychology: The Link Between Spanking and Aggression in Young Children

**Ch 7:** 7.10 and Psychology in the News: Neuropsychology Sheds Light on Head Injuries

**Ch 8:** 8.11 and Issues in Psychology: The Facts and Myths About Immunizations

**Ch 9:** 9.5–9.6

**Ch 10:** Applying Psychology to Everyday Life: The AIDS Epidemic in Russia

**Ch 11:** 11.8

**Ch 12:** 12.8–12.9

Ethics and values are reinforced with learning tools: Writing Space, Experiment Simulations, MyPsychLab Video Series, Operation ARA, Visual Brain, and instructor's teaching and assessment package.

## 4

**Communication**

Students should demonstrate competence in written, oral, and interpersonal communication skills. Foundation students should be able to write a cogent scientific argument, present information using a scientific approach, engage in discussion of psychological concepts, explain the ideas of others, and express their own ideas with clarity. Baccalaureate students should produce a research study or other psychological project, explain scientific results, and present information to a professional audience. They should also develop flexible interpersonal approaches that optimize information exchange and relationship development.

- 4.1 Demonstrate effective writing in multiple formats.
- 4.2 Exhibit effective presentation skills in multiple formats.
- 4.3 Interact effectively with others.

**Intro:** PIA.6

**Ch 7:** 7.10

**Ch 8:** 8.7, 8.11 and Applying Psychology to Everyday Life: Cross-Cultural Views on Death

**Ch 10:** 10.4

**Ch 11:** 11.2, 11.6, 11.8

**Ch 12:** 12.2-12.3, 12.5, 12.8-12.9, 12.12 and Psychology in the News: Facing Facebook—The Social Nature of Online Networking

Communication skills are reinforced with learning tools: Writing Space, Experiment Simulations, MyPsychLab Video Series, Operation ARA, Visual Brain, and instructor's teaching and assessment package.

5

**Professional Development**

The skills in this domain refer to abilities that sharpen student readiness for post-baccalaureate employment, graduate school, or professional school. The emphasis in the domain involves application of psychology-specific content and skills, effective self-reflection, project management skills, teamwork skills, and career preparation. These skills can be developed and refined both in traditional academic settings and extracurricular involvement. In addition, career professionals can be enlisted to support occupational planning and pursuit.

- 5.1 Apply psychological content and skills to professional work.
- 5.2 Exhibit self-efficacy and self-regulation.
- 5.3 Refine project management skills.
- 5.4 Enhance teamwork capacity.
- 5.5 Develop meaningful professional direction for life after graduation.

**Intro:** PIA.1-PIA.7

**Ch 1:** 1.5, 1.14

**Ch 4:** 4.6

**Ch 7:** Applying Psychology to Everyday Life: Mental and Physical Exercises Combine for Better Cognitive Health

**Ch 9:** 9.1, 9.3-9.4, 9.10 and Applying Psychology to Everyday Life: When Motivation Is Not Enough

**Ch 10:** Issues in Psychology: Sex Differences in Science and Math: A Game Changer?

**Ch 11:** 11.6-11.9 and Applying Psychology to Everyday Life: Becoming More Optimistic

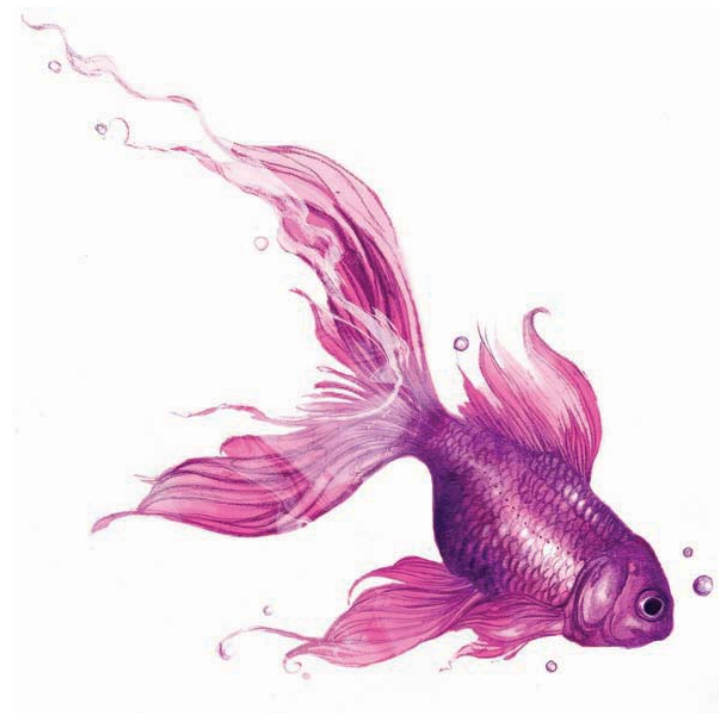
**Ch 12:** 12.1-12.3, 12.8-12.9

**Ch 14:** 14.10

**Ch 15:** Psychology in the News: Mental Health on Campus

**Appendix B: Applied Psychology and Psychology Careers**

Professional development opportunities are reinforced with learning tools: Writing Space, Experiment Simulations, MyPsychLab Video Series, Operation ARA, Visual Brain, and instructor's teaching and assessment package.



## acknowledgments

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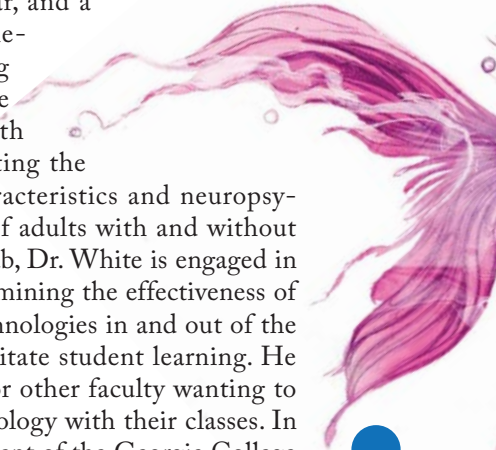
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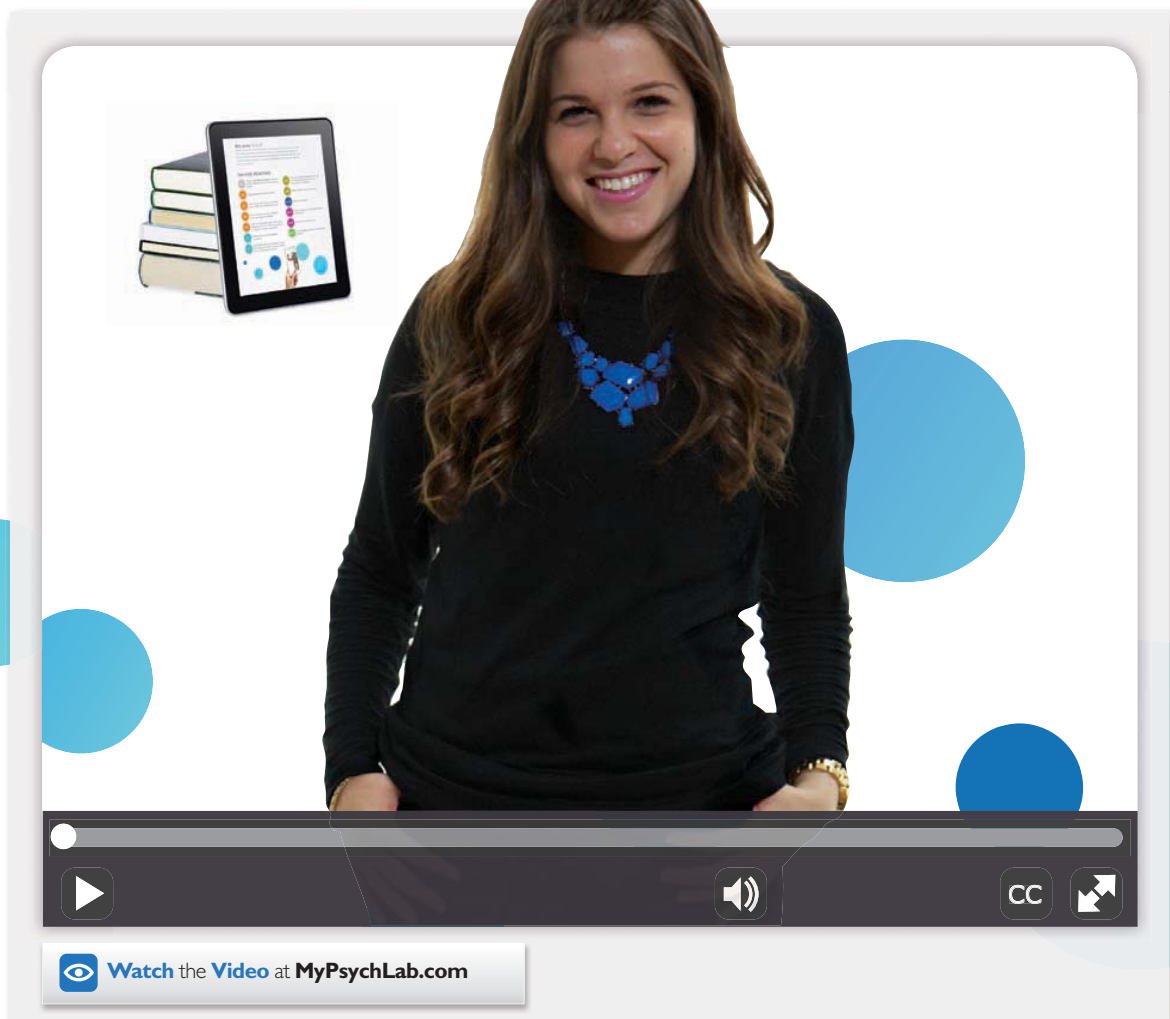
# psychology in action

## secrets for surviving college and improving your grades

Pamela was struggling in her psychology class. She would read the text assignments, but nothing seemed to “stick,” no matter how many times she read it. She understood nearly all of what was said in class, but found it hard to listen and take notes. There was so much content to learn, how should she focus her efforts? Her grades were mediocre C’s. Feeling depressed and overwhelmed, she went to the instructor to ask for advice.

Her professor suggested that Pamela go to the college’s counseling center to learn about alternate ways to study. The center’s guidance counselor suggested recording the lectures, so that Pamela would be able to listen without having to worry about taking notes. The counselor suggested Pamela try reciting what she has just read aloud—a text reading technique called the “SQ3R” method. After following the suggestions, all of Pamela’s grades have improved to A’s.

Based on what you know now, what advice would you share with a student just starting out in college?



Watch the Video at MyPsychLab.com

# Why study how to study?

Pamela's story is not uncommon. Many students find that they need to study in different ways, and also to use the old "listen and write notes" technique. This chapter will detail some helpful study tips as well as provide you with some good information you can use to improve your reading, writing, and memory skills.

## Learning objectives

- PIA.1** What are some different methods of studying?
- PIA.2** What are some strategies for time management?
- PIA.3** How should you go about reading a textbook so that you get the most out of your reading efforts?
- PIA.4** What are the best ways to take notes in class and while reading the text?
- PIA.5** How should you approach studying for exams, and why do different kinds of test questions require different study approaches?
- PIA.6** What are the key steps in writing papers for college?
- PIA.7** How can you improve your memory for facts and concepts?



## Success Center

✔ **Study** on **MyPsychLab**

Dynamic Study Modules

👁️ **Watch** the **Video** on **MyPsychLab**

Study Methods

Managing Time

Reading the Text

Lecture Notes

Exam Prep

Paper Writing

Improve Memory

Many students entering college have developed a system of taking notes, reading the textbook, and reviewing for exams that may have worked pretty well in the past; but what worked in grade school and high school may not work in college, where the expectations from teachers are higher and the workload is far greater. Students should know seven things in order to do their absolute best in any college course:

1. How to identify which study methods work best for them and for different kinds of materials.
2. How to manage their time and avoid procrastination.
3. How to read a textbook and take notes that are understandable and memorable the *first* time.
4. How to listen and take useful notes during lectures.
5. How to study efficiently for exams.
6. How to write good term papers.
7. How to improve their memory for facts and concepts.

This introduction presents various techniques and information aimed at maximizing knowledge and skills in each of these seven areas. In addition, brief videos are available on each of these topics from the “Success Center” section located at the start of every chapter.

## Study Skills

💬 I want to make better grades, but sometimes it seems that no matter how hard I study, the test questions turn out to be hard and confusing and I end up not doing very well. Is there some trick to getting good grades?



Many students would probably say that their grades are not what they want them to be. They may make the effort, but they still don't seem to be able to achieve the higher grades that they wish they could earn. A big part of the problem is that despite many different educational experiences, students are rarely taught how to study.

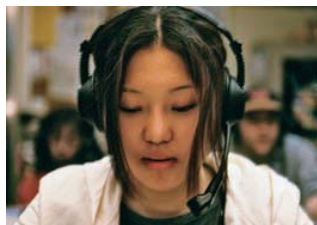
### STUDY METHODS: DIFFERENT STROKES FOR DIFFERENT FOLKS

**PIA.1** What are some different methods of studying?

Most college students, at one point or another in their educational experiences, have probably run into the concept of a *learning style*, but what exactly is it? In general, a learning style is the particular way in which a person takes in, or absorbs, information (Barsch, 1996; Dunn et al., 1989, 2001; Felder & Spurlin, 2005). 🌱 **Explore** the **Concept**, *What Learning Techniques Do You Use?*, at **MyPsychLab**

We learn many different kinds of things during our lives, and one method of learning probably isn't going to work for everyone. Some people seem to learn better if they can read about a topic or put it into their own words (verbal learners). Others may find that looking at charts, diagrams, and figures help them more (visual learners). There are those who learn better if they can hear the information (auditory learners), and there are even people who use the motion of their own bodies to help them remember key information (action learners). While instructors would have a practical nightmare if they tried to teach to every individual student's particular learning style, students who are aware of their own style can use it to change the way they study. So instead of focusing on different learning styles, this *Psychology in Action* introduction will focus on different *study*

Teachers often use multiple methods to present a point, but trying to cover all learning methods in one lecture would not be practical.



Some students find it helpful to hear the content in addition to reading it. This is especially true when learning a new language. This woman is listening to an audio recording from her textbook as she follows along and looks at the figures and photos.

Table PIA.1

## Multiple Study Methods

VERBAL METHODS	VISUAL METHODS	AUDITORY METHODS	ACTION METHODS
Use flash cards to identify main points or key terms.	Make flash cards with pictures or diagrams to aid recall of key concepts.	Join or form a study group or find a study partner so that you can discuss concepts and ideas.	Sit near the front of the classroom and take notes by jotting down key terms and making pictures or charts to help you remember what you are hearing.
Write out or recite key information in whole sentences or phrases in your own words.	Make charts and diagrams and sum up information in tables.	While studying, speak out loud or into a digital recorder that you can play back later.	While studying, walk back and forth as you read out loud.
When looking at diagrams, write out a description.	Use different colors of highlighter for different sections of information in text or notes.	Make speeches.	Study with a friend.
Use "sticky" notes to remind yourself of key terms and information, and put them in the notebook or text or on a mirror that you use frequently.	Visualize charts, diagrams, and figures.	Record the lectures (with permission). Take notes on the lecture sparingly, using the recording to fill in parts that you might have missed.	While exercising, listen to recordings you have made of important information.
Practice spelling words or repeating facts to be remembered.	Trace letters and words to remember key facts.	Read notes or text material into a digital recorder or get study materials recorded and play back while exercising or doing chores.	Write out key concepts on a large board or poster.
Rewrite things from memory.	Redraw things from memory.	When learning something new, state or explain the information in your own words out loud or to a study partner.	Make flash cards, using different colors and diagrams, and lay them out on a large surface. Practice putting them in order.
		Use musical rhythms as memory aids, or put information to a rhyme or a tune.	Make a three-dimensional model.
			Spend extra time in the lab.
			Go to off-campus areas such as a museum or historical site to gain information.

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PIA.7

*methods.* Take the opportunity to try them out and find which methods work best for you. **Table PIA.1** lists just some of the ways in which you can study. All of the methods listed in this table are good for students who wish to improve both their understanding of a subject and their grades on tests. See if you can think of some other ways in which you might prefer to practice the various study methods.

## WHEN AND WHERE DO YOU FIT IN TIME TO STUDY?

## PIA.2 What are some strategies for time management?

One of the biggest failings of college students (and many others) is managing the time for all the tasks involved. Procrastination, the tendency to put off tasks until some later time that often does not arrive, is the enemy of time management. There are some strategies to defeating procrastination (The College Board, 2011):

- Make a map of your long-term goals. If you are starting here, what are the paths you need to take to get to your ultimate goal?
- Get a calendar and write down class times, work times, social engagements, everything!
- Before you go to bed, plan your next day, starting with when you get up and prioritizing your tasks for that day. Mark tasks off as you do them.
- Go to bed. Getting enough sleep is a necessary step in managing your tasks. Eating right and walking or stretching between tasks is a good idea, too.
- If you have big tasks, break them down into smaller, more manageable pieces. How do you eat an elephant? One bite at a time.



PIA.1

PIA.2

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PIA.4


PIA.5

PIA.6

PIA.7

- Do small tasks, like answering emails or writing the first paragraph of a paper, in those bits of time you might otherwise dismiss: riding the bus to school or work, waiting in a doctor's office, and so on.
- Build in some play time—all work and no play pretty much insures that you will fail at keeping your schedule. Use play time as a reward for getting tasks done.
- If your schedule falls apart, don't panic—just start again the next day. Even the best time managers have days when things don't go as planned.

Another problem that often interferes with time management is the enduring myth that we can effectively multitask. In today's world of technological interconnectedness, people tend to believe that they can learn to do more than one task at a time. The fact, however, is that the human mind is not meant to multitask and trying to do so not only can lead to car wrecks and other disasters, but also may result in changes in how individuals process different types of information, and not for the better. One study challenged college students to perform experiments that involved task switching, selective attention, and working memory (Ophir et al., 2009). The expectation was that students who were experienced at multitasking would outperform those who were not, but the results were just the opposite: the “chronic multitaskers” failed miserably at all three tasks. The results seemed to indicate that frequent multitaskers use their brains less effectively, even when focusing on a single task.

Another study found that people who think they are good at multitasking are actually not (Sanbonmatsu et al., 2013), while still another study indicates that video gamers, who often feel that their success at gaming is training them to be good multitaskers in other areas of life such as texting or talking while driving, are just as unsuccessful at multitasking as nongamers (Donohue et al., 2012). In short, it's better to focus on one task and only one task for a short period of time before moving on to another than to try to do two things at once.  [Watch the Video](#), *What's In It For Me?: The Myth of Multitasking*, at [MyPsychLab](#)

## Mastering the Course Content

It would be nice if there were a magical way to get the content of a college course into your head, but the sad fact is that you must work at learning. The two things you must do above all else: Read the textbook and attend the class lectures. The following sections give you some good tips for getting the most out of both necessary evils.

### READING TEXTBOOKS: TEXTBOOKS ARE NOT MEATLOAF

 **How should you go about reading a textbook so that you get the most out of your reading efforts?**

No matter what the study method, students must read the textbook to be successful in the course. (While that might seem obvious to some, many students today seem to think that just taking notes on lectures or slide presentations will be enough.) This section deals with how to read textbooks for understanding rather than just to “get through” the material.

Students make two common mistakes in regard to reading a textbook. The first mistake is simple: Many students don't bother to read the textbook *before* going to the lecture that will cover that material. Trying to get anything out of a lecture without having read the material first is like trying to find a new, unfamiliar place without using a GPS or any kind of directions. It's easy to get lost. This is especially true because of the assumption that most instructors make when planning their lectures: They take for granted that

the students have already read the assignment. The instructors then use the lecture to go into detail about the information the students supposedly got from the reading. If the students have not done the reading, the instructor's lecture isn't going to make a whole lot of sense.

The second mistake that most students make when reading textbook material is to try to read it the same way they would read a novel: They start at the first page and read continuously.

With a novel, it's easy to do this because the plot is usually interesting and people want to know what happens next, so they keep reading. It isn't necessary to remember every little detail—all they need to remember are the main plot points. One could say that a novel is like meatloaf—some meaty parts with lots of filler. Meatloaf can be eaten quickly, without even chewing for very long.

With a textbook, the material may be interesting but not in the same way that a novel is interesting. A textbook is a big, thick steak—all meat, no filler. Just as a steak has to be chewed to be enjoyed and to be useful to the body, textbook material has to be “chewed” with the mind. You have to read slowly, paying attention to every morsel of meaning.

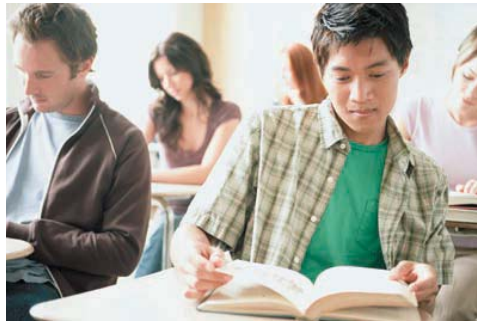
So how do you do that? Probably one of the best-known reading methods is called SQ3R, first used by F. P. Robinson in a 1946 book called *Effective Study*. The letters S-Q-R-R-R stand for:

**SURVEY** Look at the chapter you've been assigned to read. Read the outline, learning objectives, or other opening materials. Then flip through the chapter and read the headings of sections, and look at tables and figures. Quickly read through the chapter summary if one is provided.

It might sound like it takes too much time to do this, but you should just be skimming at this point—a couple of minutes is all it should take. Why do this at all? Surveying the chapter, or “previewing” it, as some experts call it, helps you form a framework in your head around which you can organize the information in the chapter when you read it in detail. Organization is one of the main ways to improve your memory for information. **LINK** to [Learning Objective 6.5](#).

**QUESTION** After previewing the chapter, read the heading for the first section. *Just* the first section! Try to think of a question based on this heading that the section should answer as you read. For example, in Chapter One there's a section titled “Pavlov, Watson, and the Dawn of Behaviorism.” You could ask yourself, “What did Pavlov and Watson do for psychology?” or “What is behaviorism?” In this text, a list of learning objectives for the key concepts in the chapter is presented in the form of questions that can be used with the SQ3R method. There are also student questions that can serve the same purpose. Now when you read the section, you aren't *just* reading—you're reading to *find an answer*. That makes the material much easier to remember later on.

**READ** Now read the section, looking for the answers to your questions. As you read, take notes by making an outline of the main points and terms in the section. This is another area where some students make a big mistake. They assume that using a highlighter to mark words and phrases is as good as writing notes. One of the author's former students conducted research on the difference between highlighting and note taking, and



Before reading any chapter in a text, survey the chapter by reading the outline and the section headings.



As you read, take notes. Write down key terms and try to summarize the main points of each paragraph and section in the chapter. These notes will be useful when you later review the chapter material.

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PIA.2

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PIA.4

PIA.5

PIA.6

PIA.7

PIA.1

PIA.2

PIA.3

PIA.4

PIA.5

PIA.6

PIA.7

her findings were clear: Students who wrote their own notes during the reading of a text or while listening to a lecture scored significantly higher on their exam grades than students who merely used a highlighter on the text (Boyd & Peeler, 2004). Highlighting requires no real mental effort (no “chewing,” in other words), but writing the words down yourself requires you to read the words in depth and to understand them. When we study memory, you’ll learn more about the value of processing information in depth. **LINK** to [Learning Objective 6.1](#).

**RECITE** It may sound silly, but reciting out loud what you can remember from the section you’ve just read is another good way to process the information more deeply and completely. How many times have you thought you understood something, only to find that when you tried to explain it to someone, you didn’t understand it at all? Recitation forces you to put the information in your own words—just as writing it in notes does. Writing it down accesses your visual memory; saying it out loud gives you an auditory memory for the same information. If you have ever learned something well by teaching it to someone else, you already know the value of recitation. If you feel self-conscious about talking to yourself, talk into a digital recorder—and it’s a great way to review later.

Now repeat the Question, Read, and Recite instructions for each section, taking a few minutes’ break after every two or three sections. Why take a break? There’s a process that has to take place in your brain when you are trying to form a permanent memory for information, and that process takes a little time. When you take a break every 10 to 20 minutes, you are giving your brain the time to accomplish this process. A break will help you avoid a common problem in reading texts—finding yourself reading the same sentence over and over again because your brain is too overloaded from trying to remember what you just read.

**RECALL/REVIEW** Finally, you’ve finished reading the entire chapter. If you’ve used the guidelines listed previously, you’ll only have to read the chapter as thoroughly this one time, instead of having to read it over and over throughout the semester and just before exams. Once you’ve read the chapter, take a few minutes to try to remember as much of what you learned while reading it as you can. A good way to do this is to take any practice quizzes that might be available, either in your text or in a student workbook that goes with the text. Many publishers have Web sites for their textbooks that have practice quizzes available online. For this text, we offer both practice quizzes within the text and online quizzes and study materials. If there are no quizzes, read the chapter summary in detail, making sure that you understand everything in it. If there’s anything that’s confusing, go back to that section in the chapter and read again until you understand it.

Some educators and researchers now add a fourth R: *Reflect*. To reflect means to try to think critically about what you have read by trying to tie the concepts into what you already know, thinking about how you can use the information in your own life, and deciding which of the topics you’ve covered interests you enough to look for more information on that topic (Richardson & Morgan, 1997). For example, if you have learned about the genetic basis for depression, you might better understand why that disorder seems to run in your best friend’s family. **LINK** to [Learning Objective 14.5](#).

Reading textbooks in this way means that, when it comes time for the final exam, all you will have to do is carefully review your notes to be ready for the exam—you won’t have to read the entire textbook all over again. What a time-saver! Recent research suggests that the most important steps in this method are the three R’s: Read, Recite, and Review. In two experiments with college students, researchers found that when compared with other study methods such as rereading and note-taking study strategies, the 3R strategy produced superior recall of the material (McDaniel et al., 2009).



After reading a chapter section, take time to reflect on what the information means and how it might relate to real-world situations.

## GETTING THE MOST OUT OF LECTURES

**PIA.4** What are the best ways to take notes in class and while reading the text?

As mentioned earlier, mastering course content means you have to attend the lectures. Even if lectures are online, you have to read or watch them. But just attending or reading or watching is not enough; you have to process the information just as you have to process the text material. To get the most out of lectures, you need to take notes on the content, and taking notes involves quite a bit more than just writing down the words the instructor says or printing out the PowerPoint slides.

One very important fact you must remember: PowerPoint slides are not meant to be notes at all; they are merely talking points that help the instructor follow a particular sequence in lecturing. Typically, the instructor will have more to say about each point on the slide, and that is the information students should be listening to and writing down. In Table PIA.1, the suggestion to use highlighters of different colors is not meant to replace taking notes but instead to supplement the notes you do take.

How should you take notes? As stated earlier, you should try to take notes while reading the chapter (*before* attending the lecture) by writing down the main points and the vocabulary terms *in your own words* as much as possible. This forces you to think about what you are reading. The more you think about it, the more likely it is that the concepts will become a part of your permanent memory. **LINK** to [Learning Objective 6.4](#).

Taking notes while listening to the lecture is a slightly different procedure. First, you should have your notes from your earlier reading in front of you, and it helps to leave plenty of space between lines to add notes from the lecture. A major mistake made by many students is to come to the lecture without having read the material first. This is an **EXTREMELY BAD IDEA**. If you come to the lecture totally unprepared, you will have no idea what is important enough to write down and what is just the instructor's asides and commentary. Reading the material first gives you a good idea of exactly what is important in the lecture and reduces the amount of notes you must take.

There is an art to really listening to someone, too, often called *active listening*. Active listeners make eye contact with the speaker and sit facing the speaker in a place where they can easily hear and see the speaker. Active listeners focus on what is being said rather than how the speaker looks or sounds (not always an easy task) and ask questions when they do not understand something or need a clarification. Asking questions during a lecture is a good way to stay engaged in actively processing the speaker's message.

If you are like Pamela in the introduction, ask your instructor if you can bring a digital recorder to class to record the lecture. You will then be able to listen during the class and use the recording to take notes from later. Some students may prefer to jot down diagrams, charts, and other visual aids along with their written notes. When you have good notes taken while reading the text and from the lectures, you will also have ready-made study aids for preparing to take exams. The next section deals with the best ways to study for exams.



Here are two things that instructors love to see: attentive looks and note taking during the lecture. And for the student who learns better just listening, a small digital recorder (used with permission) can help for later review of the lecture. How should these students have prepared before coming to this class?

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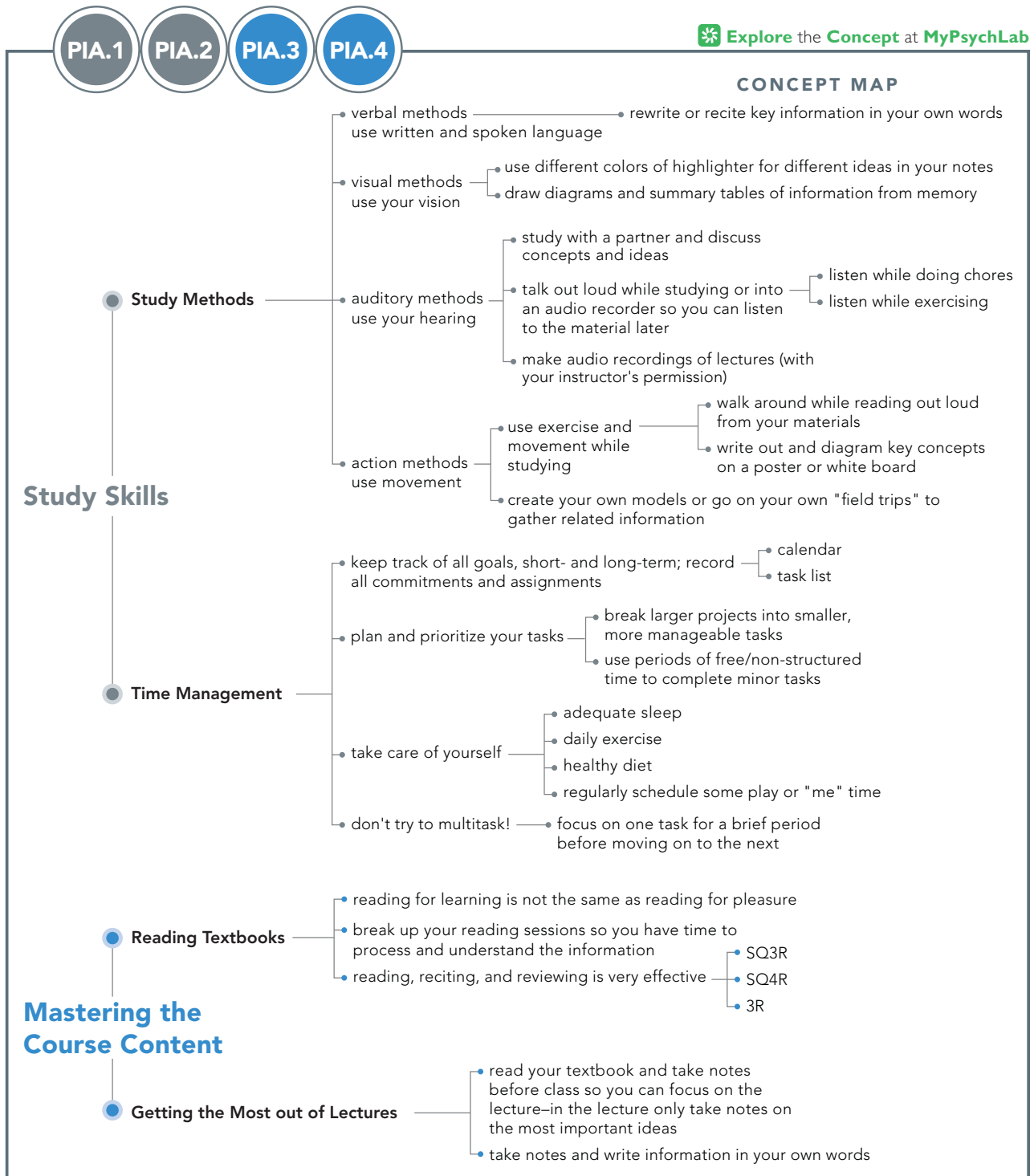
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PIA.7

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**PRACTICE QUIZ** How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

Pick the best answer.

1. What does the research show in regards to multitasking?
  - a. Chronic multitaskers have developed strategies that allow them to use their brains more effectively.
  - b. Chronic multitasking may be related to less effective ways of processing different types of information.
  - c. Multitasking is effective, but only if you limit the number of tasks to 5 or fewer.
  - d. Video gamers are better at multitasking in all areas of life.
2. What does the "S" in SQ3R stand for?
  - a. survey
  - b. study
  - c. synthesize
  - d. stand
3. Candice has surveyed the material, developed questions to consider, and begun reading the material to find the answers to her questions. What should she do next?
  - a. Recite out loud what she can remember from the section she just read.
  - b. Re-read the material a second time.
  - c. Review the material from the chapter that she has read.
  - d. Retain the material by committing it to memory.
4. To maximize success, which method of note-taking should Juan use?
  - a. He should take notes in his own words as much as possible.
  - b. He should write down every word from the PowerPoint slides used in class.
  - c. He should highlight the text rather than writing his own notes.
  - d. He should make sure that his notes contain the exact words used by his instructor.
5. Avery maintains eye contact when listening to her instructors. She also places herself so that she can see and hear the instructors. Additionally, she works to listen to the content of the lecture instead of focusing on how they look or what they are wearing. Avery would be described as a(n)
  - a. accomplished student.
  - b. passive listener.
  - c. active listener.
  - d. social listener.

**THINKING CRITICALLY:**

What are some reasons why not relying on the instructor's PowerPoints might be beneficial in committing information to memory?

PIA.1

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PIA.5

PIA.6

PIA.7

## Demonstrating Your Knowledge: Tests and Papers

Inevitably, the time will come when your instructor wants some hard evidence that you have truly learned at least some of the material to which you have been exposed. Tests and paper writing are two common ways in which this evidence is gathered.

### STUDYING FOR EXAMS: CRAMMING IS NOT AN OPTION

**PIA.5** How should you approach studying for exams, and why do different kinds of test questions require different study approaches?

There is a right way to study for a test, believe it or not. Here are some good things to remember when preparing for an exam, whether it's a quiz, a unit test, a midterm, or a final (Carter et al., 2002; Reynolds, 2002):

- **Timing is everything.** One of the worst things that students can do is to wait until the last minute to study for an exam. Remember the analogy about "chewing" the steak? (Just as a steak has to be chewed to be enjoyed and to be useful to the body, textbook material has to be "chewed" with the mind.) The same concept applies to preparing for an exam: You have to give yourself enough time. If you've read your text material and taken good notes as discussed in the previous sections, you'll be able to save a lot of time in studying for the exam, but you still need to give yourself ample time to go over all of those notes. The time management tips given earlier in this chapter will help you prioritize your studying.
- **Find out as much as you can about the type of test and the material it will cover.** The type of test can affect the way in which you want to study the material. An



Could this be you? The scattered materials, the frantic phone call to a friend or professor, the tense and worried facial expression are all hallmarks of that hallowed yet useless student tradition, cramming. Don't let this happen to you.

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PIA.4

PIA.5

PIA.6

PIA.7

objective test, for example, such as multiple-choice or true/false, is usually fairly close to the text material, so you'll want to be very familiar with the wording of concepts and definitions in the text, although this is not a suggestion to memorize a lot of material.

These kinds of tests can include one of three types of questions:

- **Factual:** Questions that ask you to remember a specific fact from the text material. For example, "Who built the first psychological laboratory?" requires that you recognize a person's name. (The answer is Wilhelm Wundt.)
- **Applied:** Questions that ask you to use, or apply, information presented in the text. For example, consider the following question:

Ever since she was scared by a dog as a young child, Angelica has been afraid of all dogs. The fact that she is not only afraid of the original dog but all types of dogs is an example of

- stimulus generalization.
- stimulus discrimination.
- spontaneous recovery.
- shaping.

This question requires you to take a concept (in this case, generalization) and apply it to a real-world example.

- **Conceptual:** Questions that demand that you think about the ideas or concepts presented in the text and demonstrate that you understand them by answering questions like the following: "Freud is to \_\_\_\_\_ as Watson is to \_\_\_\_\_." (The answers could vary, but a good set would be "the unconscious" and "observable behavior.")

Notice that although memorizing facts might help on the first type of question, it isn't going to help at all on the last two. Memorization doesn't always help on factual questions either, because the questions are sometimes worded quite differently from the text. It is far better to understand the information rather than be able to "spit it back" without understanding it. "Spitting it back" is memorization; understanding it is true learning. **LINK** to [Learning Objective 6.1](#). There are different levels of analysis for information you are trying to learn, and the higher the level of analysis, the more likely you are to remember (Anderson et al., 2001; Bloom, 1956). *Factual questions* are the lowest level of analysis: knowledge. *Applied questions* are a higher level and are often preferred by instructors for that reason—it's hard to successfully apply information if you don't really understand it. *Conceptual questions* are a kind of analysis, a level higher than either of the other two. Not only do you have to understand the concept, you have to understand it well enough to compare and contrast it with other concepts. They might be harder questions to answer, but in the long run, you will get more "bang for your buck" in terms of true learning.

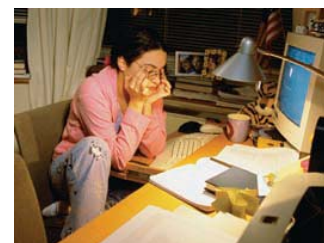
Subjective tests, such as essay tests and short-answer exams, require that you not only are able to recall and understand the information from the course but also that you are able to organize it in your own words. To study for a subjective test means that you need to be familiar with the material *and* that you need to be able to write it down. Make outlines of your notes. Rewrite both reading and lecture notes and make flash cards, charts, and drawings. Practice putting the flash cards in order. Talk out loud or study with someone else and discuss the possible questions that could be on an essay test. You may find that only a few of these methods work best for you, but the more ways in which you try to study, the better you will be able to retrieve the information when you need it. It may sound like a big investment of your time, but most students vastly underestimate how long it takes to study—and fail to recognize that many of these techniques are doable when first reading the textbook assignment and preparing for the classroom lecture. **DON'T CRAM!**

You might also look at old tests (if the instructor has made them available) to see what kinds of questions are usually asked. If this is not possible, make sure that you pay close attention to the kinds of questions asked on the first exam so that you will know how to prepare for future tests. Write out your own test questions as if you were the instructor. Not only does this force you to think about the material the way it will appear on the test, it also provides a great review tool. Other helpful advice:



Many students studying for exams ignore one of the most valuable resources to which they have access: the instructor. Most instructors are happy to answer questions or schedule time for students who are having difficulty understanding the material.

- **Use SQ3R.** You can use the same method that you used to read the text material to go over your notes. Skim through your notes, try to think of possible test questions, recite the main ideas and definitions of terms, either out loud, into a digital recorder, or to a friend or study group. Review by summarizing sections of material or by making an outline or flash cards that you can use in studying important concepts.
- **Use the concept maps if provided.** When surveying the chapter, make sure you look over any concept maps. (In this text, they are provided at the end of each major section of the chapters, just before the practice quizzes). **Concept maps** are a visual organization of the key concepts, terms, and definitions that are found in each section and are an excellent way to “see” how various concepts are linked together (Carnot et al., 2001; Novak, 1995; Wu et al., 2004). They are also a great way to review the chapter once you have finished reading it, just to check for understanding—if the concept maps don’t make sense, then you’ve missed something and need to go back over the relevant section. You can also make your own concept maps as you take notes on the chapter.
- **Take advantage of all the publisher’s test materials.** Practice does help, and most textbooks come with a study guide or a Web site (such as [www.mypsychlab.com](http://www.mypsychlab.com) for this text; see preface). Those materials should have practice quizzes available—take them. The more types of quiz questions you try to answer, the more successful you will be at interpreting the questions on the actual exam. You’ll also get a very good idea of the areas that you need to go back and review again. And remember, retrieval practice, or actually testing your recall through tests or quizzes, is a great way to improve long-term learning (Karpicke, 2012; Karpicke & Blunt, 2011), even when just thinking about the information or rehearsing it over in your mind (Smith et al., 2013)! Retrieval practice works better than simply restudying. The key is testing your retrieval of information, not your recognition of information.
- **Make use of the resources.** If you find that you are having difficulty with certain concepts, go to the instructor well in advance of the exam for help. (This is another good reason to manage your study time so that you aren’t trying to do everything in a few hours the night before the exam.) There are help centers on most college and university campuses with people who can help you learn to study, organize your notes, or tutor you in the subject area.
- **Don’t forget your physical needs.** Studies have shown that not getting enough sleep is bad for memory and learning processes (Stickgold et al., 2001; Vecsey et al., 2009). Try to stop studying an hour or so before going to bed at a reasonable



Holding your eyes open is not going to help you study when you are this tired. Sleep has been shown to improve memory and performance on tests, so get a good night’s sleep before every exam.

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PIA.6

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PIA.2

PIA.3

PIA.4

PIA.5

PIA.6

PIA.7

time to give your body time to relax and unwind. Get a full night's sleep if possible. Do not take sleep-inducing medications or drink alcohol, as these substances prevent normal stages of sleep, including the stage that seems to be the most useful for memory and learning (Davis et al., 2003). Do eat breakfast; hunger is harmful to memory and mental performance. A breakfast heavy on protein and light on carbohydrates is the best for concentration and recall (Benton & Parker, 1998; Dani et al., 2005; Pollitt & Matthews, 1998; Stubbs et al., 1996).

- **Use your test time wisely.** When taking the test, don't allow yourself to get stuck on one question that you can't seem to answer. If an answer isn't clear, skip that question and go on to others. After finishing all of the questions that you can answer easily, go back to the ones you have skipped and try to answer them again. This accomplishes several things: You get to experience success in answering the questions that you can answer, which makes you feel more confident and relaxed; other questions on the test might act as memory cues for the exact information you need for one of those questions you skipped; and once you are more relaxed, you may find that the answers to those seemingly impossible questions are now clear because anxiety is no longer blocking them. This is a way of reducing stress by dealing directly with the problem, one of many ways of dealing effectively with stress. **L1NK** to **Learning Objective 11.7**.

The next section gives some helpful information about another form of assessment: the term paper.

### WRITING PAPERS: PLANNING MAKES PERFECT

#### PIA.6 What are the key steps in writing papers for college?



Instructors are a good source of suggestions for paper topics—they know the kind of information they want to be reading and grading in the wee hours of the night.

Several steps are involved in writing a paper, whether it be a short paper or a long one. You should begin all of these steps well in advance of the due date for the paper (not the night before):

1. **Choose a topic.** The first step is to choose a topic for your paper. In some cases, the instructor may have a list of acceptable subjects, which makes your job easier. If that is not the case, don't be afraid to go to your instructor during office hours and talk about some possible topics. Try to choose a topic that interests you, one that you would like to learn more about. The most common mistake students make is to choose subject matter that is too broad. For example, the topic "autism" could fill a book. A narrower focus might discuss a single form of autism in detail. Again, your instructor can help you narrow down your topic choices.
2. **Do the research.** Find as many sources as you can that have information about your topic. Don't limit yourself to encyclopedias or textbooks. Go to your school library and ask the librarian to point you in the direction of some good scientific journals that would have useful information on the subject. Be very careful about using the Internet to do research: Not everything on the Internet is correct or written by true experts—avoid other students' papers and "encyclopedia" Web sites that can be written and updated by darn near anyone.
3. **Take notes.** While reading about your topic, take careful notes to remember key points and write down the reference that will go along with the reading. References for psychology papers are usually going to be in APA (American Psychological Association) style, which can be found at [www.apastyle.org](http://www.apastyle.org) and in MyPsychLab. Remember, taking notes helps you avoid **plagiarism**, the copying of someone else's ideas or exact words (or a close imitation of the words) and presenting them as your own. Note taking also helps you avoid using too many direct quotes—papers are supposed to be in *your* words, not someone else's, even if you give them credit.

#### 4. **Decide on the thesis.**

The thesis is the central message of your paper—the message you want to communicate to your audience—which may be your instructor, your classmates, or both, depending on the nature of the assignment. Some papers are persuasive, which means the author is trying to convince the reader of a particular point of view, such as “Autism is not caused by immunizations.” Some papers are informative, providing information about a topic to an audience that may have no prior knowledge, such as “Several forms of autism have been identified.”



In earlier times, people actually had to write or type their first, second, and sometimes third drafts on real paper. The advent of computers with word-processing programs that allow simple editing and revision have no doubt saved a lot of trees from the paper mill. This also means there is no good excuse for failing to write a first draft and proofreading one's work.

5. **Write an outline.** Using your notes from all your readings, create an outline of your paper—a kind of “road map” of how the paper will go. Start with an introduction (e.g., a brief definition and discussion of what autism is). Then decide what the body of the paper should be. If your paper is about a specific type of autism, for example, your outline might include sections about the possible causes of that type. The last section of your outline should be some kind of conclusion. For example, you might have recommendations about how parents of a child with autism can best help that child to develop as fully as possible.
6. **Write a first draft.** Write your paper using the outline and your notes as guides. If using APA style, place citations with all of your statements and assertions. Failure to use citations (which point to the particular reference work from which your information came) is also a common mistake that many students make. It is very important that you avoid plagiarism, as discussed in step 3. When you use a source, you are supposed to explain the information that you are using in your own words *and* cite the source, as in the following example:

*In one study comparing both identical and fraternal twins, researchers found that stressful life events of the kind listed in the SRRS were excellent predictors of the onset of episodes of major depression (Kendler & Prescott, 1999).*

Your paper's reference section would have the following citation: Kendler, K. S., & Prescott, C. A. (1999). A population-based twin study of lifetime major depression in men and women. *Archives of General Psychiatry*, 56(1): 39–44. [Author's note: The number in front of the parentheses is the volume of the journal, the one inside is the issue number, and the last numbers are the page numbers of that article.]

7. **Let it sit.** Take a few days (if you have been good about starting the paper on time) to let the paper sit without reading it. Then go back over and mark places that don't sound right and need more explanation, a citation, or any other changes. This is much easier to do after a few days away from the paper; the need to reword will be more obvious.
8. **Write the revised draft.** Some people do more than one draft, while others do only a first draft and a final. In any case, revise the draft carefully, making sure to check your citations—and your spelling!

PIA.1

PIA.2

PIA.3

PIA.4

PIA.5

PIA.6

PIA.7

- PIA.1
- PIA.2
- PIA.3
- PIA.4
- PIA.5
- PIA.6**
- PIA.7

Before we end this introduction, here are some excellent books and Web resources available for help in maximizing your studying:

Carter, C., Bishop, J., & Kravits, S. (2011). *Keys to effective learning: Study skills and habits for success* (6th ed.) Upper Saddle River, NJ: Prentice Hall.

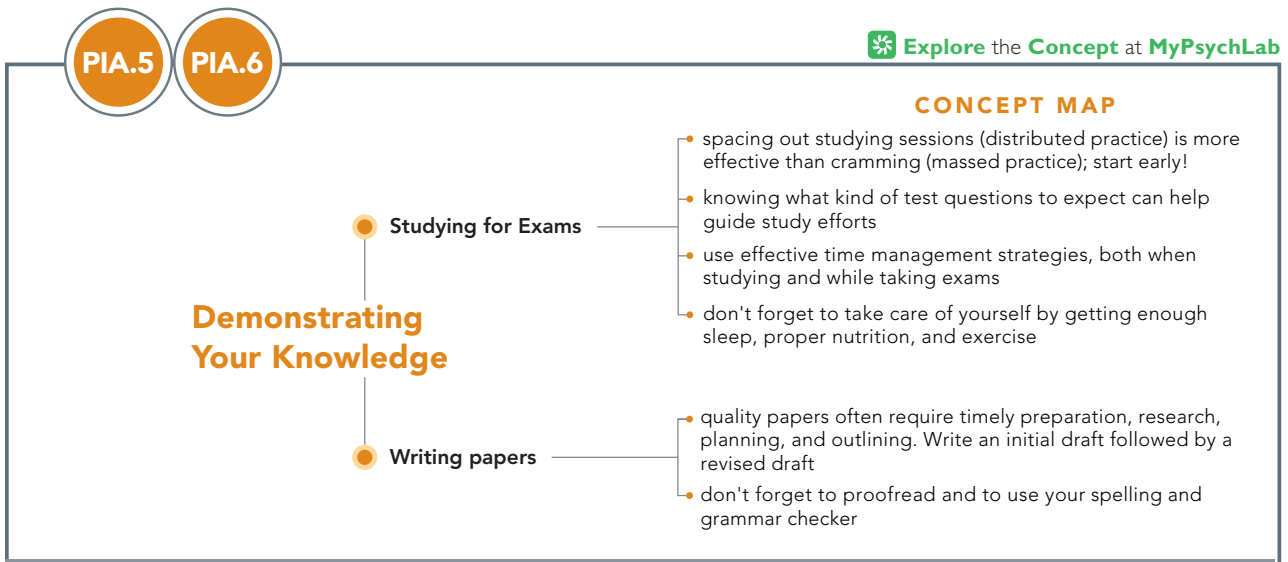
Carter, C., Bishop, J., Kravits, S., & Block, J. (2009). *Keys to success: Building analytical, creative, and practical skills* (6th ed.) Upper Saddle River, NJ: Prentice Hall.

Sellers, D., Dochen, C. W., & Hodges, R. W. (2011). *Academic transformation: The road to college success* (2nd ed.) Upper Saddle River, NJ: Prentice Hall.

A good source created by Joe Landsberger is the Web site Study Guides and Strategies, available at [www.studygs.net](http://www.studygs.net)

A good resource for the background behind concept maps and how to use them is at [cmap.ihmc.us/Publications/ResearchPapers/TheoryCmaps/TheoryUnderlyingConceptMaps.htm](http://cmap.ihmc.us/Publications/ResearchPapers/TheoryCmaps/TheoryUnderlyingConceptMaps.htm)

MyPsychLab contains study materials, practice quizzes, and resources for doing research and writing papers.



Explore the Concept at MyPsychLab

**CONCEPT MAP**

- spacing out studying sessions (distributed practice) is more effective than cramming (massed practice); start early!
- knowing what kind of test questions to expect can help guide study efforts
- use effective time management strategies, both when studying and while taking exams
- don't forget to take care of yourself by getting enough sleep, proper nutrition, and exercise
- quality papers often require timely preparation, research, planning, and outlining. Write an initial draft followed by a revised draft
- don't forget to proofread and to use your spelling and grammar checker

**PRACTICE quiz** How Much Do You Remember?

ANSWERS AVAILABLE IN ANSWER KEY.

Pick the best answer.

1. Which category is the following question an example of?  
*True or False: Psychology is the study of behavior and mental processes.*
  - a. factual question
  - b. conceptual question
  - c. applied question
  - d. critical question
2. Which questions are the highest level of analysis and often considered the hardest to answer on a test?
  - a. factual
  - b. applied
  - c. conceptual
  - d. true/false
3. Tom is studying for his first psychology exam. What should he do to ensure he remembers all that he has studied?
  - a. Wait until just before the scheduled exam, so that the information will be fresh in his mind.
  - b. Study all night long before the exam—he can sleep after the test.
  - c. Memorize as much of the information as possible.
  - d. Begin studying many days in advance so as to give his brain time to commit the material to memory and repeatedly testing his retrieval of information.
4. What is the value of retrieval practice?
  - a. It helps to increase long-term learning.
  - b. It allows students more opportunities to study.
  - c. It assists only in preparing for essay-based exams.
  - d. No research exists to prove that retrieval practice is effective

*(continued)*

5. Simply spitting information back out on a test is likely more indicative of \_\_\_\_\_, while truly understanding information is more indicative of actual \_\_\_\_\_.
- a. memorization; learning      c. behavior; action  
b. learning; memorization      d. a process; a gift
6. Tamika has developed and researched a topic for her paper. What should she do next?
- a. Begin writing a rough draft of her paper.  
b. Begin writing as if her first draft will be her final draft.  
c. Develop an outline as a road map to help her stay on track when writing her paper.  
d. Let everything sit for a couple of days before beginning her rough draft.

## THINKING CRITICALLY:

Many elementary and secondary school programs now offer breakfast to their students. What foods would benefit these children the most and why?

PIA.1

PIA.2

PIA.3

PIA.4

PIA.5

PIA.6

PIA.7

## Applying Psychology to Everyday Life: Strategies for Improving Your Memory

### PIA.7 How can you improve your memory for facts and concepts?

Everyone needs a little memory help now and then. Even memory experts use strategies to help them perform their unusual feats of remembering. These strategies may be unique to that individual, but there are many memory “tricks” that are quite simple and available for anyone to learn and use. A memory trick or strategy to help people remember is called a **mnemonic**, from the Greek word for memory. Here are a few of the more popular mnemonics, some of which may sound familiar:

- **Linking.** Make a list in which items to be remembered are linked in some way. If trying to remember a list of the planets in the solar system, for example, a person could string the names of the planets together like this: *Mercury* was the messenger god, who carried lots of love notes to *Venus*, the beautiful goddess who sprang from the *Earth's* sea. She was married to *Mars*, her brother, which didn't please her father *Jupiter* or his father *Saturn*, and his uncle *Uranus* complained to the sea god, *Neptune*. That sounds like a lot, but once linked in this way, the names of the planets are easy to recall in proper order.
- **The peg-word method.** In this method, it is necessary to first memorize a series of “peg” words, numbered words that can be used as keys for remembering items associated with them. A typical series of peg words is:

One is a bun  
Two is a shoe  
Three is a tree  
Four is a door  
Five is a hive  
Six is bricks  
Seven is heaven  
Eight is a gate  
Nine is a line  
Ten is a hen

To use this method, each item to be remembered is associated with a peg word and made into an image. For instance, if you are trying to remember the parts of the nervous system, you might picture the brain stuck inside a bun, the spinal cord growing out of a shoe or with shoes hanging off of it, and the peripheral nerves as the branches of a tree.

PIA.1

PIA.2

PIA.3

PIA.4

PIA.5

PIA.6

PIA.7

- **The method of loci (LOW-kee or LOW-si).** In this method, the person pictures a very familiar room or series of rooms in a house or other building. Each point of the speech is then made into an image and “placed” mentally in the room at certain locations. For example, if the first point was about military spending, the image might be a soldier standing in the doorway of the house throwing money out into the street. Each point would have its place, and all the person would need to do to retrieve the memories would be to take a “mental walk” around the house.
- **Verbal/rhythmic organization.** How do you spell relief? If, when spelling a word with an *ie* or an *ei* in it, you resort to the old rhyme “I before E except after C, or when sounded as A as in neighbor or weigh,” you have made use of a verbal/rhythmic organization mnemonic. “Thirty days hath September, April, June, and November ...” is another example of this technique. Setting information into a rhyme aids memory because it uses verbal cues, rhyming words, and the rhythm of the poem itself to aid retrieval. Sometimes this method is accomplished through making a sentence by using the first letters of each word to be remembered and making them into new words that form a sentence. The colors of the rainbow are ROY G. BIV (red, orange, yellow, green, blue, indigo, and violet). The notes on the musical staff are “Every Good Boy Does Fine.” There are countless examples of this technique.
- **Put it to music (a version of the rhythmic method).** Some people have had success with making up little songs, using familiar tunes, to remember specific information. The best example of this? The alphabet song.

This *Psychology in Action* introduction has covered several different ways to help you get more out of your psychology class as well as all of your other college course work. If you follow the advice given in this chapter for reading, taking notes, studying, writing papers, and improving your memory, you will find that making good grades will be easier than ever before and that you will actually remember a great deal of what you’ve studied long after the last final exam is over.

#### Questions for Further Discussion

1. The use of images appears to help form better memories. How might imagery be linked to the earliest kinds of memories we have?
2. What are some mnemonics that you or people you know have used? Which method do you think those personal mnemonics represent?

## psychology in action summary

 Listen to the **Audio File** of your chapter **MyPsychLab**

### Study Skills

**PIA.1** What are some different methods of studying?

- While students may have preferred methods of learning, research has shown that using multiple methods to study is probably more useful than trying to learn in any one particular style.

**PIA.2** What are some strategies for time management?

- Making a calendar of prioritized tasks, breaking tasks down into smaller ones, and avoiding multitasking are some ways to improve time management.

### Mastering Course Content

**PIA.3** How should you go about reading a textbook so that you get the most out of your reading efforts?

- Textbooks must be read in a different way from novels or popular books.
- The SQ3R method is an excellent way to approach reading a textbook: survey, question, read, recite, review.

**PIA.4** What are the best ways to take notes in class and while reading the text?

- Notes should be in your own words and written or typed, not highlighted in the text or on handouts.

- When taking notes from a lecture, you should be prepared by having the notes from your reading in front of you; some people may benefit from recording the lecture and taking notes afterward.

## Demonstrating Your Knowledge: Tests and Papers

**PIA.5** How should you approach studying for exams, and why do different kinds of test questions require different study approaches?

- Don't wait until the last minute to study.
- Find out about the types of questions on the exam.
- Use concept maps, the SQ3R method, publisher's practice-test materials.
- Engage in retrieval practice; test your recall, not just recognition, of content often.
- Get plenty of sleep and eat breakfast, preferably something with protein.

**PIA.6** What are the key steps in writing papers for college?

- Key steps in writing a research paper are to choose a topic, read about the topic, take notes on your reading, decide upon the central message of your paper, write an outline, complete a first draft, and allow the paper to sit for a few days before going back and writing the final draft.

## Applying Psychology to Everyday Life: Strategies for Improving Your Memory

**PIA.7** How can you improve your memory for facts and concepts?

- There are memory strategies called mnemonics, including methods that use imagery, rhymes, linking, and even music to improve memory.

### test YOURSELF

ANSWERS AVAILABLE IN ANSWER KEY.

✓ **Study** and **Review** with more quizzes and a customized study plan at **MyPsychLab**

*Pick the best answer.*

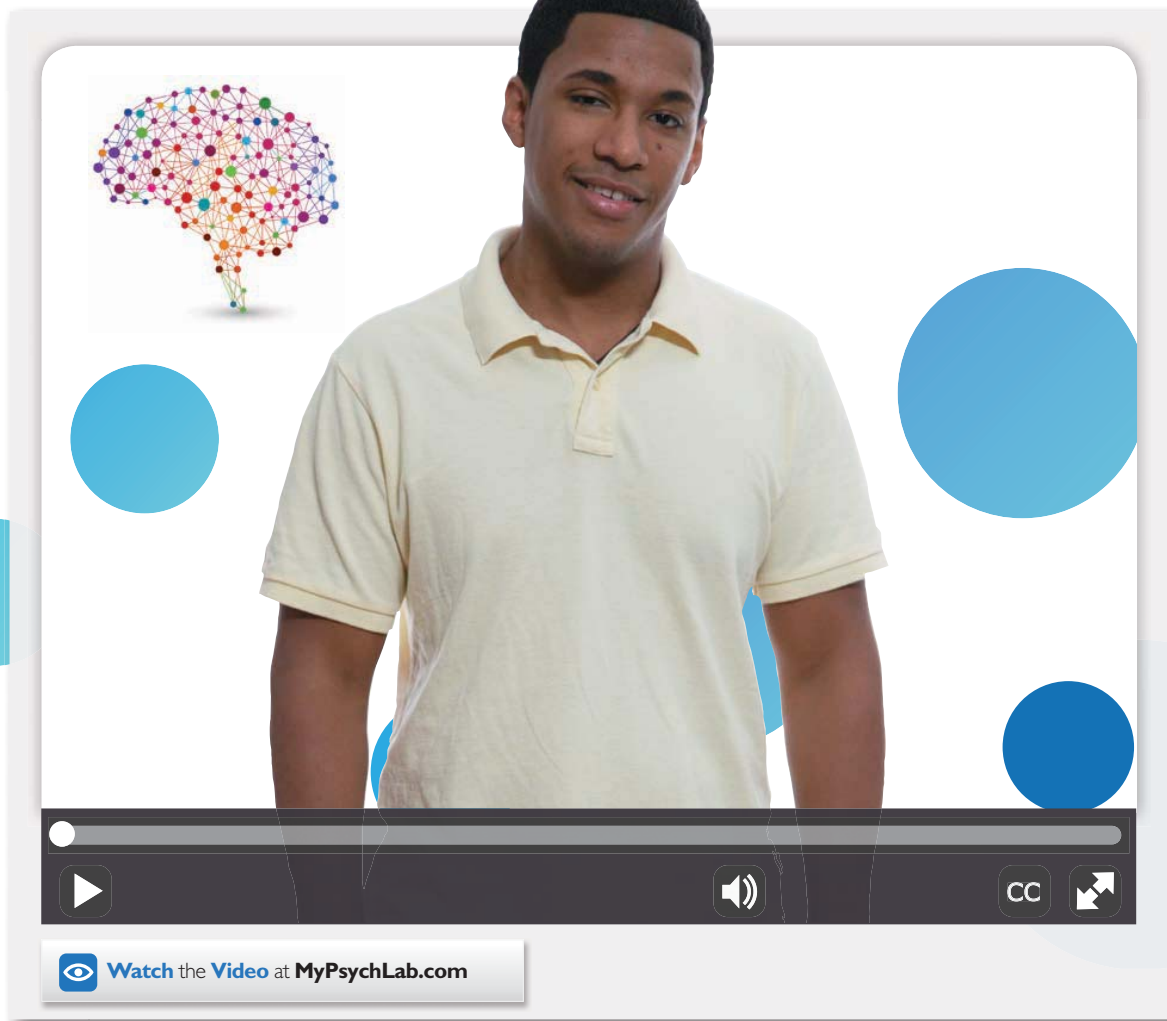
- Cody learns best whenever he can see things laid out before him. What studying aid may benefit him the most?
  - practice quizzes
  - SQ3R
  - test yourself
  - concept maps
- Scientists have developed a fourth "R" in the SQ3R sequence. What is it?
  - recite
  - re-read
  - retain
  - reflect
- What learning aid gives the student the ability to more effectively read and remember material?
  - MyPsychLab
  - content maps
  - SQ3R
  - practice quizzes
- What type of question requires that you understand the material so well that you are able to compare and contrast it to other material as well?
  - factual
  - applied
  - conceptual
  - true/false
- Joaquin is rewriting his notes and making note cards to help him thoroughly understand the material. He even talks aloud to himself as if he were lecturing to an imaginary class. Such a level of preparation is best for what type of test?
  - subjective test
  - objective test
  - true/false test
  - practice test
- Which resource is considered one of the most valuable yet least used by students?
  - MyPsychLab
  - PowerPoints
  - the instructor
  - lecture notes
- Your mom wants you to eat some breakfast before going off to your first psychology exam. What will you tell her?
  - No thanks. A big meal will probably put me to sleep.
  - Sounds good. Can I have some cereal and toast?
  - All I want is some coffee. Caffeine will help me do my best!
  - Thank you. Just some ham and eggs and maybe a small slice of bread.
- Tabitha is stuck on a question while taking her psychology exam. What should she do?
  - Stay on that question until she can figure out what the answer is.
  - Go on to the other questions. Maybe she can find a clue to the one she skipped.
  - Take a guess as to the correct answer. She probably will get it correct anyway.
  - Review the questions she already has answered to find a clue there.
- What is one of the most common mistakes students make when choosing a topic for a research paper?
  - The topic is too broad.
  - The topic is too narrow.
  - The topic is unclear.
  - The topic has no research to support it.
- Keela has finished a draft of her research paper almost two weeks before the date it is due. What should she do now?
  - Let it sit for a few days before reviewing it.
  - Complete the final draft immediately while the material is still fresh in her head.
  - Hand in her rough draft as if it were the final draft. Most students tend to make their paper worse when they revise it.
  - Keela needs to start again, since papers finished early tend not to be well written.

# 1

## the science of psychology

Most people think of psychology as the study of weird people, odd behavior. But in reality, psychology is much, much more: the study of how each of us thinks, feels, and acts in our everyday life. You may not realize it, but you use psychology every day: when you correct a child's behavior, teach a pet a new trick, get a salesperson to give you what you want, or fall victim to a telemarketer's come-on. It's psychology in action when you talk with your significant other (or a friend or relative) when he or she is feeling down. Psychology is involved in both the tragedy of a person who commits an act of violence or terrorism for no apparent reason and in our reaction to that horrifying act. From everyday actions and interactions to the rarer triumphs and tragedies of life, psychology is all around us.

How would you define psychology? What do you hope to learn about psychology, yourself, and others after taking this course?



The image shows a video player interface. In the center, a man with short dark hair, wearing a light yellow polo shirt, is smiling slightly. To his left is a graphic of a human brain composed of a network of colorful dots connected by lines. The video player has a dark control bar at the bottom with a play button, a volume icon, and a Creative Commons license icon. Below the control bar is a white button with a blue eye icon and the text "Watch the Video at MyPsychLab.com". The entire video player is set against a background of several blue circles of varying sizes.

# Why study psychology?

Psychology not only helps you understand why people (and animals) do the things they do, but it also helps you better understand yourself and your reactions to others. Psychology can help you comprehend how your brain and body are connected, how to improve your learning abilities and memory, and how to deal with the stresses of life, both ordinary and extraordinary. In studying psychology, an understanding of the methods psychologists use is crucial because research can be flawed, and knowing how research should be done can bring those flaws to light. And finally, psychology and its research methods promote critical thinking, which can be used to evaluate not just research but also claims of all kinds, including those of advertisers and politicians.

## learning objectives

- 1.1** What defines psychology as a field of study, and what are psychology's four primary goals?
- 1.2** Who were some of the early pioneers in psychology, and how did structuralism and functionalism differ?
- 1.3** What were the basic ideas and who were the important people behind the early approaches known as Gestalt, psychoanalysis, and behaviorism?
- 1.4** What are the basic ideas behind the seven modern perspectives, and what were the important contributions of Skinner, Maslow, and Rogers?
- 1.5** How does a psychologist differ from a psychiatrist, and what are the other types of professionals who work in the various areas of psychology?
- 1.6** Why is psychology considered a science, and what are the steps in using the scientific method?
- 1.7** How are naturalistic and laboratory settings used to describe behavior, and what are some of the advantages and disadvantages associated with these settings?
- 1.8** How are case studies and surveys used to describe behavior, and what are some drawbacks to each of these methods?
- 1.9** What is the correlational technique, and what does it tell researchers about relationships?
- 1.10** What are the steps involved in designing an experiment?
- 1.11** How do the placebo and experimenter effects cause problems in an experiment, and what are some ways to control for these effects?
- 1.12** What are some basic elements of a real-world experiment?
- 1.13** What are some ethical concerns that can occur when conducting research with people and animals?
- 1.14** What are the basic principles of critical thinking, and how can critical thinking be useful in everyday life?





## Success Center

✓ Study on MyPsychLab

Dynamic Study Modules

👁 Watch the Video on MyPsychLab

Study Methods

Managing Time

Reading the Text

Lecture Notes

Exam Prep

Paper Writing

Improve Memory

## What Is Psychology?

1.1

What defines psychology as a field of study, and what are psychology's four primary goals?

Some people believe psychology is just the study of people and what motivates their behavior. Psychologists do study people, but they study animals as well. And to better understand what motivates behavior, psychologists study not only what people and animals do, but also what happens in their bodies and in their brains as they do it. Before examining the field of psychology, participate in the experiment *What Do You Know About Psychology?* to understand more about your own preconceived notions of people and human behavior.

### Simulation

#### What Do You Know About Psychology?

This survey asks you about your attitudes towards and experiences with a broad range of psychological principles and theories.

Some people believe that our behaviors are mainly influenced by biology - by our genes, hormones, and brain chemistry. This is the nature perspective. Others believe that our behaviors are mainly influenced by our environment - by the rewards and punishments we receive, and by the things other people do or say to us. This is the nurture perspective. Which perspective do you agree with more strongly?

- Nature is more important.
- Nurture is more important.
- Nature and nurture are equally important.
- Not Sure

Go to the Experiment ▶

👁 Simulate the Experiment, *What Do You Know About Psychology?* at MyPsychLab

**Psychology** is the scientific study of behavior and mental processes. *Behavior* includes all of our outward or overt actions and reactions, such as talking, facial expressions, and movement. The term *mental processes* refers to all the internal, covert (hidden) activity of our minds, such as thinking, feeling, and remembering. Why “scientific”? To study behavior and mental processes in both animals and humans, researchers must observe them. Whenever a human being observes anyone or anything, there’s always a possibility that the observer will see only what he or she *expects* to see. Psychologists don’t want to let these possible biases\* cause them to make faulty observations. They want to be precise, and to measure as carefully as they can—so they use the *scientific method* to study psychology.

#### PSYCHOLOGY'S GOALS

Every science has the common goal of learning how things work. The goals specifically aimed at uncovering the mysteries of human and animal behavior are description, explanation, prediction, and control.

\*biases: personal judgments based on beliefs rather than facts.

**DESCRIPTION: WHAT IS HAPPENING?** The first step in understanding anything is to describe it. *Description* involves observing a behavior and noting everything about it: what is happening, where it happens, to whom it happens, and under what circumstances it seems to happen.

For example, a psychologist might wonder why so many computer scientists seem to be male. She makes further observations and notes that many “non-techie” stereotypically perceive the life and environment of a computer scientist as someone who lives and breathes at the computer and surrounds himself with computer games, junk food, and science-fiction gadgets—characteristics that add up to a very masculine ambiance.

That’s what *seems* to be happening. The psychologist’s observations are a starting place for the next goal: Why do females seem to avoid going into this environment?

**EXPLANATION: WHY IS IT HAPPENING?** Based on her observations, the psychologist might try to come up with a tentative explanation, such as “women feel they do not belong in such stereotypically masculine surroundings.” In other words, she is trying to understand or find an *explanation* for the lower proportion of women in this field. Finding explanations for behavior is a very important step in the process of forming theories of behavior. A *theory* is a general explanation of a set of observations or facts. The goal of description provides the observations, and the goal of explanation helps to build the theory.

The preceding example comes from a real experiment conducted by psychologist Sapna Cheryan and colleagues (Cheryan et al., 2009). Professor Cheryan (who teaches psychology at the University of Washington in Seattle) set up four experiments with more than 250 female and male student participants who were not studying computer science. In the first experiment, students came into a small classroom that had one of two sets of objects: either Star Trek® posters, video-game boxes, and Coke™ cans, or nature posters, art, a dictionary, and coffee mugs (among other things). Told to ignore the objects because they were sharing the room with another class, the students spent several minutes in the classroom. While still sitting in the classroom, they were asked to fill out a questionnaire asking about their attitude toward computer science. While the attitudes of male students were not different between the two environments, women exposed to the stereotypically masculine setup were less interested in computer science than those who were exposed to the nonstereotypical environment. The three other similar experiments yielded the same results.

**PREDICTION: WHEN WILL IT HAPPEN AGAIN?** Determining what will happen in the future is a *prediction*. In the Cheryan et al. study, the prediction is clear: If we want more women to go into computer science, we must do something to change either the environment or the perception of the environment typically associated with this field. This is the purpose of the last of the four goals of psychology: changing or modifying behavior.

**CONTROL: HOW CAN IT BE CHANGED?** The focus of control, or the modification of some behavior, is to change a behavior from an undesirable one (such as women avoiding a certain academic major) to a desirable one (such as more equality in career choices). Professor Cheryan suggests that changing the image of computer science may help increase the number of women choosing to go into this field.

Not all psychological investigations will try to meet all four of these goals. In some cases, the main focus might be on description and prediction, as it would be for a personality theorist who wants to know what people are like (description) and what they might do in certain situations (prediction). Some psychologists are interested in both



Is this an environment that you would want to work in? Some researchers have wondered if your answer might be influenced by your gender.

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description and explanation, as is the case with experimental psychologists who design research to find explanations for observed (described) behavior. Therapists may be more interested in controlling or influencing behavior and mental processes, although the other three goals would be important in achieving this objective.

Although these goals have not really changed over the years, in the time since psychology's beginnings, the methods of achieving them certainly have changed. In the next section, we'll take a look at the early pioneers in psychology.

## Psychology Then: The History of Psychology



How long has psychology been around?

Psychology is a relatively new field in the realm of the sciences, only about 135 years old. It's not that no one thought about why people and animals do the things they do before then; on the contrary, there were philosophers,\* medical doctors, and physiologists\*\* who thought about little else—particularly with regard to people. Philosophers such as Plato, Aristotle, and Descartes tried to understand or explain the human mind and its connection to the physical body (Durrant, 1993; Everson, 1995; Kenny, 1968, 1994). Medical doctors and physiologists wondered about the physical connection between the body and the brain. For example, physician and physicist Gustav Fechner is often credited with performing some of the first scientific experiments that would form a basis for experimentation in psychology with his studies of perception (Fechner, 1860), and physician Hermann von Helmholtz (von Helmholtz, 1852, 1863) performed groundbreaking experiments in visual and auditory perception. [LINK](#) to [Learning Objectives 3.1](#) and [3.3](#).

### IN THE BEGINNING: WUNDT, INTROSPECTION, AND THE LABORATORY

1.2

Who were some of the earlier pioneers in psychology, and how did structuralism and functionalism differ?



German physiologist Wilhelm Wundt.

It really all started to come together in a laboratory in Leipzig, Germany, in 1879. It was here that Wilhelm Wundt (VILL-helm Voont, 1832–1920), a physiologist, attempted to apply scientific principles to the study of the human mind. In his laboratory, students from around the world were taught to study the structure of the human mind. Wundt believed that consciousness, the state of being aware of external events, could be broken down into thoughts, experiences, emotions, and other basic elements. In order to inspect these nonphysical elements, students had to learn to think objectively about their own thoughts—after all, they could hardly read someone else's mind. Wundt called this process **objective introspection**, the process of objectively examining and measuring one's own thoughts and mental activities (Rieber & Robinson, 2001). For example, Wundt might place an object, such as a rock, into a student's hand and have the student tell him everything that he was feeling as a result of having the rock in his hand—all the sensations stimulated by the rock. (Objectivity\*\*\* was—and is—important because scientists need to remain unbiased. Observations need to be clear and precise, but unaffected by the individual observer's beliefs and values.)

\*philosophers: people who seek wisdom and knowledge through thinking and discussion.

\*\*physiologists: scientists who study the physical workings of the body and its systems.

\*\*\*objectivity: expressing or dealing with facts or conditions as they really are without allowing the influence of personal feelings, prejudices, or interpretations.

This was really the first attempt by anyone to bring objectivity and measurement to the concept of psychology. This attention to objectivity, together with the establishment of the first true experimental laboratory in psychology, is why Wundt is known as the father of psychology.

### TITCHENER AND STRUCTURALISM IN AMERICA

One of Wundt's students was Edward Titchener (1867–1927), an Englishman who eventually took Wundt's ideas to Cornell University in Ithaca, New York. Titchener expanded on Wundt's original ideas, calling his new viewpoint **structuralism** because the focus of study was the structure of the mind. He believed that every experience could be broken down into its individual emotions and sensations (Brennan, 2002). Although Titchener agreed with Wundt that consciousness could be broken down into its basic elements, Titchener also believed that objective introspection could be used on thoughts as well as on physical sensations. For example, Titchener might have asked his students to introspect about things that are blue rather than actually giving them a blue object and asking for reactions to it. Such an exercise might have led to something like the following: "What is blue? There are blue things, like the sky or a bird's feathers. Blue is cool and restful, blue is calm ..." and so on.

In 1894, one of Titchener's students at Cornell University became famous for becoming the first woman to receive a Ph.D. in psychology (Goodman, 1980; Guthrie, 2004). Her name was Margaret F. Washburn, and she was Titchener's only graduate student for that year. In 1908 she published a book on animal behavior that was considered an important work in that era of psychology, *The Animal Mind* (Washburn, 1908).

Structuralism was a dominant force in the early days of psychology, but it eventually died out in the early 1900s, as the structuralists were busily fighting among themselves over just which key elements of experience were the most important. A competing view arose not long after Wundt's laboratory was established, shortly before structuralism came to America.

### WILLIAM JAMES AND FUNCTIONALISM

Harvard University was the first school in America to offer classes in psychology in the late 1870s. These classes were taught by one of Harvard's most illustrious instructors, William James (1842–1910). James began teaching anatomy and physiology, but as his interest in psychology developed, he began teaching it almost exclusively (Brennan, 2002). His comprehensive textbook on the subject, *Principles of Psychology*, is so brilliantly written that copies are still in print (James, 1890, 2002).

Unlike Wundt and Titchener, James was more interested in the importance of consciousness to everyday life rather than just its analysis. He believed that the scientific study of consciousness itself was not yet possible. Conscious ideas are constantly flowing in an ever-changing stream, and once you start thinking about what you were just thinking about, what you were thinking about is no longer what you *were* thinking about—it's what you *are* thinking about—and ... excuse me, I'm a little dizzy. I think you get the picture, anyway.

Instead, James focused on how the mind allows people to *function* in the real world—how people work, play, and adapt to their surroundings, a viewpoint he called **functionalism**. (He was heavily influenced by Charles Darwin's ideas about *natural selection*, in which physical traits that help an animal adapt to its environment and survive are passed on to its offspring.) If physical traits could aid in survival, why couldn't behavioral traits do the same? Animals and people whose behavior helped them to survive would pass those traits on to their offspring, perhaps by teaching or even by some mechanism of heredity.\* (Remember that this was early in the days of trying to understand how heredity



Structuralists would be interested in all of the memories and sensations this woman is experiencing as she smells the rose.

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\*heredity: the transmission of traits and characteristics from parent to offspring through the actions of genes.

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Mary Whiton Calkins, despite being denied a Ph.D. degree by Harvard because she was a woman, became the first female president of the American Psychological Association and had a successful career as a professor and researcher.



Francis Cecil Sumner, the first African American to receive a Ph.D. in psychology, went on to chair the psychology department at Howard University and is considered by many to be the father of African American psychology.

worked.) For example, a behavior such as avoiding the eyes of others in an elevator can be seen as a way of protecting one's personal space—a kind of territorial protection that may have its roots in the primitive need to protect one's home and source of food and water from intruders (Manusov & Patterson, 2006) or as a way of avoiding what might seem like a challenge to another person (Brown et al., 2005; Jehn et al., 1999).

It is interesting to note that one of James's early students was Mary Whiton Calkins, who completed every course and requirement for earning a Ph.D. but was denied that degree by Harvard University because she was a woman. She was allowed to take those classes as a guest only. Calkins eventually established a psychological laboratory at Wellesley College. Her work was some of the earliest research in the area of human memory and the psychology of the self. In 1905, she became the first female president of the American Psychological Association (Furumoto, 1979, 1991; Zedler, 1995). Unlike Washburn, Calkins never earned the elusive Ph.D. degree despite a successful career as a professor and researcher (Guthrie, 2004).

Women were not the only minority to make contributions in the early days of psychology. In 1920, for example, Francis Cecil Sumner became the first African American to earn a Ph.D. in psychology at Clark University. He eventually became the chair of the psychology department at Howard University and is assumed by many to be the father of African American psychology (Guthrie, 2004). Kenneth and Mamie Clark worked to show the negative effects of school segregation on African American children (Lal, 2002). In the 1940s, Hispanic psychologist George (Jorge) Sanchez conducted research in the area of intelligence testing, focusing on the cultural biases in such tests (Tevis, 1994). Since those early days, psychology has seen an increase in the contributions of all minorities, although the percentages are still small when compared to the population at large. For a summary of the contributions of African Americans to the early days of psychology, see the following section, *Issues in Psychology: Psychology's African American Roots*.



Is functionalism still an important point of view in psychology?

In the new field of psychology, functionalism offered an alternative viewpoint to the structuralists. But like so many of psychology's early ideas, it is no longer a major perspective. Instead, one can find elements of functionalism in the modern fields of *educational psychology* (studying the application of psychological concepts to education) and *industrial/organizational psychology* (studying the application of psychological concepts to businesses, organizations, and industry), as well as other areas in psychology. **LINK** to [Learning Objective B.6](#). Functionalism also played a part in the development of one of the more modern perspectives, evolutionary psychology, discussed later in this chapter.

## issues in psychology

### Psychology's African American Roots



*Even the Rat Was White* is a book written by the late Dr. Robert V. Guthrie in 1976 and recently republished (Guthrie, 2004). It is a summary of the history of African Americans in the field of psychology. The contributions to early psychology of African American psychologists have often been ignored in textbooks. Dr. Guthrie includes in his text a detailed listing of the important African American psychologists and their contributions to the relatively new field of psychology. The following is a brief summary of just a few of these often neglected scholars and their work.

- Dr. Charles Henry Thompson (1896–1980) was the first African American to receive a doctorate in educational psychology in 1925 from the University of Chicago. For 30 years he was the editor of the *Journal of Negro Education*.
- Dr. Albert Sidney Beckham (1897–1964) received his Ph.D. in psychology in 1930 from New York University. He was senior assistant psychologist at the National Committee for Mental Hygiene at the Illinois Institute for Juvenile Research in the early 1930s; he also counseled many Black youths in his role as the psychologist at DuSable High School in Chicago. He, like Thompson, had many publications of his research in the areas of intelligence and social concerns of the African American youth of his time.
- Dr. Robert Prentiss Daniel (1902–1968) earned his Ph.D. in educational psychology from Columbia University in 1932. At one time the director of the Division of Educational Psychology and Philosophy at Virginia Union University, he became president of Shaw University in North Carolina and finally the president of Virginia State College.
- Dr. Inez Beverly Prosser (1897–1934) earned her Ph.D. in educational psychology from the University of Cincinnati in 1933 and was the first African American woman to earn this degree. Her promising teaching career met a tragic end when she died in an automobile accident only 1 year after earning her doctorate.
- Dr. Howard Hale Long (1888–1948) received his Ed.D. in educational psychology from Harvard University in 1933. After teaching psychology and doing research in educational psychology for many years, Dr. Long became dean of administration at Wilberforce State College in Ohio.
- Dr. Ruth Howard (1900–1997) is known as the first African American woman to earn a Ph.D. in psychology (not educational psychology) in 1934 from the University of Minnesota. She served with her husband, Dr. Albert Beckham, as codirector for the Center for Psychological Services and also maintained a private practice in clinical psychology.

These few African American pioneers in the field of psychology represent only a fraction of all those who made important contributions to psychology's early days.

#### Questions for Further Study:

1. What kind of challenges might African American women have faced in the early days of psychology?
2. Are there people or areas of study in psychology today that you think might face similar challenges?

### GESTALT PSYCHOLOGY: THE WHOLE IS GREATER THAN THE SUM OF ITS PARTS

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What were the basic ideas and who were the important people behind the early approaches known as Gestalt, psychoanalysis, and behaviorism?

Meanwhile, back in Germany, other psychologists were attacking the concepts of psychology in yet another way. Max Wertheimer (VERT-hi-mer), like James, objected to the structuralist point of view, but for different reasons. Wertheimer believed that psychological events such as perceiving\* and sensing\*\* could not be broken down into any smaller elements and still be properly understood. For example, you can take a smartphone apart, but then you no longer have a smartphone—you have a pile of unconnected bits and pieces. Or, just as a melody is made up of individual notes that can only be understood if the notes are in the correct relationship to one another, so perception can only

\*perceiving: becoming aware of something through the senses.

\*\*sensing: seeing, hearing, feeling, tasting, or smelling something.

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