

FIFTH CANADIAN EDITION

Lifespan Development

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Lifespan Development

FIFTH CANADIAN EDITION

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PEARSON

Toronto

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This book is dedicated to my husband, Jerry Boyd, in appreciation for the help and support he provided to me while I was preparing the fourth edition of *Lifespan Development*.

Denise Boyd

To my best friend, my wife, Bonnie Johnson, and the newest member of the family, our grandson, Max.

Paul Johnson

BRIEF CONTENTS

UNIT 1 FOUNDATIONS

- 1 Basic Concepts and Methods **1**
 - 2 Theories of Development **25**
 - 3 Prenatal Development and Birth **60**
- POLICY QUESTION:** What Legal Protection Exists for the Pregnant Mother and Her Fetus? **97**

UNIT 2 INFANCY AND EARLY CHILDHOOD

- 4 Physical, Sensory, and Perceptual Development in Infancy **99**
- 5 Cognitive Development in Infancy **128**
- 6 Social and Personality Development in Infancy **153**
- 7 Physical and Cognitive Development in Early Childhood **180**
- 8 Social and Personality Development in Early Childhood **216**

POLICY QUESTION: What Are the Effects of Childhood Poverty in Canada? **254**

UNIT 3 MIDDLE CHILDHOOD AND ADOLESCENCE

- 9 Physical and Cognitive Development in Middle Childhood **257**
- 10 Social and Personality Development in Middle Childhood **287**
- 11 Physical and Cognitive Development in Adolescence **315**
- 12 Social and Personality Development in Adolescence **347**

POLICY QUESTION: What Can Be Done About Gambling Among Canadian Youth? **376**

UNIT 4 EARLY AND MIDDLE ADULTHOOD

- 13 Physical and Cognitive Development in Early Adulthood **378**
- 14 Social and Personality Development in Early Adulthood **407**
- 15 Physical and Cognitive Development in Middle Adulthood **435**
- 16 Social and Personality Development in Middle Adulthood **461**

POLICY QUESTION: What Is Canada's Position on Stem Cell Research? **482**

UNIT 5 LATE ADULTHOOD AND THE END OF LIFE

- 17 Physical and Cognitive Development in Late Adulthood **485**
- 18 Social and Personality Development in Late Adulthood **515**
- 19 Death, Dying, and Bereavement **543**

POLICY QUESTION: Do People Have a Right to Die? **569**

LIST OF FEATURES

DEVELOPMENT IN THE REAL WORLD

Toys: More than Just Playthings 4
 Learning Principles in Real Life 43
 Nutrition from Birth to 1 Year 107
 What do Babies Really Learn from Watching Television? 132
 One Language or Two? 147
 Choosing a Daycare Centre 173
 Strengthening Language Skills in Preschoolers 203
 Canadian Special Education Practices 278
 Encouraging Moral Reasoning 297
 First Nations Youth Suicide Crisis 333
 The Students Commission 355
 Youth Criminal Justice 364
 Strategies for Coping with Conflict between Work and Family Life 429
 Maintaining the Creative “Edge” in Mid-Life and Beyond 456
 Emptying the Nest and the Revolving Door 467
 Who Provides Care for Aging Parents in Canada? 469
 Institutionalization Among Canadian Seniors 501
 Deciding on Long-Term Care in Canada 537

RESEARCH REPORTS

Type 2 Diabetes Epidemic in a Remote Community 34
 Twins in Genetic and Epigenetic Research 63
 Babies' Preferences for Attractive Faces 120
 Setting the Stage for Language Acquisition and Word Learning 143
 Adoption and Development 156
 Unintentional Injuries in Canadian Preschoolers 186

Traumatic Events and Neurobiological and Functional Changes in the Brain 188
 Disciplining Children: The Canadian Perspective 224
 The Effects of Video Games 263
 Bullies and Victims 304
 Elkind's Adolescent Egocentrism 336
 The Brain Matures into Adulthood 382
 The Pros and Cons of Hormone Replacement Therapy 440
 Falls in Seniors: A Major Public Health Concern 498
 Elder Abuse in Canada 528
 The Widowhood Effect 563

POLICY QUESTIONS

What Legal Protection Exists for the Pregnant Mother and Her Fetus? 97
 What Are the Effects of Childhood Poverty in Canada? 254
 What Can Be Done About Gambling Among Canadian Youth? 376
 What Is Canada's Position on Stem Cell Research? 482
 Do People Have a Right to Die? 569

CONTENTS

Preface xiii

UNIT 1 FOUNDATIONS

1 BASIC CONCEPTS AND METHODS 1

The Scientific Study of Human Development 2

Philosophical Roots 2

The Study of Human Development Becomes a Science 3

DEVELOPMENT IN THE REAL WORLD Toys: More than Just Playthings 4

A Brief History of The Roots of Psychology in Canada 6

Contemporary Developmental Psychology 7

The Lifespan Perspective 7

The Domains of Development 8

The Interactionist Model of Development 9

Continuity and Discontinuity in Development 9

Research Designs and Methods 12

Relating Goals to Methods 12

Studying Age-Related Changes 13

Identifying Relationships between Variables 16

Cross-Cultural Research 18

Research Ethics 19

Summary 21

Chapter Test 22

2 THEORIES OF DEVELOPMENT 25

Biology and Evolutionary Theories 26

Genetics 26

Genotypes, Phenotypes, and Patterns of Inheritance 27

Epigenetics 30

Evolutionary Theories 30

Applying Biology and Evolutionary Theories 32

RESEARCH REPORT Type 2 Diabetes Epidemic in a Remote Community 34

Psychoanalytic Theories 35

Freud's Psychosexual Theory 36

Erikson's Psychosocial Theory 36

The Humanistic Alternative 38

Learning Theories 40

Pavlov's Classical Conditioning 40

Skinner's Operant Conditioning 41

DEVELOPMENT IN THE REAL WORLD Learning Principles in Real Life 43

Cognitive Theories 43

Piaget's Cognitive-Developmental Theory 44

Information-Processing Theory 45

Vygotsky's Sociocultural Theory 47

Bandura's Social-Cognitive Theory 48

Systems Theory 49

Bronfenbrenner's Bioecological Systems Theory 50

Ecobiodevelopmental Theory 51

Comparing Theories 52

Overview of Human Development Theories 52

Summary 56

Chapter Test 57

3 PRENATAL DEVELOPMENT AND BIRTH 60

Conception 61

The Process of Conception 61

RESEARCH REPORT Twins in Genetic and Epigenetic Research 63

Pregnancy and Prenatal Development 65

The Mother's Experience 65

Prenatal Development 67

Sex Differences 71

Prenatal Behaviour 72

Issues in Prenatal Development 73

- Genetic Disorders 73
- Chromosomal Errors 74
- Teratogens: Maternal Diseases 76
- Teratogens: Drugs 78
- Teratogens: Other Harmful Influences on Prenatal Development 80
- Teratogens: Mutagenic, Environmental, and Epimutagenic 82
- Paternal Influences: Preconceptual and Prenatal 83
- Fetal Assessment and Treatment 84

Birth and The Neonate 86

- Birth Choices 86
- The Physical Process of Birth 88
- Assessing the Neonate 90
- Low Birth Weight 91

Summary 92**Chapter Test 94**

POLICY QUESTION What Legal Protection Exists for the Pregnant Mother and Her Fetus? 97

UNIT 2 INFANCY AND EARLY CHILDHOOD**4 PHYSICAL, SENSORY, AND PERCEPTUAL DEVELOPMENT IN INFANCY 99****Physical Changes 100**

- The Brain and the Nervous System 100
- Reflexes and Behavioural States 102
- Developing Body Systems and Motor Skills 104
- Health Promotion and Wellness 106

DEVELOPMENT IN THE REAL WORLD Nutrition from Birth to 1 Year 107

Preterm and Low Birth Weight Infants 109

Post-Term Infants 110

Infant Mortality in Canada 110

Sensory Skills 113

Vision 113

Hearing and other Senses 114

Perceptual Skills 116

Studying Perceptual Development 116

Looking 117

RESEARCH REPORT Babies' Preferences for Attractive Faces 120

Listening 121

Combining Information from Several Senses 122

Explaining Perceptual Development 123

Summary 124**Chapter Test 126****5 COGNITIVE DEVELOPMENT IN INFANCY 128****Cognitive Changes 129**

Piaget's View of the First Two Years 129

DEVELOPMENT IN THE REAL WORLD What do Babies Really Learn from Watching Television? 132

Challenges to Piaget's View 132

Alternative Approaches 134

Learning, Categorizing, and Remembering 135

Conditioning and Modelling 135

Schematic Learning 136

Memory 137

Measuring Intelligence in Infancy 138

The Beginnings of Language 140

Influences on Language Development 141

Early Milestones of Language Development 141

RESEARCH REPORT Setting the Stage for Language Acquisition and Word Learning 143

The First Words 145

The First Sentences 146

Individual Differences in Language Development 146

DEVELOPMENT IN THE REAL WORLD One Language or Two? 147

Language Development Across Cultures 148

Summary 149**Chapter Test 150****6 SOCIAL AND PERSONALITY DEVELOPMENT IN INFANCY 153****Theories of Social and Personality Development 154**

Psychoanalytic Perspectives 154

Ethological Perspectives 155

RESEARCH REPORT Adoption and Development 156

Attachment 157

- The Parents' Attachment to The Infant 157
- The Infant's Attachment To The Parents 158
- Variations in Attachment Quality 159
- Caregiver Characteristics and Attachment 161
- Long-Term Consequences of Attachment Quality 163

Personality, Temperament, and Self-Concept 164

- Dimensions of Temperament 164
- Origins and Stability of Temperament 165
- Self-Concept 167

Effects of Nonparental Care 170

- Difficulties in Studying Nonparental Care 171
- Effects on Cognitive Development, Peer Relations, and Attachment 172
- DEVELOPMENT IN THE REAL WORLD** Choosing a Daycare Centre 173
- Interpreting Research on Nonparental Care 174

Summary 175**Chapter Test 177****7 PHYSICAL AND COGNITIVE DEVELOPMENT IN EARLY CHILDHOOD 180****Physical Changes 181**

- Growth and Motor Development 181
- The Brain and Nervous System 182
- Health Promotion and Wellness 184
- RESEARCH REPORT** Unintentional Injuries in Canadian Preschoolers 186
- Child Maltreatment in Canada 187
- RESEARCH REPORT** Traumatic Events and Neurobiological and Functional Changes in the Brain 188

Cognitive Changes 190

- Piaget's Preoperational Stage 190
- Challenges to Piaget's View 192
- Theories of Mind 194
- Alternative Theories of Early Childhood Thinking 195

Changes in Language 199

- Fast-Mapping 199
- The Grammar Explosion 200
- Phonological Awareness 201

- DEVELOPMENT IN THE REAL WORLD** Strengthening Language Skills in Preschoolers 203
- Language and Numeracy 204

Differences in Intelligence 205

- Measuring Intelligence 206
- Origins of Individual Differences in Intelligence 208

Summary 211**Chapter Test 213****8 SOCIAL AND PERSONALITY DEVELOPMENT IN EARLY CHILDHOOD 216****Theories of Social and Personality Development 217**

- Psychoanalytic Perspectives 217
- Social-Cognitive Perspectives 218

Family Relationships and Structure 220

- Attachment 220
- Parenting Styles 221
- RESEARCH REPORT** Disciplining Children: The Canadian Perspective 224
- Ethnicity, Socioeconomic Status, and Parenting Styles 226
- Family Structure 228
- Divorce 229
- Understanding the Effects of Family Structure and Divorce 231

Peer Relationships 232

- Relating to Peers Through Play 232
- Aggression 233
- Prosocial Behaviour and Friendships 237

Personality and Self-Concept 239

- From Temperament to Personality 239
- Self-Concept 240

Gender Development 243

- Explaining Gender Concept and Sex-Role Development 243
- Sex-Role Knowledge 245
- Sex-Typed Behaviour 246

Summary 249**Chapter Test 251**

- POLICY QUESTION** What are the Effects of Childhood Poverty in Canada? 254

UNIT 3 MIDDLE CHILDHOOD AND ADOLESCENCE

9 PHYSICAL AND COGNITIVE DEVELOPMENT IN MIDDLE CHILDHOOD 257

Physical Changes 258

Growth and Motor Development 258

The Brain and Nervous System 259

Health Promotion and Wellness 260

RESEARCH REPORT The Effects of Video Games 263

Cognitive Changes 264

Piaget's Concrete Operational Stage 264

Direct Tests of Piaget's View 265

Advances in Information-Processing Skills 267

Language 270

Schooling 271

Literacy 271

Second-Language Learners 272

Bilingual Education 273

Measuring and Predicting Achievement 274

Group Differences in Achievement 277

Learners with Exceptionalities 278

Learning Disabilities 278

DEVELOPMENT IN THE REAL WORLD Canadian Special Education Practices 278

Attention-Deficit/Hyperactivity Disorder 281

Summary 283

Chapter Test 284

10 SOCIAL AND PERSONALITY DEVELOPMENT IN MIDDLE CHILDHOOD 287

Theories of Social and Personality Development 288

Psychoanalytic Perspectives 288

The Trait and Social-Cognitive Perspectives 289

Self-Concept 291

The Psychological Self 291

The Valued Self 292

Advances in Social Cognition 295

The Child as Psychologist 295

Moral Reasoning 296

DEVELOPMENT IN THE REAL WORLD Encouraging Moral Reasoning 297

Social Relationships 298

Relationships with Parents 298

Friendships 299

Gender Self-Segregation 300

Patterns of Aggression 301

Social Status 303

RESEARCH REPORT Bullies and Victims 304

Influences Beyond Family and Peers 306

After-School Care 306

Media Influences 308

Summary 310

Chapter Test 311

11 PHYSICAL AND COGNITIVE DEVELOPMENT IN ADOLESCENCE 315

Physical Changes 316

Milestones of Puberty 316

Other Body Systems 319

Adolescent Sexuality 322

Sexual Behaviour 322

Teenaged Pregnancy 324

Sexual Minority Youth 325

Adolescent Health 327

Sensation-Seeking 327

Drugs, Alcohol, and Tobacco 328

Eating Disorders 330

Depression and Suicide 332

DEVELOPMENT IN THE REAL WORLD First Nations Youth Suicide Crisis 333

Changes in Thinking and Memory 335

Piaget's Formal Operational Stage 335



Direct Tests of Piaget's View 336

RESEARCH REPORT Elkind's Adolescent Egocentrism 336

Advances in Information Processing 337

Schooling 339

Transition to Secondary School 339

Gender and Academic Achievement 340

Early School Leavers 341

Working Teens 342

Summary 343

Chapter Test 344

12 SOCIAL AND PERSONALITY DEVELOPMENT IN ADOLESCENCE 347

Theories of Social and Personality
Development 348

Psychoanalytic Perspectives 348

Marcia's Theory of Identity Achievement 349

Self-Concept 351

Self-Understanding 351

Self-Esteem 352

Gender Roles 353

Ethnic Identity 353

DEVELOPMENT IN THE REAL WORLD The Students
Commission 355

Moral Development 356

Kohlberg's Theory of Moral Reasoning 356

Causes and Consequences of Moral Development 360

Criticisms of Kohlberg's Theory 361

Moral Development and Antisocial Behaviour 363

DEVELOPMENT IN THE REAL WORLD Youth
Criminal Justice 364

Social Relationships 365

Relationships with Parents 365

Relationships with Peers 367

Romantic Relationships 369

Summary 371

Chapter Test 373

POLICY QUESTION What Can Be Done About Gambling
Among Canadian Youth? 376

UNIT 4 EARLY AND MIDDLE ADULTHOOD

13 PHYSICAL AND COGNITIVE DEVELOPMENT IN EARLY ADULTHOOD 378

Physical Functioning 379

Primary and Secondary Aging 379

The Brain and Nervous System 381

RESEARCH REPORT The Brain Matures into Adulthood 382

Other Body Systems 383

Health Promotion and Wellness 386

Health Habits and Personal Factors 386

Sexually Transmitted Infections 389

Intimate Partner Violence 390

Sexual Assault 393

Mental Health Problems 394

Cognitive Changes 397

Formal Operations and Beyond 397

Intelligence 398

Post-Secondary Education 400

Developmental Impact 401

Summary 403

Chapter Test 404

14 SOCIAL AND PERSONALITY DEVELOPMENT IN EARLY ADULTHOOD 407

Theories of Social and Personality
Development 408

Erikson's Stage of Intimacy Versus Isolation 408

Levinson's Life Structures 409

Emerging Adulthood 409

Intimate Relationships 410

Theories of Mate Selection 411

Psychological Aspects of Marriage 413

Divorce 415

Cohabiting Heterosexual Couples 416

Gay and Lesbian Couples 417

Singlehood 418

Parenthood and other Relationships 419

Parenthood 419

Social Networks 422

The Role of Worker 423

Choosing an Occupation 423

Career Development 426

Gender Differences in Work Patterns 427

DEVELOPMENT IN THE REAL WORLD Strategies for Coping with Conflict between Work and Family Life 429

Summary 430

Chapter Test 432

15 PHYSICAL AND COGNITIVE DEVELOPMENT IN MIDDLE ADULTHOOD 435

Physical Changes 436

The Brain and Nervous System 436

The Reproductive System 438

RESEARCH REPORT The Pros and Cons of Hormone Replacement Therapy 440

The Skeletal System 442

Vision and Hearing 443

Health Promotion and Wellness 444

Health Trends at Mid-Life 444

Cancer 446

Cardiovascular Disease 447

Gender and Health 449

Mental Health 450

Cognitive Functioning 451

A Model of Physical and Cognitive Aging 451

Health and Cognitive Functioning 452

Changes in Memory and Cognition 453

Creativity 455

DEVELOPMENT IN THE REAL WORLD Maintaining the Creative “Edge” in Mid-Life and Beyond 456

Summary 457

Chapter Test 458

16 SOCIAL AND PERSONALITY DEVELOPMENT IN MIDDLE ADULTHOOD 461

Theories of Social and Personality Development 462

Erikson’s Generativity Versus Stagnation Stage 462

Mid-Life Crisis: Fact or Fiction? 463

Changes in Relationships and Personality 466

Partnerships 466

The Role of the Caregiver 467

DEVELOPMENT IN THE REAL WORLD Emptying the Nest and the Revolving Door 467

DEVELOPMENT IN THE REAL WORLD Who Provides Care for Aging Parents in Canada? 469

Grandparenting 469

Friends 470

Continuity and Change in Personality 471

Mid-Life Career Issues 472

Quality of Work Life 472

Unemployment and Career Transitions 474

Preparing for Retirement 476

Summary 477

Chapter Test 479

POLICY QUESTION What Is Canada’s Position on Stem Cell Research? 482

UNIT 5 LATE ADULTHOOD AND THE END OF LIFE

17 PHYSICAL AND COGNITIVE DEVELOPMENT IN LATE ADULTHOOD 485

Variability in Late Adulthood 486

Life Expectancy and Longevity 486

Theories of Biological Aging 487

Health 490

Physical Changes 493

The Brain and Nervous System 493

The Senses 494

Behavioural Effects of Physical Changes 496

RESEARCH REPORT Falls in Seniors: A Major Public Health Concern 498

Mental Health 500

Alzheimer's Disease and Other Dementias 500

DEVELOPMENT IN THE REAL WORLD Institutionalization Among Canadian Seniors 501

Depression 502

Cognitive Changes 506

Memory 506

Wisdom and Creativity 509

Summary 511

Chapter Test 512

18 SOCIAL AND PERSONALITY DEVELOPMENT IN LATE ADULTHOOD 515

Theories of Social and Personality Development 516

Erikson's Stage of Ego Integrity Versus Despair 516

Other Theories of Late-Life Psychosocial Functioning 517

Individual Differences 519

The Successful Aging Paradigm 519

Religious Coping 523

Social Relationships 525

Living Arrangements 525

Partnerships 527

RESEARCH REPORT Elder Abuse in Canada 528

Family Relationships and Friendships 529

Gender Differences in Social Networks 531

Career Issues in Late Life 532

Timing of and Reasons for Retirement 532

Effects of Retirement 533

DEVELOPMENT IN THE REAL WORLD Deciding on Long-Term Care in Canada 537

Choosing not to Retire 537

Summary 539

Chapter Test 540

19 DEATH, DYING, AND BEREAVEMENT 543

The Experience of Death 544

Death Itself 544

End-Of-Life Care 545

The Meaning of Death Across the Lifespan 548

Children's and Adolescents' Understanding of Death 548

The Meaning of Death for Adults 549

Fear of Death 551

Preparation for Death 553

The Process of Dying 554

Kübler-Ross's Stages of Dying 555

Criticisms and Alternative Views 555

Responses to Impending Death 556

The Experience of Grieving 559

Psychosocial Functions of Death Rituals 559

The Process of Grieving 560

Widowhood 562

RESEARCH REPORT The Widowhood Effect 563

Summary 565

Chapter Test 566

POLICY QUESTION Do People Have a Right to Die? 569

Glossary 572

References 584

Name Index 652

Subject Index 666

PREFACE

Welcome to the fifth Canadian edition of *Lifespan Development*. Since the first edition was published in 2003, we have seen some fairly dramatic shifts both in Canadian demographics and in the developmental sciences. For one, our population is aging. As well, our young adults are increasingly well educated and culturally diverse. They are also more likely to be single or living in common-law relationships than prior generations, and of those who are having children, most are having fewer. On the scientific front, current research is yielding a clearer understanding of the importance of prenatal and early childhood experiences on later development and, at the other end of the lifespan, new insights into the intricacies of the aging process and longevity.

Therefore, to help you prepare for the study of human development from the Canadian perspective, it is important to reflect for a moment on what an incredibly fascinating, complex, and indispensable field of study it is. To convey this richness, *Lifespan Development* includes teaching and learning features to help you manage and sort out all this information in an engaging and meaningful manner, whether in the context of a standard one or two semester course or a course offered via an alternate delivery format.

NEW TO THE FIFTH CANADIAN EDITION: TAKING AN INTERACTIVE APPROACH TO LEARNING

A textbook isn't like a magazine or a novel. Learners should keep in mind that the goal of working with a textbook is to understand and remember the information in it so that it can be applied effectively in their professional and personal lives. To this end, new interactive *learning tools* have been integrated into the *Lifespan Development* textbook and Pearson eText to help learners to get the most out of each chapter.

Learning Objectives. Numbered learning objectives are now a prominent feature in the fifth edition. These objectives are listed in the chapter opener, called out in the margin next to their corresponding sections, and repeated in the chapter summary to facilitate learner review. In addition, the Instructor's Resources correspond to these learning objectives, allowing the instructor to assess learners' knowledge of key educational objectives.

Test Yourself Before Going On. The end of each section now contains brief quizzes with matching, true/false, fill-in-the-blank, and critical thinking questions for learners to test their knowledge before moving on to the next section. The answers to these questions are provided in the Instructor's Manual.

Chapter Test. Twenty-five or so multiple-choice practice test questions now appear at the end of every chapter. The answers are provided in the Instructor's Manual, allowing learners to assess their knowledge and prepare for course quizzes and exams.

LEARNING OBJECTIVES

<p>THE SCIENTIFIC STUDY OF HUMAN DEVELOPMENT</p> <p>1.1 Explain each of the philosophies that are important to the study of human development.</p> <p>1.2 Describe the contributions of the early developmental scientists.</p> <p>1.3 Describe the contributions made by Canadian psychologists during the field's formative years.</p> <p>CONTEMPORARY DEVELOPMENTAL PSYCHOLOGY</p>	<p>1.5 List and describe the three major domains of development.</p> <p>1.6 Describe the interactionist model of development.</p> <p>1.7 Explain developmental changes in terms of continuity and discontinuity.</p> <p>RESEARCH DESIGNS AND METHODS</p> <p>1.8 List and describe the four research goals of developmental psychology.</p> <p>1.9 State how cross-sectional, longitudinal, and sequential research</p>
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test yourself
before going on

<p>1. Write the name of the philosopher who is associated with each view of development.</p> <p>a. original sin _____</p> <p>b. blank slate _____</p> <p>c. innate goodness _____</p>	<p>3. Early in (originally) _____</p>
<p>2. What did each of these early researchers do?</p> <p>a. Charles Darwin _____</p> <p>b. G. Stanley Hall _____</p>	<p>4. What are blank slat</p>

CRITICAL THINKING

Chapter Test

<p>The Scientific Study of Human Development</p> <p>1.1 Developmental psychology is the scientific study of</p> <p>a. ageism.</p> <p>b. changes in our genetic code.</p> <p>c. maturational changes caused by the cohort effect.</p> <p>d. age-related changes in our bodies, behaviour, thinking, emotions, social relationships, and personalities.</p> <p>1.2 The philosophy that proposes that adults can mould children into whatever the adults want them to be is called</p>	<p>a. taken a more academic approach.</p> <p>b. increasingly focused on infancy.</p> <p>c. become more interdisciplinary.</p> <p>d. emphasized the role of the environment in learning behaviour.</p> <p>1.6 <i>Plasticity</i> refers to</p> <p>a. how many neural connections the brain</p> <p>b. the capacity for positive change in response to environmental demands.</p> <p>c. how long a person can live.</p> <p>d. how much a person's physical health declines in late adulthood.</p>
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RETAINED LEARNING FEATURES

Chapter Outlines. Before you read each chapter, read over the outline at its beginning. More information will stick in your mind if you have an idea of what to expect.

We are all observers of human development. For example, at family gatherings we comment on the changes we notice in our relatives:

- He's grown so much since the last time I saw him.
- She's turned into such a beautiful young lady.
- His hair's turning grey—the hair he has left, that is.
- Grandma seems frailer than last year.

At the same time, we notice the things about people that appear to remain the same:

- Uncle Shemp's as witty as ever.
- Sally's always been such a sweet child.
- We even theorize about why our relatives behave the way they do:
- They've never tried to control that child. No wonder he's such a brat.
- She was born with the gift of the gab.

Scientists who study human development make similar observations, but their goal is to produce observations and explanations that can be applied to as wide a range of human beings as possible and in as many contexts as possible. To accomplish this goal, they study both change and stability. Also, they make predictions about development and use scientific methods to test them. Most also hope that their findings can be used to positively influence the development of individual human beings.

In this chapter, you will learn how the science of human development came into being. You will also learn about the key issues in the scientific study of development. When you finish reading the chapter, you will be acquainted with the research designs and methods used by developmentalists.

Marginal Glossary. Key terms are defined in the margin near where they are first used in the text.

physical domain

changes in the size, shape, and characteristics of the body

cognitive domain

changes in thinking, memory, problem-solving, and other intellectual skills

social domain

changes in variables that are associated with the relationship of an individual to others

includes changes in the size, shape, and characteristics of the body. Developmentalists study the physiological processes in this domain as changes in how individuals such as the gradual development of depth perception.

Changes in thinking, memory, problem-solving, and other intellectual skills are included in the **cognitive domain**. Research topics as diverse as how children learn to read and how they perform on intelligence tests in old age. They also examine the relationship between children and adults, such as intelligence testing.

The **social domain** includes changes in the relationship of an individual to others. For instance,

Critical Thinking Boxes. These personalized questions encourage you to relate material in the book to your own experiences. They can also help you remember the information in the text, because linking new information to things you already know is a highly effective memory strategy.

Each individual receives at conception is unique. Genetic differences—including physical characteristics, such as height and hair colour as well as genetic disorders—represent one of individual differences. Characteristics influenced by both nature and environment, such as intelligence and personality, constitute another class of individual differences.

Individual differences are the result of the timing of a developmental event. Child development theorists have adopted the concept of a **critical period**. The idea is that there may be specific periods of development when an organism is especially sensitive to the presence of some particular kind of experience.

Knowledge about critical periods comes from animal studies. For baby ducks, for instance, the first 15 hours or so after

Critical Thinking

From birth onward your cohort has encountered and will continue to encounter the same social events, moods, and trends at similar ages. What momentous historical events and shifts in society-wide attitudes and trends make your cohort group truly unique? How does your cohort react toward families, sex roles, marriage, careers, religion, social justice, and personal responsibility?

Development In The Real World. Development in the Real World essays help you understand the complexities involved in trying to apply developmental theories and research to real-life problems. They offer practical advice on parenting, teaching, caregiving, and other aspects of daily life to which developmental psychology is relevant.

Development in the Real World

LEARNING PRINCIPLES IN REAL LIFE

Let's consider how principles of learning work in some common real-life situations. For example, suppose your 3-year-old daughter repeatedly demands your attention while you are fixing dinner. Because you don't want to reinforce this behaviour, you ignore her the first six or eight times she calls you or tugs at your clothes. But after the ninth or tenth repetition, with her voice getting whinier each time, you can't stand it any longer and finally say something like "All right! What do you want?"

Since you have ignored most of her demands, you might think you have not been reinforcing them. But what you have actually done

more often than you realize, two things happen. First, the mother's attention strengthens the child's hollering behaviour through positive reinforcement by giving him what he wanted when he hollered; in the school lunch bag. Second, the child has just strengthened the hollering behaviour through negative reinforcement by not being scolded for something the mother finds distressing; in this case, hollering.

We would predict that the next time the boy wants something, he is more likely to holler and, unfortunately, his mother is more likely to comply if the boy stops hollering once his

Policy Questions. Discussions of Canadian social policy issues relevant to human development appear at the end of each unit. These discussions will provide you with insight into how the findings of developmental research may be used to influence policy changes in the real world. They may also serve as starting points for group discussions and research projects.

Policy Question

What Legal Protection Exists for the Pregnant Mother and Her Fetus?

Society has developed laws to protect a person's rights while prescribing consequences for those who violate those rights. In the case of a pregnant woman and her fetus, society wants to act in the best interests of both. However, because of the integral relationship between mother and fetus, we are sometimes faced with a legal dilemma when their respective needs conflict. The relationship between mother and fetus from a physical point of view seems obvious, but when we try to define the relationship in

terms of the person and the right not to be deprived thereof...." At about the same time, Henry Morgentaler was testing the "lawfulness" of the abortion law of the day by setting up nonhospital abortion clinics. In 1988, his case went before the Supreme Court of Canada, which ruled that the abortion law violated Section 7 of the Charter in that the law interfered with a woman's body and liberty. As a result, the abortion law, Section 287 (Department of Justice Canada, 2001a),

was struck down because they had been born with brain damage associated with glue sniffing. The intention of the social agency was to protect the health of the fetus until it was born, but in doing so was judged to be in violation of the mother's rights and freedom.

The case made its way to the Supreme Court of Canada, which, in 1997, ruled that the mother's rights prevail over those of the fetus. The decision was based on the Charter of Rights and Freedoms, which

Chapter Summaries. Looking over the chapter summary can help you assess how much of the information you remember.

Summary

Conception (pp. 61–64)

3.1 Explain the process of reproduction.

- At conception, the 23 chromosomes from the sperm join with the 23 chromosomes from the ovum to make up the set of 46 that will be reproduced in each cell of the new individual. Fertility drugs, in vitro fertilization, and artificial insemination are used for assisted human reproduction.

Pregnancy and Prenatal Development (pp. 65–73)

implants itself in the uterine wall. In the embryonic phase, from week 3 to week 8, organogenesis occurs. From through the end of pregnancy, the fetus grows larger, and the structure and functioning of the various organs is refined.

- #### 3.4 List some of the ways male and female fetuses and are more vulnerable to the potentially negative influences on development.
- Male fetuses develop more slowly than female fetuses and are more vulnerable to the potentially negative influences on development.

NEW CONTENT HIGHLIGHTS

The fifth Canadian edition of *Lifespan Development* has been thoroughly revised and updated to reflect the latest research in the field of human development. Notably, one of the recognized strengths of this textbook continues to be its breadth of current Canadian content. To provide you with a brief overview, we offer some chapter-by-chapter highlights:

Chapter 1: Basic Concepts and Methods

- Streamlined discussion of the scientific study of human development and research designs

Chapter 2: Theories of Development

- Refocused look at the role inheritance and early intervention play in human health
- Updated systems research that shows how the origins of many impairments are biologically embedded through gene–environment interactions beginning at conception and continuing throughout the early years of life
- Streamlined overview and comparison of the human development theories

Chapter 3: Prenatal Development and Birth

- Revised coverage of prenatal behaviour
- Updated research and discussion of teratogens and other harmful risks on prenatal development
- Latest research on the paternal role in reproductive risk
- Revised coverage of fetal assessment, diagnostics, and treatments

Chapter 4: Physical, Sensory, and Perceptual Development in Infancy

- Revised and updated review of Canadian infant nutrition
- New findings on taste that include the fifth flavour, umami
- Updated research on an infant’s ability to integrate information from several senses—intermodal perception
- Streamlined explanation of perceptual development

Chapter 5: Cognitive Development in Infancy

- Revised coverage of object permanence and a young infant’s understanding of objects
- Updated discussion on measuring infant intelligence
- Updated research and discussion on bilingualism and on individual differences in language development

Chapter 6: Social and Personality Development in Infancy

- Updated research and discussion on adoption and development
- New coverage of cross-cultural differences in father–infant relationships that affect children’s development
- Updated research on infant temperament
- Updated research on the impact of nonparental care in Canada

Chapter 7: Physical and Cognitive Development in Early Childhood

- Updated material on the impact of obesogenic environments on unhealthy weight gain in Canadian children
- Revised coverage of unintentional injuries and child maltreatment in Canada
- New research on the toxic stress response to chronic long-term childhood adversity
- Updated and streamlined coverage of neo-Piagetian approaches to cognitive development

Chapter 8: Social and Personality Development in Early Childhood

- Updated research on child discipline in Canada
- Updated research on the development of prosocial behaviour
- New material on the diversity of family structure and parenting in Canada, including skip-generation families
- Updated discussions of gender and sex-role development in early childhood

Chapter 9: Physical and Cognitive Development in Middle Childhood

- New research on the impact of bedtime access to e-media on a child’s sleep and health
- Updated coverage of a range of information processing skills
- Updated discussion of literacy, second-language learners, bilingual education, and intelligence
- New coverage on learning style differences
- Revised coverage of exceptionalities

Chapter 10: Social and Personality Development in Middle Childhood

- Revised section on the Big Five personality traits
- Updated coverage of the child’s relationships with parents

- Revised coverage of gender self-segregation
- New material on patterns of aggression
- Updated look at the outcomes of watching violent media

Chapter 11: Physical and Cognitive Development in Adolescence

- Updated coverage of body systems development
- Updated material on Canadian adolescent sexual behaviour and teen pregnancy
- Updated material and revised discussion on sensation-seeking as it relates to substance use
- Updated coverage of eating disorders
- Updated coverage of working teens

Chapter 12: Social and Personality Development in Adolescence

- Revised discussion of psychoanalytic perspectives on adolescent identity development
- Updated coverage of self-understanding, self-esteem, gender roles, and ethnic identity
- Updated material and revised discussion on moral reasoning and development, antisocial behaviour, cyberbullying, and criminality
- Updated material and revised discussion on friendships, peer groups, and romantic relationships

Chapter 13: Physical and Cognitive Development in Early Adulthood

- Updated material and revised discussion of primary and secondary aging with a focus on biosocial determinants of health
- Updated material on paternal reproductive risk, immune function and disease, and STIs
- Updated material and revised discussion on intimate partner violence and sexual assault
- Revised section on mental health and substance use disorders
- Updated material and revised discussion on the developmental impact of post-secondary education on young Canadian adults

Chapter 14: Social and Personality Development in Early Adulthood

- Updated review of the psychosocial aspects of relationship quality in marriage
- Updated material on divorce and cohabitation in Canada
- Updated review of gay and lesbian couples in Canada

- Revised coverage of singlehood and living apart together couples
- Revised section on parenthood
- Updated review of job satisfaction and quality of work–life

Chapter 15: Physical and Cognitive Development in Middle Adulthood

- Updated research on changes in the adult brain and mental health
- Revised coverage of mid-life reproductive changes
- Updated research and discussion of hormone replacement therapy
- Updated research and coverage of mid-life health trends
- Revised coverage of physical activity and cognitive functioning

Chapter 16: Social and Personality Development in Middle Adulthood

- New material and updated discussion on the mid-life crisis
- New material and revised discussion of the mid-life caregiver role in Canada
- Updated coverage of mid-life friendships and personality
- Updated and revised discussion on worker satisfaction, job performance, career changes, and retirement preparation

Chapter 17: Physical and Cognitive Development in Late Adulthood

- New material and an extensive revision of life expectancy and longevity
- Latest research and a comprehensive revision of the biological theory of aging
- Updated coverage of limitations on activities in Canadian seniors
- New material and an extensive revision of the health habits and outcomes in Canadian seniors
- Updated research on changes in motor function in seniors
- New research and discussion on the fall risk associated with aging Canadians
- Updated material on institutionalization among Canadian seniors
- Updated research on mental health problems in seniors including risks and interventions for dementias and depression

- Revised discussion of changes in cognition and memory function in seniors

Chapter 18: Social and Personality Development in Late Adulthood

- New coverage of the role of reminiscence in old age
- New coverage of successful aging and the importance of staying healthy and active, being socially engaged, and doing volunteer work
- Updated coverage of changes in the social roles, partnerships, and living arrangements of elderly Canadians
- Updated coverage of elder abuse in Canada
- Updated coverage of Canadian seniors' family relationships and friendships
- Updated discussion of the timing of and reasons for retirement, retirement options, and work continuance in Canada

Chapter 19: Death, Dying, and Bereavement

- New discussion of the concept of death as loss
- Extensive revision of the concept of terminal decline
- Revised discussion of the grief response
- New coverage of the physical and mental impact of widowhood with an emphasis on the widowhood effect

In addition, several Canadian research projects, such as the Canadian Perinatal Surveillance System (CPSS), the National Longitudinal Survey of Children and Youth (NLSCY), the Concordia Longitudinal Risk Project (CLRP), the Québec Longitudinal Study of Child Development (QLSCD), and the General Social Survey (GSS), are highlighted throughout the textbook.

SUPPLEMENTS FOR THE LEARNER

MyPsychLab (www.MyPsychLab.com) is a dynamic, interactive online resource for developmental psychology designed to be used as a supplement to a traditional lecture course or to completely administer an online course. MyPsychLab combines multimedia, tutorials, video, audio, simulations, animations, and controlled assessments to engage students. Pearson eText gives students access to the text whenever and wherever they have access to the internet. eText pages look exactly like the printed text, offering powerful new functionality for students and instructors. Users can create notes, highlight text in different colours,

create bookmarks, zoom, click hyperlinked words and phrases to view definitions, and view in single-page or two-page view. Pearson eText allows for quick navigation to key parts of the eText using a table of contents and provides full-text search. The eText may also offer links to associated media files, enabling users to access videos, animations, or other activities as they read the text. Students receive access to MyPsychLab in every new copy of the text. If this text did not come with a MyPsychLab access code, online purchase is available at pearsonmylabandmastering.com.

MYPSYCHLAB includes:

- MyVirtualLife is an interactive resource with two simulations in one. The first simulation allows students to raise a child from birth to age 18 and to monitor the effects of their parenting decisions over time. The second simulation encourages students to make first-person decisions and to see the impact of those decisions on their simulated future selves over time. At each age, students are given feedback about the various milestones their child has attained; key stages of the child's development will include personalized feedback. As in real life, certain "unplanned" events might occur randomly. Students take a personality test at the beginning of the program, the results of which will have an impact on the temperament of their child or simulated future selves. Observational videos are included throughout the program to help illustrate key concepts. Critical thinking questions within the program help students to apply to their own virtual person what they are learning in class and in their textbook. These questions can be assigned or used as the basis for in-class discussion.
- An individualized **study plan** for each student, based on performance results from chapter pretests, helps students focus on the specific topics where they need the most support. The personalized study plan arranges content from less complex thinking (like remembering and understanding) to more complex critical thinking skill (like applying and analyzing) and is based on Bloom's Taxonomy.
- The **MyPsychLab Video Series for Developmental Psychology** engages students in the study of human development. It features over 100 observational videos and interviews from prenatal development through to the end of the lifespan bring to life a wide range of topics typically covered in child, adolescent, and lifespan development courses.

New cross-cultural videos shot on location in several countries allow students to observe similarities and differences in human development across cultures throughout the lifespan. These videos can be accessed online via MyPsychLab and are also available on DVD.

- The **Pearson eText** lets students access their textbook anytime, anywhere, and any way they want—including on an iPad.

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- ***Instructor's Manual.*** Each chapter includes the following sections:
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 - Lecture Enhancement Notes
 - Instructor Resources, including suggested videos, transparency and handout masters, and references to the full-colour transparency acetates found in the Allyn & Bacon Human Development Transparency Set
- ***PowerPoint Presentations.*** These slide presentations pair key points covered in the chapters with figures from the textbook to provoke effective classroom discussion.
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CHAPTER 1

Basic Concepts and Methods



Wayne R. Billemduke / Stone/Getty Images

LEARNING OBJECTIVES

THE SCIENTIFIC STUDY OF HUMAN DEVELOPMENT

- 1.1** Explain each of the philosophies that are important to the study of human development.
- 1.2** Describe the contributions of the early developmental scientists.
- 1.3** Describe the contributions made by Canadian psychologists during the field's formative years.

CONTEMPORARY DEVELOPMENTAL PSYCHOLOGY

- 1.4** Explain the importance of the lifespan perspective.

- 1.5** List and describe the three major domains of development.
- 1.6** Describe the interactionist model of development.
- 1.7** Explain developmental changes in terms of continuity and discontinuity.

RESEARCH DESIGNS AND METHODS

- 1.8** List and describe the four research goals of developmental psychology.
- 1.9** State how cross-sectional, longitudinal, and sequential research designs differ.

- 1.10** State the advantages and disadvantages of the research methods used in identifying relationships among variables.
- 1.11** Describe the importance of cross-cultural research to the study of human development.
- 1.12** Identify five ethical standards that developmental researchers must follow.

We are all observers of human development. For example, at family gatherings we comment on the changes we notice in our relatives:

- He's grown so much since the last time I saw him.
- She's turned into such a beautiful young lady.
- His hair's turning grey—the hair he has left, that is.
- Grandma seems frailer than last year.

At the same time, we notice the things about people that appear to remain the same:

- Uncle Shemp's as witty as ever.
- Sally's always been such a sweet child.
- We even theorize about why our relatives behave the way they do:
- They've never tried to control that child. No wonder he's such a brat.
- She was born with the gift of the gab.

Scientists who study human development make similar observations, but their goal is to produce observations and explanations that can be applied to as wide a range of human beings as possible and in as many contexts as possible. To accomplish this goal, they study both change and stability. Also, they make predictions about development and use scientific methods to test them. Most also hope that their findings can be used to positively influence the development of individual human beings.

In this chapter, you will learn how the science of human development came into being. You will also learn about the key issues in the scientific study of development. When you finish reading the chapter, you will be acquainted with the research designs and methods used by developmentalists.

THE SCIENTIFIC STUDY OF HUMAN DEVELOPMENT

developmental psychology

the scientific study of age-related changes in our bodies, behaviour, thinking, emotions, social relationships, and personalities

The field of **developmental psychology** is the scientific study of age-related changes in our bodies, behaviour, thinking, emotions, social relationships, and personalities. Long before the scientific method was used to study development, though, philosophers offered a variety of explanations for differences they observed in individuals of different ages. Their ideas continue to influence the field today, and many Western beliefs about human development are based on them.

LEARNING OBJECTIVE 1.1 — PHILOSOPHICAL ROOTS

Explain each of the philosophies that are important to the study of human development.

Early philosophers based their ideas about development on spiritual authorities, deductive logic, and general philosophical orientations. Typically, philosophers' inquiries into the nature of development focused on why babies, who appear to be quite similar, grow up to vary widely (see **Table 1.1**).

ORIGINAL SIN For centuries, the Christian doctrine of *original sin*, often attributed to the 4th-century North African philosopher Augustine of Hippo, taught that all humans are born with a selfish and stubborn nature. To reduce the influence of this inborn tendency toward sinfulness, Augustine taught, humans must seek redemption by

TABLE 1.1 Philosophical Approaches to Development

Historical Philosophical Perspective	Child's Inherent Predisposition	Parental Responsibility
Original Sin	Sinful	Intervene to correct
The Blank Slate	Neutral	Shape behaviours
Innate Goodness	Good	Nurture and protect

leading a disciplined life. Thus, from this perspective, parents facilitate the child's struggle to overcome an inborn tendency to act immorally by restraining and correcting the child's immoral tendencies.

THE BLANK SLATE By contrast, the 17th-century English philosopher John Locke drew on a broad philosophical approach known as *empiricism* when he claimed that the mind of a child is a *blank slate*. Empiricism is the view that humans possess no innate tendencies and that all differences among humans are attributable to experience. As such, the blank slate view suggests that adults can mould children into whatever they want them to be. Therefore, differences among adults can be explained in terms of the differences in their childhood environments rather than as a result of a struggle to overcome their inborn tendencies, as the original sin view proposed.

INNATE GOODNESS Different still was the *innate goodness* view proposed by the 18th-century Swiss philosopher Jean-Jacques Rousseau. He claimed that all human beings are naturally good and seek out experiences that help them grow (Ozman & Craver, 1986). Rousseau believed that children need only nurturing and protection to reach their full potential. Good developmental outcomes happen when a child's environment refrains from interfering in her attempts to nurture her own development. In contrast, poor outcomes occur when a child experiences frustration in her efforts to express the innate goodness with which she was born.

Critical Thinking

Other cultures and religions have different ways of viewing the process of development. How do the original sin, blank slate, and innate goodness views compare with your own beliefs? How do you think your own culture and religion have contributed to these beliefs?

THE STUDY OF HUMAN DEVELOPMENT BECOMES A SCIENCE

Philosophy can provide a framework for ideas about human development. However, in the 19th century, people who wanted to better understand development began to turn to science. By 1930, the foundations of modern developmental psychology had been established and had begun to influence everyday child-rearing practices (see **Development in the Real World**).

DARWIN Charles Darwin and other evolutionists believed they could understand the development of the human species by studying child development. Many, including Darwin, kept detailed records of their own children's early development (called *baby biographies*) in the hope of finding evidence to support the theory of evolution (Charlesworth, 1992; Dewsbury, 2009). These were the first organized studies of human development.

— — — LEARNING OBJECTIVE 1.2

Describe the contributions of the early developmental scientists.

 **Explore**
Psychology Timeline

Development in the Real World

TOYS: MORE THAN JUST PLAYTHINGS

Today, a vital element of children's development is centred on playing with toys: "If play is the child's work then toys are the child's tools, and appropriate toys can help children do their work well" (Keep Kids Healthy, 2003). Accordingly, it is important to design toys that promote the development of the child (Auerback, 2006). With this in mind, toy designers now create many toys to promote children's

- *physical development*—improving muscle control and eye-hand coordination
- *cognitive development*—understanding about spatial and temporal relationships and fostering reasoning ability through creative expression and problem-solving
- *emotional development*—acting out inner thoughts, feelings, and fantasies in a safe manner and learning persistence and mastery
- *social development*—learning to share with others, practising social and cultural values and rules through make-believe

The Developmental Science Behind Toys

In Canada, the Canadian Toy Testing Council (CTTC) (2012) is a non-profit, volunteer organization that conducts ongoing research to ensure the value and appropriateness of toys. *Age-appropriate* means that a toy not only matches a child's capabilities, but also captures a child's interest. "No matter how promising, if a toy is not fun, it will gather dust" (CTTC, n.d). While toy-testing research helps to identify what parents and children want in toys, it also considers safety, performance, appeal, usefulness, durability, age-appropriateness, and potential improvements.

At each stage of development a child faces new challenges and different risks (Canadian Child Care Federation [CCCCF], 2009). The Canadian and international toy industries have developed age-appropriate recommendations so that toys challenge and stimulate based on a child's chronological age, as well as physical size, skill level, temperament, and maturity. Toys that are beneath or beyond a child's capabilities may discourage the child from developing further interests.

The research that goes into toy design and manufacture is represented by the information contained on toy product labels. The label

provides important guidelines for parents when making toy selections (Health Canada, 2010b). For instance, babies tend to put things into their mouths and are therefore at high risk for choking on small toys or toy parts; riding toys for toddlers pose a risk because children at this age do not have well-developed coordination and this can result in a child running into objects or falling down stairs; and projectile toys, although appealing to young children, can cause a variety of injuries, especially eye injuries (CCCCF, 2009). As a result, toys are labelled with suitable age ranges—for example, "recommended for children from 18 months to 3 years." In many instances, toy labels may also carry a safety warning—for example, "Choking hazard: This toy contains small parts and is not intended for children under the age of 3." At any age, parental supervision is important, and toys meant for older children should be kept away from smaller children (CCCCF, 2009).



LEGO means "play well." The "automatic building brick," invented by a Danish carpenter in 1949, can be considered an ideal toy in that it fosters development in the four key areas of growth: physical, cognitive, emotional, and social (Froberg Mortensen, 2012; Pisani, 2006; Toy Retailers Association, n.d.).

(Photo: James Shaffer/PhotoEdit)

Darwin's theory of evolution is the source of many important ideas in modern developmental psychology. For example, the concept of developmental stages comes from evolutionary theory. However, critics of baby biographies claimed that studying children for the purpose of proving a theory might cause observers to misinterpret or ignore important information.

HALL G. Stanley Hall of Clark University wanted to find more objective ways to study development. He used questionnaires and interviews to study large numbers of children. His 1891 article titled “The Contents of Children’s Minds on Entering School” represented the first scientific study of child development (White, 1992).

Hall agreed with Darwin that the milestones of childhood were similar to those that had taken place in the development of the human species. He thought that developmentalists should identify **norms**, or average ages at which developmental milestones are reached. Norms, Hall said, could be used to learn about the evolution of the species as well as to track the development of individual children.

GESELL Arnold Gesell’s research suggested the existence of a genetically programmed sequential pattern of change (Gesell, 1925; Thelen & Adolph, 1992). Gesell used the term **maturation** to describe such a pattern of change. He thought that maturationally determined development occurred regardless of practice, training, or effort (Dalton, 2005). For example, infants don’t have to be taught how to walk—they begin to do so on their own once they reach a certain age. Because of his strong belief that maturation determines many important developmental changes, Gesell spent decades studying children and developing norms. He pioneered the use of movie cameras and one-way observation devices to study children’s behaviour. His findings became the basis for many **norm-referenced tests** that are used today to determine whether individual children are developing normally. Such tests help early educators find ways of helping young children whose development lags behind that of others their age maximize their potential for learning important skills, such as reading, when they reach school age.

PIAGET One of the most influential theories in the history of developmental psychology is that of Swiss developmentalist Jean Piaget (Thomas, 1996). At the age of 10, Piaget published his first scientific article, on sparrows. By the time he was 21, he had published more than 20 scientific articles and had received a Ph.D. in natural science from the University of Geneva. In 1918, he went to Paris to work with Theodore Simon, the co-author of the Binet-Simon IQ test, at the school that Alfred Binet started. Piaget married his colleague and student Valentine Châtenay in 1923, and two years later Châtenay gave birth to their first child, Jacqueline. Piaget and Châtenay made detailed notes about Jacqueline’s and their two other children’s intellectual and language development.

Piaget became a professor at the University of Geneva in 1921 and spent the next six decades studying the development of logical thinking in children, until his death in 1980. His studies convinced him that logical thinking develops in four stages between birth and adolescence. At first, infants explore the world by using their senses and motor abilities. Through their actions, they develop basic concepts of time and space. Next, young children develop the ability to use symbols (primarily words) to think and communicate. Once they become proficient in the use of symbols, around age 6 or 7, children are ready to develop the skills needed for logical thinking. They spend the next five to six years using these skills to solve problems in the everyday world. Finally, in the teenage years, individuals develop the capacity to apply logic to both abstract and hypothetical problems.

The stages Piaget described and the theory he proposed to explain them became the foundation of modern cognitive-developmental psychology. Consequently, you will be reading a great deal more about them in later chapters. Although many developmentalists disagree with Piaget’s theoretical explanations, a vast body of research, including numerous cross-cultural studies, supports the existence of the sequence of cognitive development that Piaget observed in his research (Mishra, 1997).

norms

average ages at which developmental milestones are reached

maturation

the gradual unfolding of a genetically programmed sequential pattern of change

norm-referenced tests

standardized tests that compare an individual’s score to the average score of same-aged peers

LEARNING OBJECTIVE 1.3 — A BRIEF HISTORY OF THE ROOTS OF PSYCHOLOGY IN CANADA

Describe the contributions made by Canadian psychologists during the field's formative years.

The first psychology course in Canada was taught at Dalhousie University in 1838. Later, in the 1850s, prescientific psychology courses were offered at McGill University in Montreal and the University of Toronto. In these early years, psychology was not considered a distinct discipline but rather a branch of mental and moral philosophy (Wright & Myers, 1982, p.86). It wasn't until 1889 that modern scientific psychology came to Canada. James M. Baldwin began lecturing in the fall of that year at the University of Toronto and set up a small psychophysical laboratory (Hoff, 1992).

In the 1920s, funding became available for child-related and family research and, in 1925, William Blatz opened the St. George's School for Child Study in Toronto. Blatz is regarded as “the founder and leader of child study in Canada” (Wright & Myers, 1982, p.86). St. George's was later renamed the Institute of Child Study and is now incorporated into the Ontario Institute for Studies in Education (OISE). Blatz is also known for his three years of work with the Dionne quintuplets, beginning in 1935.

Prior to World War II, there was no formal organization of practising psychologists in Canada. The impetus for creating a psychological organization came from the threat of war in Europe. In June 1938, psychologists were deliberating how they could provide their services for the war effort. From these discussions, E.A. Bott of the University of Toronto, George Humphrey of Queen's University, and Roy Liddy of the University of Western Ontario founded the Canadian Psychological Association (CPA) in 1939. Also present during these early discussions were Mary Wright and Mary Salter (later Ainsworth). Mary Wright, an assistant to Mary Salter Ainsworth, became the first woman president of the CPA in 1969 (Wright, 1993). Mary Salter Ainsworth, whose work on infant attachment you will encounter in **Chapter 6**, established the theoretical and empirical framework through which developmentalists continue to view infant-caregiver relations.

Canadian psychologists were very active during World War II, especially in Britain, where they focused on personnel selection, recruitment and training methods, morale issues, and all aspects of public opinion. Important strides in early education

came about at that time because of the major evacuation of children in Britain away from urban centres. Canadian psychologists were empowered to generate solutions to the ensuing child-care problems. William Blatz was called on to establish a nursery school teachers' training school in Birmingham (Ferguson, 1993). The school was staffed by Canadian child psychologists.

Another early contributor to the CPA was Donald O. Hebb, who was the first editor of the *Bulletin of the Canadian Psychological Association* (which later became the *Canadian Journal of Psychology*). Hebb, an internationally renowned pioneer in the field of experimental psychology at McGill, was president of the CPA in 1953 and the American Psychological Association in 1960. Noel Mailloux, another academic who helped organize the CPA, is credited with

In the early days of psychology, female psychologists seldom received credit for their accomplishments because of societal attitudes toward women. Mary Salter Ainsworth was one of the earliest female psychologists to be recognized in Canada; she was part of a group of psychologists actively involved in the creation of the Canadian Psychological Association. (Photo: Courtesy of the Estate of Mary Salter Ainsworth)



establishing the study of modern psychology in French Canada (Ferguson, 1993). He founded the Institut de Psychologie in 1942 at the Université de Montréal (Wright & Myers, 1982).

In 1981, the Developmental Section of the CPA was established. Its goal is to facilitate communication among developmental psychologists in terms of research, teaching, and practice. At present, the Developmental Section provides a forum for collaboration and the sharing of expertise for over 340 members. It has recently added the Elinor Ames Award for the best student presentation in the Developmental Section at the annual CPA convention.

test yourself before going on

- Write the name of the philosopher who is associated with each view of development.
 - original sin _____
 - blank slate _____
 - innate goodness _____
- What did each of these early researchers do?
 - Charles Darwin _____
 - G. Stanley Hall _____
 - Arnold Gesell _____
- Early in Canada, the discipline of psychology was originally studied as a branch of _____ and _____.

CRITICAL THINKING

- What are the child-rearing implications of the original sin, blank slate, and innate goodness views of development?

CONTEMPORARY DEVELOPMENTAL PSYCHOLOGY

LEARNING OBJECTIVE 1.4

Explain the importance of the lifespan perspective.

Developmental psychology has changed considerably since the early days. For one thing, the term *development* now encompasses the entire human lifespan rather than just childhood and adolescence. For another, developmentalists have come to understand that inborn characteristics interact with environmental factors in complex ways. Finally, the pioneers thought of change almost exclusively in terms of norms, whereas today's developmentalists view norms as representing only one way to measure change.

THE LIFESPAN PERSPECTIVE

As interest in the lifespan has grown, developmental psychology has become more *interdisciplinary*. Psychologists, who are primarily interested in individuals, have learned that research in other sciences can greatly enhance their understanding of human development. Anthropologists provide information about culture, and sociologists explain the influence of race, socioeconomic status, and other social factors on individual development. Advances in biology are especially critical to an understanding of the physiological foundations of human behaviour.

Psychologists once thought of adulthood as a long period of stability followed by a short span of unstable years immediately preceding death. This view has changed

because, for one thing, it has become common for adults to go through major life changes, such as divorce and career shifts. There has also been a significant increase in life expectancy in the industrialized world. The life expectancy of a Canadian born in 1921 was 59 years for a male and 61 years for a female; a Canadian male born today can expect to live beyond age 79 and a female to nearly 84 (Statistics Canada, 2012a; 2013a). As a result, older adults now constitute a larger proportion of the population than ever before. In fact, adults over the age of 85 are one of the most rapidly growing age groups in Canada, and their numbers are expected to increase fivefold over the next 50 years (Turcotte & Schellenberg, 2007). Thus, the characteristics and needs of older adults are increasingly influencing many disciplines, including developmental psychology.

lifespan perspective

the current view of developmentalists that changes happen throughout the entire human lifespan and that changes must be interpreted in light of the culture and context in which they occur; thus, interdisciplinary research is critical to understanding human development

The changes outlined above have led to the adoption of a **lifespan perspective**. The lifespan perspective maintains that important changes occur during every period of development and that these changes must be interpreted in terms of the cultures and contexts in which they occur (Baltes, Lindenberger, & Staudinger, 2006; Baltes, Reese, & Lipsitt, 1980). Thus, understanding change in adulthood has become just as important as understanding change in childhood, and input from many disciplines is necessary to fully explain human development.

Paul Baltes (1939–2006) of the Max Planck Institute in Germany was one of the early leaders in the development of a comprehensive theory of lifespan human development (Baltes, Staudinger, & Lindenberger, 1999; Lerner, 2008). Baltes proposed that the capacity for positive change, or *plasticity*, in response to environmental demands is possible throughout the entire lifespan. One such area of positive adult development is the area of personal goals—older adults pursue their goals more intensely than younger adults (Riediger, Freund, & Baltes, 2005). Consequently, one of Baltes's most important contributions to the study of human development was his emphasis on the positive aspects of advanced age. He emphasized that, as human beings age, they adopt strategies that help them maximize gains and compensate for losses. For instance, one of Baltes's most often quoted examples is that of concert pianist Arthur Rubinstein, who was able to outperform much younger musicians well into his 80s (Cavanaugh & Whitbourne, 1999). Rubinstein reported that he maintained his performance capacity by carefully choosing pieces that he knew very well (maximizing gain) and by practicing these pieces more frequently than he had at earlier ages (compensating for the physical losses associated with age). You will read more about Baltes's theories and his research later, in the chapters devoted to late adulthood.

LEARNING OBJECTIVE 1.5 — — — **THE DOMAINS OF DEVELOPMENT**

List and describe the three major domains of development.

physical domain

changes in the size, shape, and characteristics of the body

cognitive domain

changes in thinking, memory, problem-solving, and other intellectual skills

social domain

changes in variables that are associated with the relationship of an individual to others

Scientists who study age-related changes across the lifespan often use three broad categories, called *domains of development*, to classify these changes. The **physical domain** includes changes in the size, shape, and characteristics of the body. For example, developmentalists study the physiological processes associated with puberty. Also included in this domain are changes in how individuals sense and perceive the physical world, such as the gradual development of depth perception over the first year of life.

Changes in thinking, memory, problem-solving, and other intellectual skills are included in the **cognitive domain**. Researchers working in the cognitive domain study topics as diverse as how children learn to read and why some memory functions deteriorate in old age. They also examine the ways in which individual differences among children and adults, such as intelligence test scores, are related to other variables within this domain.

The **social domain** includes changes in variables that are associated with the relationship of an individual to others. For instance, studies of children's social skills fall

into the social domain, as does research on individual differences in personality. Individuals' beliefs about themselves are also usually classified within the social domain.

Using domain classifications helps to organize discussions of human development. However, it is always important to remember that the three domains do not function independently of one another. For instance, when a girl goes through puberty, a change in the physical domain, her ability to think abstractly (cognitive domain) and her feelings about potential romantic partners (social domain) change as well. Likewise, older adults who suffer from Alzheimer's disease demonstrate obvious changes in the cognitive domain. But these changes both result from and lead to others in the remaining two domains. Physical changes in the brain are the most likely cause of Alzheimer's disease. The experience of living with the disease may cause a sufferer to be unable to maintain a regular eating and exercise schedule, thus leading to deterioration in physical health. Moreover, individuals who have such severe memory impairments often forget important things about the people with whom they associate, such as their names and relationships. As a result, social relationships are disrupted or may even be impossible.

THE INTERACTIONIST MODEL OF DEVELOPMENT

Some early developmentalists thought of change as resulting from *either* forces outside the person *or* forces inside the person. The debate about the relative contributions of biological processes and experiential factors was known as the *nature–nurture controversy*. In struggling with this important issue, psychologists have moved away from either/or toward more subtle ways of looking at both types of influences. Today, many theorists have adopted an **interactionist model** that considers development to be the result of complex reciprocal interactions between multiple personal and environmental factors.

A good example of research that exemplifies the interactionist model is implicit in the ideas of *vulnerability* and *resilience* (Willms, 2002a). According to this view, each child is born with certain vulnerabilities, such as a tendency toward emotional irritability or alcoholism, a physical abnormality, or an allergy. Each child is also born with some protective factors, such as high intelligence, good physical coordination, an easy temperament, or a lovely smile, that tend to make her more resilient in the face of stress. These vulnerabilities and protective factors then interact with the child's environment so that the same environment can have quite different effects, depending on the qualities the child brings to the interaction.

Studies of Canadian children have shown that a combination of a highly vulnerable child and a poor or unsupportive environment produces by far the most negative outcome (Schonert-Reichl, 1999; Willms, 2002b). Either of these two negative conditions alone—a vulnerable child or a poor environment—can be overcome. A resilient child in a poor environment may do quite well, since she can find and take advantage of all the stimulation and opportunities available; similarly, a vulnerable child may do quite well in a highly supportive environment in which parents help the child overcome or cope with her vulnerabilities.

CONTINUITY AND DISCONTINUITY IN DEVELOPMENT

A key issue in the study of human development is the *continuity–discontinuity* issue. The question is whether age-related change is primarily a matter of amount or degree (the *continuity* side of the debate) or more commonly involves changes in type or kind (the *discontinuity* side). For example, a 2-year-old is likely to have no individual friends among her playmates, while an 8-year-old is likely to have several. We could think of this as a **quantitative change** (a change in amount) from zero friends to some

LEARNING OBJECTIVE 1.6

Describe the interactionist model of development.

interactionist model

the theory that development results from complex reciprocal interactions between multiple personal and environmental factors

Explore

Key Issues in Developmental Psychology

LEARNING OBJECTIVE 1.7

Explain developmental changes in terms of continuity and discontinuity.

quantitative change

a change in amount