



second edition

# Developmental Psychology

**Patrick Leman | Andy Bremner**

Ross D. Parke | Mary Gauvain



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# Preface

We were all young once. It follows that every psychological phenomenon you will study in adults has a developmental history. For this simple reason, developmental psychology comprises one of the largest subdivisions within psychology, with huge numbers of scientific papers dedicated to attempting to answer the questions it poses. The journal *Developmental Psychology* receives the second highest number of submitted articles out of all of the American Psychological Association (APA) journals.

Developmental psychology is a dynamic area of research; it continually combines with, integrates and informs other subdivisions of psychology to provide frequent, novel insights into how children grow and learn about the world around them. To provide some examples of this kind of synergy of developmental psychology with other disciplines and domains: advances in cognitive neuroscience enable advances in understanding of cognitive development and cognitive functions; likewise, changes in society have an important impact on the social and emotional development of gender identity and peer relationships. The impact of developmental psychology is equally wide; it stimulates new developments in educational practice for typically and atypically developing children, and informs health care for people of all ages across the lifespan. Importantly, though, it is an intrinsic interest in what makes us mature, and in how that relates to almost every other area of psychological understanding, that has kept developmentalists committed to researching and teaching developmental psychology. This is why we have written this book.

This revised edition of one of the world's leading developmental psychology textbooks adopts an international outlook. It is with this in mind that we have looked to develop a text that encompasses a broader range of theories and research. The book also combines classic and up-to-date research across the broad span of developmental psychology.

The book is designed with first- and second-year undergraduate students in mind. The structured and topical approach provides teachers and students alike with a systematic introduction to the latest international research in the area, building upon knowledge in a progressive way throughout. It also means that each chapter serves as a standalone introduction to an area, with links through to other chapters throughout.

## OUR APPROACH IN THIS BOOK

### Balanced theoretical perspectives

The topical approach of the book allows for a sophisticated presentation of the theories that guide research in the many areas of developmental psychology. We have attempted to show in each chapter how thinking about important questions has changed through critiques and revisions of classic theories in accordance with up-to-date empirical findings. We aim to provide a balanced presentation of the grand and classic theories, with acknowledgement of

the more specialized theories that are important in particular areas.

While the theoretical approaches that are most popular vary from region to region, we have attempted as far as is possible to portray the field in a balanced way, offering at the same time a holistic overview of the major topics for developmental psychology. In order to achieve this we have added new topics and chapters to the original US format of the book and have extensively revised other areas. Also, to highlight the importance of how research in different areas and different theoretical approaches can influence and inform one another we have therefore included cross-links in every chapter to highlight some of the main ways in which students and instructors can think about linking material across the book.

## Basic and applied research

Throughout the book you will see a focus on a data-driven approach to understanding development. We believe that this is important if university education is to stimulate new generations of researchers who will apply their scientific acumen to investigating new questions about development. You will see this empirical emphasis particularly in the Page vii methods chapter (Chapter 3), but we have also taken the opportunity to remind students about the methods developmentalists use through our coverage of each individual topic. Perhaps the clearest way in which this is achieved is through the Research Close-Up boxes (detailed below). While this book covers research methods that are employed across psychology as a discipline, there are of course some methodological approaches that are unique to developmental psychology. Particular emphasis is therefore placed on developmental methodologies.

Thus, we advocate a consideration of ‘basic’ developmental psychology research throughout the book. However, we also place particular emphasis on how understanding the broadest implications and applications of this research can provide further insights. Basic research can enable us to understand real-life problems and, conversely, insights gained from applying the results of scientific investigation can help improve research and sharpen theoretical understanding. This emphasis of basic research and application is brought into focus by the pedagogical features we employ throughout the book. Each chapter contains two types of pedagogical boxes: Research Close-Up (these boxes present single research studies in detail, giving students a sense of how research is carried out) and Applied Developmental Psychology (these boxes discuss instances of how developmental research has been applied outside of the purely academic domain).

## International approach

Developmental psychology is an international discipline. As such, we have opted not to focus explicitly on any particularly region with regard to theories and research. Our aim is to provide students with an international and holistic introduction to the discipline; this means using the most appropriate research and examples for a given topic. Based on our location, there is some natural bias towards the European region and local research, but we do not offer this at the expense of key US or broader international research.

This approach is reflected in both the research and theoretical presentation across the book. There are certain theories and topics that were not covered in the US edition but are deemed important by a wider international community. These topics and theories have been included in our revised edition. We provide more detail regarding the adaptation next.

## HIGHLIGHTS OF THE NEW EDITION

In our original adaptation of Parke and Gauvain, we undertook a number of structural changes as well as updating and expanding the coverage in a number of areas. We introduced new chapters on developmental research methods and theoretical approaches, as well as consolidating coverage of developmental psychology into a topic based approach via new chapters on brain development, physical development, perceptual and sensorimotor development, and adult development. We think that the structural changes which we introduced in the new edition have been effective and have retained these for the new edition, whilst undertaking a thorough revision of content. We have highlighted some of the key changes to the second edition below:

### Chapter 2: Theories in Developmental Psychology

- Significant expansion of coverage of modern nativist theories of development (e.g., those of Spelke and Gopnik).
- Increased coverage of computational models of development, incorporating connectionist, Bayesian models of development as well as dynamical systems accounts.

### Chapter 3: Research Methods in Developmental Psychology

- Updated Applied Developmental Psychology box on delayed gratification in response to recent and significant findings in this area.
- Updated Applied Developmental Psychology box on research addressing the effects of television use in children to include the latest perspectives and data on the use of social media and tablets.
- A new structure and a thorough updating of the ‘Methods for Data Collection’ section.

### Chapter 4: Physical Development: Growing a Body

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- Thorough updates and additions to the section on ‘Risks in the Prenatal Environment’ to incorporate the latest developments in this area of research. This includes new subsections on ‘Principles of teratogenesis’, and ‘How do teratogens have their effects?’
- A new Applied Developmental Psychology box examining the effects of tactile contact on brain development in preterm infants.
- A new section on embodied approaches to development.

- A new section on the effects of puberty on brain development.

## Chapter 5: The Biology of Development: Genes, Nervous System, Brain and Environment

- Updated and more extensive coverage of polygenicity.
- An extensive update of the behavioural genetics section, including an analysis of critiques of behavioural genetics methods.
- New Research Close-Up box on use of functional near infrared spectroscopy (fNIRS) for investigating the social brain in infancy.
- A substantially updated section on brain plasticity.

## Chapter 6: Perceptual and Sensorimotor Development

- Completely restructured chapter which captures current trends in the discipline, emphasizing the development of a wider range of senses including touch and chemosensation, as well as multisensory interactions among the senses.
- New material on the origins of an ability to perceive material properties of objects in infancy.
- New section capturing a wide range of research findings regarding how infants perceive their social world.
- New Research Close-Up box on human foetus's *in utero* face preferences.
- New section on the development of self and body perception in infancy.

## Chapter 7: Emotional Development and Attachment

- Expanded coverage of children's understanding of facial expressions.
- Revised attachment coverage.

## Chapter 8: Language and Communication

- Increased coverage of pointing, joint attention and crying.
- Additional coverage of phonological development, including research on dyslexia.

## Chapter 9: Cognitive Development: Origins of Knowledge

- Enhanced coverage of Bruner and scaffolding.
- Updated coverage of language and internal speech.

- Updated coverage of perspective taking in children.
- Updated coverage of children's trust in testimony.
- New coverage of recent controversies around early false belief abilities in infants.

## Chapter 10: The Development of Cognitive Functions

- Substantially updated coverage of the development of imitation, controversies surrounding neonatal imitation and rational imitation.
- Rewritten and updated section on models of cognition, with an increased emphasis on the working memory model.
- New section on the relevance and use of cognitive models.
- Considerable restructuring of the sections on the development of cognitive strategies and functions, placing a greater emphasis on the development of executive function and the role of executive functions across domains.

## Chapter 11: Intelligence, Achievement and Learning

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- Expanded assessment coverage to include the Cognitive Assessment System and Raven's Matrices.
- Individual differences in intelligence expanded.
- New coverage of executive functions and working memory in education.
- Expanded achievement coverage.

## Chapter 12: Parents, Peers and Social Relationships

- Revised parents and family section.
- Expanded coverage of parental versus peer influence.
- Coverage of bullying included.

## Chapter 13: Social Identities: Gender, Gender Roles and Ethnicity

- Extended biological coverage of gender differences.
- Revised section on media impact on gender identity.
- New coverage of ethnicity.

## Chapter 14: Morality, Altruism and Aggression

- Extended section on Piaget's theory.

- Neuropsychological and socioemotional approaches.
- Revised section on prosocial behaviour.

## Chapter 15: Atypical Development

### with Alice Jones

- This chapter has been renamed ‘atypical development’ (whereas previously it was developmental psychopathology) to reflect a rebalancing of the coverage towards cognitive developmental disorders.
- Updated section on the principles of atypical development.
- Updating of all coverage to reflect revised diagnostic criteria and classification of disorders in DSM-5 (2013).

## Chapter 16: Development in Adulthood

- Focus on the cognitive decline in intelligence, problem solving and memory.
- Social focus on relationships and happiness in later life, particularly with regard to romantic relationships.

# Guided tour



### laboratory experiment

A research design that allows investigators to determine cause and effect by controlling variables and treatments, and assigning participants randomly to treatments.

### experimental group

In an experiment, the group that is exposed to the treatment, or the *independent variable*.

**control group** In an experiment, the group that is not exposed to the treatment, or the *independent variable*.

**random assignment** The technique by which researchers assign individuals randomly to either an *experimental* or *control group*.

The primary means by which researchers investigate causal connections among factors is with an experiment. An experiment can be carried out in a laboratory or in natural situations. In a **laboratory experiment**, researchers are able to control factors that may influence the variable they are interested in, and therefore their results allow them to draw conclusions about cause and effect. Researchers will control or hold constant, or equate, every possible influence except the one factor they have hypothesized to be the cause of the variable they want to study. They then create two groups of participants. One group, called the **experimental group**, is exposed to the proposed causative factor; the second group, the **control group**, does not experience this factor. Researchers put people in these two groups by using **random assignment**, which helps to rule out the possibility that the people in each of the groups differ from one another in some systematic way that could distort the results of the experiment.

To understand how these various controls enable the laboratory experimenter to determine causality, let's look at a classic study of the relation between watching violent television programs

All **key terms** are defined in the margin near where they are first mentioned in the text. Use these at-a-glance definitions to learn the important terms in developmental psychology as you go through the course. They are also collected together in the Glossary at the back of the book and online.

### Applied Developmental Psychology

#### BOX 3-2 How can we make better use of research on children's television/internet use?

The impact on children of the amazing growth of communications media—radio, movies and comic books to television and its more recent cousin internet, social media, smartphones and tablets – children have been born with experiences via the media.

What has the wealth of research on children and television revealed? It has shown that some television programmes do help young children learn, but others have shown on children of watching programmes filled with violence and sex as well as the young child's limited understanding (Comstock & Scharrer, 2006).

Research on children's and adolescents' use of the internet and social media has shown positive effects, such as improved reading scores (Jackson et al., 2006), and increasing adolescents' awareness of dangerous behaviours such as various forms of violence (Eckenrode, 2006). More worryingly, social media use seems to, under some circumstances, have negative effects on mental well-being such as increased depressive symptoms (Lewinsohn & Rohde, 2000).

With the advent of media equipment which is becoming ever more accessible, it is important to consider the impact of these technologies on children's development.

**Applied Developmental Psychology** boxes bring research, theories and concepts to real-world, practical situations.

### Research Close-Up

#### BOX 4-2 The impact of pubertal timing on delinquency

Source: Based on Caspi et al. (1993)

##### Introduction:

In 1993, results of several longitudinal investigations of the affect of timing (the timing of sexual maturation) on various behaviours and social outcomes in adolescent girls were published. The message about early puberty. Simmons and Blyth (1987) reported that girls who had started menstruating earlier than their peers experienced more body image problems, and lower academic achievement. Magnusson (1990) reported more sexually precocious and delinquent behaviour in girls who had started menstruating earlier. Caspi and Moffitt (1991) showed that early-menarche girls produce more delinquent behaviour in adolescence. Particularly striking was the fact that these converging findings were found in a number of different countries (the US, New Zealand and Sweden). The research is exploring the causal developmental pathways linking sexual maturation to these behaviours.

**Research Close-Up** boxes introduce you to the format of real research in developmental psychology. Each box summarizes an important research paper, explaining the methods the authors used, the results they obtained and a discussion to help you think critically about the significance of the study.

, but all of our senses depend on what our bodies can do. We can only  
 : right directions. We can only touch them if we bring our bodies into  
 hapes and sizes and abilities of our bodies determine what we perceive.  
 ent now. In the infant and child, the body and  
 stent and constant as they are in an adult.  
 id sometimes grow perceptibly even overnight  
 Our abilities to use their bodies in the service  
 not just in infancy, but throughout early life  
 l., 2017). If we agree with the embodied cogni-  
 er that infants' and children's ways of thinking

In Chapters 6 and 9 we will look at some of the ways in which changes in the body influence our cognitive and perceptual abilities.

**Making Connections** margin notes will help you to relate topics explored in different chapters. They provide a link to relevant content covered in other chapters to help you draw associations between different topics.

male and female partners of the mother can play important roles  
 /en what we have discussed in this chapter, what do you think  
 negative influences partners can have on the early development

**Explore and Discuss**

nall preterm infants to survive, but some of these children face physical,  
 ere things that can be done to improve these problems?

ng increasingly obese. What factors do you think account for this trend?

h sexual maturation can impact on social and cognitive development?

**Explore and Discuss** study questions at the end of the chapter prompt you to think critically about some of the issues discussed in the chapter. These questions can be either undertaken individually or used as a focus for group discussion in seminars or tutorials.

gor, N. A., & Smotherman, W. P. (1995). *Fetal development:*  
 hale, NJ: Lawrence Erlbaum.  
 formant. In J. W. Fagen & H. Hayne (eds) *Progress in infancy*  
 ce Erlbaum.  
 4). Puberty and psychological development. In R. M. Lerner &  
*scent psychology*, 2nd edn. New York: John Wiley & Sons.

**Recommended Reading**

Use the **Recommended Reading** list at the end of each chapter as a starting point for further research.

## CHRONOLOGY OF DEVELOPMENT

### An overview of prenatal development

	No. of months gestational age	Approximate size & weight (millimetres & grammes)	Central nervous system and peripheral sensory systems
Zygote	0-1	5 mm. 0.2 g	Neural tube forms.

**Chronology of Development** charts show the typical ages at which children develop abilities.

## SUMMARY

Developmental psychologists use the *scientific method* in their research basis of theories. Hypotheses are tested using replicable techniques to Researchers collect data from a number of different sources. These i reports from others who know the child – such as parents, teachers and p challenges to collecting data from individuals at different ages, from inf the competency of individuals at different ages varies enormously. Thus a employed in the field, and researchers tailor these methods to answer the ages. For instance, biological and psychophysiological measures inclu

Use the **Summary** at the end of the chapter to check your understanding of the core theory.





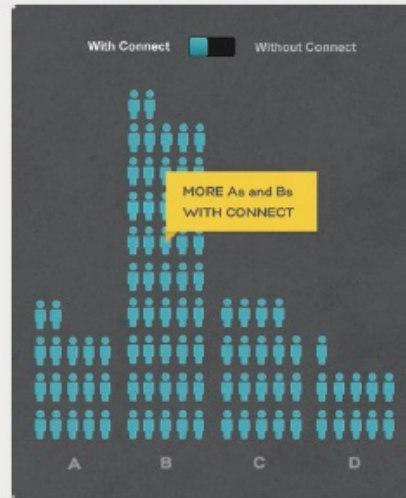


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- Focus on concepts they are most likely to forget, ensuring that knowledge is retained into the long term memory.

value: 10.00 points

Sources of Variability: Twins

Please choose best answer to complete the sentence from the drop down menu.

Emily and Robin are twins. They were originally a single zygote that split in two. Therefore, they are [Click to select] or [Click to select] twins. David and Allison are also twins, but developed from separate eggs and sperm. Therefore, they are [Click to select] or [Click to select] twins. David and Allison are no more genetically similar than regular [Click to select].

Report a content issue Check my work

value: 0.94 points

The proximal-distal principle of growth states

- that development occurs from the center outward.
- that development occurs from the head downward.
- that development occurs from general to specific structures.
- that development is an approximation of growth at certain stages.

References

Multiple Choice Learning Objective: 1

Difficulty: Easy 158

Chapter	Section	Question	Score
1	Developmental Psychology: Foundations	1. Developmental Psychology: Foundations	100%
1	Developmental Psychology: Foundations	2. Developmental Psychology: Foundations	100%
1	Developmental Psychology: Foundations	3. Developmental Psychology: Foundations	100%
1	Developmental Psychology: Foundations	4. Developmental Psychology: Foundations	100%
1	Developmental Psychology: Foundations	5. Developmental Psychology: Foundations	100%
1	Developmental Psychology: Foundations	6. Developmental Psychology: Foundations	100%
1	Developmental Psychology: Foundations	7. Developmental Psychology: Foundations	100%
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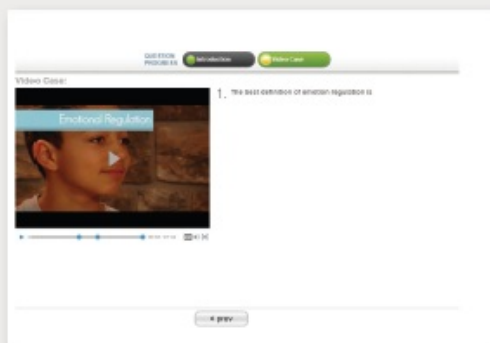
## Interactives

Encourage students to illustrate a concept in an engaging and stimulating activity format with step-by-step guidance, to ensure conceptual understanding is tested, applied and reinforced. The activities provide seamless assignability and automatic grading capabilities.



## Milestone videos

Allow students to experience life as it unfolds from infancy to late adulthood. The video series tracks the development of real children as they progress through the early stages of physical, social and emotional development in their first few weeks, months and years of life.



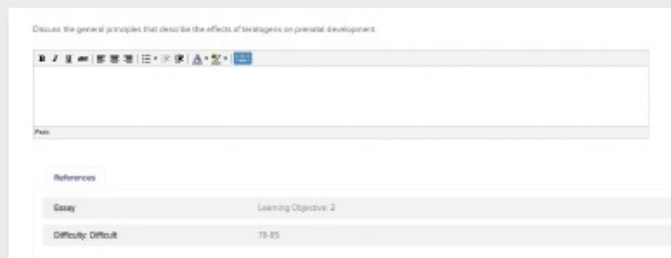
## Auto-gradable questions

Check students' knowledge and conceptual understanding through multiple choice and true or false questions. Provides students with immediate feedback and enables lecturers to have further insight into student performance.



## Testbank

Comprehensive auto-gradable questions which can be used for testing and as homework assignment.



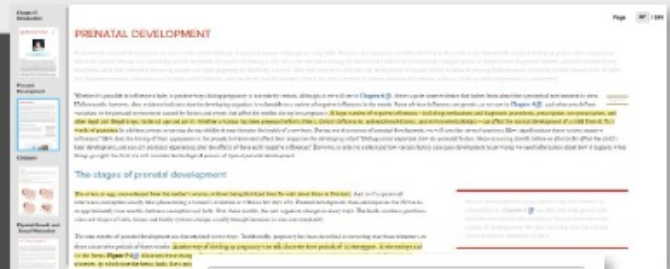




# Get Connected. Get Results.

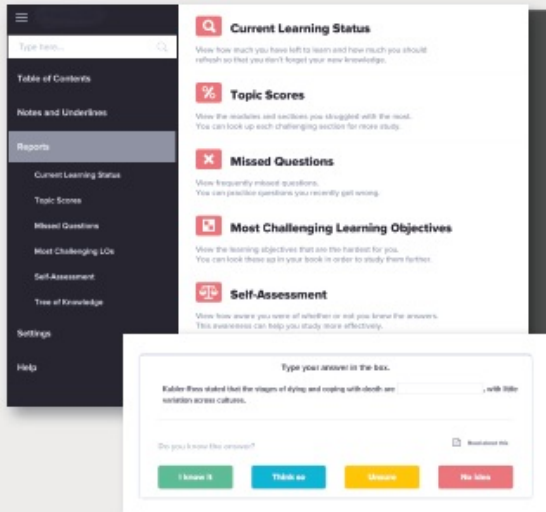
## SmartBook™

Fuelled by LearnSmart—the most widely used and intelligent adaptive learning resource—SmartBook is the first and only adaptive reading experience available today. Distinguishing what a student knows from what they don't, and honing in on concepts they are most likely to forget, SmartBook personalizes content for each student in a continuously adapting reading experience. Valuable reports provide instructors with insight as to how students are progressing through textbook content, and are useful for shaping in-class time or assessment.



## LearnSmart™

McGraw-Hill LearnSmart is an adaptive learning program that identifies what an individual student knows and doesn't know. LearnSmart's adaptive learning path helps students learn faster, study more efficiently, and retain more knowledge. Now with integrated learning resources which present topics and concepts in different and engaging formats, increases student engagement and promotes additional practice of key concepts. Reports available for both students and instructors indicate where students need to study more and assess their success rate in retaining knowledge.



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