

DEVELOPMENTAL AND EDUCATIONAL PSYCHOLOGY FOR TEACHERS

AN APPLIED APPROACH



Dennis M. McInerney and David W. Putwain

Developmental and Educational Psychology for Teachers

Developmental and Educational Psychology for Teachers brings together a range of evidence drawn from psychology to answer a number of critical educational questions, from basic questions of readiness – for example, when is a child ready for school, through to more complex matters, such as how does a teacher understand and promote good peer relationships in their classroom? The answers to these and other questions discussed draw on the interplay between a teachers' craft expertise and their knowledge of evidence and theory from developmental and educational psychology.

Presenting a range of classic theories and contemporary research to help readers understand what the key issues are for teachers and other professionals, this book aids informed educational decisions in situations such as:

- inclusion;
- ability grouping;
- sex differences;
- developing creativity;
- home and peer influences on learning;
- and developing effective learners.

Teachers in early years, primary, and secondary settings are routinely faced with questions regarding the development of children. This not only relates to the planning and delivery of lessons, but also to the mental and physical well-being of the children and adolescents who they teach. The pedagogical features of this book are accessible and clearly presented, including question points that direct the reader's attention to key issues, activity posts that point the reader to meaningful and relevant research and show the practical applications of material covered, and extension material that gives depth to many of the topics covered.

This book aims to inform the practice of both in-service and trainee teachers, addressing issues that are relevant to their practice. With no other detailed and accessible text presenting this evidence and theory specifically for an audience of practicing and trainee teachers currently on the market, this book will be essential reading to practicing and trainee teachers for early years, primary, and secondary education and other related educational contexts such as educational psychologists, counsellors, paediatric and child doctors and nurses.

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Developmental and Educational Psychology for Teachers

An applied approach

Second edition

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 Routledge
Taylor & Francis Group
LONDON AND NEW YORK

Second edition published 2017
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

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First edition published 2006 by Allen & Unwin.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data

Names: McInerney, D. M. (Dennis M.), 1948- author. | Putwain, David, author.

Title: Developmental and educational psychology for teachers : an applied approach / Dennis McInerney & David Putwain.

Description: 2nd edition. | Abingdon, Oxon ; New York, NY :

Routledge is an imprint of the Taylor & Francis Group, an Informa Business, [2017] | Includes bibliographical references.

Identifiers: LCCN 2016013657 | ISBN 9781138947702

(hbk : alk. paper) | ISBN 9781138947726 (pbk : alk. paper) | ISBN 9781315669953 (ebk)

Subjects: LCSH: Educational psychology. | Developmental psychology.

Classification: LCC LB1051 .M398 2017 | DDC 370.15—dc23

LC record available at <https://lcn.loc.gov/2016013657>

ISBN: 978-1-138-94770-2 (hbk)

ISBN: 978-1-138-94772-6 (pbk)

ISBN: 978-1-315-66995-3 (ebk)

Typeset in Giovanni
by Swales & Willis Ltd, Exeter, Devon, UK

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Acknowledgments

We are deeply indebted to Bruce Roberts from Routledge who strongly supported this project from its beginning. We would also like to thank Roseanna Levermore, Sarah Sleath and Kristin Susser for their guidance throughout production. We would like to thank Sally Beesley for her beautiful book design, and Kelly Winter for her very thorough copyediting.

We would also like to sincerely thank Joelle Enver for her wonderful artwork that enlivens the text. Finally, we would like to thank the anonymous reviewers of an earlier draft who provided us with insights that have enriched the text.

Preface

There are many excellent developmental psychology texts available, but there are few that take teaching and learning as their specific focus.

Developmental psychology texts are often quite encyclopedic, and readers can be overwhelmed. In this text we have selected material that we believe is of most relevance to students preparing to be teachers across the broad spectrum from early childhood through to early adulthood. Our selection is based on our extensive practical experience of teaching, learning, and researching, with a clear focus on effective education.

Key themes in the text are:

- Heredity and environment, with a particular emphasis on how this information is useful for understanding normal development as well as special learning needs.
- Physical and motor development from early childhood to early adulthood, with a special emphasis on features that separate the different growth stages, and developmental health issues of relevance to teachers.
- Cognition and cognitive development from early childhood through to early adulthood, with an emphasis on contemporary approaches such as metacognition.
- Psychometric intelligence, alternative views of intelligence, and creativity.
- Contemporary views of intellectual development, particularly information processing.
- Personal, social and moral development from early childhood through to early adulthood, with particular emphasis on contemporary themes of importance.

We have developed each theme in an educational context so that the links between the information, teaching and learning are clear and explicit. We have also situated these themes within a research context so that the reader can critically evaluate research findings as well as be inspired and enthused to conduct research.

Chronological approach

No organisational structure of a developmental psychology text is ideal. One can take a topical approach or a chronological approach. We have organised the text chronologically within topics. For this reason, we ask readers to ensure that they read all chapters, even though they might be specialising in one or other level of teaching, such as early childhood, primary, secondary, or tertiary. It is essential, particularly when considering some of the big theories of development, to read the beginning, middle, and end of the theories!

Pedagogical features

We have endeavoured to write the text in clear and easy-to-understand English. We hope we have succeeded. To facilitate learning, we have included the following pedagogical features:

- An introduction to each chapter that serves as an advance organiser for the material to be covered.
- Focus questions that direct the reader's attention to key issues for elaboration.
- Practical activities that engage the reader in meaningful and relevant research and show the practical applications of material covered.
- Selected focus on extension material that gives depth to many of the topics covered.
- Captions, and drawings that illustrate key concepts covered.
- Internet references throughout.
- Glossary of key terms and a list of references.

We hope that this mix of pedagogical features helps the book to be both fun and interactive, and encourages you to deepen your understanding of themes covered.

Developmental psychology: themes and research

Introduction

In this book, we are concerned with *human development* from early childhood through to adulthood. What is development and what are the types of development that are of particular interest to psychologists, teachers, health care professionals, and others concerned with the healthy growth of children?

In essence, development refers to systematic, age-related changes in physical and psychological functioning. Systematic physical changes include basic biological developments that result from conception, as well as those that are the result of the interaction of biological and genetic processes and environmental influences. Systematic changes in psychological growth encompass a whole host of characteristics such as cognitive, personal, social, emotional, and moral characteristics.

Developmental changes may be qualitative, such as an infant progressing from crawling to walking, or quantitative, such as an infant becoming more and more adept at walking. Some developmental theorists, such as Piaget, believe that only qualitative changes are the real markers of development. In Piaget's stage theory of cognitive development, which is described in detail in Chapter 5, children go through four discrete cognitive stages of development each characterised by different cognitive capacities. Other psychologists, such as information processing psychologists put more emphasis on quantitative changes, such as the improved speed with which an individual can process and encode specific information. While information processing psychologists believe that qualitative changes do occur in children's thinking as they grow older, the elements of information processing are available to children at an early age and they acquire increased sophistication in their use as they grow older (see, for example, Veenman & Spaans, 2005).



QUESTION POINT

Draw a timeline of major features of your development until adulthood. Which of the changes were qualitative in nature? Which of the changes were quantitative? Which type of change do you consider as a more significant marker of your personal development?

Another characteristic of development is continuity. Many developmental psychologists consider that once development has commenced for an individual there is a regularity and predictability about it that allows us to predict the future course of development for that individual. For example, if a child demonstrated a low academic or physical ability early in life, this will probably continue as a trend throughout the child's development. Freud's theory, which we consider later in the book is a good example of a theory that holds that personal development shows continuity based on early life experiences of the individual, which is relatively impervious to change. Of course, many other developmental psychologists argue that there is just as much evidence for discontinuity in development whereby individuals experiencing environmental interventions of various types may begin on a developmental trajectory quite different from predicted. Foremost among these psychologists were the early behavioural theorists such as John. B. Watson and Burrhus. F. Skinner who believed that an individual's behaviour was malleable depending on environmental experiences, and in particular, the reinforcing experiences an individual had for particular behaviour. Continuity in development allows prediction and intervention, however, as we have indicated, many theorists believe that a considerable number of human characteristics show discontinuity in developmental trends.



QUESTION POINT

Consider your own development since you were a youngster. Which of your characteristics show continuity across your life? Are there characteristics that have changed? If so, what were the circumstances for the change?

Knowledge of physical and psychological development patterns and milestones, qualitative and quantitative changes, continuity and discontinuity, prepares professionals for their daily interactions with children and adolescents as they grow to maturity. Such knowledge guides teachers, social workers, nurses, psychologists, and doctors in their development of effective educational and health programmes to maximise the development of each individual. Typical patterns of development that characterise most children and adolescents allow such professionals to design programmes that may be applied generally. In contrast, knowledge of atypical patterns that vary from norms allows professionals to individualise health and educational programmes to suit the needs of particular individuals. In this book, we will consider each perspective.

Studying development

Psychology, as a discipline of science, refers to the study of human behaviour, and in particular, the study of the behaviour of individuals and groups. Psychologists study behaviour in order to understand human nature and why people do the things

they do. Behaviour may be overt, as in a child demanding attention, or covert, as in a person's stomach contracting. Behaviour has both cognitive and affective elements. Much behaviour appears logical, orderly, and constructive. At other times, behaviour might appear irrational, strange, and bizarre. Behaviour might be simple or complex. Developmental psychology, as the name implies, studies, in particular, the development of human capacities such as thinking, feeling, and behaving. Developmental psychologists are interested in the various stages and elements of development, the principles of maturation, the effects of early experience and later practice on development, and a host of other issues.

In order to obtain valid and reliable information on child and adolescent development it is necessary to study development closely. Developmental psychology has had a long history of systematically obtaining, through rigorous observation and controlled studies, essential information on the regularities and exceptions to development that have guided professionals, and which forms the basis of information in books such as this one (see, for example, Hergenhahn & Henley, 2014). Two elements are important in the study of development, first, describing development, and second, explaining development. In our treatment of development throughout this book we will both describe the key elements of development over physical and psychological domains, and where appropriate, attempt to explain the nature and course of development.

There has also been centuries of theoretical and philosophical speculation on the nature of human development, and in particular, whether development is innately 'hot wired' into the system at conception, an approach often referred to as nativist or **hereditarian**, or whether development is much more malleable and subject to environmental influences, often referred to as empiricist, or **environmentalist**. This issue is often referred to as the nature–nurture debate, which we discuss in Chapter 2.

If you were to look through the history of psychology, you would also see that over the last two centuries there has been a considerable shift from identifying a few basic stages of human development such as childhood and adulthood, through to an ever-increasing identification and refinement of stages. These refined stages include not only infancy, early childhood, middle childhood, late childhood, adolescence, and adulthood, but also an entire life span approach encompassing old age as a separate developmental stage (see, for example, Santrock, 2009). In this book we divide our examination of most topics into discrete time frames such as early, middle and late childhood, and adolescence. However, you should be aware that these divisions are somewhat arbitrary and you should read across the topics in order to get a complete picture of developmental processes, their regularities, and idiosyncrasies.

There has also been an increase in interest in studying the interaction of various developmental systems (such as physical, cognitive, emotional, and social), and an increasing emphasis on the complexity of the influences (such as biological and social) that influence development. A strong exponent of this approach, Urie Bronfenbrenner, developed an ecological model of human development, which includes an ever-widening set of influences on development (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006). While we do not specifically deal with the ecological approach in this book, it is worth your while to read up on it. Nevertheless, we do emphasise throughout the need to put development in its full context, which includes cultural and socioeconomic contexts.

While observation of human behaviour began with early philosophers such as Aristotle, St Augustine, and Jean-Jacques Rousseau, dramatists such as Shakespeare,

and scientists such as Charles Darwin, careful scientific observation of human nature from which emerged great theories of human development began in the early 1900s (see, Hergenhahn & Henley, 2014). Major contributions were made by people such as, Jean Piaget, Lev Vygotsky, and Alexander Luria in the development of cognition; John Watson, Edward Thorndike, and Burrhus Skinner, in behavioural development; William James, Granville Hall, Sigmund Freud, and Carl Jung in self and personality development; Alfred Binet and James Cattell on mental testing; and Arnold Gesell on physical development. From this early systematic theorising and observational, clinical, and experimental research emerged a body of knowledge that forms the core of developmental psychology (and other branches of psychology) and from which emerged the contemporary scientific study of child and adolescent development.

Throughout the study of psychology, various research approaches have fallen in and out of favour. Many early studies were based on the **clinical method**. By the clinical method we mean a procedure whereby a psychologist probes for information by asking a respondent questions in an interview setting, and supplementing the information obtained in this manner with observations, projective techniques (such as interpreting pictures), and perhaps some activities (such as completing a relevant task). The clinical method formed the basis of the research of a whole host of early masters such as Piaget and Freud.

However, other psychologists considered such approaches too subjective, open to interpretation, and relatively non-scientific. These researchers preferred a **scientific method** based on controlled experiments in which cause and effect could be examined. Experimental approaches formed a major component of the research techniques of some early giants of psychology such as Watson, Thorndike, and Skinner.

Whether research is clinical or experimental, good research is based on theory and hypothesis testing. In other words, researchers attempt to answer questions related to development such as 'are there critical times for the development of speech?', 'is bonding with parents essential for the emotional health of children?', 'does cognitive development proceed in stages?', and 'does viewing violent television make children more violent?'. Theories, hypotheses, and research questions are essential as they drive the investigative process, and from well-designed studies is generated the information upon which psychologists, teachers, nurses, psychiatrists, and other professionals make informed judgements.

There is no right way to study child development; both the clinical method and controlled experiments allow us to discover useful information. However, it is essential that whatever method is used, is used correctly. In a later section of this chapter we discuss some common research techniques utilised by psychologists.



QUESTION POINT

During your study at school or at university were you a participant in a research study? If so, what was the nature of the study? What were you required to do? Were you given prior information on the purpose of the study? Were you given feedback on the results of the study?

Themes in developmental psychology

What are the major themes in developmental psychology? Typically, developmental psychology examines physical development, cognitive development and cognitive processes, intelligence, personal, social, moral and emotional development, language development, as well as learning and motivational processes (see, for example, Cairns & Cairns, 2007). Biological and environmental influences on development, which include the family and peers, as well as cultural influences form a major focus of attention. In this book we consider most of these issues from the perspective of what is useful and necessary for teachers and other related professionals to know. In the following sections we give a brief overview of content to be covered in each of the subsequent chapters.

Heredity and environment

Why are we like the way we are? This question has intrigued psychologists since the beginning of the study of the development of human nature. There are two key factors involved in the development of human beings; heredity and environment. In Chapter 2, we examine the relative influence on development of heredity and environment and illustrate concepts that are important for teachers and others facilitating the development of children. Many aspects of our physical growth and motor development are canalised, that is, highly dependent on genetics such as getting bigger, walking, and talking that occur in most situations at about the same time for most children universally. It takes a significant environmental event, such as gross malnutrition or birth problems, to alter the course of canalised development (Masel & Siegal, 2009; Waddington, 1957).

Other aspects of our development, such as the development of cognition, perception, emotions, and personality, are far less canalised and more strongly under the influence of environmental influences. These lead to a range of developmental trajectories and outcomes for individual children. While the basic material of these developments is laid out in the genes of each child the environment plays an important role in moderating the effects of genes. Perhaps intelligence and temperament are two such qualities subject to considerable environmental influence. And along a continuum of human characteristics there are probably a host that are highly susceptible to environmental influences including the development of talents and skills, moral and political perspectives, and social, intrapersonal and interpersonal attributes. It is therefore essential that professionals dealing with children have a good understanding of how the environment may work to shape and mould individuals.

Chapter 2 examines the role genes play in directing the development of specific human characteristics (our genotype) as well as the role played by the interaction of genes with environment in shaping our characteristics (what is termed our phenotype). Behavioural genetics seeks to explain the potential interactions between heredity and environment and we explore this in some detail. In order to explore relative influences of heredity and environment further, the chapter also examines atypical development