
PART I

INTRODUCTION

COPYRIGHTED MATERIAL

Chapter 1

The Scientific Study of Child and Adolescent Development: Important Issues in the Field Today

WILLIAM DAMON and RICHARD M. LERNER

The purpose of this book is to offer students an advanced textbook that explores forefront issues in the study of child and adolescent development. The book's chapters are written as state-of-the-science reviews by leading scholars who themselves have been making groundbreaking contributions to the topics that they discuss. For this reason, the book is unique, both in the depth of its coverage and in the timeliness of the research that it presents. As a comprehensive collection of authored reviews, it conveys the field of child and adolescent development through the "primary source" of scientists who themselves are now shaping that field. The voices of the scientists add a lively energy to the important topics that they discuss.

The chapters in this book began as contributions to the most recent edition of the *Handbook of Child Psychology* (Damon & Lerner, 2006). For the purposes of the present text, we edited and abridged the chapters to make them maximally accessible to students wishing to master the current state of knowledge in this intricate and expanding field.

To create a text that would present a balanced representation of the field as a whole, we selected contributions that focused on the key processes and outcomes of child and adolescent development. Taken together, the book's 19 chapters cover development in the biological, cognitive, linguistic, social, cultural, moral, personality, emotional, and aesthetic domains. In addition, the chapters explore an extensive

The preparation of this chapter was supported in part by grants to Richard M. Lerner from the National 4-H Council and the John Templeton Foundation.

range of contemporary research topics, including the significance of diversity in development and the results of various social-policy and educational initiatives that attempt to foster gains in critical dimensions of youth development.

The core discipline represented by this text is psychology, but it would be inaccurate to claim that the text, or the field itself, stems purely from psychological science. Vital contributions have been made by other social and life-science disciplines such as anthropology, sociology, and biology, and by humanities disciplines such as history and philosophy. From its start, the study of child and adolescent development has been a multidisciplinary enterprise. The original 1933 edition of the *Handbook of Child Psychology*, despite the term “psychology” in its title, highlighted the work of biologists, physiologists, and educators, as well as a long chapter by the then-young anthropologist Margaret Mead. Today the boundaries of child study are expanding even further, pushed by recent advances in the cognitive and neurosciences as well as in social and cultural theory. The present text reflects the interplay of several disciplines that have taken an interest in the development of the child. It is a dynamic and productive interplay, yielding rich knowledge that no “bounded” discipline in isolation could achieve. Psychology, with its special focus on mind and self, is certainly at the center of this interplay, but virtually all the analytic frameworks in child and adolescent development have been enhanced by insights from other disciplines.

There are deep theoretical reasons why the study of children and adolescents—or for that matter, the investigation of individuals at any point across the life span—requires the integration of knowledge from multiple disciplines. Factors from all levels of human organization—biological factors; psychological and behavioral factors; social, cultural, ecological, and historical factors—all combine to influence the developmental course of every human life. As a consequence, understanding child and adolescent development requires more than a focus on psychological functioning. Such a focus is a necessary but not sufficient frame for describing, explaining, or optimizing the development of children and adolescents.

Scholars today approach the study of individuals across the life span within a framework that has been labeled “developmental science” (e.g., Magnusson & Stattin, 2006) because it involves the integrative use of the theoretical and methodological skills of scholars from the several disciplines that enable changes in all these levels to be understood. These disciplines include biology, neuroscience, psychology, sociology, anthropology, medicine, nursing, education, law, social work, engineering and computer science, economics, geography, ecology, the arts, and history. Scholars from these different fields focus on phenomena associated with the different levels of organizations noted previously—ranging from genes and neurons to social policy and culture. They work to understand the contributions to the development of people that are made by evolution; by the brain; by emotions, personality, cognition, motivation, and morality; by relations within the family or in peer groups and in the community; by the physical ecology; and by institutions of society, such as education, health care, business, and faith institutions.

These scholars do not see their contributions to the understanding of human development as isolated knowledge. To the contrary, in contemporary developmental science, the stress in both theory and research is on *relations* among variables within and across levels of organization (Overton, 2006). For instance, genes contribute to the development of mind and behavior but, at the same time, behavior and the broader ecology of human development influence the function and role in development of genes (Garcia Coll, Bearer, & Lerner, 2004; Gottlieb, Wahlsten, & Lickliter, 2006; Lewontin, 2000). Suomi (2004), for example, has found that variations in infant-mother and in peer group

relations in rhesus monkeys accounts for whether specific genes are associated with aggression and poor social skills or with socially skilled and peaceful behaviors. Shiner and Caspi (Chapter 6, this volume) report that analogous interactions between genes and the social context have comparable outcomes in human development.

Accordingly, whether studying infancy, childhood, adolescence, or the adult and aging portions of the life span, the cutting edge of contemporary scholarship in human development is work attempting to integrate information from the several levels of organization involved in the ecology of human development (Bronfenbrenner & Morris, 2006). Such work aims to explain how mutually influential relations between individuals and their contexts provide the basis for behavior and development.

A primary goal of this book is to extract from the field of child and adolescent development the best scholarship currently available about how this individual-context relational process works. Each chapter addresses this relational process in its own way, with respect to the particular developmental phenomena that it examines.

Out of this dynamic relation between individual and context comes developmental change in all its glorious profusion: learning about the world and the self; acquiring skills, values, and knowledge; building biologic and neuronal capacities; gaining new powers of attention and memory; forming a unique personality; developing character; establishing emotional and behavioral regulation; learning how to communicate and collaborate with others; and a host of other achievements that lead to a fulfilled life. Parents, teachers, and other adults in all parts of the world value such developmental achievements in children, although they do not always know how to understand them, or how to foster them.

The story of change and progressive growth during the childhood and adolescent years is richly documented by the chapters in this text. The chapters in this text provide not only empirically driven descriptions of such change but also insightful explanations of the general course of change across the first 2 decades of life. In addition, many of the authors suggest ways in which theory and research may be applied to optimize the chances for positive, healthy development among children and adolescents. Not only is application of great interest scientifically, it is also of great interest personally to the families and communities that seek to nurture young people.

This text covers a diverse array of particular topics in childhood and adolescence. Within this diversity of topics, there are common themes that cut across the chapters and the field itself. Students seeking to understand the field may find it helpful to attend to, and master, each of the following key concepts as they appear in this text.

Developmental Systems Theory

The fundamental theme within contemporary developmental science involves a focus on *developmental systems theories*. These theories help scientists understand mutually influential (i.e., bidirectional, reciprocal, or fused; e.g., Thelen & Smith, 2006; Tobach & Greenberg, 1984) relations among variables from the multiple levels of organization involved in human development. To appreciate the use of developmental systems theories, it is useful to pose two questions that such models help address:

1. Why should developmental science focus on variables associated with, for instance, biology, psychology, culture, and history, to study children and adolescents?
2. Why should developmental science study the mutually influential relations among variables across these levels?

Quite specific answers to these questions, ones that are pertinent to numerous areas of development—emotions, personality, cognition, motivation, morality, or social relations within the family or with peers, to name a few instances—are found across this book. As a general way of answering these questions, however, we may note that over the course of its evolution as a field of scholarship, developmental science has found that approaches to development that pertain to one discipline or level of analysis, be it biology, psychology, or culture, are not adequate to explain the diverse ways in which human development occurs (Cairns & Cairns, 2006). Accordingly, across the past 30 years, approaches to development that seek to account for development by studying how variables from any one level of organization affect and are affected by variables from other levels have become of increasing interest and relevance to developmental science (Brandtstädter, 2006; Bronfenbrenner & Morris, 2006; Gottlieb et al., 2006; Magnusson & Stattin, 2006). Such approaches have been termed *developmental systems models* (Ford & Lerner, 1992; Gottlieb et al., 2006; Lerner, 2006).

These models, and the several concepts defining or derived from them, constitute a superordinate framework for all the work presented in this book. Table 1.1 presents the defining features of developmental systems theories. Inspection of this table will prepare the reader to appreciate how developmental systems theories frame all the other key themes of contemporary developmental science.

For instance, we may note that among the interrelated features of contemporary developmental systems theories are concepts such as relationism, the integration of levels of organization, historical embeddedness and temporality, relative plasticity, and diversity. These concepts are associated with additional concepts, such as reciprocal interaction, bidirectionality, plasticity, and biobehavioral organization. As explained in Table 1.1, these concepts lead to themes ranging from the importance of context for understanding human development through the ability to be optimistic that the application of developmental science may result in the promotion of positive development for diverse children and adolescents. To appreciate the import of development systems models for these other defining themes of contemporary developmental science, it is useful to discuss each of the other themes found in the chapters of this book.

Context of Human Development

Developmental science, when framed by developmental systems theories, does not just focus on the individual alone as a target of analysis to explain his or her development. Instead, developmental systems theories point to the fact that it is essential to consider the physical and social ecology within which human development occurs (Bronfenbrenner & Morris, 2006; Elder & Shanahan, 2006). As a consequence, interest in developmental systems ideas has made the role of *context* in human development a pervasive concern in the contemporary study of child and adolescent development.

All chapters in this book reflect this concern. For instance, variables at both the inner-biological and the social-cultural levels of organization provide proximal and distal contexts, respectively, of cognitive development (see Chapter 2 by Nelson, Thomas, & de Haan) and of personality development (see Chapter 3 by Rothbart & Bates and Chapter 6 by Shiner & Caspi). Similarly, characteristics of the psychological functioning of the child or adolescent is moderated by the family (see Chapter 4 by Parke & Buriel), by the peer group (see Chapter 5 by Rubin, Bukowski, Parker, &

TABLE 1.1 Defining Features of Developmental Systems Theories

A Relational Metamodel

Predicated on a postmodern philosophical perspective that transcends Cartesian dualism, developmental systems theories are framed by a relational metamodel for human development. There is, then, a rejection of all splits between components of the ecology of human development (e.g., between nature- and nurture-based variables, between continuity and discontinuity, or between stability and instability). Systemic syntheses or integrations replace dichotomizations or other reductionist partitions of the developmental system.

The Integration of Levels of Organization

Relational thinking and the rejection of Cartesian splits are associated with the idea that all levels of organization within the ecology of human development are integrated or fused. These levels range from the biological and physiological through the cultural and historical.

Developmental Regulation across Ontogeny Involves Mutually Influential Individual $\leftarrow \rightarrow$ Context Relations

As a consequence of the integration of levels, the regulation of development occurs through mutually influential connections among all levels of the developmental system, ranging from genes and cell physiology through individual mental and behavioral functioning to society, culture, the designed and natural ecology, and ultimately, history. These mutually influential relations may be represented generically as Level 1 $\leftarrow \rightarrow$ Level 2 (e.g., Family $\leftarrow \rightarrow$ Community) and, in the case of ontogeny, may be represented as individual $\leftarrow \rightarrow$ context.

Integrated Actions, Individual $\leftarrow \rightarrow$ Context Relations, Are the Basic Unit of Analysis within Human Development

The character of developmental regulation means that the integration of actions—of the individual on the context and of the multiple levels of the context on the individual (individual $\leftarrow \rightarrow$ context)—constitute the fundamental unit of analysis in the study of the basic process of human development.

Temporality and Plasticity in Human Development

As a consequence of the fusion of the historical level of analysis—and therefore temporality—within the levels of organization comprising the ecology of human development, the developmental system is characterized by the potential for systematic change, by plasticity. Observed trajectories of intra-individual change may vary across time and place as a consequence of such plasticity.

Plasticity Is Relative

Developmental regulation may both facilitate and constrain opportunities for change. Thus, change in individual $\leftarrow \rightarrow$ context relations is not limitless, and the magnitude of plasticity (the probability of change in a developmental trajectory occurring in relation to variation in contextual conditions) may vary across the life span and history. Nevertheless, the potential for plasticity at both individual and contextual levels constitutes a fundamental strength of all humans' development.

Intra-Individual Change, Interindividual Differences in Intra-Individual Change, and the Fundamental Substantive Significance of Diversity

The combinations of variables across the integrated levels of organization within the developmental system that provide the basis of the developmental process will vary at least in part across individuals and groups. This diversity is systematic and lawfully produced by idiographic, group differential, and generic (nomothetic) phenomena. The range of interindividual differences in intra-individual change observed at any point in time is evidence of the plasticity of the developmental system and makes the study of diversity of fundamental substantive significance for the description, explanation, and optimization of human development.

(continued)

TABLE 1.1 (Continued)*Optimism, the Application of Developmental Science, and the Promotion of Positive Human Development*

The potential for and instantiations of plasticity legitimate an optimistic and proactive search for characteristics of individuals and of their ecologies that, together, can be arrayed to promote positive human development across life. Through the application of developmental science in planned attempts (i.e., interventions) to enhance (e.g., through social policies or community-based programs) the character of humans' developmental trajectories, the promotion of positive human development may be achieved by aligning the strengths (operationized as the potentials for positive change) of individuals and contexts.

Multidisciplinarity and the Need for Change-Sensitive Methodologies

The integrated levels of organization comprising the developmental system require collaborative analyses by scholars from multiple disciplines. Multidisciplinary knowledge and, ideally, interdisciplinary knowledge is sought. The temporal embeddedness and resulting plasticity of the developmental system requires that research designs, methods of observation, and measurement, and procedures for data analysis be change sensitive and able to integrate trajectories of change at multiple levels of analysis.

Bowker; and Chapter 16 by Collins & Steinberg), by the school (see Chapter 12 by Wigfield, Eccles, Roeser, & Schiefele), and by culture (see the Chapter 17 by Cole and Chapter 19 by Spencer).

Diversity

Because of the inevitable complexity of the combinations of individual and contextual variables that provide a basis of human development, the authors of the chapters in this book make clear that individual differences—*diversity*—constitute a fundamental, substantive feature of all human development. Indeed, estimates are that there are over 70 trillion potential human genotypes, and each of them may be coupled across life with an even larger number of physical and social contexts and interpersonal relationships and experiences (Hirsch, 2004). Therefore, the diversity of development is assured because of each person's singular history of individual-context relations. This history makes each person's trajectory of change across the life course unique and, indeed, as people age they become more different from each other (i.e., there is an increase in interindividual differences in intra-individual change; Baltes, Lindenberger, & Staudinger, 2006). Therefore, diversity becomes a fundamental substantive focus for developmental science.

Although, as noted, all chapters in this book focus on diversity—on both intra-individual change (which is the within-person instance of diversity) and on interindividual differences in intra-individual change (which is the between-person instance of diversity), several chapters in this book (Chapter 17 by Cole; Chapter 18 by Berenbaum, Martin, & Ruble; and Chapter 19 by Spencer) are focused specifically on the substantive importance of diversity in elucidating what is normative in regard to the structure and/or function of developmental change in children and adolescents.

Multidisciplinarity

Clearly, then, the approach to development found across the chapters in this volume involves an appraisal of how relations between diverse individuals and similarly diverse and changing proximal and distal contexts of the ecology of human development

(Bronfenbrenner & Morris, 2006) interrelate across life to constitute the basic process of development. What is also clear from this approach is that in order to either describe or explain the course of these changes, knowledge of the contributions made by variables from different levels of organization need to be integrated.

For example, the structure and function of genes, hormones, and neurons at the physiological level of organization need to be understood in relation to the structure and function of both the psychological level of organization (and, for instance, of cognitive, emotional, and motivational) and the social level of organization (involving, for example, family and peer relationships, and interactions with community organizations and cultural institutions). Chapter 2 in this book by Nelson, Thomas, and de Haan; Chapter 6 by Shiner and Caspi; Chapter 8 by Tomasello; and Chapter 17 by Cole illustrate this multidisciplinary (see, too, Baltes et al., 2006; Elder & Shanahan, 2006; Gottlieb et al., 2006; Overton, 2006). In short, the theoretical and empirical scholarship in this book documents the importance of *a multidisciplinary approach* to studying children and adolescents.

Focus on Biological Development and Neuroscience

Across this book, there exist several specific substantive illustrations of the integration of multiple disciplines. A key case in point captures recently emerging interests within developmental science on brain-behavior relations and, as well, on a more general, dynamic approach to biology and physiological function. These emphases are illustrated by the chapters in the “Biological Foundations” section of the book (see Chapter 3 by Rothbart and Bates and Chapter 2 by Nelson, Thomas, & de Haan) and, as well, in other chapters (e.g., Chapter 6 by Shiner & Caspi). Stress is placed on understanding either cognitive development or behavioral individuality (temperament, personality) by understanding changes across childhood and adolescence in *biological development* (as compared to attempting to explain development by reference to the static possession of genes) and by a systems approach within the study of *developmental neuroscience*.

The importance of a developmental approach to biology and neuroscience cannot be overestimated. In prior historical eras within the study of human development, many scientists seeking to incorporate the contributions of biological level variables (e.g., genes, neurons) into the explanation of child and adolescent development sought to reduce the complexity of such development to what were regarded as either nonchanging features of genetic inheritance (i.e., genotypes; see for instance Plomin, 1986, 2000; Rowe, 1994) or to characteristics of physiological functioning (neural structure) that were construed as “hard wired” (e.g., see Edelman, 1987, 1988 for reviews). These approaches were actually antithetical to a developmental approach to the study of development (e.g., see Gottlieb, 1998, 2004; T. C. Schneirla, 1956, 1957; Tobach & Schneirla, 1968): They reduced development to characteristics of the individual that were seen to be fixed and unchanging. Simply, they sought to explain development by reference to characteristics that did not develop. However, as illustrated by chapters in this book, such nondevelopmental approaches have been superseded by theory and research that sees biological variables as products and producers of changes in variables at all other levels of the developmental system (e.g., see Gottlieb et al., 2006; Overton, 2006).

Accordingly, as illustrated by the chapters throughout this book, multidisciplinary does not mean the addition of a biogenic view of the child with a psychogenic or a sociogenic view (Elder & Shanahan, 2006). Instead, developmental scientists work

across levels to understand how both individual and contextual variables may combine to promote the development of, for instance, specific features of development, such as emotions (see Chapter 10 by Saarni, Campos, Camras, & Witherington), motivation (see Chapter 12 by Wigfield, Eccles, Roeser, & Schiefele), language (see Chapter 8 by Tomasello), concept development (see Chapter 9 by Gelman & Kalish), artistic development (see Chapter 10 by Winner), morality or problem behaviors (see Chapter 13 by Dodge, Coie, & Lynam and Chapter 14 by Turiel), or the self, personality, or gender characteristics (see Chapter 7 by Harter; Chapter 6 by Shiner & Caspi; and Chapter 18 by Berenbaum, Martin, & Ruble).

In addition, reliance on the contributions of variables from multiple levels of organization (and hence on the province of different disciplines) occurs when developmental scientists seek to elucidate development within a specific portion of the life span. This approach is illustrated in this book by the chapters on adolescent cognitive development (Chapter 15 by Kuhn & Franklin) and adolescent social development (Chapter 16 by Collins & Steinberg).

Diverse and Innovative Methodologies

How does such integrative developmental analysis happen? Certainly, theory must provide a frame for any useful empirical work undertaken to understand child and adolescent development. However, theory must be coupled with empirically useful methods. Given that developmental scientists are drawing from ideas across levels of organization, we see illustrated in this book the need for and the use of *diverse methodologies* across these different fields.

These tools often represent innovations in design, sampling, measurement, and data analysis. For instance, designs within contemporary developmental science are increasingly multimethod in character, seeking to triangulate information across time by combining both quantitative and qualitative methods of assessment. Neuroscience measurement, for instance, using brain functional magnetic imaging (fMRI) techniques may be combined with written or verbal assessment of cognitive or emotional functioning (see Chapter 2 by Nelson, Thomas, & de Haan). Similarly, qualitative, ethnographic understanding of the cultural values of diverse youth may be linked to quantitative measure of individual cognitive development (see Chapter 17 by Cole) or of identity and adjustment (see Chapter 19 by Spencer).

Moreover, while the study of change always requires longitudinal assessments, such designs have become increasingly complex in developmental science. They may involve sequential strategies or time series analyses (e.g., Baltes, Reese, & Nesselroade, 1977) or, borrowing from multiple disciplines, cohort analyses, panel studies, program evaluation, or dynamic systems analysis (e.g., Teti, 2005; Thelen & Smith, 2006).

In addition, the data analysis techniques used to appraise dynamic, individual-context relations across time have also grown more complex. Quantitative techniques, such as structural equation modeling, hierarchical linear modeling, and pattern-centered analyses (that combine person-centered and variable-centered approaches) have been forwarded (e.g., see Card & Little, 2007; Duncan, Magnuson, & Ludwig, 2004; Laub & Sampson, 2004; Lerner, 2004; Little, Bovaird, & Card, 2007; McArdle & Nesselroade, 2003; Nesselroade & Ram, 2004; von Eye, 1990b; von Eye & Schuster, 2000; Willett, 2004). In turn, approaches that capitalize on new computer-based programs for under-

standing the substance and categorical characteristics or configurations of qualitative data (e.g., Atlas-ti or configural frequency analysis) have emerged in recent years to become effective tools for developmental scientists (e.g., Mishler, 2004; von Eye, 1990a). This qualitative research is especially useful as a means to identify the nature of an understudied phenomenon (e.g., as a sample case, see Damon, Menon, & Bronk, 2003, and Mariano & Damon, in press, in regard to the study of “noble purpose” in adolescents) and/or in triangulating quantitative appraisals of human development.

Application

Across the breadth of the chapters in this book it is clear that developmental science has come to value work that moves beyond description and explanation and toward attempts to optimize the course of life of diverse children and adolescents. As illustrated richly throughout this book, in the contemporary instantiation of developmental science, *application* is as important a goal of scholarship as is elucidation of basic features of developmental change.

Developmental science is aimed often then on proving its worth not only in the halls of academe but, as well, in the arena of public policy and in neighborhoods and communities nationally and internationally. Schools, youth-serving organizations, faith institutions, mental health clinics, foundations, industry, or government offices are places where developmental scientists are, today, likely to be found in large numbers.

Positive Child and Adolescent Development

In fact, whether working in laboratories on their campus, or in community-based organizations, educational settings, after-school programs, business, or government, there is considerable and growing commonality among developmental scientists in directing their work to enhancing the opportunities for health and successful development among diverse children and adolescents. Indeed, as illustrated in several chapters in this book (e.g., see Chapter 19 by Spencer, Chapter 14 by Turiel, and Chapter 10 by Winner), the promotion of *positive child and adolescent development* is of fundamental concern (Benson, Scales, Hamilton, & Sesma, 2006; Damon, 2004; Lerner, 2005).

Indeed, interest in the promotion of positive development may arise when work is focused on the study of basic issues in the description or explanation of a particular feature of development (e.g., the acquisition of linguistic constructions, as in Chapter 8 by Tomasello; the neural centers for specific cognitive functions, as in Chapter 2 by Nelson, Thomas, & de Haan, or the fundamental facets of musical understanding, as in Chapter 10 by Winner). In turn, interest in promoting positive development may obviously also occur in relation to highly applied concerns, such as bringing the “voice” of the community to bear on the planning of programs to enhance literacy among children and parents from immigrant families. Nevertheless, across the settings within which they work, developmental scientists are increasingly oriented to using their scholarship to inform policymakers, funders, and practitioners about ways to apply developmental science to enhance the probability that all youth will develop in positive ways.

In sum, reflecting the breadth and richness of contemporary developmental science, the chapters in this book elucidate eight key themes. Table 1.2 lists these themes. We

TABLE 1.2 Key Substantive Themes in Contemporary Developmental Science

-
1. Focus on developmental systems theories
 2. Role of context in human development
 3. Individual differences—diversity
 4. Importance of a multidisciplinary approach
 5. Study of biological development and of developmental neuroscience
 6. Diverse methodologies
 7. Application of developmental science
 8. Promotion of positive child and adolescent development
-

believe that these themes all derive from and reflect the integrative ideas of the developmental systems models that, today, constitute the cutting edge of theory, research, and application in developmental science (e.g., see Cairns & Cairns, 2006; Damon, 2006; Lerner, 2006; Overton, 2006; Valsiner, 2006). In addition, together, these themes reflect the idea that all facets of the “job description” of developmental scientists—the description, explanation, and optimization of behavior and development—are today valued and essential components of the study of children and adolescents.

Conclusions

Contemporary developmental science—predicated on a relational model and focused on the use of developmental systems theories to frame research and application on dynamic relations between diverse individuals and contexts—constitutes an approach to understanding and promoting positive human development that is both complex and exciting. The approach, at the heart of the chapters in this book, also offers a productive means to do good science. Such work is informed by philosophically, conceptually, and methodologically useful information from the multiple disciplines having knowledge bases pertinent to the integrated, individual-context relations comprising the ecology of human development.

Indeed, and as illustrated eloquently by the work discussed across the chapters in this volume, the value of the science and the applications that constitute the contemporary study of children and adolescents are reasons for the growing interest in developmental science. The scholarship presented in this book shows the many ways in which children and adolescents, in dynamic exchanges with both natural and designed ecologies, can learn to thrive. In addition, the work discussed in this book documents how children and adolescents may themselves create opportunities for their own positive development. As Bronfenbrenner (2005) eloquently put it, it is these kinds of mutually beneficial relations among people and the world that make human beings fully human.

Scientific findings such as those presented in this text are needed to provide an understanding of how young people can learn to thrive in this world. The importance of sound scientific understanding has become especially clear in recent years, when news media broadcast story after story based on simplistic and biased popular speculations about the causes of human development. The careful and responsible discourse found in the chapters of this text contrasts sharply with most popular news stories about the role of parents, genes, or schools in children’s growth and behavior. Students who read this text will have a sounder source of information about these vi-

tally important issues. They will find in the chapters of this book the most solid, insightful and current set of scientific theories and findings available today in the field of child and adolescent development.

References

- Baltes, P. B., Lindenberger, U., & Staudinger, U. M. (2006). Lifespan theory in developmental psychology. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 569–664). Hoboken, NJ: Wiley.
- Baltes, P. B., Reese, H. W., & Nesselroade, J. R. (1977). *Life-span developmental psychology: Introduction to research methods*. Monterey, CA: Brooks/Cole.
- Benson, P. L., Scales, P. C., Hamilton, S. F., & Sems, A., Jr. (2006). Positive youth development: Theory, research, and applications. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 894–941). Hoboken, NJ: Wiley.
- Brandtstädter, J. (2006). Action perspectives on human development. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 516–568). Hoboken, NJ: Wiley.
- Bronfenbrenner, U. (2005). *Making human beings human*. Thousand Oaks, CA: Sage.
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 793–828). Hoboken, NJ: Wiley.
- Cairns, R. B., & Cairns, B. D. (2006). The making of developmental psychology. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 89–165). Hoboken, NJ: Wiley.
- Card, N. A., & Little, T. D. (2007). Longitudinal modeling of developmental processes. *International Journal of Behavioral Development*, 31(4), 297–302.
- Damon, W. (2004). What is positive youth development? *Annals of the American Academy of Political and Social Science*, 591, 13–24.
- Damon, W. (2006). Preface. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (6th ed., pp. xi–xix). Hoboken, NJ: Wiley.
- Damon, W., & Lerner, R. M. (2006). *Handbook of child psychology* (6th ed., Vols. 1–4). Hoboken, NJ: Wiley.
- Damon, W., Menon, J., & Bronk, K. C. (2003). The development of purpose during adolescence. *Applied Developmental Sciences*, 7(3), 119–128.
- Duncan, G. J., Magnuson, K., & Ludwig, J. (2004). The endogeneity problem in developmental studies. *Research in Human Development*, 1(1/2), 59–80.
- Edelman, G. M. (1987). *Neural Darwinism: The theory of neuronal group selection*. New York: Basic Books.
- Edelman, G. M. (1988). *Topobiology: An introduction to molecular biology*. New York: Basic Books.
- Elder, G. H., Jr., & Shanahan, M. J. (2006). The life course and human development. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 665–715). Hoboken, NJ: Wiley.
- Ford, D. H., & Lerner, R. M. (1992). *Developmental systems theory: An integrative approach*. Newbury Park, CA: Sage.
- Garcia Coll, C., Bearer, E., & Lerner, R. M. (Eds.). (2004). *Nature and nurture: The complex interplay of genetic and environmental influences on human behavior and development*. Mahwah, NJ: Erlbaum.
- Gottlieb, G. (1998). Normally occurring environmental and behavioral influences on gene activity: From central dogma to probabilistic epigenesis. *Psychological Review*, 105, 792–802.
- Gottlieb, G. (2004). Normally occurring environmental and behavioral influences on gene activity: From central dogma to probabilistic epigenesis. In C. Garcia Coll, E. L. Bearer, & R. M. Lerner (Eds.), *Nature*

- and nurture: *The complex interplay of genetic and environmental influences on human development and behavior* (pp. 85–106). Mahwah, NJ: Erlbaum.
- Gottlieb, G., Wahlsten, D., & Lickliter, R. (2006). The significance of biology for human development: A developmental psychobiological systems perspective. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 210–257). Hoboken, NJ: Wiley.
- Hirsch, J. (2004). Uniqueness, diversity, similarity, repeatability, and heritability. In C. Garcia Coll, E. Bearer, & R. M. Lerner (Eds.), *Nature and nurture: The complex interplay of genetic and environmental influences on human behavior and development* (pp. 127–138). Mahwah, NJ: Erlbaum.
- Laub, J. H., & Sampson, R. J. (2004). Strategies for bridging the quantitative and qualitative divide: Studying crime over the life course. *Research in Human Development, 1*(1/2), 81–99.
- Lerner, R. M. (2004). Innovative methods for studying lives in context: A view of the issues. *Research in Human Development, 1*(1/2), 5–7.
- Lerner, R. M. (2005, September). *Promoting positive youth development: Theoretical and empirical bases*. Paper presented at the Workshop on the Science of Adolescent Health and Development, National Research Council/Institute of Medicine, Washington, DC.
- Lerner, R. M. (2006). Developmental science, developmental systems, and contemporary theories of human development. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 1–17). Hoboken, NJ: Wiley.
- Lewontin, R. C. (2000). *The triple helix: Gene, organism and environment*. Cambridge, MA: Harvard University Press.
- Little, T. D., Bovaird, J. A., & Card, N. A. (Eds.). (2007). *Modeling contextual effects in longitudinal studies*. Mahwah, NJ: Erlbaum.
- Magnusson, D., & Stattin, H. (2006). The person in the environment: Towards a general model for scientific inquiry. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 400–464). Hoboken, NJ: Wiley.
- Mariano, J. M., & Damon, W. (in press). The role of spirituality and religious faith in supporting purpose in adolescence. In R. M. Lerner, R. W. Roeser, & E. Phelps (Eds.), *Positive youth development and spirituality: From theory to research*. Philadelphia: Templeton Foundation Press.
- McArdle, J. J., & Nesselroade, J. R. (2003). Growth curve analysis in contemporary psychological research. In J. Shinka & W. Velicer (Eds.), *Research methods in psychology: Vol. 2. Comprehensive handbook of psychology* (pp. 447–480). Hoboken, NJ: Wiley.
- Mishler, E. G. (2004). Historians of the self: Restorying lives, revising identities. *Research in Human Development, 1*(1/2), 101–121.
- Nesselroade, J. R., & Ram, N. (2004). Studying intra-individual variability: What we have learned that will help us understand lives in context. *Research in Human Development, 1*, 9–29.
- Overton, W. F. (2006). Developmental psychology: Philosophy, concepts, methodology. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 18–88). Hoboken, NJ: Wiley.
- Plomin, R. (1986). *Development, genetics, and psychology*. Hillsdale, NJ: Erlbaum.
- Plomin, R. (2000). Behavioural genetics in the 21st century. *International Journal of Behavioral Development, 24*, 30–34.
- Rowe, D. C. (1994). *The limits of family influence: Genes, experience, and behavior*. New York: Guilford Press.
- Schneirla, T. C. (1956). Interrelationships of the innate and the acquired in instinctive behavior. In P. P. Grassé (Ed.), *L'instinct dans le comportement des animaux et de l'homme* (pp. 387–452). Paris, France: Mason et Cie.
- Schneirla, T. C. (1957). The concept of development in comparative psychology. In D. B. Harris (Ed.), *The concept of development* (pp. 78–108). Minneapolis: University of Minnesota.
- Suomi, S. (2004). How gene-environment interactions shape biobehavioral development: Lessons from studies with rhesus monkeys. *Research in Human Development, 1*(3), 205–222.

- Teti, D. M. (Ed.). (2005). *Handbook of research methods in developmental science*. Cambridge, MA: Blackwell.
- Thelen, E., & Smith, L. B. (2006). Dynamic systems theories. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 258–312). Hoboken, NJ: Wiley.
- Tobach, E., & Greenberg, G. (1984). The significance of T. C. Schneirla's contribution to the concept of levels of integration. In G. Greenberg & E. Tobach (Eds.), *Behavioral evolution and integrative levels* (pp. 1–7). Hillsdale, NJ: Erlbaum.
- Tobach, E., & Schneirla, T. C. (1968). The biopsychology of social behavior of animals. In R. E. Cooke & S. Levin (Eds.), *Biologic basis of pediatric practice* (pp. 68–82). New York: McGraw-Hill.
- Valsiner, J. (2006). Developmental epistemology and implications for methodology. In W. Damon & R. M. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 166–209). Hoboken, NJ: Wiley.
- von Eye, A. (1990a). *Introduction to configural frequency analysis: The search for types and antitypes in cross-classifications*. Cambridge: Cambridge University Press.
- von Eye, A. (1990b). *Statistical methods in longitudinal research: Principles and structuring change*. New York: Academic Press.
- von Eye, A., & Schuster, C. (2000). The road to freedom: Quantitative developmental methodology in the third millennium. *International Journal of Behavioral Development*, 24, 35–43.
- Willett, J. B. (2004). Investigating individual change and development: The multilevel model for change and the method of latent growth modeling. *Research in Human Development*, 1(1/2), 31–57.

