ROUTLEDGE INTERNATIONAL HANDBOOKS

The Routledge International Handbook of Multidisciplinary Perspectives on Character Development, Volume I

Conceptualizing and Defining Character

Edited by Michael D. Matthews and Richard M. Lerner

THE ROUTLEDGE INTERNATIONAL HANDBOOK OF MULTIDISCIPLINARY PERSPECTIVES ON CHARACTER DEVELOPMENT, VOLUME I

Drawing from philosophy, religion, biology, behavioral and social sciences, and the arts, *The Routledge International Handbooks of Multidisciplinary Perspectives on Character Development, Volumes I and II*, present cutting-edge scholarship about the concept of character across the life span, the developmental and contextual bases of character, and the key organizations of societal sectors, within and across nations, that promote character development in individuals, families, and communities.

This first volume, *Conceptualizing and Defining Character*, explores the foundations of the field by providing an array of interdisciplinary approaches to character development, including economics, education, law, literature, military science, philosophy, and many more. With contributions from international experts, Volume I brings together cutting-edge research and discusses instances of character development, including civic character, courage, fairness, forgiveness, gratitude, morality, tolerance, and thankfulness.

This comprehensive publication is an essential reference for researchers and graduate students in behavioral sciences, biology, philosophy, theology, and economics, as well as practitioners leading or evaluating character education or character development programs around the world.

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FOREWORD

For millennia, character development has been a concern among philosophers, scholars in the arts and sciences, leaders in government, organizations in civil society, and parents. *The Routledge International Handbook of Multidisciplinary Perspectives on Character Development, Volume I* affirms this history. It also demonstrates the broad interests in the nature and development of character that continue into the first quarter of the 21st century.

I have personally witnessed the fundamental importance of character in personal and organizational success throughout my nearly 50 years as a naval officer, a university dean, the vice chairman for global affairs of a major international private equity firm, and chair of the board of trustees of the Rockefeller Foundation. This *Handbook* is greatly needed at this time in history when basic principles of honesty and integrity seem to take a backseat to self-interest and personal financial or political gain.

The editors and authors contributing to this *Handbook* demonstrate the current broad and deep salience of understanding character and how to promote it. The *Handbook* covers all sectors of scholarship, national and international service and leadership, and education, both within families and in formal and informal educational settings. Perhaps at this moment in history, the importance for each nation and for the global community of having citizens of good character could not be more important. The chapters in the *Handbook* have repeated demonstrations of why this importance is the case.

The Editors of this *Handbook* point out that President Theodore Roosevelt warned that if a person were educated in mind but not in character, such education would create a menace to society. All members of society, and particularly the individuals aspiring to leadership roles, must combine good character and good leadership skills. Leaders of character need to possess intellectual character virtues reflected by a commitment to truth and the courage to pursue it.

They must also be humble, have the capacity to show gratitude and generosity to others, and have the strength to forgive human failings. Without these character strengths, individuals will fail in their leadership roles. All too often today, there is evidence of the untoward consequences of character flaws among failed leaders within all sectors of society.

It is important, then, not to think about character as something that is just an addition to a person but as something that might be added to other facets of an individual. It is important to understand character in a holistic manner. Character impacts all that a person is and all that a person does. As

well, character is not only an attribute of an individual. It is also reflected in the culture or ethos of groups, organizations, and institutions within society.

There are of course threats to the development of character. For instance, consider how social media can be used to manipulate beliefs, attitudes, and behaviors. Examples are online bullying, the spread of misinformation or baseless conspiracy theories, and attacks on institutions of democracy and civil society, including playing a part in the January 6 insurrection.

Fortunately, there are several instances around the globe where people are committed to promoting good character. This *Handbook* documents this presence. The chapters from the four service academies in the United States – the United States Air Force Academy, the United States Coast Guard Academy, the United States Military Academy at West Point, and the United States Naval Academy – exemplify the commitment to provide the nation they serve with leaders of character.

Of course, the commitment to educate individuals in mind and in character extends beyond these service academies. The *Handbook* documents the diverse academic disciplines and multiple sectors of civil society and government around the world that share in the commitment to act and educate in the service of promoting character development in all their global endeavors.

There is an urgent need to do still more, however. Actions need to be taken to promote character education from parents, in K-12 education, through college, in both national and local community-based youth-serving programs, and within public and private organizations. Such innovations will require local and national policy initiatives to create such efforts and to provide the resources to design, enact, and evaluate them.

In sum, this *Handbook* brings the good news that the goal that has existed for more than a score of prior centuries, of understanding and promoting the development of people of good character, continues unabated in the 21st century. The *Handbook* may serve as a watershed event in the ongoing global quest to promote good character in all of the world's people for centuries to come.

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PREFACE

Character and how it is developed has been a topic of interest across millennia. Human character and virtue are foundational ideas within all the world's religions, and depictions of human nature, both good and bad, have been a common theme in literature from ancient times forward. In turn, the scientific study of character can be dated as emerging in the latter part of the 19th century and the early 20th century, and programs of both character education and moral education have existed both before and after the emergence of the scientific study of character and character development. The purpose of *The Routledge International Handbook of Multidisciplinary Perspectives on Character Development, Volume I* is to bring together, in both breadth and depth, the past, present, and potential futures of basic and applied multidisciplinary and global scholarly activity about character and character development.

To enact this purpose, we organized the *Handbook* as two volumes, involving 67 chapters. Volume I focuses first on conceptualizing and defining character and involves discussions of different disciplinary approaches to character development and, as well, presents research about the nature and development of different instances of positive character or character virtues. The multidisciplinary scholarly interests in character development include biological science, developmental science, economics, education, higher education, law, leadership and organizational studies, literature, military science, philosophy, political science, positive psychology, program evaluation, sociology, and theology. The instances of character development that are discussed include civic character, courage, fairness, forgiveness, gratitude, intellectual humility and other intellectual virtues, kindness, liberty, morality, the character system; personal liberty, mutual respect, and tolerance; prosociality, thankfulness; and purpose.

The first focus of Volume II of the *Handbook* involves discussion of moderators and covariates of character development. Chapters here pertain to cultural- and contextual-based exemplars of character development; grit, achievement, and resilience; grit in organizations; hope for the future; parenting; resilience; and self-regulation. After these discussions, we shift to considering threats to moral, positive, or virtuous character development, which include adversity and the role of exemplars in promoting character development; the character risk model; collective failure and its psychological origins; democratic character and developmental responses to group conflict and oppression; and racism and positive youth development. The third section of Volume II includes chapters that discuss the different contexts wherein character is either studied and/or promoted.

Chapters in this section are organized into three groups: chapters about university institutes or centers devoted to character development research and/or character education; public and private organizations, both within nations and globally; and formal educational settings focused on either preschool/kindergarten classrooms through high school or on higher education institutions, including the special cases of the four United States military service academies.

The university institutes or centers that are discussed include the Jubilee Centre of the University of Birmingham in the UK; the Center for Character and Citizenship of the University of Missouri-St. Louis; the Center for Parent and Teen Communication of the Children's Hospital of Philadelphia; the Institute for Applied Research in Youth Development of Tufts University; the Institute for the Study of Human Flourishing at Oklahoma University; the Oxford Character Project at Oxford University, UK; the Institute for Research on Youth Thriving and Evaluation of Montclair State University; the Center on Adolescence of Stanford University; and the Program for Leadership and Character of Wake Forest University. Character development activities pursued within public and private organizations involve discussions of character measurement and development within organizations; international development agencies; international faith-based organizations; media impacts on the development of children and youth; youth programs aimed at promoting character development; the efforts of philanthropy to encourage and support research and applications pertinent to promoting positive instantiations of character development and in particular, the exemplary instance of such philanthropic endeavors provided by the three Templeton Philanthropies. The last portion of this section pertains to formal education settings aimed at promoting knowledge about and students who manifest positive or virtuous character across their lives. Chapters here include discussions of the programs of the NPX Point Avenue K-12 educational programs in Hanoi, Vietnam; the Intellectual Virtues Academy of Long Beach, California; and chapters from the four military service academies with the United States that train leaders of character to enter the profession of arms: the United States Air Force Academy, the United States Coast Guard Academy, the United States Military Academy at West Point, and the United States Naval Academy.

The final section of Volume II is devoted to presenting three chapters that draw conclusions from and discuss implications of the preceding chapters across the two volumes. One chapter discusses the interrelations among the nature and study of character virtue, especially in relation to scholarship in the social sciences, and in the service of leadership; the chapter points to the problematic consequences of social science scholarship that ignores implications for practice. The second chapter is focused on applications aimed at educational practice, and discusses progress to date, challenges for the future, and the promise for the future of concerns about character that can be derived from making advances in understanding, measurement, and character education. The third chapter summarizes the past, present, and potential future for truly integrative multidisciplinary and international scholarship and application about character development if advances in dynamic, relational developmental systems-based theoretical models and methods can be continued and enhanced. Finally, the *Handbook* closes with an Afterword written by internationally acclaimed developmental scientist and award-winning character development scholar William Damon.

In sum, across the two volumes of this *Handbook*, the multidisciplinary and basic and applied scholarship that is presented illuminates both the breadth and depth of past and ongoing interest in and activities pertinent to gathering and using character development scholarship to contribute positively to making positive differences in our world. We believe that the varied and ongoing contributions of the sets of scholars and practitioners – academics, and leaders in the fields of education, military science, public and private organizations, programs, and philanthropy – reflect a vibrant and productive multidisciplinary, international, and multigenerational effort to enhance the

character of individuals across the course of life. We believe as well that this work holds the promise of providing a foundational basis of sustainable and scalable efforts to create a world where all people will be known, respected, and even loved for the content of their character in contributing to a socially just world in the centuries ahead.

There are numerous people to whom we are grateful for making this *Handbook* a reality. Of course, first, we owe an inestimable debt to the scholars and practitioners who contributed their work to this publication. It is their efforts that created a singular work in the history of this field. If there are congratulations to be offered for this publication it is because of their superb work. Collectively, their collaborative spirit, collegiality, and creativity cannot be matched.

We are also grateful to the two editors at Taylor and Francis who oversaw the beginning stages of the *Handbook*, Helen Pritt, and the final stages and production of this work, Molly Selby. Their judgments about and unwavering support of this project were essential elements of its completion and quality. We thank them and their colleagues in production for their contributions to creating this work.

We had two irreplaceable partners in the work of launching, organizing, and completing the *Handbook*. Gretchen Bain Matthews is a broadly and deeply knowledgeable counselor about issues of style and substance and, as well, she is a wise, careful, and astute editor. She was always encouraging, insightful, and positive about our work. Her enthusiasm and support kept us moving forward through the two-plus years of our work on this project. Jarrett Lerner is a deeply experienced and productive editor of academic publications. This publication is the seventh handbook for which he served as a managing editor and, as well, his resume includes more than a decade of being the managing editor of a scientific journal and, as well, an editorial assistant for literally more than 300 scholarly articles and chapters. His productivity, organizational skill, knowledge of publication procedures, and imperturbable style have been an enormous asset in keeping our work organized and on time. We sincerely thank both Gretchen and Jarrett.

Finally, there are two people whose influence on this *Handbook* and on the work included in it are incalculable. Both of them have passed, but neither this *Handbook* nor, even more, the scientific study of character development would be flourishing as it is without them: Sir John M. Templeton and John (Jack) M. Templeton, Jr., M.D. Sir John had the vision, capacity, and unflagging commitment to create three private foundations to develop, support, and catalyze exemplary scientific efforts in the service of a science of character development: the John Templeton Foundation, the Templeton Religion Trust, and the Templeton World Charity Foundation. Dr. Templeton shared his father's vision for enacting rigorous science in the service of exploring the Big Questions involved in advancing theoretical and empirical understanding of character development and of creatively using this knowledge to make a gift to nations around the world by effectively educating their citizens to be individuals of character contributing indefatigably to democracy and social justice.

As we observe in the final chapter in this *Handbook*, about two-thirds of the chapters in this work can be directly attributed to the vision and generosity of the three Templeton Foundations. More than this impact, however, is the fact that the vitality and generativity of all modern scholarship about character development and education owe their origin and their future to the efforts of Sir John and Dr. Templeton. With gratitude and humility, we are honored to dedicate this *Handbook* to them.

Michael D. Matthews
Richard M. Lerner

SECTION I

Introduction

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CONTEMPORARY CHARACTER DEVELOPMENT SCHOLARSHIP

Multidisciplinary and International Perspectives

Michael D. Matthews and Richard M. Lerner

In his classic book, *A History of Experimental Psychology*, Edwin Boring (1950, p. ix) commented that psychology has a long past but only a short history. Boring meant that, although human behavior has been a focus of religion, philosophy, and folk wisdom through the ages, psychology emerged as a formal scientific discipline only in the late 19th century. Much the same can be said about character science. Nevertheless, character and how it is developed has been a topic of interest across millennia (e.g., dating in Western civilization at least from Plato [385 BCE/2021] and Aristotle [350 BCE/1999]). Indeed, Banicki (2017, p. 52), in an essay discussing distinctions between the concept of character and the concept of personality across history, explained that:

> As far as the concepts of character and personality are concerned it is certainly the former that has a longer history. In fact, it was a traditional medium of addressing individual differences at least from the times of the ancient Greeks and Romans until, more or less, the beginning of the 20th century… In antiquity the notion of character was inseparably connected with the normative aspect of human conduct and in most contexts amounted to moral qualities of a respective person: to virtues and vices.

Not surprisingly, then, depictions of human nature, both good and bad, have been a common theme in literature from ancient times forward. Moreover, human character and virtue are foundational ideas within all the world's religions. In short, character has been a central part of human thought for thousands of years.

Throughout this history, character and its development have also been of concern across academic disciplines, individuals (e.g., parents, teachers, faith leaders), communities, businesses, military leaders, social program practitioners, philanthropists, and politicians. Indeed, Danziger (1997) noted that character-related vocabulary initially involved theological, legal, and ethical terms and not psychological concepts. Nevertheless, a common basis for interest in character among varied interest groups was the belief that individuals who have a character that is considered good, positive, or virtuous will also possess a moral commitment to do the right thing for both self and others, that is, to be positively civically engaged and to act in ways that contribute to communities, to civil society, and ultimately to social justice.

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The scientific study of character can be dated as emerging in the latter part of the 19th century and the early 20th century. Among biologists and psychologists interested in human behavior and development (Allport, 1921), this interest was initially framed by use of ideas partitioning the bases of character into either innate or acquired categories (e.g., see Kemph, 1918; McDougall, 1921, on the nature side of this discussion, and see Patton, 1921; Watson 1919, on the nurture side of the discussion). For instance, in the classic study of deceit in children conducted by Hartshorne and May (1928), character (honesty in the case of this research) was regarded as behavior that was dependent on context; it (honesty) might be present in children when people were looking at them but was likely to be replaced by undesirable behavior (cheating) when children believed that "no one was looking." Moreover, although not a predominant theme in this early scientific literature, there were psychiatrists and psychologists who took somewhat integrative views of the bases of character, at least insofar as an individual's specific attributes of character, although believed to be inborn, were also seen as modifiable in their function by the environment (e.g., Gosline, 1920; and some psychoanalytic writers, such as Adler, 1917; Jung, 1915; Prince, 1915).

As discussed by Allport (1921, 1927) and later by Banicki (2017), this early social and behavioral science interest in the construct of character intermingled its study with the study of personality. In some writing, character and personality were regarded as separate facets of human functioning. For instance, Banicki (2017) explained that Allport (1921) distinguished between neutral personality as "personality devaluated" and character as "personality evaluated" (Allport, 1927, p. 285). Indeed, Allport argued that moral aspects of an individual did not exist until personality was evaluated. Accordingly, Allport (1921) pointed to Watson's (1919) conception of character as an *evaluation* of personality through the lens of prevailing social standards. However, Allport (1921) argued that scholars subscribing to this conception of character were taking a view that was outside of the field of psychology. Allport (1921) believed that this conception belonged to the study of social ethics. Ozanne (1943), writing in the *American Sociological Review*, supported Allport's categorization. Ozanne used the term "social character" as a normative concept that reflected the relation between cultural norms and the generality of their acceptance by individuals within society (see also Dill, this *Handbook*).

In other writing, the terms character and personality appear to have been used interchangeably (e.g., Myerson, 1921). In still other scholarship, the words were connected within a part-whole relationship, with character being a component of personality (e.g., Fernald, 1918). As we shall describe next, discussions about the connections of character with other attributes of the individual and, as well, with the context within which character was developed and functioned, would continue for the rest of the 20th century and exist through the writing of the contributions to this *Handbook.*

However, it is worthwhile to point out that the holistic approach taken by Fernald in 1918 suggests that the idea of integration, of wholeness, both within the person and between person and context, is a view of human life that has more than a 100-year history in thinking about the nature of character. Indeed, as pointed out in several chapters of this *Handbook* (e.g., Buckingham et al., this *Handbook*), Heckman et al., this *Handbook*; King et al., this *Handbook*; Lerner & Matthews, this *Handbook*; Moore, this *Handbook*; Nucci, this *Handbook*; Sim et al., this *Handbook*; Witherington & McCready, this *Handbook*), integrative and holistic conceptions of the role of character in human development and, as well, of individual-context relations in illuminating this role, are foundational facets of contemporary theories of character development.

As we have just indicated, ensuing decades of social and behavioral science scholarship would continue to discuss the nature of the relation between character and other facets of individual functioning; however, the focus of the discussion became differentiated. There continued to be

discussions of the connections between approaches to character versus approaches to personality, particularly to distinctions between dynamic, relational developmental systems-based concepts of character (e.g., Lerner & Callina, 2014; see also Lerner & Matthews, this *Handbook*; Nucci, this *Handbook*) and nature-based, trait conceptions of personality (e.g., Costa & McCrae, 1980; McCrae et al., 2000). As well, distinctions between the constructs of character, social-emotional learning (or social-emotional development), positive youth development, and resilience were discussed (e.g., Lerner et al., 2019, 2021; Masten, 2014; Snyder, 2014).

A major focus of these differentiated discussions were the links between character development and moral development (e.g., Kohlberg, 1970; Turiel, 1969) and moral education (e.g., Hamm, 1977; Nucci & Narvaez, 2008; Nucci et al., 2014, in press). Initially, these discussions revolved around the distinctions between moral reasoning and the enactment of behaviors that purportedly reflected correspondence with socially defined actions that Allport (1921) labeled as reflecting social ethics, that Ozanne (1943) labeled as reflecting social character, and that Kohlberg (1970, p. 63) regarded as a "bag of virtues."

However, at this writing, there is broad agreement that all facets of character – be they pertinent to character virtues, performance character, intellectual character, or civic character – have a moral component (e.g., see Berkowitz, 2012; Berkowitz & Bier, this *Handbook*, Vol. I, Ch. 5; Hyun et al., this *Handbook*; Kotzee & Baehr, this *Handbook*; Nucci, this *Handbook*) and that character and moral structure, function, and development are linked dynamically within mutually influential relations between individual and context (Lerner & Matthews, this *Handbook*; Nucci, this *Handbook*). Similarly, programs of both character education and moral education involve common interest in leveraging the dynamic, relational developmental system to enhance the lives of individuals and, as well, their contributions to their families, communities, and societies (e.g., Lerner et al., in press; Nucci et al., in press).

In addition to these evolutions in both developmental and education scholarship, other facets of conceptual and empirical interest in character emerged in the first two decades of the 21st century to extend interest in the study of the nature and development of character. The establishment of positive psychology (Seligman & Csikszentmihalyi, 2000) as a distinct subdiscipline of the field further spurred scientific inquiry into the nature of character (Peterson & Seligman, 2004; see McGrath, this *Handbook*). Thus, the first decades of the 21st century have witnessed a veritable explosion of psychological research into positive character, virtues, and values. In many ways, this activity and the fortunate concurrent interest in character development among funders, notably the Templeton philanthropies (see Dill and Simpson, this *Handbook*) and several other foundation/philanthropic entities (see Clement et al., this *Handbook*) created a *Zeitgeist* that has raised in other scholarly disciplines new or renewed interests in character.

Indeed, we believe that scholarship pertinent to and applications of knowledge about the substance and developmental bases of character exist, at this writing, as diverse and productive areas of research interest and as active social domains of human endeavor. It is useful, therefore, to describe how the multidisciplinary and global interests in character development that exist, at this writing, are represented in the two volumes comprising this *Handbook*.

The Organization of This *Handbook*

Our understanding of the differentiation that existed shortly after the end of the second decade of the 21st century in the fields of endeavor associated with character development was the basis for the organization of this *Handbook*. The breadth and depth of this activity resulted very quickly in our recognition that a one-volume *Handbook* would not be able to accommodate the work we

believed necessary to include. Therefore, we organized the *Handbook* into two volumes. The 30 chapters included in Volume I focus on conceptualizing and defining character and involve three sections, as noted in the following. Volume II includes 37 chapters and is divided into four sections that are also noted in the following.

Accordingly, after an initial introductory section composed only of the present chapter, Section II of Volume I presents 17 chapters that, together, provide discussions of different disciplinary approaches to character development. In turn, both across disciplines and across nations, scholars focus their character development work on specific instances of character. As such, Section III of the volume includes 12 chapters that present research about the nature and development of different instances of positive character or character virtues.

Turning to Volume I, then, the brief historical review we have presented in the present chapter indicates that different academic fields have past and ongoing scholarship associated with the nature and development of character and its development. Accordingly, the multidisciplinary scholarly interests in character development represented in Section II of this volume include biological science (see Moore, this *Handbook*), developmental science (see Witherington & McCready, this *Handbook*), economics (see Heckman et al., this *Handbook*), education (e.g., Berkowitz & Bier, this *Handbook*, Vol. I, Ch. 5; Bier et al., this *Handbook*; Lickona, this *Handbook*), higher education (see Brooks & Harrison, this *Handbook*), law (see Levesque, this *Handbook*), leadership and organizational studies (see Sweeney, this *Handbook*), literature (see Zupanic, this *Handbook*), military science (see Farina & Cook, this *Handbook*), philosophy (e.g., see Brooks et al., this *Handbook*; Kotzee & Baehr, this *Handbook*; Peterson & Kristjánsson, this *Handbook*; Snow, this *Handbook*, Vol. II, Ch. 4), political science (see Liebert, this *Handbook*), positive psychology (see McGrath, this *Handbook*); program evaluation, see Urban et al., this *Handbook*), sociology (see Dill, this Handbook), and theology (see King et al., this *Handbook*).

In turn, Section III, Instances of Character Development, includes chapters on: civic character (see Hyun et al., this *Handbook*); courage (see O'Connell et al., this *Handbook*); fairness (see Dabdoub et al., this *Handbook*); forgiveness (see Tirrell, this *Handbook*); gratitude (see Nelson et al., this *Handbook*); intellectual humility (see Dykhuis, this *Handbook*); intellectual virtues (see Kotzee & Baehr, this *Handbook*); kindness (see Malti & Colasante, this *Handbook*); liberty, morality, and the character system (see Nucci, this *Handbook*); personal liberty, mutual respect, and tolerance (see Lundie et al., this *Handbook*); prosociality and thankfulness (see Beeler-Duden & Vaish, this *Handbook*); and purpose (see Bronk, this *Handbook*).

Section I of Volume II of the *Handbook* focuses on moderators and covariates of character development. The seven chapters included in this section pertain to: cultural- and contextual-based exemplars of character development (see Murry et al., this *Handbook*); grit, achievement, and resilience (see Erbe et al., this *Handbook*); grit in organizations (see Raver & Ledford, this *Handbook*); hope for the future (see Snow, this *Handbook*, Vol. II, Ch. 4); parenting (see Bornstein, this Handbook); *resilience* (see Pool et al., this *Handbook*, Vol. II, Ch. 6); and self-regulation (see Napolitano et al., this *Handbook*).

Section II of Volume II discusses threats to moral, positive, or virtuous character development. The section includes five chapters on: adversity and the role of exemplars in promoting character development (see Mendonca et al., this *Handbook*); the character risk model (see Matthews et al., this *Handbook*); collective failure and its psychological origins (see Sternberg, this *Handbook*); democratic character and developmental responses to group conflict and oppression (see Moshman, this *Handbook*); and racism and positive youth development (see Seaton & White, this *Handbook*).

Section III of this volume includes 22 chapters that discuss the different contexts wherein character is either studied and/or promoted. Chapters in this section are organized into three groups,

that is chapters about: (a) university institutes or centers devoted to character development research and/or character education or other applications of character development scholarship (e.g., implications of character for programs or policies pertinent to such topics as citizenship, public service, or youth development; (b) public and private organizations, including brick-and-mortar entities, media, and community-based programs, both within nations and internationally; and (c) formal educational settings focused on either preschool/kindergarten classrooms through high school or on higher education institutions, including the special cases of the four U.S. military academies, which all have the goal of educating leaders of character dedicated to serving their nation with duty, honor, and courage.

Turning first to university institutes or centers, there are chapters about the Jubilee Centre of the University of Birmingham in the United Kingdom (see Arthur, this *Handbook*); the Center for Character and Citizenship of the University of Missouri-St. Louis (see Berkowitz & Baer, this *Handbook*, Vol. II, Ch. 14); the Center for Parent and Teen Communication of the Children's Hospital of Philadelphia (see Pool et al., this *Handbook*, Vol. II, Ch. 15); the Institute for Applied Research in Youth Development of Tufts University (see Buckingham et al., this *Handbook*); the Institute for the Study of Human Flourishing at Oklahoma University (see Snow, this *Handbook*, Vol. II, Ch. 17); the Oxford Character Project at Oxford University, United Kingdom (see Brooks et al., this *Handbook*); the Institute for Research on Youth Thriving and Evaluation of Montclair State University (see Brown & Linver, this *Handbook*); the Center on Adolescence of Stanford University (see Malin, this *Handbook*); and the Program for Leadership and Character of Wake Forest University (see Lamb & Townsend, this *Handbook*);

Turning to character development activities pursued within public and private organizations, there are chapters about: Character measurement and development within organizations (see Davidson & Morgan, this *Handbook*); International development agencies (see Banati et al., this *Handbook*); International faith-based organizations (see Sim et al., this *Handbook*); Media impacts on the development of children and youth (see Hilliard et al., this *Handbook*); Youth programs aimed at promoting character development (see Ettekal et al., this *Handbook*); the efforts of philanthropy to encourage and support research and applications pertinent to promoting positive instantiations of character development (see Clement et al., this *Handbook*); and the exemplary instance of such philanthropic endeavors, the three Templeton Philanthropies (see Dill & Simpson, this *Handbook*).

The last portion of this section pertains to formal education settings aimed at promoting knowledge about and students who manifest positive or virtuous character across their lives. Chapters here include discussions of the programs of: The NPX Point Avenue K-12 educational programs in Hanoi, Vietnam (see Le & Hwang, *this Handbook*); the Intellectual Virtues Academy of Long Beach, California (see Churchill et al., this *Handbook*); and chapters from the four military academies with the United States that training leaders of character to enter the profession of arms: The U.S. Air Force Academy (see Abbatiello & Lindsay, this *Handbook*); the U.S. Coast Guard Academy (see Giambra et al., this *Handbook*); the U.S. Military Academy at West Point (see Peterson et al., this *Handbook*); and the U.S. Naval Academy (see Macris et al., this *Handbook*).

The final section of Volume II is devoted to presenting three chapters that draw conclusions from and discuss implications of the preceding 60+ chapters across the two volumes of the *Handbook*. One chapter discusses the interrelations among the nature and study of character, especially in relation to scholarship in the social sciences, and in the service of leadership; the chapter points to the problematic consequences of social science scholarship that ignores implications for practice (see Spencer, this *Handbook*). A second chapter is focused on applications aimed at educational practice, and discusses progress to date, challenges for the future, and the promise for the future of concerns about character that can be derived from making advances in understanding,

measurement, and character education (see Fowers et al., this *Handbook*). The third chapter summarizes the past, present, and potential future for truly integrative multidisciplinary and international scholarship and application about character development if advances in dynamic, relational developmental systems-based theoretical models and methods can be continued and enhanced (see Lerner & Matthews, this *Handbook*). Finally, the *Handbook* closes with an Afterword written by internationally acclaimed developmental scientist and award-winning character development scholar William Damon.

In sum, across the two volumes of this *Handbook*, the multidisciplinary and basic and applied scholarship that is presented illuminates both the breadth and depth of past and ongoing interest in and activities pertinent to gathering and using character development scholarship to contribute positively to making positive differences in our world. This observation leads to some concluding comments.

Conclusions

The generation of excellent scholarship about character development and education has, across millennia, made enormous positive contributions to the lives of individuals and to the maintenance and perpetuation of justice and fairness in civil society. At the moment in history when we are writing this chapter, it seems as if such contributions have historically important implications. To the extent that this impression is valid, there may be, in fact, a potential use for the knowledge found in this *Handbook*.

Today, the world within which we are living seems to experience a burgeoning experience of pernicious influences of social media, fake news, counterfactual and often absurd conspiracy theories, and misinformation in multiple forms. All too frequently, media platforms are used to tap into the negative aspects of human nature by promoting false beliefs that may have huge ramifications. Politicians, some governments, and so-called social influencers leverage social media to spread misinformation that can lead to events such as the attempted insurrection of the U.S. government on January 6, 2021.

There are many other examples that could be cited in this context. Recent advances in artificial intelligence (AI) that allow the false representation of real people and that may also spread false information and sew social discord (e.g., Sinibaldi et al., 2020). As such, the use of AI, although serving positive ends, may at the same time represent a clear and present danger to an orderly, fair, and just society.

Cultivating and developing positive virtues such as wisdom, perspective, honesty, and integrity are essential to mitigating against the increasing threat of ideological manipulation for undemocratic purposes. We think it is important here, then to paraphrase a warning stated by former US President Theodore Roosevelt about such threats to human well-being by purveyors of negative instances of character: To educate people in mind but not in character is to create menaces to society. Simply, knowledge about character development and successful and scaled character education have critical roles of play in maintaining democracy, integrity, and justice in the world of today and tomorrow.

In his 2017 essay about this historical connection between the concept of character and personality, Banicki noted that:

> The ancient Greek and Roman concept of character turned out to be profoundly influential in the following ages at least… until the beginnings of the previous [20th] century. Some of the variations on this ancient notion can be found in the Kantian ideal of the ethical personality, the German tradition of Bildung, the 19th-century American model

> of the balanced character and, last but not least, the Victorian vision of the virtuous character very vivid in the novels from this cultural milieu… What is remarkable is that the notion of character, as influential as it used to be, is considerably much less important today.
>
> (2017, pp. 52–53)

We disagree and, with humility, offer this *Handbook* as evidence.

Even more, we invite consideration of the varied and ongoing contributions of the sets of scholars and practitioners – academics, and leaders in the fields of education, military science, public and private organizations, programs, and philanthropy – as reflecting a vibrant and productive multidisciplinary, international, and multigenerational effort to enhance the character of individuals across the course of life. We believe that this work holds the promise of providing a foundational basis for sustainable and scalable efforts to create a world where all people will be known, respected, and even loved for the content of their character in contributing to a socially just world in the centuries ahead.

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SECTION II

Multidisciplinary Approaches to Character Development

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2

EPIGENETICS AND CHARACTER VIRTUE DEVELOPMENT

David S. Moore

As a lazy teenager, all I ever really wanted to do was sit around and watch television. But even though my family was not sorely in need of additional income, my parents insisted I take the steel factory job that their friend offered me one summer. Why, I complained to them, should I have to do this difficult—and ultimately unnecessary—work? My father's response has stayed with me over the decades: "work like that builds character." I had no idea what he meant by "character" in this context, and I did not enjoy the job that summer. Even so, I have never regretted taking it, because there was certainly value in the experience.

"Character" remains a poorly defined construct, so perhaps it is not surprising that my young self did not understand what my father was saying. Even well into the 21st century, "there is no one definition of character development that elicits universal agreement among researchers or practitioners" (Lerner, 2018, p. 269). However, there is agreement that character is a multidimensional construct that comprises several virtues, such as wisdom, kindness, humility, and courage (Peterson & Seligman, 2004). Other features of character identified by theorists working in this domain include grit (Duckworth et al., 2007), purpose (Bronk, 2014; Damon et al., 2003), and hope (Schmid & Lopez, 2011). In fact, the titles of some of the individual chapters in Section III of Volume I of this *Handbook*—gratitude, forgiveness, generosity, fairness—name some of the other attributes associated with character. Berkowitz et al. (2017) provided as good a definition of character as any: character is the complex "set of psychological characteristics that motivate and enable one to function as a moral agent, to perform optimally, to effectively pursue knowledge and intellectual flourishing, and to be an effective member of society" (p. 34; for a similar definition, see Nucci, 2019). Despite the still-somewhat-fuzzy nature of the concept, it is obvious that character is an important psychological construct to explore, given how it relates to people's sense of themselves and their contributions to a healthy, fair, and well-functioning society.

Possible Sources of Character Virtues

Although we currently have no agreed-upon definition of character, it remains possible to consider its source, because whatever else it might be, character is an observable feature of an organism, a *phenotype*. And all phenotypes have the same possible sources: an organism's genotype—usually understood to be the information represented in the organism's genome—and non-genomic sources.

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Many writers would opt for words that are more familiar than "genomic sources" and "non-genomic sources" to describe these two contributors to phenotypes, but there are good reasons to prefer these words. In the centuries before the discovery of DNA, these two sources were represented by the vague words "nature" and "nurture," respectively (e.g., Galton, 1874; Shakespeare, 1611, IV.i.188); later, they were represented by the somewhat better-defined words "genes" and "environments" (Moore, 2013c). Unfortunately, even these latter words are insufficiently precise for scientific enquiry, because the word "gene" continues to lack a consensus definition (Moore, 2015), and the word "environment"—because it normally refers to that which is outside of the body—excludes critical *non*-genetic factors that are *inside* of the body. Consequently, analysis is better served by considering the possible sources of phenotypes to be genomic and non-genomic. In any complex organism, genomic contributions to phenotypes arise from the structure of the organism's DNA. Non-genomic contributions arise from sources beyond the DNA, including the environment outside of the organism's body, the organism's experiences, and the non-DNA factors *inside* of the organism's body, such as hormones, cytokines, neurotransmitters, and various RNAs, to name just a few.

This characterization might seem to suggest the existence of a dichotomy: genomic and non-genomic. Even so, molecular biologists (i.e., the scientists who study DNA and its functions, among other things) have established that genomic and non-genomic factors are in continual interaction during development, precluding the possibility of identifying *independent* genomic or non-genomic contributions to phenotypes (Corning, 2020; Gilbert & Epel, 2015; Gottlieb et al., 1998; Kampourakis, 2021; Lickliter & Honeycutt, 2015; Moore, 2001, 2013a, 2013c; Noble & Noble, 2022). Because genomic and non-genomic factors work together to build phenotypes, it is simply not possible to identify genomic (or non-genomic) factors that are solely responsible for any phenotype (Beurton et al., 2010, Part 3; Lickliter, 2008; Moore, 2015; Robert, 2004). Therefore, no phenotype can be considered "genetic," or dependent only on information contained within a person's genome. (For the same reasons, no phenotype is caused by "environmental" factors working independently of DNA.) Of course, people often think of some phenotypes as "genetic," because high-school biology textbooks, for example, traditionally teach that phenotypes such as eye color are caused by genes, and news sources regularly report on the "discovery" of genes that "cause" disorders such as Huntington's disease or Phenylketonuria. But molecular biologists interested in the development of such phenotypes know better. They understand that even these phenotypes arise from the actions of genomic and non-genomic factors working together (Keller, 2000; Moore, 2001, 2013a, 2013b; Scriver & Waters, 1999; Sturm & Frudakis, 2004).

One might think that although no phenotype can be genetically determined, it would still be possible to identify some phenotypes that are *more* influenced by genomic information and other phenotypes that are *less* influenced by genomic information. Nonetheless, even this has turned out to be impossible. The results of studies of large *groups* of people can give the mistaken impression that genomic information is more important for some phenotypes and less important for others, but such studies do not reveal much about the development of these phenotypes in individuals (Burt, 2022; Moore & Shenk, 2017; Ridley, 2003). In individuals, neither genomic nor non-genomic factors can be identified as more important than the other, because both types of factors are always critically important in the development of any phenotype. Asking which is more important is like asking whether gasoline or motor oil is more important in the functioning of the internal combustion engine in an automobile; the question makes no sense, because the absence of either one would render the vehicle non-functional (Keller, 2010; Moore, 2006, 2013c). All of our phenotypes are built by developmental process in which genomic and non-genomic factors are *inextricably* linked.

In theory, it did not have to be this way. Well into the 17th century, scientists such as William Harvey and Atonie van Leeuwenhoek argued that animals' characteristics are *preformed* in gametes (i.e., sperm or eggs), and that development entails nothing more than growth (Willis, 1847; Wilson, 1995). However, by the late 19th century, Hans Driesch (1891/1964) had demonstrated conclusively that organisms' characteristics are not preformed in the gametes; instead, we develop our characteristics through a process known as "epigenesis," as Aristotle had argued more than 2000 years earlier (Aristotle, 1984; see Moore & Flom, 2020 for a brief discussion—or Moore, 2001, for a more lengthy discussion—of the history of these ideas). Aristotelian epigenesis entails the emergence of characteristics during development that were not previously present. For example, an animal's heart develops from a prior state in which a heart is not present. Because development is now understood to involve such "epigenetic" processes, the idea that characteristics can be *determined* prior to the developmental processes that build those characteristics has been rejected (Gottlieb, 1992). One result of this insight is that phenotypes cannot be considered to be pre-specified in the genome.

For all intents and purposes, biologists now universally agree that development is an epigenetic process. Still, many scientists continue to search the genome for markers that will predict the ultimate development of specific phenotypes, as if these phenotypes are determined by characteristics of DNA alone. Some writers do not even shy away from suggesting that these phenotypes are *caused by* genes. To give just one recent example, Plomin and von Stumm (2018) intimated that genetic factors *cause* phenotypes when they wrote that correlations between phenotypes and DNA patterns "are an exception to the rule that correlations do not imply causation in the sense that there can be no backward causation when [such DNA patterns] are correlated with traits. That is, nothing in our brains, behaviour or environment changes inherited differences in our DNA sequence" (p. 152).

Note, though, that the idea that DNA can cause a phenotype independently of developmental processes is tantamount to a kind of *neo*-preformationism. Despite Driesch's indisputable demonstration in 1891 that organisms develop epigenetically and are *not* preformed, this sort of neo-preformationism continued to characterize the writing of celebrated scientists such as August Weismann, who wrote in 1894 that he believed "in a preformative arrangement" of the molecules we now identify as DNA. This version of preformationism still taints the thinking of some 21st-century scientists; such scientists sometimes acknowledge the reality that development is an epigenetic phenomenon while simultaneously promoting the logically incompatible idea that some phenotypes are determined by genetic factors in place in fertilized eggs *prior to any of the developmental processes known to bring phenotypes into being*.

Developmental Processes as the Source of All Phenotypes, Including Character Virtues

Toward the end of the 20th century, a few different theoretical frameworks were proposed to help elucidate the developmental origins of phenotypes. These frameworks emphasize varying aspects of the question, but they all share the central tenet that developmental processes themselves are the source of phenotypes (Keller, 2005; Pradeu, 2010). Character virtues, therefore, should also be understood to emerge from developmental processes, and indeed, some character virtue theorists have explicitly embraced this perspective (e.g., Lerner et al., 2022). Collectively, these theoretical frameworks define a Developmental Systems perspective that holds that an organism's phenotypes—including anatomical, physiological, psychological, and behavioral attributes—emerge during development because of the spatiotemporal relations that exist among a large number of factors, all of which contribute to the organism's ultimate characteristics

(Ford & Lerner, 1992; Gilbert, 1992; Lickliter & Berry, 1990; Michel & Moore, 1995; Overton, 2018; Oyama, 1985). As implied earlier, these factors are associated with numerous levels of analysis, including the molecular level (e.g., DNA, neurotransmitters, hormones, etc.), the cellular level (e.g., neurons, white blood cells, etc.), and the levels of organs (e.g., the brain, the adrenal glands, etc.), whole organisms, and the ecological systems with which an organism interacts, such as the family, a society's government, and the culture in which development is taking place (Bronfenbrenner, 1977). Said another way, an organism-and-its-context can be considered to be a single complex system (Noble, 2006; Thelen & Smith, 1994), the many parts of which co-operate to build the organism's phenotypes via developmental processes.

Developmental processes build phenotypes via mechanical interactions between system components. Consequently, any components required to build a given phenotype must be in spatial proximity to one another. Moreover, these components must be in the right places *at the right times* (Turkewitz & Devenny, 1993), that is, at the same time the other necessary components are present in that location. Because timing is an essential factor in developmental processes, it is important to remember that the components of complex biological systems are as they are in part because of the developmental *history* of the organism; what is and what will be are (at least partly) a function of what has been. Crucially, an organism's developmental history includes the organism's own prior behaviors (Lewontin, 2000; Lickliter & Honeycutt, 2015; Moore, 2016).

The Developmental Systems perspective maintains that DNA (like any other single component of a complex system) cannot be considered the *primary* determinant of any phenotype, since contextual factors always play essential roles in phenotype development, too (Griffiths & Tabery, 2013; Lickliter, 2013; Oyama, 1985; Thelen & Smith, 1994). And because contexts typically include some relatively unpredictable factors, the outcomes of development are necessarily probabilistic rather than predetermined (Godfrey-Smith, 2001; Gottlieb, 1991, 1992, 1998, 2007). Of course, this understanding accords well with the established epigenetic nature of development.

The application of the Developmental Systems perspective to the study of character virtues has led to the proposal that these virtues are best thought of as *not* akin to static traits within an individual, but instead as emerging in real time from *relations* characterizing individuals in specific contexts (Lerner & Callina, 2014). Although there are some differences of opinion among scholars studying character virtues (e.g., Berkowitz, 2014; Nucci, 2019), a project designed to evaluate this proposal is currently underway (Callina et al., 2017). However, given the context-dependent nature of phenotype development *in general*, it seems likely that this work will support the conclusion that character virtues cannot be predicted prior to the developmental processes that create them.

The Role of Epigenetics in Phenotype Development

As noted previously, the word "epigenetic" has roots in Aristotelian thought. Used in this way, it describes a developmental process that gives rise to a phenotype that was not present earlier in the organism's development. Thus, we could say that the development of language in an infant, for example, is an epigenetic process, because a nonverbal 2-month-old becomes a speaking 18-month-old later in development. Aristotle and those who followed him over the next two millennia had little understanding of *how* such developmental changes might occur. So using the Aristotelian adjective "epigenetic" to describe language development merely conveys the understanding that speech does not exist somewhere in the preverbal infant prior to the processes responsible for the emergence of speech during development.

By the middle of the 20th century, scientists understood enough about DNA to know that its structure could contribute to the development of phenotypes. However, because our traits are not

preformed—or predetermined by any single type of factor—inside of fertilized eggs, phenotype development must rely on more than just DNA. Recognizing this point, the developmental biologist Conrad Waddington resuscitated the word "epigenetics" in the 1940s, to refer to the study of how phenotypes emerge from the interactions of DNA components and their contexts, interactions he considered to be *epi*-genetic, or "above" the genes (Waddington, 1957, 1968). At the time, it was clear that two cells containing identical DNA could nonetheless develop into remarkably different cell types—think of the numerous differences between the cells that constitute our bones and the cells that constitute our brains—so it was clear that factors beyond DNA must be responsible for the differences, factors operative during development. But no one yet understood what those factors were.

Currently, we know that there are molecules that influence how DNA functions, and that contribute to the differentiation of the various cell-types in our bodies. Accordingly, when contemporary molecular biologists use the word "epigenetic," they are referring to these molecules and the processes by which they have their effects. These processes are still "epigenetic" in the Aristotelian sense of the word, but it is rarer these days for the word "epigenetic" to be used to refer to processes that are not molecular in nature. Nonetheless, although there continue to be some disagreements about how to best define the word "epigenetics" (Moore, 2015, 2017b), it is uncontroversial to insist that the word refers fundamentally to *developmental* processes (Moore, 2017a).

DNA consists of sequences of nucleotides, sequences that can serve as templates used in the construction of proteins (as well as other kinds of molecules, such as non-coding RNAs that regulate further genetic activity). However, contrary to the popular image of DNA being an agent that actively controls what happens in a body, DNA is actually inert; it merely participates with other molecules in the construction of various products, including proteins such as hormones, neurotransmitters, and cell membrane receptors (Noble, 2015). When they are not being used in this way, the very long DNA molecules that make up chromosomes are compacted into the tiny space inside the nucleus of a cell (see Figure 2.1). In this state, any sequence information potentially carried by the DNA cannot be accessed by the other molecules involved in building protein products; various other molecules must unwind and contact the DNA before it can be used.

Epigenetic molecules can affect how DNA functions by obstructing or facilitating access to the DNA. For example, a small molecule known as a methyl group can attach directly to DNA, and when a section of DNA takes on a number of these methyl groups, that section becomes physically inaccessible to other molecules, rendering any information in that DNA section of no consequence (Razin, 1998). In such a case, that DNA section has been downregulated, meaning that fewer of the products associated with the DNA segment will be produced. In more extreme cases, the methyl groups might lead to that section being shut down entirely, in which case that DNA segment—or "gene," according to some definitions of this word (Gerstein et al., 2007; Keller, 2000; Moore, 2015)—has effectively been "turned off." Although DNA methylation does not *always* silence or downregulate genes, it usually does (Daxinger & Whitelaw, 2012).

Other epigenetic molecules typically have the opposite effect. For example, a small molecule known as an acetyl group can attach to the proteins that DNA is wrapped around when it is inactive in a cell. These proteins are called histones, and when histones are acetylated—that is, when acetyl groups attach to those histones—the nearby DNA becomes *more* accessible to molecules that can make use of the DNA. In this way, histone acetylation can upregulate a segment of DNA, leading to the construction of more of the products related to that segment. Thus, histone acetylation is associated with gene activation, that is, increased expression of the affected DNA segments. Histones can also be modified by several types of molecules in addition to acetyl groups (Martin & Zhang, 2007), but the effects of these other histone modifications are not as straightforward as

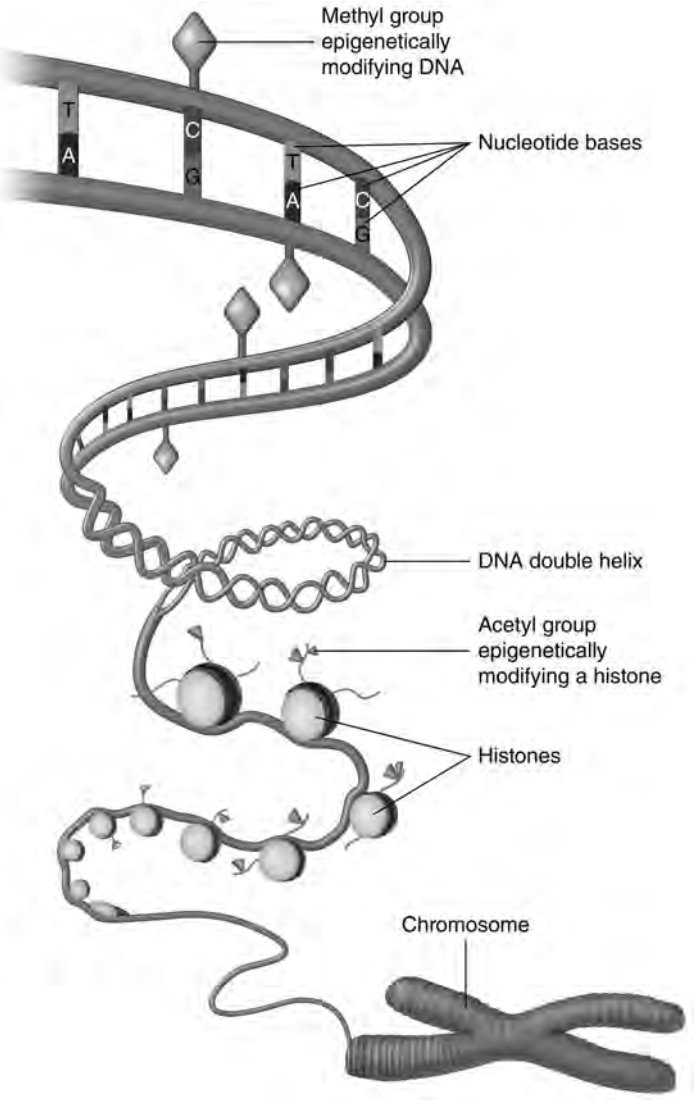

Figure 2.1 A schematic diagram of DNA pulled from a chromosome, showing nucleotide bases, the double helix wrapped around histones, and some epigenetic modifications to both the DNA and the histones.

the effects of histone acetylation, and they have not been studied as much (Myzak & Dashwood, 2006). For the purposes of this chapter, I will limit discussion to DNA methylation, which normally leads to decreased gene expression. Regardless, taken in its entirety, the full complement of chemical modifications to both DNA and histones in a person's body is known as that person's epigenome.

Across the past 20 years, the attention of molecular biologists has been increasingly drawn to epigenetics, for several reasons (Moore, 2015). The epigenome appears to have "decisive power

for inducing cancer" (Mack, 2010, p. 1262) and epigenetic processes can turn mature cells into stem cells (Takahashi & Yamanaka, 2006). Epigenetic processes have also been implicated in some autoimmune diseases and diabetes, for example (Bernal & Jirtle, 2010). But the study of epigenetics has generated excitement among *behavioral* scientists primarily because of how epigenetic events and states affect psychological phenomena such as stress reactivity, memory, and psychopathology (Lester et al., 2011).

Perhaps the most well-known of these phenomena is the process by which maternal care of infant rats influences how those rats react to stressful situations once they have grown into adulthood (Weaver et al., 2004). Compared to less attended rats, newborn rats that receive a lot of maternal grooming in the week after birth develop into adults that calm down more quickly after being exposed to threatening situations. The mechanism that produces this effect is epigenetic in nature. Specifically, the experience of being groomed as a newborn leads to decreased methylation of a DNA segment used in particular brain cells to build molecules involved in regulating stress reactions (Weaver et al., 2004). As a result, young rats that receive a great deal of grooming from their mothers grow into adults that have more of these stress-regulating molecules in relevant brain regions, which help them recover quickly from stressful experiences.

Accumulating evidence suggests that a variety of experiences can likewise influence human phenotypes via epigenetic mechanisms. For example, a correlational study found that the experience of being abused as a child was related to the epigenetic state of those individuals in adulthood, probably accounting for the reduced quantities of stress-moderating proteins that were present in their adult brains (McGowan et al., 2009). Similarly, a person's socioeconomic status when they were a child has been shown to be correlated with DNA methylation in their blood cells when they are 45-year-old adults (Borghol et al., 2012). Furthermore, adults' subjective feelings of loneliness have been found to be related to the epigenetically regulated expression of over 200 DNA segments in their white blood cells (Cole et al., 2007). The formation of memories appears to rely on epigenetic mechanisms as well (Day & Sweatt, 2010, 2011), and numerous psychiatric conditions are now thought to involve epigenetics, too (Campbell et al., 2011; Labrie et al., 2012; Mill & Petronis, 2007; Steiger et al., 2022).

It has become clear that our epigenomes can influence our psychological/behavioral phenotypes and that our experiences—which are often a function of our behaviors—can influence our epigenomes. Fittingly, there is now a branch of epigenetics specifically focused on phenomena of interest to psychologists and other behavioral scientists; this subdiscipline is known as *behavioral epigenetics* (Lester et al., 2011; Miller, 2010). A thorough discussion of behavioral epigenetics is beyond the scope of this chapter, but additional information can be found in Moore (2015, 2017a). For present purposes, the essential take-away message of work in this domain is that plenty of evidence indicates that at least some of our experiences cause physical changes that influence the functioning of our DNA. In this way, our experiences can essentially get under our skin and affect our phenotypes; even very early life experiences have the potential to influence the phenotypes we manifest as adults. Some theorists have argued, therefore, that epigenetic alterations can effectively *archive* early experiences in ways that have long-term consequences (Heijmans et al., 2009).

A number of writers (e.g., González-Pardo & Álvarez, 2013; Meaney, 2010; Weaver, 2007) have argued that our dawning understanding of behavioral epigenetics is revolutionary in so far as it invalidates attempts to disentangle the effects of "nature" and "nurture" on phenotypes. Disentangling the effects of genes and environments has been a goal of the psychological subdiscipline known as *behavior genetics* for over a century (Galton, 1883/1907; for contemporary examples referring to the putative value of such attempts, see Lau & Eley, 2008 or Plomin & Viding, 2022). However, the discovery of behaviorally relevant *epi*genetic phenomena strongly suggests that

behavior geneticists' efforts in this regard have been for naught. To wit: if an environmental factor can epigenetically alter the functioning of an organism's genome in a way that gives the organism new, otherwise-not-encountered experiences, and if those new experiences then epigenetically activate otherwise silenced elements in the genome in a way that brings the organism into another new context—and if the development of a phenotype depends on such iterative processes occurring innumerable times in a cascade of interdependent gene-environment interactions—it seems clear that it is a fool's errand to attempt to understand the phenotype as being caused by *static* genetic (i.e., DNA) *or* environmental factors. Instead, the developing organism must be recognized as a *dynamic* entity that is part and parcel of a dynamic system.

Of course, by the 1990s, behavior geneticists had already given up trying to identify phenotypes caused by genes *or* by environments (Plomin, 1994), but they had replaced that idea with the goal of trying to estimate the *size* of "genetic (and environmental) influences on a phenotype" (e.g., South et al., 2021, p. 720). Nevertheless, because phenotypes are built via the continuous interactions of genomic and non-genomic factors that are themselves dynamic, even this more modest goal is quixotic. As noted previously, neither genetic nor environmental factors can ever be considered more important than the other in the development of any individual's phenotypes, because both types of factors are always indispensable (Keller, 2010; Moore, 2001; Moore & Shenk, 2017).

The potentially revolutionary insights offered by behavioral epigenetics are thrown into relief when we consider how they change traditional thinking about the sources of our characteristics. For much of the last 100 years, many people have assumed that some of our phenotypes are determined primarily (if not exclusively) by our genes. We still encounter this view when we hear about "genetic diseases" or when we learn in secondary school that eye color is a genetic trait; this perspective suggests that if you have, for example, "genes for brown eyes" or "the breast cancer gene," you will inevitably develop brown eyes or breast cancer, respectively. But contemporary understandings of molecular biology confirm that there are no such things as "genes for" any complex human phenotypes (Kampourakis, 2021; Kendler, 2005; Moore, 2001). In addition, because some experiences can effectively "silence" certain DNA segments, having a particular DNA segment in your cells is potentially inconsequential. A person with a silenced gene is functionally the same as a person without that gene at all. What matters is not what DNA our cells contain, but how our DNA is *used* in the process of development.

The phenomena of behavioral epigenetics have made it clear that "nature" and "nurture" cannot be disentangled; neither DNA nor its environment can determine phenotypes independently of the other. In the wake of this understanding, some writers have suggested that perhaps an individual's *epi*genetic state can determine their phenotypes (for discussion of this issue, see Moore, 2017b or Waggoner & Uller, 2015). However, when it comes to understanding phenotype origins, this sort of "epigenetic determinism" will almost certainly prove to be as fruitless as genetic determinism has proven to be, because epigenetic states, too, can be dynamic (Day & Sweatt, 2011; Dulac, 2010) and responsive to their contexts. Non-genomic factors—including environmental and experiential factors—influence the development of all phenotypes, so to the extent that these factors are characterized by some stochasticity, phenotype development will be as well.

This perspective on phenotype development aligns with Gottlieb's (1991) description of probabilistic epigenesis, famously sketched in Figure 2.2. According to this view, phenotype development is a probabilistic rather than a deterministic phenomenon, and as a result, it is not possible to accurately predict phenotypic outcomes from DNA sequence information alone (i.e., in the absence of additional information about the contexts in which development is taking place). Instead, phenotypes are emergent entities that develop in ways that depend on both biological and contextual factors (Moore, 2001). And because behavioral phenotypes emerge dynamically while

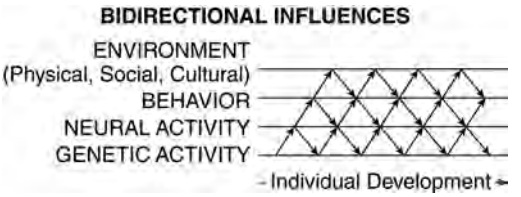

Figure 2.2 Gilbert Gottlieb's model of probabilistic epigenesis, representing myriad bidirectional influences across genetic, neural, behavioral, and environmental levels of analysis.

individuals function in particular contexts, behavioral phenotypes such as character virtues do not inhere in individuals' bodies.

The Significance of Epigenetics for Character Virtue Development

Contemporary behavioral epigenetics research is molecular in nature. Experimental work in this domain is possible with animals; this work involves giving particular experiences to one group of animals while denying that experience to a control group, and subsequently looking for epigenomic differences caused by these animals' different experiences (e.g., Korosi et al., 2010; Provençal et al., 2012; Tung et al., 2012). In contrast, studies of behavioral epigenetics in human populations are typically correlational, so they are fraught with all of the interpretational problems associated with such studies. Because character virtues are only studied in human beings, we cannot draw any confident (i.e., experimentally generated) conclusions about how epigenetic factors mechanistically contribute to the development of such virtues. Although *theoretical* work has addressed the developmental origins of character virtues (e.g., Lerner, 2018; Lerner & Callina, 2014), we do not yet have much insight into the developmental *mechanisms* that give rise to any of them (Lerner et al., 2022). Clearly, there is still much to be understood.

Researchers do not yet appear to have conducted correlational research on the epigenetics of character development, either. One possible reason for the lack of data in this area is related to an aspect of behavioral epigenetics that makes it quite challenging to study. Unlike DNA sequence information, which is identical in every cell of a body, the epigenetic states of different cell types are different (in fact, these epigenetic differences are why cells in the brain, the heart, the bones, and the liver are all so different from one another). For this reason, epigenetic effects of experiences that are detectable in specific cell types might not be detectable in other cell types.

Consider, for example, the epigenetic effects of being groomed as a newborn rat. These effects were detected in cells in the rat's hippocampus (Weaver et al., 2004); they could be detected only by accessing the rat's brain. Because scientists cannot ethically biopsy brain tissue from healthy, living people, studies of behavioral epigenetics in human populations have necessarily been limited to sampling other cell types, such as blood cells (e.g., Radtke et al., 2011; Suderman et al., 2014). However, some experiences might leave epigenetic marks *only* on DNA in cells in the brain, rendering these effects very hard to observe in human populations. Therefore, although neuroscientists have examined how activity in specific brain areas is correlated with various character virtues (as described in the next paragraph), it has not yet proven possible to follow up on these findings to search for epigenetic correlates of these effects.

Even though empirical studies have not yet addressed how epigenetic factors contribute to character development, future studies could be revealing. Among the character virtues that have been an early focus of neuroscientific research, altruism and empathy stand out. A task designed

to study "parochial" altruism revealed increased brain activity (as measured with fMRI) in a right hemisphere network involved in "sanction-related decisions" when people were punishing outgroup members for defection (Baumgartner et al., 2012, p. 1452). Similarly, a task examining visual attention to depictions of human suffering revealed that in people undergoing compassion meditation training, increased attention to suffering cues was associated with decreased amygdala activity (again, measured with fMRI) as well as in brain regions from the anterior insula to the orbitofrontal cortex (Weng et al., 2018). Studies of empathy have likewise revealed correlations between this character virtue and brain measures. Specifically, Banissy et al. (2012) discovered correlations between individual differences in empathy and MRI-revealed structural differences in the inferior frontal gyrus, the anterior cingulate, and the precuneus; these researchers found that grey matter volume in the anterior cingulate was also associated with the ability to take another person's perspective. These lines of research have highlighted the "*embodied* nature of the positive character development system" (Lerner et al., 2022, p. 43, emphasis added), and suggest potentially fruitful avenues for future research in the domain of behavioral epigenetics. Differences in brain structure and function necessarily reflect differences in genetic activity, and if technological advances ever permit the evaluation of epigenetic states in living people's neurons, it would then be possible to learn how experiences influence this genetic activity.

For now, some things are already clear. The plasticity of the human brain has been well established. The brains of primates that are injured in adulthood can reorganize themselves dramatically to compensate for the damage (Kaas, 1991; Merzenich, 1998; see Moore, 2001, for a more thorough discussion of plasticity). Brains that are injured early in development are even more capable of recovering from such an experience, tolerating quite extensive damage. Remarkably, individuals who have experienced a stroke *in utero* can reorganize their brains in ways that allow for normal functioning even if an entire lobe (Santoro, 2022) or hemisphere (Asaridou et al., 2020) has been destroyed. So it should not surprise us if experiences in youth have noteworthy effects on later behavior.

Ample empirical evidence has already established the value of youth development programs. Studies of cub scouts (Wang et al., 2015) and cadets at West Point (Callina et al., 2019) have demonstrated that these programs can increase kindness, helpfulness, and attributes related to honor and commitment. In addition, two large meta-analyses have reported significant positive effects of programs designed to improve youth outcomes. After conducting a meta-analysis of 73 studies of youth mentoring programs, DuBois et al. (2011) concluded that these programs were effective for improving socio-emotional as well as behavioral and academic outcomes. Likewise, following a meta-analysis that examined 213 school-based programs, Durlak et al. (2011) confirmed that program participants had significantly better academic performances, attitudes, and socio-emotional skills than non-participants. There is still much research to be done in this area, of course (Roth & Brooks-Gunn, 2016), but it is clear that high-quality programs have the potential to meaningfully contribute to the development of character virtues in young people. Although we currently know little about the epigenetic (i.e., molecular) mechanisms that underlie the development of character virtues, the causal connection between youth development programs and positive outcomes is already apparent.

The Road Ahead

Despite our ignorance of how epigenetic factors contribute to the development of character virtues, it remains possible to proffer some hypotheses based on what we know about phenotype development in general. First, we can address the question of whether epigenetic factors are likely to be involved in character development. The answer to this question will almost certainly be "yes." Genes influence the development of all human characteristics and because

epigenetic factors influence how all genes are expressed, these factors are involved in the development of all of our phenotypes. It can be easier to imagine epigenetic factors being involved in the development of our physical phenotypes, because these phenotypes are characteristics of our bodies, and our bodies are made of cells that contain DNA in their nuclei, DNA that influences these cells' structures and functions. It might initially seem less intuitive that epigenetic factors are also involved in the development of our psychological/behavioral phenotypes, but because these phenotypes depend (at least in part) on the structure, chemistry, and functioning of the nervous system, factors that influence these aspects of the nervous system are likewise implicated in the development of psychological/behavioral phenotypes. As it does in all in other cell types, DNA actively influences *neural* cells' structures (e.g., the number of AMPA receptors present on the surface of a neuron; Lynch, 2004) and functions (e.g., via the quantities of neurotransmitters stored in synaptic vesicles), so epigenetic factors that *regulate* the activity of this DNA are involved in the development of psychological/behavioral phenotypes. Because DNA is used to build neurotransmitters, hormones, receptors, neurotrophic factors that guide axons to their targets, and myriad other molecules in the brain, genes influence all of our behavioral/psychological characteristics; therefore, epigenetic factors that influence the functioning of the genome likewise influence these characteristics. These facts are why we can be confident future research will identify epigenetic factors involved in the development of character virtues.

Lerner et al. (2015) identified "Five C's" that are constituents of positive youth development, namely caring, character, competence, confidence, and connection. It is possible to speculate on how genomic factors—and consequently, epigenetic factors that regulate genomic activity—might influence character virtues, by considering one of these constituents: confidence. Confidence entails a positive feeling about oneself and one's ability to handle challenging situations. In contrast, the fear people experience when they feel insufficiently prepared for such situations is mediated at least in part by activity in the sympathetic branch of the autonomic nervous system. The physiological reactions we have to stimuli we fear—increased heart rate, dilated pupils, increased sweating, increased respiration rates—all entail activity of molecules that are built using DNA. Individuals who remain sure of themselves in situations that induce fearful reactions in others are experiencing reduced sympathetic activity in those situations, a physiological state that depends in part on the DNA-dependent molecules that are in those confident individuals' bodies at that time. Because epigenetic factors play a role in the locations and concentrations of these molecules in a person's body, such factors can be understood to play a role in a person's reaction to their situation.

Second, we can address the question of whether non-genomic factors are likely to be involved in character development. The answer to this question will be "yes," too. Just as all human characteristics are influenced by genomic factors, environmental and experiential factors are, likewise, influential in the development of all human characteristics, including psychological and behavioral characteristics (Keller, 2000; Moore, 2001; Scriver & Waters, 1999). Because genomic (and hence epigenetic) and non-genomic (i.e., experiential/environmental) factors always play crucial roles in the development of human characteristics, we should not be surprised that research has confirmed the importance of particular kinds of experiences in the development of character virtues (Callina et al., 2019; DuBois et al., 2011; Durlak et al., 2011; Wang et al., 2015).

Finally, contemporary understandings of phenotype development should also lead us to expect character virtues to emerge in real-time as individuals encounter successive distinctive situations across a lifetime. As Lerner and Callina (2014) noted, this perspective is in marked contrast to the one that underlies the dominant model of personality psychology, the Five Factor Theory

(John & Naumann, 2010). The Five Factor Theory (FFT) holds that personalities vary along just five dimensions: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (McCrae & Costa, 2003). Moreover, McCrae et al. (2000) have stated that the FFT perspective asserts that "both broad personality factors and the specific traits that define them are best understood not as characteristic adaptations, but rather as endogenous [i.e., "biologically based"] basic tendencies" (p. 174). As such, these personality traits are considered to be fundamental biological features of individual's bodies. This perspective led McCrae and colleagues to assert that personality characteristics reveal the importance of "nature over nurture" (p. 173) because "variations in life experience have little or no effect on measured personality" (p. 175).

This view is entirely inconsistent with the Developmental Systems perspective, which recognizes that psychological states and behaviors are emergent phenomena that depend in part on contextual factors that interact with biology in real time (Narvaez et al., 2022). In contrast to the view offered by McCrae et al. (2000), a biologically feasible understanding of phenotype development—one informed by what is now known about the epigenetic control of gene expression—must recognize that psychological states and other behavioral phenotypes, including both personality traits and character virtues, can never be "immune to environmental influences" (McCrae et al., 2000, p. 175). Thus, even if little is currently known about how epigenetic factors influence the development of character virtues, a general understanding of phenotype development suggests that—contra the FFT that dominates personality psychology—character virtues are, almost certainly, perpetually open to environmental influences. As such, we should *expect* to find experiential manipulations able to influence these attributes.

The Optimistic Outlook

Lerner concluded a 2018 article by noting that community-based and school-based youth development programs are effective, and that this powerfully counters "the naysayers, skeptics, and pessimists about the possibility of enhancing character among global youth" (p. 274). Advances in molecular and developmental biology as well as cogent arguments from philosophers of science support Lerner's optimism. There are several reasons pessimism is not warranted.

First, those who would argue that young people's characters might be unresponsive to youth development interventions could try to base their arguments on data from behavior genetics studies, but these data are uninformative on this question. Consider, for example, a recent report from Zwir et al. (2020) that human personality is as much as 60% heritable. These behavior geneticists concluded that their genome-wide association study (GWAS) of "the genotypic–phenotypic risk architecture of self-regulatory character traits" (p. 2309) revealed that these traits "are strongly influenced by organized interactions among more than 700 genes despite variable cultures and environments. These gene sets modulate specific molecular processes in brain for intentional goal-setting, self-reflection, empathy…" (p. 2295). Such statements suggest that these character traits are largely determined by genes, and therefore unlikely to be influenced by experiences. However, like the twin, adoption, and candidate-gene-association studies conducted by previous generations of behavior geneticists, GWAS data cannot be understood in this way (Charney, 2022), for the following reason.

Studies of heritability, including GWAS, are informative about populations but not about individuals, so data generated in such studies do not provide useful information about how non-genomic factors might influence the development of individuals' characteristics (Moore & Shenk, 2017). In fact, the development of a highly heritable trait is no more influenced by genomic factors than is the development of a less heritable trait (Moore, 2006, 2013a). Even behavior genetics studies that utilize newer approaches such as polygenic scores are unable to illuminate the causal

developmental processes that bring phenotypes into being (Burt, 2022; Turkheimer, 2012, 2019); these scores do not (Harden & Koellinger, 2020; Morris et al., 2020)—and cannot be expected to (Moore, 2023)—allow accurate predictions about the phenotypic outcomes of development, because these outcomes always depend on non-genomic, contextual factors as well as on DNA sequence information. The empirical data that show positive effects of youth development programs are enough to confirm that character virtues are plastic phenotypes that can be influenced by experiential factors (Callina et al., 2019; DuBois et al., 2011; Durlak et al., 2011; Wang et al., 2015), regardless of the numbers reported in behavior genetics studies.

Second, data indicating that some children are relatively insensitive to the positive effects of a particular youth development program do not mean these children would be insensitive to *all* sorts of early intervention programs. Belsky (2014) has written that he believes society should use genetic data in an attempt to identify children who are and are not likely to benefit from early intervention programs, and should funnel resources only to the former. Nevertheless, no such action is warranted before achieving a better understanding of the causal mechanisms by which genomic factors contribute to phenotypic outcomes. At present, we remain very far from any such understanding. Belsky's argument rests on correlational data generated in studies on the effects of specific interventions, and there are no good reasons to suppose that the genomic variations identified in these studies render children with these variations sensitive or insensitive to early interventions *in general*.

We should not be surprised that there are detectable correlations between genomic variations and phenotypic outcomes, since genomic factors play a role in the development of all phenotypes. But such correlations cannot be taken to mean that some children are beyond help! The finding that particular children are unresponsive to particular interventions does not mean that these children would be unresponsive to other interventions. Data derived from studies of DNA sequence information alone cannot be used properly to draw such a conclusion.

A third reason for optimism is related to the preceding point. There are good reasons to believe that children who are unresponsive to a particular intervention *would* be responsive to other interventions, especially if we understand the causal mechanisms underlying the development of the phenotype in question. This point was made forcefully by the geneticist Richard Lewontin decades ago (Lewontin, 2000; Lewontin et al., 1984).

Lewontin's argument served to counter the often-proposed idea that a genome specifies a *range* of possible phenotypic outcomes and that environmental factors determine where within this range an individual will fall. For instance, in promoting this idea, the behavior geneticist Irving Gottesman wrote "A genotype determines an indefinite but circumscribed assortment of phenotypes, each of which corresponds to one […] possible environment" (1963, p. 254). Gottesman's perspective is represented in Figure 2.3; it captures what is known as the "reaction-range" conception that our genomes endow us with a limited *potential*. Nonetheless, as Lewontin argued, there is little empirical support for the reaction-range conception (Platt & Sanislow, 1988). Instead, available data from studies of both plants and animals indicate that the "norm-of-reaction" conception is the more accurate way to think about genetic contributions to phenotypic outcomes. The norm-of-reaction idea holds that although a particular genome might be associated with a *typical* phenotypic outcome, that genome does not *confine* outcomes to any restricted range. Moreover, the norm-of-reaction idea emphasizes the fact that, whereas a particular genome might be associated with an inferior phenotype when development occurs in one context, that same genome might be associated with a superior phenotype when development occurs in a different context (Gottlieb, 2007). This conception suggests that we can never know the limits of any individual's potential simply by assessing sequence information within the genome.

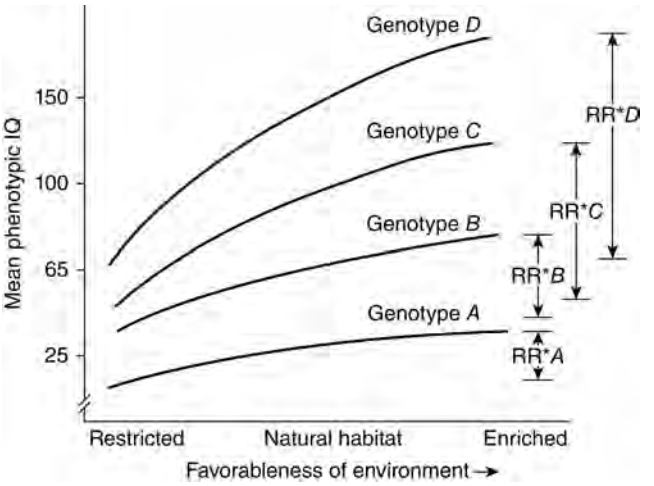

Figure 2.3 Irving Gottesman's schematic representation of the "range of reaction" idea, illustrated with four hypothetical genotypes (redrawn from Gottlieb, 1995). RR = reaction range for phenotypic IQ.

Lewontin (2000) provided a compelling illustration of this point. He described studies of genetically identical plants that were grown at three distinctly different altitudes; likewise, he wrote about studies of fruit flies that were allowed to develop in three different temperatures. These studies demonstrated that the genome-associated lines on figures like Gottesman's need not be roughly parallel, but can actually cross (see Figure 2.4). That is, different genomes will yield optimal outcomes in different environments. Addressing these sorts of observations in 1984, Lewontin and his colleagues wrote "… one genotype may grow better than a second at a low temperature, but more poorly at a high temperature […] Thus genotype and environment interact in a way that makes the organism unpredictable from a knowledge of some average of effects of genotype or environment taken separately" (Lewontin et al., 1984, pp. 268–269). This conclusion rests on empirical data that demonstrate that a genome that contributes to a weaker phenotype in one developmental context can contribute to a stronger phenotype in a different developmental context.

Lewontin was a student of Theodosius Dobzhansky, a central figure in the history of ideas for his role in forging the so-called Modern Synthesis, the 20th century's grand theory of biology. Faced with empirical data from studies showing that identical genomes react differently to different developmental contexts, Dobzhansky recognized that accurately specifying a limited range of phenotypic outcomes for a given genome would require observing how an individual with that genome would develop in *every conceivable environment*, which is clearly not possible. Consequently, he wrote "we can never be sure that any of these traits have reached the maximal development possible with a given genotype" (Dobzhansky, 1955, p. 77). This fact means we cannot know how a given individual might develop in a not-yet-tested environment, which is why we should remain skeptical of arguments like Belsky's (2014). As Dobzhansky pointed out, "new environments are constantly produced. Invention of a new drug, a new diet, a new type of housing, a new educational system, a new political regime introduces new environments" (p. 75). Because people constantly create novel developmental contexts for our children, we ought not think that studies that identify associations between DNA segments and phenotypic outcomes will ever inform us about individuals' *potentials*. Instead, we must dispense with the notion of "genetic potential" entirely, because the potential of any particular genome is effectively unknowable. Genes do what

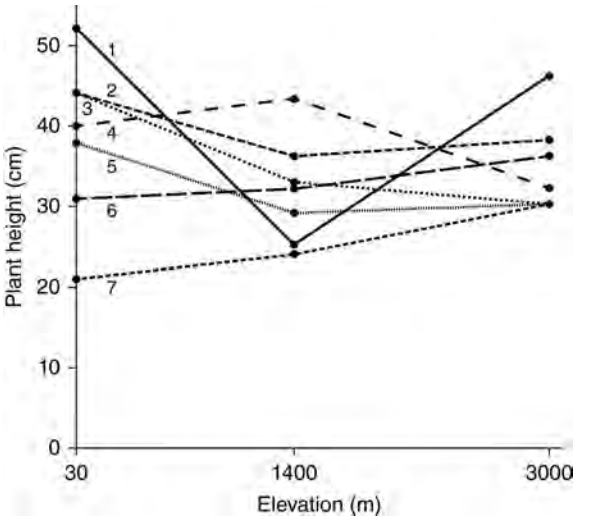

Figure 2.4 A re-presentation of data used by Lewontin (2000) to demonstrate how phenotypes can change in non-linear ways across developmental contexts. In this figure, each of the seven lines represents a single plant genome allowed to develop in three different environments, namely at three different elevations. The crossing of the lines indicates that one genome might yield a phenotype that is superior to another if development takes place in one context but that that same genome might yield a phenotype that is inferior to the other if development takes place in a different context.

they do in part because of the contexts in which they are embedded (Lickliter, 2017; Moore, 2001, 2015, 2017a; Noble, 2006, 2012), so it is likely that there will always be *some* intervention that can be developed that will be beneficial for a given child. Our job is to study the process of development in order to help us discover such interventions.

Conclusions

There is a lot of work yet to be done. Nevertheless, although the construct of character remains somewhat vague and there is little evidence that bears directly on the question of epigenetic contributions to character, a general understanding of phenotype development can help answer some questions about the origins of character virtues. Like other phenotypes, these attributes develop via co-actions of genomic and non-genomic factors, so DNA sequence information alone will not yield accurate predictions about individuals' future characters. Instead, character virtues emerge in real time, in part as a function of the contexts in which individuals find themselves, and in part as a function of these individuals' prior developmental histories. Genetic factors play a role in character development too, of course, but epigenetic processes ensure that these factors' contributions are modulated by factors beyond the genome. For these reasons, it is not surprising that studies have uncovered empirical evidence of the effectiveness of youth development programs. It should be clear that optimism about the value of these programs is justified.

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3

CHARACTER VIRTUES IN DEVELOPMENTAL SCIENCE

David C. Witherington and Maria McCready

The study and understanding of character—especially as focused on its *positive* instantiations, that is, on character "virtues" or "strengths" (Aristotle, 350 BC/1999; Peterson & Seligman, 2004)—has long fascinated philosophers, psychologists, and educators, resulting in extensive theoretical speculation and empirical investigation (Berkowitz, 2012; Carr, 2008; Danziger, 1990; Hartshorne & May, 1930; Lerner & Schmid Callina, 2014). Within the realm of the developmental sciences, however, the study and understanding of *how* positive character *develops* has traditionally not enjoyed much in the way of rigorous, systematic treatment, either at the theoretical or empirical level (Lerner & Schmid Callina, 2014). Over the last couple of decades, this situation has changed dramatically. Not only has empirical work on positive character development thrived in recent years, but major conceptual reformulation has taken place that frames character and its development in terms of a *relational developmental system*—in fully dynamic, multifaceted, and relational terms, positioned at the interface of individual and context (Berkowitz, 2012; Lerner, 2019; Lerner et al., 2022; Nucci, 2017; Sokol et al., 2010).

Unlike recent advancements in the conceptualization of positive character and its development, traditional, 20th century approaches in psychological science to the question of how character develops largely relied either on nature-based conceptualizations antithetical to the very notion of development or on nurture-based conceptualizations rooted in learning theory and an environmentalist focus equally ill-equipped to capture the relational dynamics of actual developmental process. On the nature-based side of theorizing, trait approaches once flourished in the understanding of character and its development. Prominent early 20th century investigations of personality and character in both the United States and Germany, for example, relied on a trait-based view of human conduct as "issuing from sources entirely within the individual" representative of "static, permanent and unchangeable structures" (Danziger, 1990, p. 168). Views of personality and character as invariant across the developmental life-span, grounded in an unchanging biology, and impervious to environmental influence, maintained their prominence well into the second half of the last century, illustrated by the popularity and dominance of Costa, McCrae and colleagues' Five Factor model of personality (e.g., Costa & McCrae, 1980; see Lerner & Schmid Callina, 2014 for discussion). On the nurture-side of theorizing, models within the field of character education have traditionally appealed to externally driven forces of socialization and enculturation to explain the development of character. Under the auspices of these "hybrid Aristotelian virtues-behaviorist"

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accounts, qualities of positive character arise from behavioral reinforcement and children's modeling of other's behavior, such that the practices of a community shape the habits of individuals through conformity, rote learning, or some measure of internalization (Berkowitz, 2012, p. 252; Nucci, 2017; Sokol et al., 2010).

In both types of traditional theorizing—the nurture-based and the nature-based—an individual's development reduces to transmission and pre-design. Character traits in individuals may be biologically hard-wired outcomes of phylogenetically entrained qualities of a species, available through genetic "information" that gets transmitted to individuals. Or the "information" for such traits may inhere in the environment, getting transmitted to individuals via educational and learning practices. Or character traits may result from some additive combination of these two forces of information transmission. Whatever the case may be, the development of positive character reduces to little more than the transferal of pre-existent information from one source to another (Oyama, 1985, 1989), making the individual herself "the passive object of autonomous internal and external forces" (Levins & Lewontin, 1985, p. 89). None of these traditional modes of theorizing takes seriously the constructive dynamics of actual developmental processes, forged through engagements of actual individuals with their real-world contexts.

In contrast to such traditional modes of developmental theorizing, 21st century models of character development—most prominently epitomized in the writings of Lerner (2019; Lerner et al., 2022; Lerner & Schmid Callina, 2014), Nucci (2017, 2019), and Berkowitz and colleagues (Berkowitz, 2012; Sokol et al., 2010)—have decidedly rejected reductionist, mechanistic conceptualizations of character and its development in favor of embracing a relational ontology of process and becoming (Overton, 2010, 2015; Overton & Lerner, 2014). Echoing the innovative study of character and personality from Kurt Lewin and his Berlin group in the 1920s and 1930s (Danziger, 1990), proponents of these newer models actively eschew notions of individuals as passive recipients of pre-existent information for their development, issuing from within or without, and instead treat character development as a relational developmental system. They conceptualize individuals as self-organizing agents, actively engaging their worlds and constructing new levels of developmental organization for themselves as embedded in those worlds—but only by means of ceaseless energetic and material openness to those worlds. By such models, the source of an individual's positive character development rests neither in the individual nor in the individual's environmental surround, nor in some additive combination of the two, but in the "mutually influential *relations* between individuals and contexts, represented as individual ←→ context relations" (Lerner & Schmid Callina, 2014, p. 325, *italics* added). Critically, the relations between individual and context are "internal" such that the identity and meaning of both individual and context depend on their relation to the other (Kitchener, 1982; Lerner, 1978). Neither individual nor context houses elemental, unchanging "identities" or meanings independently of the relations in which they engage, for these relations necessarily involve "interpenetrations of co-acting parts processes" (Overton, 2015, p. 52).

Some major points of thematic consensus concerning how to define character and its development have already emerged from these newer, systems-oriented, relational models of positive character development. To wit, viewing character as a relational development system entails wholescale abandonment of orthodox trait conceptualizations that render character as "fixed, stable, and biologically-set fundamental facets of individual functioning" (Lerner & Schmid Callina, 2014, pp. 324–325). Character must instead be construed in dynamic, fluid terms, "as a *dynamic* process, and *not* a fixed feature of a person" (Sokol et al., 2010, p. 584). This grounding of notions of character in terms of process highlights not only the idea that character is both developmentally emergent and undergoes change and transformation across developmental time—that character is

dynamic—but also the idea that character is something one does rather than something one has. Consequently, systems-oriented, relational models of positive character development have highlighted the evaluative activity of individuals in context as constitutive of character "rather than static abstract qualities thought to define the person" independently of context (Nucci, 2017, p. 2).

The grounding of character in activity and process[1] entails conceptualizations of character and its development as thoroughly relational phenomena, meaning that the individual-in-context—or individual ←→ context relations—serves as the basic unit of analysis for understanding the nature of character, both synchronically and diachronically (Lerner, 2019; Lerner & Schmid Callina, 2014). Character does not inhere, as an entity, module or control structure, within the isolated person (or the context, for that matter) but is always a function of the relation between a person and her context, most notably the social context in which she is embedded (Lerner et al., 2022; Nucci, 2017; Sokol et al., 2010). Lerner (2019) has specifically defined positive character as:

> instances of mutually beneficial individual ←→ context relations that involve a person acting morally to contribute to the social, cultural and physical world that contributes to his or her life across time and place.
>
> (p. 80)

In similar fashion, Nucci (2017) has defined positive character as a "system that enables the person to engage the social world as a moral agent" (p. 12). Positive character developmentally emerges from, and is maintained through, an individual's mutually beneficial relations with her world, just as it undergoes developmental transformations and reorganizations via those same relations, promoting the individual's reliable and cohesive engagement with and contribution to the social world that undergirds her very engagement (Lerner & Schmid Callina, 2014).

Viewing positive character and its development as a relational developmental system not only entails relational conceptualizations of character that position the phenomenon and its development in the relations between individuals and their social worlds; it also entails highlighting the *multidimensional* nature of character vis a vis the multiple psychological qualities of functioning that comprise it (Lerner & Schmid Callina, 2014; Nucci, 2019; Sokol et al., 2010). Various psychological skills or capacities have been implicated in the constitution of character, including moral cognition and reasoning faculties; perspective-taking abilities; self-regulatory abilities; executive control faculties; the propensity for agentive engagement with social justice and others' welfare; empathy and other forms of emotional competence, like being able to read others' emotions; and communication skills necessary to enact moral change (Berkowitz, 2012; Lerner & Schmid Callina, 2014; Nucci, 2017, 2019; Sokol et al., 2010). Critically, it is again the dynamic relations among these psychological constituents that comprise the integrated whole constitutive of the character system, not the constituents themselves, considered in isolation or as an additive collection of independent abilities (Nucci, 2017).

Finally, relational, systems-oriented conceptualizations of positive character and its development reject the notion that showing "good" character reduces to some measure of consistency in acting across time and context (Lerner & Schmid Callina, 2014; Nucci, 2017). Instead, proponents of a relational developmental systems approach argue that coherence of function, rather than consistency of action, defines character. In invoking notions of coherence, they reinforce the idea that character is necessarily constituted by the dynamics and fluidity of time and context, by real-time, context-specific activities of evaluation and decision-making. Coherence in character involves, in other words, "the habit of doing the right thing at a specific place and a specific time" (Lerner, 2019, p. 80; see also Narvaez, 2008). As such, the notion of coherence in character is inevitably

bound up in mutually beneficial relations between a person and their world and definable only by virtue of conceptualization at this level of analysis.

Recent conceptual advances in the study of positive character and its development have begun to remedy decades of developmentally unviable accounts steeped in notions of information transmission rather than active construction of developmental organization. The pioneering work of Lerner (2019; Lerner et al., 2022; Lerner & Schmid Callina, 2014), Nucci (2017, 2019), and others (Narvaez, 2008; Sokol et al., 2010) has laid down critical first steps in delineating what it means to view character and its development as a relational developmental system, consistent with a process relational ontology. The purpose of this *Handbook* chapter is to both build on and further conceptually clarify the foundational declarations emanating from this seminal work. It should be noted at the outset that neither author of this *Handbook* chapter has particular theoretical or empirical expertise in the study of character or moral agency. As such, both authors bring something of an outsider's view to this project, and the chapter is not designed to adjudicate continuing theoretical debates within the study of character development, even in the midst of agreement concerning character as a relational developmental system. We instead intend to bring our metatheoretical expertise to bear in examining what it means to systematically apply a relational developmental systems framework to the study of psychological functioning, with the study of character as a particular instantiation.

In the next section, we will elaborate upon the process-relational paradigm, or metatheoretical framework, that undergirds current conceptualizations of character as a relational developmental system, laying out its particular set of "background concepts" and presuppositions for guiding what makes sense in the construction of theory and method to explain organismic functioning (Overton, 2010, 2015). We will then proceed to examine what it means to conceptualize character as a process, and question the extent to which it even makes sense to view character *qua* character along these lines within the explanatorily pluralistic framework of a process-relational paradigm. We will instead argue for conceptualizing character as a power or disposition, the explanatory significance of which must be clearly distinguished from the temporal process dynamics that mark its exercise. Next, we will examine the multidimensional nature of character and identify points of potential conceptual confusion in current approaches that posit character as constituted by dynamic relations among a collection of psychological subsystems. We will furthermore seek to resolve continued tendencies within the relational developmental systems literature that perpetuate an internal–external divide in their explanations of character and its exercise. Finally, we will propose and elaborate upon a particularly useful methodological approach for empirically investigating the actual, real-time process dynamics of character in its exercise: the technique of microphenomenological interviewing.

Process-Relational Metatheory and Relational Developmental Systems

The metamodel of relational developmental systems, to which 21st century models of positive character development subscribe, provides a mid-level metatheoretical framework that explicitly marries a *process-orientation* focused on bottom-up temporal dynamics with a *holistic structuralist* focus on the explanatory significance of system organization in its own right (Overton, 2010, 2015; Overton & Lerner, 2014). This metamodel is designed to fully instantiate the explanatory pluralism of a *process-relational paradigm* for developmental and psychological science (Lerner et al., 2014; Overton & Lerner, 2014). At the broadest level of metatheory, the process-relational paradigm offers an ontological and epistemological framework for scientific inquiry that heals traditional dualisms of the field. Under such a framework, classic polarities such as structure and

function, process and organization, and parts and wholes are unified as "differentiated polarities (i.e., coequals) of a unified (i.e., indissociable) inclusive matrix" (Overton, 2010, p. 14). Within the inclusive metatheoretical space of a process-relational paradigm, "where foundations are groundings, not bedrocks of certainty, and analysis is about creating categories, not about cutting nature at its joints" (Overton, 2010, p. 13), each member of these polarities provides distinct yet equally legitimate *explanatory perspectives* on any given phenomenon under investigation (Overton, 2015). The process-relational paradigm thus espouses a perspectivist framework wherein "synthesis and analysis, together with reason and observation, operate in an interpenetrating reciprocal fashion … in which each individual approach is valued not as a potentially privileged vantage point, but as a necessary line of sight on the whole" (Overton, 2010, p. 18).

Specifically with respect to the study of development, the explanatory pluralism of the process-relational paradigm entails the idea that all explanations of developmental stability and change must be informed by an understanding of the indissociable relation between process *and* organization. In the process-relational paradigm, the organization (or structure) of a system is as necessary a feature of developmental explanation as the temporal dynamics of the system (dynamics that both give rise to and are constrained by that organization). An especially useful way to think about such explanatory pluralism is to frame the process-relational paradigm as a "coherent synthesis" of two world views: organicism and contextualism (Overton, 2015, p. 26).

In embracing *organicism*—an organismic world view—and its root metaphor of the organism as constructor of reality through active engagement with the world, the process-relational paradigm characterizes any living system as an irreducible, integrated whole whose development consists of irreversible, directional, and qualitative changes in that system's formal properties (Overton, 1984; Pepper, 1942). To understand what the organismic world view uniquely brings to the table of explanation requires an understanding of its *formal* explanatory focus. In organicism, explaining what a system does (its activity) starts with the *system as a structural whole*. In other words, explanation begins with the *organization* that constitutes a system's activity within and across contexts. And explaining a system's activity in terms of the organization that activity evinces constitutes a fundamentally different kind of explanation than the kind of explanation that focuses on the activity itself, in terms of its context-specific temporal dynamics (Witherington & Heying, 2013, 2015). Specifically, understanding in the organismic world view involves what Overton (1991) has termed *pattern* explanation, as opposed to the *material* explanation characteristic of more traditional, "causal force" levels of explanation that have stood as the centerpiece of scientific inquiry since the 17th century (Bates, 1979).

Pattern explanation explains through appeal to the organization, the patterning, that characterizes the dynamic particulars of activity in context. Material explanation, in contrast, explains through appeal to the antecedent conditions that precede a phenomenon, as well as the material substrates that support a phenomenon (Overton, 1991). Invoking neurophysiological processes, information-processing mechanisms, or particular stimulus events or environmental factors that temporally precede a behavior to explain that behavior draws on material explanation, as does explaining the behavior through appeal to a neurological substrate, like a particular area of the brain. Material explanation, in other words, employs an *antecedent–consequent* framework for its explanation.

Unlike material explanations, however, pattern explanations do not invoke traditional "causes" in the sense of identifying temporal antecedents relative to a consequent. Pattern explanations do not employ propelling forces or material groundings to explain a phenomenon. They instead *abstract* pattern—a form, structure, or organization—from the particular content of any given phenomenon (i.e., an act in context) and use such pattern to explain that phenomenon (Rychlak,

1988). These patterns carry explanatory weight because they confer order and meaning to the activity of interest (Overton, 1991). Pattern explanation does not target what material explanation targets—namely, the context-specific variability of activity itself. Pattern explanation does not identify the antecedent and material circumstances for an organism's activity in context. Instead, it targets an understanding of the specifics of activity in context in terms of the general organization and directional purposes that meaningfully characterize those activities (Witherington, 2017).

Pattern explanations are commonplace in scientific explanation, though routinely not acknowledged as such. For example, invoking psychological constructs such as emotions, cognitive schemas, and personality structures to explain behavior, or stages and developmental levels of organization, involves pattern explanations. These are pattern explanations, rather than material explanations, because they capture organismic functioning as a whole, abstracted from the particulars of specific actions in specific contexts. Appealing to a cognitive scheme, a personality structure, or a developmental stage explains activity in terms of its form, its organization. Critically, it is a conceptual confusion to treat such organization as if it were an "underlying" activity or force inside the organism that precedes and initiates the organism's external behavior (Lourenco & Machado, 1996; Rychlak, 1988). Rather, organization captures the nature of an organism's action as contextualized in terms of the organism itself, as an integrated whole—how, in other words, the behavior is organized. Organization reflects what the organism *can* do, its *abilities* to act or refrain from acting. Unfortunately, psychologists all too often employ what should rightfully be construed as pattern explanation in the service of trying to offer a *material* explanation. They erroneously reify the organization of pattern explanation, turning such patterns into internal activities and antecedents of external behavior. This is a category mistake that conflates two distinct, equally legitimate types of explanation and is typical of thinking within a Cartesian-Split-Mechanistic paradigm, where the only legitimate kind of explanation is material explanation (Overton, 1991, 2010; Ryle, 1949).

Viewing phenomena exclusively through the lens of an organismic world view foregrounds the organizational invariance of activity, across time and context, but at the cost of relegating to the background the dynamic particulars of activity in context (Lerner & Kauffman, 1985). Organicism's focus on pattern explanation largely ignores the temporal dynamics of intra and inter-individual variability as well as the context-specific content of any given action (Pepper, 1942). The world view of *contextualism*, on the other hand, highlights the particularities of time and context, compensating for organicism's neglect. In embracing *contextualism*—a contextualist world view—and its root metaphor of "the event alive in its present" (Pepper, 1942, p. 232), the process-relational paradigm adds a perspectival complement to organicism by also grounding itself in the here-and-now of organismic activity in specific settings and contexts (Overton, 2010, 2015). In contextualism, as Pepper (1942) wrote, "nothing is more empirically obvious … than the emergence of a new quality in every event" (p. 256). Contextualism is rooted in both change and novelty in the real-time dynamics of specific action in context.

From the vantage point of a contextualist world view, organicism's appeal to pattern explanation loses sight of the ever-present and changing process dynamics that characterize activities in context. Both organicism and contextualism are synthetic world views, but in the case of organicism, synthesis operates at the level of higher-order organization, whereas contextualism's synthesis operates at the level of here-and-now content (Overton, 1984, 2007; Pepper, 1942). In contextualism, understanding development necessitates the grounding of analysis in action's variability, evident during an organism's real-time, adaptive encounters with everyday contexts.

Development flows from and is continuous with such real-time change, moving from particular to particular (Overton, 1991). In foregrounding the particularities of time and context, the contextualist world view espouses a thoroughgoing process orientation, embedded in a material explanatory framework but one that subscribes to the reciprocal, nonlinear interdependence of system relations and consequently eschews absolutist notions of antecedent and consequent as well as reliance on linear views of cause and effect (Witherington & Heying, 2015). In its privileging of nonlinear, here-and-now dynamics, however, contextualism neglects the higher-order organizational properties of the organism *qua* organism, considered as an integrated whole across time and context.

Both organicism and contextualism afford distinct, equally legitimate perspectives on the same whole, constituting necessary but in-and-of-themselves insufficient explanatory lines of sight on system activity and development. The organismic-contextualist synthesis that is at the heart of the process-relational paradigm is designed to preserve the explanatory utility of each of these world views *as perspectives*, thereby eliminating the neglectful weaknesses of each (Overton, 2007, 2010, 2015). Within the explanatorily inclusive metatheoretical framework of the process-relational paradigm, organismic and contextualist world views exist not as absolute modes of truth but as *interdependent*, complementary modes of explanation, with neither perspective privileged as *the* mode of explanation. Consequently, the process-relational paradigm engenders a perspectivist framework in which "each individual approach is valued not as a potentially privileged vantage point, but as a necessary line of sight on the whole" (Overton, 2010, p. 18). From the contextualist perspective, explanation targets the "grass-roots" dynamics of a system's real-time activity in specific context—the dynamic coactions that give rise to the real-time emergence of organismic activity in context as well as to the developmental emergence of new levels of organization in such activity. From the organismic perspective, explanation targets the organization of a system, characteristic of functioning across time and context, that necessarily frames and constrains, in circular causal fashion, the grass-roots, local dynamic interrelations on which such organization depends (Witherington, 2007, 2011, 2015). In embracing both world views, therefore, the process-relational paradigm is as much about explanation in terms of global-to-local organizational constraint as it is about explanation in terms of local-to-global dynamic process (Juarrero, 1999; Thompson, 2007).

Organization comprises the very nature of process; at every level of analysis, from micro to macro, process is organized, such that everything is organization of process (Bickhard, 2008; Bickhard & Campbell, 2000). Because all organization is process and all process is organization—with neither foundational to the other—an understanding of system process requires an understanding of system organization or structure, and vice versa. Whether or not one construes a phenomenon in organizational or process terms depends on the perspective one adopts relative to the phenomenon (Witherington & Heying, 2013). Consequently, *both* a process *and* an organization focus offer complementary yet distinct vantage points for understanding stability and change in developmental systems over time. Within the ontology of a process-relational paradigm, grounding an understanding of any given phenomenon and its development in terms of the abstraction of form and function from the particularities of situated behavioral content is as important to explanation as grounding an understanding of that same phenomenon and its development in terms of temporally unfolding process, intraindividual variability, and context specificity. A process-relational paradigm, and the relational developmental system approach subsumed under it, embrace the integrative wholeness of an organismic world view just as readily as a focus on change and novelty, consistent with a contextualist world view.

The Nature of Character: Power and Process

What does it mean to conceptualize positive character in ways consistent with a process-relational paradigm? At the level of character *development*, proponents of relational developmental system's treatments of positive character uniformly emphasize individual ←→ context relations as the wellspring from which a person's actions both dynamically emerge in real-time and undergo organizational transformations across developmental time. Little to no disagreement within the ranks, therefore, arises with respect to how positive character—or any psychological phenomenon—develops, at a broad strokes level, at least. Potential disagreement does arise, however, with respect to what constitutes the phenomenon of character itself. Lerner and Schmid Callina (2014), for example, define positive character as:

> …a specific set of mutually beneficial relations, that vary across ontogenetic time and contextual location (place), between person and context and … in particular, between the individual and other individuals that comprise his/her context.
>
> (pp. 323–324)

Lerner (2019) has additionally emphasized that character concerns "attributes *of an individual's relations* with his or her social context" (p. 80, *italics* added). Under this conceptualization, character sits squarely in the relation between person and context. Berkowitz (2012), in contrast, has defined positive character as a "composite of those characteristics of the individual that directly motivate and enable him or her to act as a moral agent" (p. 248), suggesting that character "resides in the person and not in the relations of which the person is part" (Berkowitz, 2014, p. 355). Sokol et al. (2010) have defined character as "a *dynamic* process" (p. 584), and Nucci (2019) has defined positive character as "those capacities and characteristics that motivate and enable the individual to act as a moral agent" (p. 74) and as a "partial system operating within the self as a whole" (Nucci, 2017, p. 3).

Though many similarities characterize these definitions, enough heterogeneity and even outright disagreement emerge to beg the question of what exactly positive character is when conceived as a relational developmental system. Is character a process, a set of actions? Is it a set of capacities or dispositions? Is it a set of attributes, and if so, attributes of what? Is it something that characterizes individuals *qua* individuals? Is it something that characterizes relations between individuals? Does character reflect all of the above? And, if so, what does it mean exactly for positive character to be both a process and a capacity, since processes, as sets of activities, constitute actualities or actual doings, whereas capacities constitute only potentialities for doing (or not doing)? What does it mean for character to be both an attribute of individuals and an attribute of relations *among* individuals? Lerner and Schmid Callina (2014) have called attention to the legitimate vantage point of understanding positive character at the individual level-of-analysis, demonstrating an embrace of different explanatory vantage points relative to the study of character that laudably embodies the explanatory pluralism of the process-relational paradigm. However, they nonetheless stress the extent to which a relational, *individual-in-context* unit of analysis constitutes *the* backdrop unit of analysis to which any full-blown definition of positive character must necessarily return, suggesting that viewing character as an individual attribute reflects a temporary holding in abeyance of character's true nature.

One promising avenue for reducing possible lines of division in conceptualizing positive character is to examine the explanatory function that appeals to a construct like character readily serve. We argue that character, like personality, is a term employed both in non-scientific and scientific

discourse to capture that which is generalizable about a person, across time and context. It is a term that necessarily abstracts away from the particularities of specific actions in specific contexts to offer a portrait *of the person* in unified, invariant whole terms—of the person as a system in her own right, one that, despite being perpetually open and incessantly exchanging matter and energy with the contextual surround, nonetheless maintains an *organizational closure* in the face of such continuous variability (Moreno & Mossio, 2015). This organizational invariance of the person *qua* person, across particular swaths of time and context, serves as a level of explanation *in its own right* and is irreducible to any articulation of the component processes that dynamically interrelate between person and context to both developmentally construct and actively maintain such organizational invariance.

In brief, we argue that, epistemologically speaking, appeals to positive character in developmental science reflect, first and foremost, the formal explanatory stylings of an organismic world view. Character, in other words, operates at the level of pattern explanation, in a manner akin to Aristotle's formal cause. It meaningfully frames an understanding of an individual's specific activities-in-context in terms of the general organization that those activities evince (Overton, 1991). Critically, this focus does not suggest, as Berkowitz (2014) has argued, that character sits inside the person, as an antecedent property, part, or aspect of her interacting with other parts of her and context to account for her consequent functioning. Instead, character *is* the person or is *of* the person, considered in her singular totality. It reflects a context- and time-independent view of the person *as a whole* that serves as a *formal* explanatory backdrop or framework against which the temporal dynamics of individual ←→ context relations must be understood.

Nucci's (2017, 2019) definition of character as a "capacity" most readily instantiates the explanatory significance of this organismic world view construct. To conceptualize positive character as a capacity, as *a power*, is to point squarely at the person side of person-context relations—at the person *as a* system in her own right, an *organized totality* that actively maintains herself (her organization) *across* time and context in the face of (and by means of) constant material and energetic exchange with the world. Conceptualizing character as a power of a person speaks not to the actual activity of that person in context (i.e., the *exercise* of one's character) but to the *potential* of the person herself (the system qua system) to act and to refrain from acting (Hacker, 2007; Kenny, 1975). Powers—abilities, capacities, faculties, dispositions, tendencies—are not in themselves actualities and therefore readily distinguish themselves from processes and actions. Powers speak to the potential of individuals to act whereas processes speak to actualizations, an individual's actual activity in context (that which constitutes the *exercise* of a power). Consider that it makes sense, for example, to speak of actions and concatenations of actions, or processes, as having duration—they start and stop, can be interrupted during their course and subsequently reengaged (Bennett & Hacker, 2003; Hacker, 2007). By contrast, it makes no real sense to speak of capacities as having duration or temporal occurrence in this fashion. Particular processes and activities that one engages in while awake (e.g., imagining what might happen during a meeting later in the day, driving to work, eating meals, engaging in lively discourse, dwelling in memories of a holiday excursion) exist as distinct, temporally bound occurrences that no longer exist while one is asleep, but the capacity for enacting such activities and processes still characterizes the sleeping individual just as readily as the wakeful one.

It is critical to clarify how powers are distinguished from processes and activities, because the notion of power (or ability, capacity, disposition, etc.) has long been subject to conceptual confusion (Ayers, 1968; Hacker, 2007; Kenny, 1975). Via reification, powers are often treated as activities or processes in their own right—specifically as *internal*, temporally antecedent activities/processes that give rise to external behavior activities. Notions of powers as underlying

"competences" or sets of rules that initiate and help to guide an individual's "performance" or behavior in context—as effectively control structures in the mind or brain—reflect standard reification models in psychological science and utterly confuse the formal (pattern) explanatory significance of powers for an efficient (material) causal, antecedent-consequent level of explanation (Flavell & Wohlwill, 1969). Via reductionism, powers become superfluous, reducible to their actual exercise; all that matters is what the system actually does, and appeals to powers are viewed as reflecting "ghosts in the machine" (Ryle, 1949). Both of these conceptual confusions presuppose that powers, to be explanatorily meaningful, must bear a causal relation to their exercise. But the relation between powers and their exercise is a *logical* one, not a causal one (Hacker, 2007; Kenny, 1975). As *potentials*, powers are not themselves actualities. They do not constitute forces, substances, materials, states, control structures, processes or activities, and they are neither "owned," "stored," nor "located" anywhere (Hacker, 2007; Kenny, 1975). They are not "tangible, space-occupying entities but *attributes* of space-occupying entities" (Bennett & Hacker, 2003, p. 118). Powers are what individuals *can* do. An individual's powers reflect her *organization* as an integrated system, dynamically maintained across time and context.

We want to stress that powers, contrary to those accounts that reify them, are not to be viewed as antecedent forces; they do not cause individuals to do what those individuals have the power to do. Nevertheless, an individual's powers hold clear explanatory significance, contrary to reductionist accounts that argue for their explanatory superfluity. The meaning of any given action of an individual is necessarily conditioned by what that individual is currently able to do. An individual's powers capture *the range of possibilities* open to that individual for engaging in various actions, *but not the actions themselves*, that is, the dynamics of action-in-context. As a result, powers differ from and cannot be reduced to their exercise. Any given action may be associated with different powers, and the same power can be exercised in various ways. Additionally, an individual's having once acted in a certain way does not invariably point to that individual's having the power for doing such things. Any given action could simply emerge out of real-time individual ←→ context dynamics by a fluke occurrence and not have bearing on what that individual, in general, can do (Hacker, 2007; Witherington, 2019a, 2019b).

If powers do not cause actions and are not themselves activities, how do powers relate to their exercise, to activities themselves? Powers constitute *constraints* on system functioning—constraints as defined in *organizational* terms rather than in modulatory or regulatory process terms, that is, as another kind of antecedent, constructive "force" (Witherington & Lickliter, 2016). Defined organizationally, constraints are not constructive forces or dynamics and consequently do not add anything to the activities of an individual in context. Constraints instead concern limitations on what sorts of activities can be readily enacted by an individual (Deacon, 2012; Juarrero, 1999). Powers, as constraints, reflect the degrees of freedom within which individuals can operate, because what individuals do is necessarily constrained by what they are capable of doing. But what they are capable of doing necessarily emerges in their developmental history from the dynamics of their activities in context. Developmentally speaking, an individual's activities-in-context, themselves constrained by that individual's current repertoire of powers and reflecting an exercise of those powers, give rise to new powers, which then constrain the individual's future real-time activities. This kind of *circular causality* captures the explanatory importance of *both* the "bottom-up" individual ←→ context dynamics of developmental construction and the "top-down" constraints of developmental organization (Haken, 1996; Juarrero, 1999; Kelso & Engström, 2006; Witherington, 2011, 2015, 2019a).

Character is thus appropriately and holistically construed as a power, and positive character reflects the power of an individual to engage the world as a moral agent, to do the right thing, to

"reliably and coherently contribute positively to the context that is supporting him or her" (Lerner & Schmid Callina, 2014, p. 332; Nucci, 2017). Positive character is a power that can be exercised at will. In this respect, the power of character is a two-way rather than one-way power in that it involves what one can do, or refrain from doing, *voluntarily* (Hacker, 2007). Furthermore, positive character constitutes a particular kind of power, namely a *disposition* to engage the world as a moral agent. An individual can have the power, that is the potential, to engage in a certain kind of activity without ever actually engaging in that activity at any time during her lifetime (Hacker, 2007). Powers, in other words, need never be exercised. However, for positive character to count as positive character necessitates its exercise; individuals must "exhibit" positive character, at least occasionally if not regularly, to be characterized as such (Hacker, 2007; Nucci, 2019). Positive character, then, is a particular kind of two-way power, namely a disposition. And to capture positive character as a multidimensional, multicomponential system requires further elaboration of what it means to be disposed to act as a moral agent.

Character and Its Subsystems

Positive character, defined as a relational developmental system, is multidimensional in nature, comprised of multiple psychological skills such as emotional competence, perspective-taking, self-regulation, and executive functioning (Lerner & Schmid Callina, 2014; Lerner et al., 2022; Nucci, 2019; Sokol et al., 2010). What does it mean for positive character—defined as a disposition to engage the world as a moral agent—to consist of a network of skills? Clearly, the tally of skills that proponents of a relational, systems approach to positive character treat *as constitutive of* positive character are themselves two-way powers. That is, these skills, as capacities, faculties, or abilities, are *potentials* for voluntary action, for doing or not doing, and are not in themselves actual activities or processes. The real-time *exercise* in context of powers such as empathy or perspective-taking or moral cognition constitute actual activities and processes, but not the powers in themselves, and it is again critical to conceptually distinguish the power from its exercise. The capacity for empathy, for example, can be exercised in numerous ways. Crying in response to someone else's tears; telling someone that you understand what they're feeling; imagining what it is like to feel the pain that someone else is feeling; grasping quickly someone's character; identifying with someone else's problems; being aware of the mood of an audience whom one is addressing—these all may well serve as exercises of a capacity for empathy in specific context and circumstance (Hacker, 2018). Many different modes of activity, in other words, come into play when the power of empathy is exercised as a function of the real-time dynamics that play out in individual ←→ context relations.

Framed as a multidimensional system, then, positive character is basically a higher-order disposition to exercise certain lower-order, possessed powers in certain ways and in certain combinations or sequences. Discussions of action-in-context and process dynamics play out at the level of actual exercise of these powers. These lower-order powers themselves, as constitutive of character, do not strictly support explanatory frameworks steeped in talk of dynamic relations and coactions, for such powers, like character itself, are potentials for acting and are not actions or processes in themselves. In the current relational developmental systems literature on character as a multidimensional system, however, most discourse remains at the level of the powers themselves rather than at the level of the actual doings, or exercise of those powers. Nonetheless, such discourse routinely trades in discussion of dynamic relations among the components of character (e.g., Lerner et al., 2022; Nucci, 2017; Sokol et al., 2010). This raises potential conceptual confusion to the extent that such discussions fail to clearly and explicitly demarcate powers from their exercise.

Although not intended, discussion of a system's component capacities can consequently start to sound like the modeling of internal activities or processes that dynamically interrelate to create a person's external commerce with the world.

Considerable value accrues from discussion of character's component powers *at the level of the constituent powers themselves* so long as it is not confused with discussion of dynamics in the exercise of such networks of powers. More specifically, the structural "landscape" that frames this multidimensional constellation of component powers needs to be more systematically conceptualized. Which component powers, for example, presuppose other powers for their very existence? Or which component powers when exercised take other component powers when exercised as objects of regulatory activity? Nucci (2017) and Sokol et al. (2010) have reasonably argued that components of empathy and perspective-taking establish the basis for moral cognitive capacity. This approach, then, may suggest a *vertical*, hierarchical dimension to these component powers, such that the power to engage in moral judgments is itself built on the powers to empathize and engage in perspective taking. Structurally speaking, moral judgments would be higher-order "wholes" that subsume the lower-order "parts" of empathy and perspective-taking that comprise them. This, of course, has direct ramifications for how we construe the actual dynamics of exercise across these powers. Exercise of empathy and perspective-taking, as activities, do not exist in part-to-part dynamic relations with the exercise of moral cognition. Rather, exercise of the former capacities exists in part-to-whole relations with exercise of the latter capacity. And exercise of the latter capacity, therefore, exists in whole-to-part relations with exercise of the former capacities. Other component capacities of character, however, are clearly structured relative to one another on a *horizontal* plane, in part-to-part relation, as parts of equal footing relative to other parts. Fully demarcating the component powers that comprise character in terms of a structural landscape consisting of *both* vertical and horizontal dimensions is necessary to clearly lay out what dynamics should look like at the level of exercise.

Recognizing that various components of the character system do not simply exist in part-to-part relation to one another, as if solely worked out on a horizontal plane, is critical because when one starts to investigate the actual dynamics of exercise, relations that play out vertically (e.g., whole-to-part relations) involve dynamics of constraint rather than dynamics of construction (Witherington, 2011, 2015). One can draw an easy analogy from the multidimensional nature of character to how the dynamics of exercise in a biological system play out both vertically and horizontally. Cells, for example, exist at a lower-order level of organization relative to the tissues that they constitute. Cells coact with other cells, in fact, to construct tissues. These dynamics of cells coacting with other cells reflect part-to-part relations, dynamics that play out on a horizontal plane and that readily resemble the standard forms of causal relation one comes to expect when mapping out the dynamics of coacting components of a system. The tissues that arise from cellular coactions, once emergent, also exert an influence on the very cells that comprise and constitute them. However, the nature of this vertical, "top-down" influence is one of constraint, not coaction; tissues, by virtue of their emergent properties as tissues, delimit the range of part-to-part coactions that can occur among the very cells that comprise them. Such constraints do not resemble the standard forms of causal relation of orthodox science. Such constraints, instead, reflect what is called "downward causation" (Emmeche et al., 2000; O'Connor, 1994; Paoletti & Orilia, 2017; Silberstein, 2006; Silberstein & McGeever, 1999; Witherington, 2011). The same logic applies to other levels of the biological system hierarchy. Tissues coact dynamically with other tissues to construct organs, and organs constrain the very dynamics of the coacting tissues that comprise them. Organs coact dynamically with other organs to construct organ systems, and organ systems constrain the very organs of which they are constituted. The basic point to make here is that any

attempt to begin mapping out the complex dynamics of character *as exercised*—that is, the enactment or doing of character—through appeal to the exercise of a cluster of component powers requires, first and foremost, a thoroughgoing consideration of how these powers (and by extension, their exercise) are structurally organized relative to one another, along a vertical and not just a horizontal dimension.

Furthermore, mapping out how the component powers of positive character are structurally organized relative to one another—which is essentially a taxonomic activity of explanatory endeavor—requires, and presupposes, sufficiently coherent conceptual definitions for each of the component powers themselves. Psychological science, however, has a longstanding and regrettable history of reducing the meaning of its explanatory psychological predicates to operational definition, on the assumption that operationalization can effectively substitute for conceptualization and rigorous scientific definition (Bickhard, 2001; Gigerenzer, 2017; Hibberd, 2019). And, in its steadfast avoidance of rigorous conceptual definition, psychological science, as Uher (2021; see also Zagaria et al., 2020) has recently and eloquently argued,

> is plagued with a chaotic proliferation of terms and constructs for specific phenomena of mind and behavior…. This entails that different terms can denote the same concept (jangle-fallacies; Kelley, 1927) and the same terms different concepts (jingle-fallacies; Thorndike, 1903)…. These deficiencies and inconsistencies involve a deeply fragmented theoretical landscape. (p. 213)

Common definitions for the multidimensional powers that constitute positive character are no exception to this rule. And to the extent that conceptual definitions are, in fact, attempted, key phenomena that proliferate within relational developmental systems models of character and its development—such as self-regulation, executive functioning, moral cognition, agency, identity, and self—are all notoriously difficult to define and overlap with one another in confusing, nonconclusive, and ambiguous ways.

Most of these psychological predicates, for example, can be defined at both a pre-reflective, or "body-as-subject" level, and a reflective, or "body-as-object" level of organization (Gallagher & Zahavi, 2012; Merleau-Ponty, 1945/1962; Müller & Newman, 2008; Thompson, 2007). Self-regulation, *as a pre-reflective phenomenon*, involves an individual's direct, pre-theoretical, pre-conceptual, immersive engagement with the world. As a self-regulating subject, the individual perceives and acts in the world and maintains organizational coherence in the face of continual material and energetic exchange with the world—an active, self-organizing agent regulating her exchange with the world. But self-regulation, *as a reflective phenomenon*, involves individuals taking themselves—their own bodies and actions—as *objects* of reflection, effectively standing back from their immersive, being-in-the-world, in semi-detached fashion, and adopting a second-order, reflective stance toward the first-order, immersive experience of their pre-reflective activity. Self-regulation as a reflective activity presupposes self-regulation as a pre-reflective activity, because the very object of self-regulation *as reflection* is the pre-reflective activity of self-regulation. The same pre-reflective vs. reflective frame of conceptualization applies to other modeled phenomena like executive functioning, moral cognition, agency, identity, and self. And establishing clear distinctions between pre-reflective and reflective levels of organization in these phenomena is just the start of rigorously defining these powers conceptually. Absent more thoroughgoing efforts in this regard, models of the multidimensional nature of the positive character system are too easily susceptible to confusion, ambiguity, and circularity. In addition, key phenomena in models of positive character carry extensive conceptual baggage, baggage that often proves ontologically

incompatible. Notions of executive function, for example, maintain longstanding ties to information processing notions of cognition and are, as a consequence, difficult to disentangle from brands of cognitivism wholly antithetical to a process-relational ontology by virtue of their split Cartesian framing (Hutto & Myin, 2013, 2017; Kiverstein, 2018; Thompson, 2007; Wheeler, 2005).

Thoroughgoing observational grounding is especially critical at this juncture as proponents of a relational developmental systems approach to positive character, and its development, begin to systematically tackle these difficult definitional and taxonomic efforts. In this respect, Van Geert and de Ruiter's (2022) recent treatise on how to implement a process-based praxis in developmental and psychological science is especially instructive. Despite the current process-relational emphasis on positive character as a process and as something people *do*, little to no investigation of the actual doings of character, *studied at the microgenetic level of real-time, action-in-context*, is evident in the literature on character and its development. In their critique of orthodox approaches to the study of self-esteem, Van Geert and de Ruiter argue that self-esteem, to be studied in processual terms, requires developing "ways in which we can grasp how people *perform*, *construct*, or *express* self-esteem: how they experience and *do* self-esteem" (p. 88). The same applies to the study of character: we need to grasp how people perform, construct, or express positive character, how they experience and do character. According to Van Geert and de Reiter, such a study of any phenomenon (like positive character) *in its exercise* requires, first and foremost, a descriptive methodology, one in which researchers systematically describe the phenomenon as exercised, within and across contexts. This "requires the examination of how it is done *in situ* as a 'person amongst persons'" (p. 91). More specifically, researchers need to map the temporal dynamics of a phenomenon's exercise, "how the *moment-to-moment* changes in (for example, the doing of character) relate to the *moment-to-moment* changes in the context" (p. 91). The exercise of character involves a series of actions in context that an individual does in real-time—actions that are necessarily specific to ever-changing contexts.

Certainly, qualitative, ethnographic analyses of the development of positive character, as featured for example in the work of Damon and Colby (2015), are already available as overarching guides for beginning to understand this process. However, we argue that a critical first step involves establishing a clear microgenetic sense of the actual temporal and sequential dynamics of real-time actions in context that constitute particular episodes of the doing of character—examples of character as exercised in unique real-time episodes. As Lerner (2019) has critically emphasized, full, empirical immersion in the enormous contextual and dynamic variability of character's exercise, on an idiographic, case-by-case, context-by-context basis, is essential to propel a process-relational understanding of character forward, both at the level of exercise and at the level of character as a disposition to exercise other powers. In the following section, we outline and describe a powerful tool for doing exactly this task at the level of character as exercised in real-time: micro-phenomenological interviewing.

The Micro-Phenomenology of Character

Micro-phenomenology is a method of conducting and analyzing semi-structured interviews about a singular lived experience and is designed to specifically map out the real-time structural and temporal dynamics of that singular experience (Petitmengin, 2006; Petitmengin et al., 2019). The interviewing method taps into what is going on pre-reflectively, at the level of conscious activity and feeling, when we engage in any kind of experience or task exercise, from writing a letter to perceiving the feel of a fabric on our skin to imagining a pink elephant to feeling joy at the sight of one's child. By asking "content-empty" or "structure-driven" questions concerning the

content of the experience (e.g., "How did the experience start?" "What happened next?" "When this happened, what did you do?" "How did the experience end?" "How did your body feel at this particular moment?" "What could you smell?" "What could you hear?" "How did you hear it?"), a micro-phenomenological interviewer dives deeply into the concrete details of the occurrence as grounded in the actual organismic activities and felt, localized experiences and sensations that unfold sequentially over the duration of the occurrence. Through disciplined and rigorous idiographic analysis of interviews, the method affords researchers the opportunity to both celebrate the uniqueness of singular lived experiences and abstract possible nomothetic commonalities across a small *n* sample of people, all in the service of eventually trying to establish an invariant or generic *structure* for the experience (Petitmengin et al., 2019).

In the immediacy of our pre-reflective engagement with objects, events, people, etc. in the world, our focus and attention are directed toward those denizens of the world; our experience as such is lived through, as the medium through which those denizens are known, but does not itself constitute an object of our awareness (Gallagher & Zahavi, 2012). When we choose to *reflect upon* or *explain* the very nature of this pre-reflective engagement, however, we all too often adopt a thematic, conceptual stance toward that engagement, articulating essentially what we believe to be the case and relying on prior theoretical or conceptual understanding to "make sense" of what was happening. As Petitmengin (2006) argues:

> when a person tries to describe the way in which he or she carries out a cognitive process, the person usually begins by describing his representation of the process, what he believes he is doing, or what he imagines he is doing … the person tends towards judgements, assessments or comments on the carrying out of the process (such as "it was difficult" or "it went well"), or theoretical knowledge or explanations about the process in question.
>
> (p. 235)

Such conceptually reflective introspection fails to address the "how" of the actual lived experience—how it is one is actually going about living the experience, specifically in terms of the "doings" that are taking place, the actions one is enacting during the experience and concomitant feelings of those actions. Micro-phenomenology, as a method, is precisely designed to target this experience of "how" *at the molar, organismic level of the actions and feelings themselves*. As Petitmengin (2006) indicates, "Attention is moved from the perceived object to the act of perceiving, from the imagined object to the act of imagining, from the object of the memory towards the act of remembering" (p. 240). Through the micro-phenomenological method, an interviewer reorients individuals toward how an experience appears to them, at a pre-conceptual, pre-theoretical level. Though the "how" of these experiences is often not immediately evident as we casually reflect on them and may prove difficult to verbally articulate, we nonetheless experience this "how" at a pre-reflective level. Micro-phenomenology is designed to help interviewees clear away theoretical and conceptual overlays of understanding so that they can instead describe, in as grounded a way as possible, what they are actually doing and feeling during a singular lived experience (Petitmengin et al., 2019).

Historically speaking, micro-phenomenology traces its modern origins to the works of Pierre Vermersch and his method of "elicitation interview" or "assisted introspection" (Petitmengin, 2006). Vermersch himself relied on Edmund Husserl's phenomenology and on the idea that there is more to our experience at a pre-reflective level than what we are self-consciously or reflectively aware of. Vermersch appealed to Husserl's idea of "passive memory" that can be accessed during specific "evocative" states of mind. An interviewer can help individuals to achieve such evocative