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PARENTING: SELECTED WRITINGS OF MARC H. BORNSTEIN



MARC H. BORNSTEIN

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Parenting: Selected Writings of Marc H. Bornstein

In the *World Library of Psychologists* series, international experts present career-long collections of what they judge to be their most interesting publications – extracts from books, key articles, research findings, and practical and theoretical contributions.

Marc H. Bornstein has published widely in experimental, methodological, comparative, developmental, and cultural science as well as neuroscience, pediatrics, and aesthetics. In this volume, he has collected an integrated series of his papers on *parenting*. Many disciplines over many centuries have expounded on parenting, but in large measure theory and opinion have prevailed. Bornstein initiated efforts to make parenting an evidence-based field of scientific study through his journal *Parenting: Science and Practice*, the *Handbook of Parenting*, and two monograph series, *Monographs in Parenting* and *Studies in Parenting*. In addition, Bornstein has undertaken empirical studies that address the determinants, nature, scope, and consequences of parenting. The writings selected for this collection symbolize the development of an empirical parenting science and the meaning and importance of parenting for the lives and well-being of children, parents, and society.

Including a specially written introduction, in which Marc Bornstein reflects on the importance of parenting and contextualizes both the field and the evolution of his wide-ranging career, this collection will serve as a valuable resource for students and researchers of parenting, developmental science, and all disciplines from anthropology to zoology concerned with nurturing, socializing, and educating the next generation.

Marc H. Bornstein holds positions at the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, the Institute for Fiscal Studies, and UNICEF. He is President Emeritus of the Society for Research in Child Development, founding Editor of *Parenting: Science and Practice*, and Editor Emeritus of *Child Development*. Bornstein has written and edited numerous books, including the five-volume *Handbook of Parenting* for Routledge.

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Parenting: Selected Writings of Marc H. Bornstein

Marc H. Bornstein

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Introduction, Personal and Professional

A Little Etymology, a Little History

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The word “parenting” *qua* a part of speech is an anomaly. It seems at first to be a gerund. In grammar, a gerund is a noun derived from a verb. However, parenting acts as both a noun and a verb. Although parenting (the action verb) has been around as long as species have existed, parenting (the action noun) is a relatively recent addition to the lexicon, having appeared in English as soon ago as 1955–1960. It is surmised to derive from the noun parent, which itself derives from the Latin *parens*, the noun of the present participle of the verb *parere*, to bring forth or breed. In common usage today, parenting transcends the denotation of childbearing to connote the full range of childrearing.

Parenting as a formal subject of inquiry seems to have “backed into” the social and behavioral science literatures. Of course, many scholars of many stripes – from anthropology through history, philosophy, and religion to zoology – since at least the Enlightenment have reported about caregiving of offspring, *viz.* what parents do. Much earlier, Egyptian and Greek artisans and artists regularly offered images of parenting. Parallel to the etymology, an informal look back at the history of the scientific study of parents and parenting *per se* casts a much shorter shadow. Parents came under empirical scrutiny in the social psychological literature as a comparison group (as, for example, between people who had children and people who did not) and in the child psychology literature (as an independent variable to any number of child development dependent variables). What was missing from

anthropological, historical, philosophical, religious, and zoological accounts of caregiving, plus the steady stream of sheer opinion publications that overflow magazine racks and airport bookstores, was a *science* of parenting.

In 1978, at dinner at a Japanese restaurant in New York, I met and proposed my first book to the world-renowned academic publisher, Lawrence Erlbaum. Larry published *Psychological Development from Infancy: Image to Intention* in 1979. To my great good and everlasting fortune (and several more books), Larry and I were to become fast friends. Around 1990, I approached him with the idea of formulating “parenting” into a scientific discipline. What would an academic, rigorous, and evidence-based field of *parenting* look like? I appealed to Larry that any discipline that took itself seriously should have at the least the following three constituents: a scientific journal, a comprehensive handbook, and a multi-study monograph series. Insightful and foresightful as he is, Larry immediately concurred (and appealed back that the field would eventually need a fourth constituent, an annual conference ... but that is a story for another day). First, on the scientific journal, it happened at that moment in the early 1990s just as our planning talks were reaching fruition, I assumed the 6-year position as Editor-in-Chief of *Child Development*, the flagship journal of the Society for Research in Child Development. So, inauguration of the evidence-based academic journal *Parenting: Science and Practice* waited 6 years until 2000. As I write in the summer of 2021, *Parenting: Science and Practice* has been in continuing existence since 2000, has seen increases in submissions virtually every year, is reviewing submissions for Volume 22, and I have been its Editor-in-Chief for 21 straight years. Second, the *Handbook of Parenting* got off to a quicker start: The first edition of the *Handbook of Parenting* (4 volumes) appeared in 1995, the second edition (5 volumes) in 2002, and the third edition (5 volumes) in 2019. The completely revised third edition of the *Handbook of Parenting* has 95 chapters written by a collective 224 authors and has been called the “*who’s who of the what’s what.*” Third, the *Monographs in Parenting* eventually published 7 volumes between 2007 and 2013 and has now been revived as *Studies in Parenting* with the first 5 volumes published, in press, or in preparation.

What Is Parenting?

Parenting is fundamental to the survival and success of the human species. Everyone who has ever lived has had parents, and the vast majority of adults in the world become parents. Parenting is a vital status in the life course with consequences for parents themselves, and parenting is a career whose primary object of attention and action is the child – human children who are an altricial species do not and cannot survive and thrive as solitary individuals but must have parental caregivers. In a general sense, parenting encompasses the who, what, where, when, and why of childrearing. Nothing stirs the

emotions or rivets the attention of adults more than the birth of their child. By their very coming into existence, children forever alter the sleeping, eating, and working habits of their parents; they change who parents are and how parents define themselves. Children keep parents up late into the night or cause them to abandon late nights to accommodate early wakings; they require parents to give up rewarding situations to care for them or to take more than one employment to support them; they lead parents to make new friends with others in similar circumstances and sometimes cause parents to lose old friends who are not parents. Parents even seem to have taken for themselves the names that their offspring uncannily bestow: Among the very first intelligible sounds babies utter are bilabial and dental consonant-guttural vowel combinations, like *ma*, *pa*, and *da*; it happens that the generic names for parents in nearly 60% of well over one thousand world languages are or begin with just those sounds.

How Important Is Parenting?

Each generation of adults in every nation on the face of the earth determines that nation's politics and economy, sociology and education, and peace and well-being. Who prepared that generation of adults for those several awesome responsibilities? As every parent knows, in parenting the days are long but the years are short. In the blink of an eye, the infant has emerged from the newborn, the toddler from the infant, the preschooler from the toddler, the schoolchild from the preschooler, the adolescent from the schoolchild, and the adult from the adolescent. Being present for its entirety and, more, being largely accountable for its course, parents have the unique and weighty responsibilities to prepare children for those daunting adult obligations. Parents do not passively bear witness to the miracle of their children's development; they bear that accountability for the nature of their children's ultimate maturity. From the earliest years, parents exert major and long-lasting influences over most every domain of their children's development, and parents are principally responsible for the successes and effects of the parent-child relationship. Moreover, parental responsibilities, once started never end; as the adage asserts, "Once a parent, always a parent." Evolution and culture have conspired to entrust parents to procreate and to continue the species as well as protect, nourish, regulate, educate, and socialize offspring. Parents are unquestionably the world's most influential agents of stability and change. Parents create new life and nurture and support that life until it becomes self-sustaining and influential in its own right. In short, parenthood is not only a wonder and rewarding it is also a challenge and fearsome.

Parenting is therefore a role, akin in many ways to CEO, CFO, and COO all at once. As there appears to be no universal "right way" to parent, and contexts of many sorts matter to the expression and consequences of

parenting, opinions about parenting abound. *Contra* Dr. Spock (1946, p. 1), “Trust yourself! You know more than you think you do,” children do not come with an operating manual, and trusting that parenting best relies on instinct over evidence-based science is short-sighted, and perhaps downright perilous. So, we are motivated to know about the meaning and importance of parenting as much for itself and for parents as out of the desire to improve the lives and well-being of children and the next generation. As parenting portends much about the continuing life of parents, children, and society, an empirical parenting science promises to slake the thirst for rigorous knowledge, and happily a surprising bank of credible scientific information is accruing about parenting. Importantly, caregivers in command of more parenting knowledge are more likely to engage in positive parenting practices, whereas those with limited knowledge are at greater risk of acting out negative parenting practices. Swept up in today’s demanding world and jammed in the era of dual wage earner commitments, parents’ attention and responsibilities toward their children are at risk of becoming compromised.

The chapters collected in this volume are representative of an emerging empirical parenting science. Together, they address many fundamental and taxing contemporary topics in parenting. Each treats a different perspective on parenting and is self-contained, yet the collection as a whole endeavors to enhance the science of parenting by bringing to the fore concerns prominent in parenting theory, research, and practice. The empirical and theoretical chapters reprinted in this volume on *Parenting* date from 1985 to 2021, are organized as they appeared chronologically in the literature, and select representatively from my publications in the field. Taken together, they illustrate five central themes that constitute the discipline of parenting: who parents, who it is that parents parent, the scope of parenting, the determinants and consequences of parenting, and the nature, structure, and meaning of parenting. The synopses of each theme that follow refer to and set the chapters reproduced in this volume in context.

About these selected writings, Gentle Reader, please note that the original articles have been edited in minor ways for clarity and re-formatted to conform to a style appropriate for book chapters; be aware that any references that were out of date or “in press” at the time of publication of the original article have been updated; keep original publication dates of these articles in mind when judging the cited literature; however, the 2019 third edition of the *Handbook of Parenting* serves well to update background literatures in these chapters; and, finally full citations for original articles that make up each chapter appear in the Front Matter Acknowledgements.

Who Parents

Well above eight in every ten adults become parents, and worldwide each day approximately three-quarters of a million people experience the joys

and heartaches as well as the rewards and challenges of becoming new parents. Parenting is a “24/7” job that begins actively with the altricial infant. Unlike the newborn chick that pipes on its shell to hatch, feeds itself on the internal yolk sac, and forages on its own soon after hatching, or the newborn foal that will stand in the hour after delivery and soon canter, the newborn human cannot walk, talk, thermoregulate, or even nourish without the aid of a competent caregiver. As the British pediatrician and psychoanalyst Donald Winnicott (1964, p. 88) once mused, “there is no such thing as a baby ... if you set out to describe a baby, you will find you are describing a baby and someone. A baby cannot exist alone but is essentially part of a relationship.” Part 1 “The Parent” of Volume 3 “Being and Becoming a Parent” of the 2019 *Handbook of Parenting* offers separate chapters devoted to each of the *dramatis personae* in the parenting drama. Biological and adoptive mothers and fathers, single parents, divorced and remarried parents can be children’s principal caregivers, but when siblings, grandparents, nonfamilial caregivers, and mentors assume responsibilities for children’s growth and development they are “parenting” as well.

Whom Parents Parent

The object of parenting action is the child. Parenting is central to childhood, to child development, to society’s long-term investments, and so to wholesome generational perpetuation. Parents are fundamentally invested in children’s survival, growth, socialization, and education. Accomplishing these tasks is challenging: As Sigmund Freud (1937/1963, p. 266) observed in his summing-up paper on the technique “Analysis terminable and interminable,” “analysis [is] the third of those ‘impossible’ professions.... The other two, much older-established, are the bringing up of children and the government of nations.” Volume 1 of the 2019 *Handbook of Parenting* on “Children and Parenting” offers separate chapters devoted to offspring at each developmental stage, including infants, toddlers, children in middle childhood, adolescents, and even adult children, as well as chapters devoted to parenting offspring who belong to typical populations, including siblings, girls and boys, children with different temperaments, adoptive and foster children, as well as special populations, including multiple births, preterm, ill, developmentally delayed or talented, children with Autism Spectrum Disorder (ASD), and aggressive or withdrawn children.

The Scope of Parenting

Parenting includes parents’ genetic endowment to their offspring and other direct effects of caregiving experiences that are instantiated in parents’ cognitions and practices; parenting’s indirect influences take place through parents’ relationships with each other and their connections to community and

culture. Direct and indirect effects of parenting can be positive as well as negative. Parents intend much in their interactions with their children: They promote their children's mental development through the structures they create and the meanings they place on those structures, and they foster their children's emotional regulation, development of self, and social awareness of meaningful relationships and experiences inside and outside of the family through the models they portray and the values they display. Parents are responsible for determining most, if not all, of their offspring's formative experiences. Many parenting cognitions and practices are likely universal, even if how they manifest themselves varies among different people and peoples. For example, sentient and well-meaning parents everywhere likely share many similar ultimate goals for their children – physical health, emotional maturity, social adjustment, educational achievement, and economic security – even if exact instantiations of those goals, as the exact means to them, take different specific proximate forms. The same sentient and well-meaning parents everywhere likely also interact with their children in nurturing ways that ensure their children's survival and growth, and they commonly engage in social interactions, didactic exchanges, and verbal conversation just as they outfit their children's environments. Contemporary research based on behavior-genetic designs, direct measures of potential environmental influences, experimental and quasi-experimental studies of change in children as a result of their exposure to parents' cognitions and practices, and research on interactions of parenting, nonfamilial environments, and contexts with children's development confirms that parental effects on child development are both specific and meaningful.

Cognitions

Parenting cognitions take many forms, from beliefs and attitudes to attributions and goals to parenting knowledge of childrearing and child development. Parents' cognitions are conceived to serve many functions: They help to organize the world of parenting insofar as cognitions generate parenting practices and mediate their effectiveness; they affect parents' sense of self and competence in their role; and, in a larger sense, they contribute to intergenerational continuity by defining the culture of the family and the transmission of more general cultural information from one generation to the next. Many classic investigations of parenting have proceeded on the assumption that parenting cognitions articulate with or promote parenting practices with children and that they therefore constitute an operative feature of the child's world. Indeed, the "standard model" of parenting contends that parenting cognitions engender parenting practices which shape child development. The standard model is much more often assumed than confirmed, however. In one test, a rigorous large-scale prospective longitudinal multiwave, multidomain, multivariate, and multisource study revealed that mothers of

toddlers who were more knowledgeable, satisfied, and attributed successes in their parenting to themselves were more supportive during joint activities with their preschool children who, in turn, as teenagers were independently rated by teachers being better adjusted in the classroom.

Practices

Parents are responsible for determining most, if not all, of children's experiences. To ensure their offspring's survival and growth, parents must nurture their young. Special about human beings, and perhaps among the most significant characteristics of our species, is developmental plasticity by which biological and psychological structures and processes emerge and come into close attunement with their effective environment. Subjecting these interactions to scientific exploration has revealed patterns and principles that help to enhance understanding of parenting. From an early age, the activities and interactions of parents and their children give evidence of stability, correspondence, and prediction. Parent and child interactions are often described as intricate patterns of sensitive mutual understandings and unfolding synchronous transactions. In well-functioning relationships, parent and child are attuned. Culturally comparative studies have critically advanced understanding the nature of parenting practices, allowing us to see parental caregiving in early human development within a specificity/commonality framework: Specific parenting practices and infant behaviors consistently correspond. Adopting a cross-society view opens a vista on universal biological origins of, and contextual influences on, parenting practices.

More detailed work disaggregating parenting practices has revealed vital contributions of specific domains of parenting to child development. For example, in the didactic domain mothers who more frequently encourage their infants to attend to properties, objects, and events in their home environment, even in the first half-year of life, have children who excel in verbal development during their second year and score high on a conventional psychometric assessment of intelligence as preschoolers.

Responsiveness has been identified as a particularly robust and positively predictive parenting practice. Responsiveness defines the prompt, contingent, and appropriate reactions parents display to their children in the context of everyday exchanges. Maternal responsiveness occupies a theoretically central position in developmental science and possesses meaningful predictive validity over diverse domains of children's development. However, maternal responsiveness is not of a piece. A prospective longitudinal study that examined the structure, individual variation, and continuity of multiple dimensions of responsiveness in mothers during natural home-based play interactions revealed both age-general and age-specific patterns that support the multidimensionality, modularity, and specificity of responsiveness. Analogously, a comparative assessment of naturalistic interactions of mother-infant dyads in New York City, Paris, and Tokyo revealed that specific

mother–infant interactions were shared in culture–general ways. Mothers in all three cultures respond to their infants’ exploration of the environment by encouraging their infants’ attention to the environment, to their infants’ vocalizing nondistress with vocal imitation, and to their infants’ vocalizing distress with nurturance. However, culture–specific differences in responsiveness also emerged in that mothers in the different cultures responded differently to infant looking versus infant vocalizing and in mothers’ placing relatively greater emphases on dyadic versus extradyadic loci of interaction in responding. Moreover, it is not always or necessarily the case that more of common and important parenting practices (like responsiveness) is better. Sometimes less is more, or some is more. Mothers’ microcoded contingent responsiveness to their infants in relation to independent judgments of the same mothers’ global parenting sensitivity showed that, as maternal contingent responsiveness in several domains increased, judged maternal sensitivity increased to significance on a contingency continuum, above which mothers who were overly contingent were judged to be less sensitive.

In the language domain, assessments of vocal interactions in mothers and infants in 11 diverse countries have revealed that sheer rates of mothers’ and infants’ vocalizations vary widely across communities and are uncorrelated. However, mothers’ vocalizations to infants are contingent on the offset of their infants’ nondistress vocalizing (just as infants’ nondistress vocalizations are contingent on the offset of their mothers’ vocalizing to them), and maternal and infant contingencies are significantly correlated. These findings point to the beginnings of dyadic conversational turn taking. Despite broad differences in the overall talkativeness of mothers and infants, maternal and infant contingent vocal responsiveness is common, supporting essential functions of turn taking in early childhood socialization. Additional analyses of the contents of maternal speech across the first year of life in a diversity of cultures reveal that infant age and cultural variation condition the contents of what mothers say to their infants. Mothers in four cultures used all the same basic (affective and informational) speech categories to young infants and spoke to older infants more than to younger infants but differed in what content they emphasized in their speech. Similarities speak to the universality of maternal speech to infants, provoked perhaps by infants’ common psychological status; differences in the speech mothers choose to emphasize reflect the expression of specific cultural preferences.

Determinants and Consequences of Parenting

Parenting sits at the confluence of many complex tributaries of influence (Bornstein, 2016). Evolution and history; biology and ethology; family configuration; formal and informal support systems, community ties, and work; social, educational, legal, medical, and governmental institutions; economic class, designed and natural ecology, and culture – as well as children

themselves – each helps to define and construct parenting. Faithful to a contextual ecological framework, some determinants of parenting arise within individual parents, others have external sources in offspring and in local situational or larger cultural and environmental agents. An example study faithful to this ecological contextual perspective parsed the contributions of multiple factors to variation in four key maternal perceptions of their own parenting: maternal self-perceived parenting competence, satisfaction, investment, and role balance. Statistical analyses revealed that specific characteristics of mothers themselves (parenting knowledge, personality), their children (temperament), and their contexts (socioeconomic and employment status, community support) contributed to mothers' self-perceptions, albeit in different ways for different self-perceptions. Although potential contributors to parenting self-perceptions may be many, prominent contributors to any one self-perception are few, and specific constellations of contributors differ for different parenting self-perceptions. These findings articulate the modular, multidimensional, and specific view of parenting.

To “drill down” and understand the contributions of specific factors to parenting cognitions and practices, individual studies are designed to focus on the specific effects of specific factors on specific aspects of parenting. For example, many proximal factors in mothers shape their parenting. Maternal age is associated with differences in maternal sensitivity and structuring and with responsive and involving children. Maternal personality in the normal range, a theoretically important but empirically neglected factor in everyday parenting, also has meaning in studies of caregiving, child development, and family process. The five principal factors of maternal personality (Openness, Neuroticism, Extraversion, Agreeableness, and Conscientiousness) relate differently to diverse parenting cognitions and practices. Mothers' specific constructions and memories of their children are likewise determinative of specific parenting cognitions and practices. A longitudinal study compared maternal recall to mother's original reports in three domains (maternal cognitions, mothers' reports of mother and child behaviors, and observed mother and child behaviors) at three retention intervals (12, 14, and 15 years) from times their children were three ages (5, 20, and 48 months) in two metrics (individual rank order and group mean level). For approximately one-half of the variables evaluated, mothers recalled similar mean levels or better mean levels (indicating a positive recollection bias), and for over one-half of variables at least moderate consistency in relative standing. However, as expected on specificity, rank-order and mean-level findings varied by domain, by child age, and by mother or child target. Mothers' knowledge of childrearing and child development is relevant to parenting and the well-being of children. Overall, mothers vary in their basic parenting knowledge, adult mothers know more than adolescent mothers, and mothers improve in their parenting knowledge from their first to their second child. Mothers in different countries also vary in their parenting knowledge. Mothers' religion

and spirituality are centrally important features of family life to many people around the globe and who adhere to different religions, but both religion and spirituality have been surprisingly neglected by developmental science. However, associations among parental religiousness, parenting, and children's adjustment in four religions (Catholicism, Protestantism, Buddhism, and Islam) across a 3-year longitudinal investigation of over 1,000 families from nine countries revealed that greater parent religiousness when children were one age was associated with positive parental efficacy at a second later age and, in turn, children's better social competence and school performance and fewer child internalizing and externalizing problems at a still later third age. However, as "mixed blessings" greater parent religiousness at the first age was also associated with more parental control at the second age, which in turn was associated with more child internalizing and externalizing problems at the third age. These differentiated findings are fairly robust as similar patterns hold for all four religions and none, across nine sites, for mothers and fathers, and for girls and boys. Moreover, children see parental religiousness as related to parental rejection, whereas parents see religiousness as related to parental efficacy and warmth, which in turn have different associations with child functioning.

Next to their own characteristics, parents' experiences with their own children of course affect their parenting but do so surprisingly early and in surprising ways. For example, exposure to their own infant's face attunes mothers' nervous system and affects their parenting practices. Electroencephalograms of brain activity patterns in primipara mothers of 3- and 6-month-olds viewing images of faces of their own child versus an unfamiliar but appearance-matched child revealed equivalent early-wave "face-sensitive" (N170) responses to own and unfamiliar baby faces but differentiating late-wave "familiar/novel" (N/P600) activity to own versus unfamiliar infant faces. Based on 3 months' experience with their own infant's face, mothers' brain patterns have changed to give evidence of recognition.

Children are reared in, influenced by, and adapt to social and physical ecologies characterized by their parents' cognitions and practices. For their part, children also actively influence parenting ... and so their own development (Lerner, 2018). Transaction characterizes the continuous mutual effects of relations between child characteristics and behaviors and parents' childrearing cognitions and practices through time. The principle of transaction has become central to understanding the ontogenetic interplay of parent and child in explaining the development of both. An example longitudinal study unpackaging bidirectional development is represented in a transactional analysis of children's core language skill and their parent-provided home learning environment assessed across five waves from infancy to adolescence. For both girls and boys, children's core language skill and the quality of the parent-provided home learning environment were each stable across waves and the two covaried at each wave. Over and above these

stabilities and concurrent correlations, higher quality stimulation and support in the home learning environment at each wave advanced children's core language skill at each subsequent wave, and reciprocally children with more advanced core language skills at each wave stimulated a higher quality parent-provided home learning environment at each subsequent wave. This bidirectionality confirms that children consistently affect their parenting and underscores that the home learning environment is a worthy target of intervention.

Alongside transaction, parent-child attunement constitutes a central principle of the parenting dynamic. Psychologists, psychiatrists, ethologists, and myriad other students of human behavior and family life have referenced attunement – *aka* bidirectionality, coaction, coherence, concordance, contingency, coordination, coregulation, covariation, harmony, intersubjectivity, matching, mirroring, mutuality, reciprocity, responsiveness, and synchrony – to convey the special character of well-functioning parent-child relationships. As mentioned, parent and child interactions are often described as nuanced and empathetic shared arrangements, and achieving harmonious dyadic attunement is universally considered significant developmentally. Attunement consists of the transacting contributions of each partner, but like a Gestalt attunement is also more than the sum of its parts: Attunement is dyadic, dynamic, and wholistic in the sense of being multilevel. Mothers and children are attuned in their hormonal, autonomic, and central nervous system functioning that likely supports their dyadic behavioral attunement. Significantly, a central concern of family psychology and developmental science is the stability or instability (i.e., relative standing) of family-level constructs such as attunement across time. A longitudinal study traced the developmental stability of dyadic attunement in mother-child relationship quality from infancy to adolescence: Multiple age-appropriate measures converging on the construct of relationship quality demonstrated stability in all families together, in families with girls and boys, and even when family socioeconomic status was controlled.

As is clear, parenting is influenced by proximal characteristics of parents as well as characteristics of and relationships with offspring. Parenting is also conditioned by distal contextual factors, such as situation, socioeconomic class, ethnicity, and culture. Multicultural studies of parents vocalizing, speaking, responding to, and interacting with infants (described earlier) attest to the many ways in which culture conditions parenting. Enriching caregiving practices foster the course and outcome of child development, but they are not practiced equally by all peoples. Assessing two developmentally significant domains of positive caregiving – cognitive and socioemotional – in more than 127,000 families with under 5-year children from 28 low- and middle-income countries revealed that caregivers generally engage not only in more socioemotional than cognitive activities but also vary widely in each domain of caregiving. More than half of caregivers played with their

children, but fewer than one-third read books to their children. Notably, country-level GDP relates to caregiving even after controlling for other country-level factors, such as life expectancy and education. Culturally specific patterns of parenting even extend from childhood into adolescence. A multicountry study compared and contrasted how four central domains of parenting change or remain the same from childhood to adolescence in a dozen diverse cultural contexts in nine countries around the world. The four parenting domains were warmth, behavioral control, rules/limit-setting, and knowledge solicitation. The nine nations were China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States. Parents and children were recruited when the children were approximately 8 years of age, and they were interviewed annually over the succeeding approximately 12 years until the children were approximately 20 years old. Trajectories of each of the four parenting domains were traced longitudinally. Additionally, potential influences on those parenting trajectories of common sociodemographic correlates of parenting, including parents' ages at the time of childbirth, parents' education, and child gender, were evaluated. The findings unveiled culture-general and culture-specific trajectories among the four parenting domains in the formative period of children's transition into late adolescence as well as differential contributions of common sociodemographic correlates of parenting.

The Nature, Structure, and Meaning of Parenting

Together, these ecologically sensitive studies converge to support the multidimensional, modular, and specific nature of parenting. Biological process and individual parent attributes, child characteristics, and community and culture constitute salient factors that influence parenting. As seen, basic physiology is mobilized to support parenting, and many aspects of parenting arise out of biological processes associated with pregnancy and parturition, but culture also impinges on and shapes parenting cognitions and practices. For example, new primipara mothers in 11 countries were observed to preferentially respond to their own infants' vocalizing distress by picking up and holding and by talking to their infants, even if they also display affection, distract, or nurture. Complementary functional magnetic resonance imaging analyses of brain responses to their own infants' cries in new primipara mothers in three countries revealed enhanced activity in concordant brain regions linked to the intention to move and to speak as well as to process auditory stimulation and to caregive. Candidate behaviors embedded in the nervous systems of human caregivers lie at the intersection of evolutionary biology and developmental cultural psychology.

In overview, my working model of parenting is that nomothetic as well as idiographic principles and processes alike formulate and guide caregiving. The body of research represented in the chapters collected in this volume

of the *World Library of Psychologists* attests to that perspective. Parenting is a synthesis of tuition and intuition to which both common and specific attributions and experiences contribute. On the nomothetic, *qua* human beings parents everywhere share biologies (nervous systems) and experiences (children) that shape shared cognitions and practices. On the idiographic, specific experiences at specific times affect specific aspects of parenting in specific ways in specific parents in support of multidimensionality, modularity, and specificity in parenting (the *Specificity Principle*; Bornstein, 2017, 2019a, b). The theoretical and empirical studies reproduced as chapters in this volume consolidate the five central themes of who parents, who it is that parents parent, the scope of parenting, the determinants and consequences of parenting, and the nature, structure, and meaning of parenting.

Glances Back and Forward

Parenting has matured today into a burgeoning kaleidoscopic sophisticated and engaging discipline that encompasses all these many perspectives. I am a peripatetic scientist (and painter) and have published widely in parenting and experimental, methodological, comparative, developmental, and cultural science as well as neuroscience, pediatrics, and esthetics.

A Career in Developmental Science

I mark my intellectual maturation by successive attendance at four extraordinary institutions: the Alexander Hamilton Elementary School, the Boston Latin School, Columbia College, and Yale University. Looking back, I see that each academic experience built on the equally demanding and rewarding one previous. At Columbia College, I was fortunate to come under the tutelage of the first scientist I ever came to know, Anthony A. Wright. I next matriculated at and eventually earned a doctoral degree from Yale University where I was afforded both the freedom and resources to pursue my own developing interests from perception and cognition to development and culture. My mentors at Yale were the esteemed psychophysicist Lawrence E. Marks and the renowned developmental scientist William Kessen. I began at Yale studying visual psychophysics (specifically color vision) with Marks leading to an MS (and a spate of “LEM” and “MHB” graphs; Bornstein & Marks, 1972; Marks & Bornstein, 1973). Soon, however, I was seduced by the mystery of developmental processes (specifically the origins of vision) on account of Kessen’s proseminar on development. I switched advisors to Kessen with the thought that I would do a dissertation on infant vision but continued to work with Marks. To undertake a study of infant color vision and categories (a topic that had not benefitted from systematic research in nearly a century), I initially proposed to Kessen to use conditioned head turning. The technique had been developed by the Czech

pediatrician Hanuš Papoušek whom (fortuitously) Kessen had years before befriended on a research trip to the then Soviet Union. I worked up and sent a dissertation proposal to Kessen, who was at the time on sabbatical in Fiesole, the mountain town overlooking Florence. I proposed to learn the technique first-hand from Papoušek, whom I (entrepreneurially) thought was working in Prague. To my surprise, I promptly received the following one-sentence reply from Bill on the back of a postcard: "Marc, I could defend your visit to Prague on aesthetic grounds, but since Hanuš is at the Center for Cognitive Studies at Harvard, take the train." I did, and Papoušek immediately agreed to take me on as a teaching assistant in his summer school systems course, and we too became fast friends. As my first foray into developmental research would be my dissertation, and not knowing how this adventure with infants would turn out (eventually conditioned head turning was a bust, but I luckily found success with habituation; Bornstein, 1981; Bornstein & Benasich, 1986), I decided to hedge my bets and conduct two PhD studies. During the daytime, I undertook the study of infant color vision and categories; during the nighttime, I investigated spectral sensitivity of the retinal periphery. (For the baby study, I also fortuitously apprenticed myself to the Yale psychology department shop foreman and constructed my own apparatus, a continuous interference filter monochromator; Bornstein & Cox, 1974. For the adult study, I devised a new technique based on flicker photometry.) I then intrigued my doctoral dissertation committee to agree to a novel proposal: If the infancy study succeeded, Kessen would be my committee chair, Marks co-chair, and my PhD would be in "Psychology, developmental," but if the infancy study failed, Marks would be my committee chair, Kessen co-chair, and my degree would be in "Psychology, cognitive." Eventually the infant work won out and was published (Bornstein, 1976; Bornstein et al., 1976a, b); happily, the psychophysics studies were also published (Bornstein & Marks, 1973; Marks & Bornstein, 1974). During my doctoral training, I was a Yale University Fellow, a US Public Health Service Trainee, and a Yale University Prize Teaching Fellow.

After completing the PhD, I wrote a successful postdoctoral training grant to the NIH, but then-President Nixon temporarily froze such governmental awards. Fortunately, Hanuš who had by that time taken a position at the Max-Planck-Institut für Psychiatrie in Munich stepped in and invited me to be a Visiting Scientist with him at the Max-Planck. Afterward, funds thawed I returned to Yale as a US Public Health Service Postdoctoral Research Fellow to pursue further investigations into the early development of vision. During that time, I was honored with the C. S. Ford Cross-Cultural Research Award from the Human Relations Area Files (Bornstein, 1973, 1975).

To continue my academic research career, I took a position at Princeton University where I won my first federal and foundation grants. During that time in Green Hall, I continued research on infant perception and cognition,

including studies of symmetry, categorization, and other perceptual processes, and broadened this perceptual and cognitive research developmentally to studies of children, adults, and the aged as well as substantively to other fields in cognitive psychology like memory and information processing.

At that time my research foci further broadened in three directions that charted courses I would pursue in depth in the future. All three arose from questions stimulated by ongoing infancy studies. My research investigations in perception and cognition using habituation in young infants were designed with extreme experimental control, yet they yielded striking individual differences in infants' performance. Habituation taps into infant information processing. One question turned on the source of individual differences. To answer that question, I undertook a series of systematic naturalistic home observations of infants' interactions with their mothers and their material environments (Bornstein & Ludemann, 1989; Bornstein et al., 1988; Bornstein & Tamis-LeMonda, 1990). The second question was what, if anything, did these individual differences foretell about children's developing cognition and intelligence (Bornstein, 1985, 2019c; Bornstein & Colombo, 2012; Bornstein & Sigman, 1986). To answer that question, I undertook longitudinal studies relating the later mental development of infants to their habituation performance. The third question was related to the answer to the first; as mother-infant interaction helped to shape infant development, then how would cultural variation in mother-infant interaction relate to cultural variation in human development (Bornstein, 1989; Bornstein et al., 1985). To answer that question, I started to pursue cross-cultural work in earnest. These three questions stimulated programmatic empirical studies which were to captivate and steer my career going forward. During those years, I benefited from sabbaticals in London at University College and in Tokyo at Todai, and I was awarded the B. R. McCandless Young Scientist Award by the American Psychological Association's Division of Developmental Psychology.

I left Princeton to fulfill a dream and return to New York City where I took an appointment at New York University as Professor of Psychology and Human Development with associated appointments in Psychiatry and Pediatrics. My work in answering the three questions proceeded apace, and at NYU I received grant funds from the Spenser Foundation, the Grant Foundation, the NSF, and the NIH (including a Research Career Development Award) to support my research. While at New York University, I also trained as a Child Clinical Fellow at the Institute for Behavior Therapy. I was further fortunate to receive a J.S. Guggenheim Foundation Fellowship which allowed me to do research as a Visiting Professor in Paris at the Laboratoire de Psychologie Expérimentale and at the Laboratoire de Psychologie du Développement et de l'Éducation de l'Enfant at the Sorbonne.

After 8 years, I left NYU to take an appointment as Head of Child and Family Research at the National Institute of Child Health and Human

Development (NICHD), which is part of the world-renowned National Institutes of Health. At the NICHD, I exploited the longitudinal promise of continuing funding by instigating a 23-year-long longitudinal study. I expanded research on mother-infant interaction to longitudinal studies of infants and their families and to more than a dozen countries on six continents. As no culture is homogenous, much of that research was also designed to sample different groups in each country to supplement cross-cultural study with meaningful within-country comparisons. While at the NICHD, I also built a productive experimental laboratory and pursued multiple interests in behavioral pediatrics. The NICHD in those days fostered the growth of research scientists, and I was fortunate to develop worldwide contacts and rewarding collaborations which lead to multiple appointments as Visiting Fellow of the British Psychological Society; Visiting Scientist at the Human Development Resource Centre in Bamenda, Cameroon; Visiting Scholar at the Institute of Psychology in Seoul National University in Seoul, South Korea; Visiting Professor at the Faculty of Cognitive Science in the University of Trento in Italy; Professor Visitante at the Pontificia Universidad Católica de Chile in Santiago in Chile; Benjamin Meaker Visiting Professor in the Institute for Advanced Studies at the University of Bristol in the United Kingdom; Scholar-in-Residence at the Jacobs Foundation in Marbach in Germany; Honorary Fellow at the Department of Psychiatry at Oxford University in the United Kingdom; and Adjunct Academic Member of the Council of the Department of Cognitive Sciences at the University of Trento in Italy.

Basic Developmental Science Work

A position in the Intramural Research Program at the NICHD allowed me to take a “long view” with respect to developmental science and gave me the mandate to pursue a broad array of longitudinal and cross-cultural longitudinal work as well as other investigations that would converge to advance understanding human development in the whole child. With that charge I focused work of the laboratory in an integrated and programmatic way on the growth of psychophysiological functions, psychomotor skills, perceptual abilities, cognitive capacities, communication competencies, emotional and personality characteristics, and social adjustment of children and their parents. This research program came to examine both normal and deviant developmental trajectories and how such patterns are channeled or altered by predispositions inherent in the individual, by characteristics of the child’s family and extended social network, by features of the natural and designed environments, and by society and culture. The ultimate aims of this research were directed at promoting aware, fit, regulated, and motivated youth who, as a hopeful eventuality, would grow into knowledgeable, healthy, happy, contributing adults. During my 30+ year stint in the NICHD, I was able to

meet many of those promises ... and make a little progress in addressing my three questions. Altogether, efforts at Child and Family Research braided in four productive investigative strands.

One research strand marshals multidomain, multivariate, multiwave, and multiporter designs involving thousands of families from infancy to adulthood that have used an NICHD longitudinal cohort, the UNICEF Multiple Indicator Cluster Surveys (MICS), the Avon Longitudinal Study of Parents and Children (ALSPAC; now Children of the '90s), the Early Head Start Research and Evaluation cohort, the Bavarian Longitudinal Study, and other national and international data sets. This research embeds prospective longitudinal evaluations of parenting and child development across major sociodemographic comparisons (maternal age, parity, parenthood, employment, childcare, and socioeconomic statuses) at multiple ages (infancy, toddlerhood, preschool, pre-, early-, and late-adolescence, and young adulthood). The proximal goals of this research are to capture the individuality and complexity of child development, to trace sources of children's strengths and weaknesses as individuals, and to do so at multiple times across childhood. In addition, numerous assessments of joint mother and child participation permit continuing evaluation of dyadic interaction. This rich data set yields micro- and macroanalytic comparisons, sequential analyses, within-age between-group comparisons, within-group across-age comparisons, as well as between-group across-age comparisons of patterns of human development.

The contribution to science of this research strand has been a corpus of empirical findings that systematically examines the nature and development of multiple psychological and developmental constructs, structures, functions, and processes as well as family interactions across infancy, childhood, youth, and adulthood. I think about child, parent, and family development from a relational systems framework by placing these developmental studies in the contexts of biology and society. This contextual ecological perspective embraces the roles of extrafamilial and situational factors in explaining individual adjustment and family process. The work also incorporates the transactional perspective by attending to parent effects on child, child effects on parent, and how parent and child mutually influence one another through time. Relational ecological systems and transactional views constitute principal dynamics at work in parenting and human development.

Most research into parenting and child development has been and is still Western European or North American in origin, so perhaps 90% of the literature in parenting and developmental science emanates from regions of the world that account for perhaps 10% of the global population. My second research program seeks to redress this imbalance. This program adds cultural and cross-cultural extensions to parenting and developmental science. In all, this research has touched parents, children, and families around the world and immigrant families in the United States and Europe. This research is

of theoretical interest in that contrasting styles of child development and childrearing are directly compared in the context of unique cultural variations and because intra-cultural and cross-cultural studies together offer the opportunity to identify and differentiate community-general (nomothetic) and community-specific (idiographic) parenting and developmental processes (Bornstein, 2022).

To realize this second research strand, I first founded an International Network of Child Development and Parenting with collaborations in more than a dozen countries. In addition, I recruited three samples of acculturating U.S. immigrant families who are studied for themselves and in relation to samples living in their three respective cultures of origin and one culture of destination (that is, to U.S. European American samples). In addition to this cross-cultural research program, I collaborate on several other international datasets. One collaboration with UNICEF and a group of leading scholars uses the MICS, a nationally representative and internationally comparable set of household surveys administered in more than 50 low- and middle-income countries with millions of participants implemented to examine protective and risk factors of child development. This collaboration has resulted in a series of papers, journal special issues, and books with successive foci on national development, child growth, physical health, caregiving, discipline, the home environment, and child development (Bornstein, 2012; Bornstein et al., 2016; Bornstein et al., 2021). Another collaboration with the Parenting Across Cultures (PAC) project studies parenting and the long-term effects of parenting on children's and adolescents' development longitudinally in 11 groups in nine countries. Yet a third collaboration is a large-scale study of parents and adolescents, including indigenous Turks in Turkey, indigenous Belgians in Belgium, and Turk immigrant families in Belgium.

This strand of research contributes to a more nuanced understanding of cultural and contextual factors on developmental trajectories of parenting and child development. Alone, independent scholarly assessments have called the global library of videorecordings of naturalistic interactions of families that I amassed a "national treasure." It contains unique data that are continually mined by collaborators from multiple universities and research institutions around the world. On account of this work and these collaborations, my research has been published in more than a dozen languages, and I have given invited presentations and named lectureships in more than 25 countries. In recognition of this work, I have also been recipient of the Distinguished Scientific Contribution Award from the International Society for the Study of Behavioral Development and the Distinguished International Contributions to Child Development Award from the Society for Research in Child Development.

The third strand of my research focuses on traditional and novel laboratory studies of basic neural, sensory, perceptual, and cognitive processes in human children and adults. This research spans from attention and

information processing to categorization and memory to the prediction of cognition and theory of mind to symbolic play and parenting cognitions. Laboratory behavioral experiments study eye tracking, visual processing, categorization, and memory. These controlled experimental investigations marshal a host of methods that include genetic and hormonal analyses; experimental designs and standardized assessments; as well as measurements of the autonomic nervous system (cardiac function) and central nervous system (TMS, EEG, ERP, fNIRS, and fMRI). This research program complements the first two research strands on naturalistically occurring parent and child behaviors and brings many field observations into the laboratory for closer experimental scrutiny.

The fourth research strand concerns the close study of diverse challenged populations to investigate questions at the interface of parenting, child development, biological growth, and physical health and how together they inform typical and atypical human functioning and development. A plethora of participants has been recruited and evaluated that include, beyond typically developing children and normal adults, socially diverse and at-risk samples (low-SES, adopted, bilingual, and immigrant) and biologically compromised samples (cocaine exposed, disabled, hearing impaired, clinically depressed, preterm, cancer survivors, Down syndrome children, and children with ASD). In addition to children and adults in a large variety of cultural settings, I have also undertaken studies of fetal-to-child development across parturition. This program strand holds practical and clinical meaning in itself, and the study of atypical development in certain spheres sheds light on normal development. This research line also aims to bridge to more directly applied areas of consideration, bringing some developmental and parenting issues and principles from the first three research strands to bear on the compelling set of questions in parenting and children's biobehavioral development that instigated and have animated my career.

On the basis of this work, I have written or edited dozens of books, including the 3-volume *Psychology and Its Allied Disciplines*, *Development in Infancy*, *Developmental Science: An Advanced Textbook*, *Infancy: The Basics*, *Parenting*, *Infancy*, *Culture*, and the 5-volume *Handbook of Parenting*, and I am author of hundreds of scientific papers and chapters in scholarly collections. I was named to the Top 20 Authors for Productivity in Developmental Science by the American Educational Research Association. Cumulatively considered, for this work I have been honored with the Award for Distinguished Contributions to Developmental Psychology from the American Psychological Association, a United States PHS Superior Service Award and an Award of Merit from the National Institutes of Health, two Japan Society for the Promotion of Science Fellowships, four Awards for Excellence from the American Mensa Education & Research Foundation, the Arnold Gesell Prize from the Theodor Hellbrügge Foundation, and the Distinguished Scientific Contributions to Child Development Award from the Society for Research in Child Development. More importantly, in pursuing all

this work I have been blessed by strong and robust relationships with numerous colleagues, staff, postdoctoral fellows, graduate students, and hundreds of undergraduates and research assistants all of whom (I am pleased to reflect) have gone on to stellar professional careers of their own.

Outreach and Application

I have also geared my efforts to disseminate research on parenting, child development, family process, and culture to multiple parenting communities – including researchers, practitioners, policy makers, educators, and parents themselves. These efforts are organized to make parenting and developmental science appealing and flourishing areas of inquiry. Among other appointments, I have been Principal Scientist for Parenting and Child Well-being at The Center for Child Well-being, a CDC-related organization dedicated to promoting the positive growth and development of children. My NICHD laboratory revised *Children's Toy and Safety Guidelines* for the U.S. Consumer Product Safety Commission. I am Senior Advisor for Research for Early Child Development Parenting Programmes at UNICEF. For UNICEF and the LEGO Foundation, I have organized a Forum on the Future of Parenting Programs whose work will be used in low- and middle-income countries worldwide. I also organized and published an early seminal volume on the SARS-CoV-2 pandemic, *Psychological Insights for Understanding COVID-19 and Families, Parents, and Children*. I continue to work actively with the Templeton World Charity Foundation. I am Editor-in-Chief of the Cambridge University Press Series, *Elements in Child Development*. Finally, I have produced several children's books, videos, and puzzles in *The Child's World* and *Baby Explorer* series.

Recognition

For these accomplishments, I have been awarded honorary doctorates from the University of Padua and University of Trento in Italy and am Honorarprofessor of Psychology at the University of Heidelberg in Germany. I was elected by my peers in developmental science as President of the Society for Research in Child Development, the flagship scientific organization concerned with research in child development in the world. I also sit on the Executive Committee of the International Society for the Study of Behavioral Development. I am a past Governing Council member of the Society for Research in Child Development and Executive Committee of the International Congress of Infancy Studies. In addition to those mentioned above, I hold academic appointments as Visiting Professor at the University of Maryland Baltimore County; Adjunct Professor in the Faculty of Graduate Studies and External Member of the LaMarsh Centre for Child & Youth Research at York University in Toronto; and Visiting Scholar at

the Eliot Pearson Department of Child Study and Human Development at Tufts University.

My approach to the study of parenting, child development, family process, and culture reflects the convergence of attempts to reply to the three questions I asked back when. First, my multidisciplinary observations are based on the naturally occurring interactions of parents and children during the daily routines of family life as well as controlled laboratory-based experimental studies. Second, I follow longitudinal, ecological, and relational dynamic systems paths to understanding parenting, child development, and family process. Finally, I have extended investigations of parenting, child development, and family process to diverse contexts and cultures, thereby advancing knowledge of their common and specific natures. Currently, I am an Affiliate with the *Eunice Kennedy Shriver* NICHD in Bethesda, an International Research Fellow at the Institute for Fiscal Studies in London, and Senior Advisor for Research for ECD Parenting Programmes at UNICEF in New York City.

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