



# The End of the Beginning: Evidence and Absences Studying Positive Youth Development in a Global Context

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## Abstract

Relational developmental systems metatheory frames many contemporary models of human development, including two strengths-based approaches to enhancing the lives of diverse children and adolescents, the positive youth development (PYD) perspective and resilience science. Both approaches emphasize the potential for plasticity in human development, and the systematic changes that arise through mutually influential relations between the individual and the multiple, integrated levels of the dynamic developmental system. After discussing the similarities and differences in these two approaches, different models of PYD are discussed in relation to how descriptions, explanations, and attempts at optimizations of the development of diverse youth are enacted within these conceptions. The substantive and research challenges associated using PYD models to enhance the lives of diverse global youth are highlighted, and the implications for future PYD research in international settings, and specifically among poor youth developing within the majority world, are discussed.

**Keywords** Relational developmental systems metatheory · Positive youth development · Resilience science · Majority-world youth · Youth programs · Compassion International

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## Introduction

*Now this is not the end. It is not even the beginning of the end.*

*But it is, perhaps, the end of the beginning.*

Winston Churchill, November 10, 1942

This article discusses the conceptual and substantive status of the positive youth development (PYD) perspective, a strengths-based approach to child and adolescent development that is associated with relational developmental systems metatheory (Overton 2015). The PYD perspective is compared to another strengths-based model of youth development linked to this metatheory, resilience science (e.g., Masten 2007, 2014a, b, c; Masten and Reed 2002). Different models of PYD are discussed, and the substantive challenges that exist in using these models to describe, explain, and optimize the development of diverse youth are noted. Implications of these challenges for understanding the development of diverse global youth, and particularly majority-world youth from poor nations, are of specific interest in this article.

To begin this discussion, it is useful to note that the German experimental psychologist, Hermann Ebbinghaus (1908), famously observed that the field of psychology had a long past but a short history (see also Boring 1929). The same observation would be appropriate to make regarding the study of PYD. Versions of the contemporary set of models of PYD date from the 1990s. However, since its inception as a specific field of developmental science inquiry (Hall 1904), researchers interested in adolescence have been concerned with understanding the positive behavior and development of young people.

Developmental science seeks to describe, explain, and optimize within-the-person (intraindividual) change and between-people (interindividual) differences in intraindividual change across the life span (Baltes et al. 1977; Lerner 2012). Within the context of this conception of the field, developmental scientists are interested in learning how to increase the probability of positive child and adolescent development. Indeed, since the time that G. Stanley Hall (1904) launched the study of adolescence as a scientific field, there has been interest in discovering the processes involved in healthy, adaptive, or positive development (Lerner 2017a, 2018b). Indeed, ethical human development research—no matter the age group involved in any program of inquiry—should be focused on both enhancing good things and diminishing bad things in the development of people.

Accordingly, if all that the PYD approach to adolescent development constituted was an assertion that adolescents may manifest positive behaviors and that developmental scientists should have an interest in promoting such behaviors,

then developmental scientists would see little reason to talk about the PYD perspective or discuss models of it. The topic of PYD would represent an obvious and ethically necessary focus within developmental science. However, there is another meaning of PYD, one that distinguishes this perspective from some other (but not all—see our discussion below about resilience science; e.g., Masten 2014a, b, c; Masten et al. 2015), past or current, ways of thinking about, studying, and intervening into, the lives of youth. If this other meaning of PYD did not exist, it would be difficult to account for the increasing interest in it, both within the U.S. (Lerner et al. 2015) and internationally (Petersen et al. 2017), including interest by major international organizations (e.g., Lansford and Banati 2018; Lerner et al. 2018; USAID 2013; UNICEF 2005, 2017; World Bank 2000, 2007).

The alternative meaning of PYD pertains to a strengths-based conception of young people, one that emphasizes that the fundamental strength of the period is constituted by the potential for systematic change throughout the adolescent period, a potential that both derives from and contributes to mutually beneficial relations between the individual and his or her complex and changing context. This strengths-based concept of PYD is the approach to adolescent thriving that attracts increasing theoretical, empirical, and applied interest around the world.

In contrast to this strengths-based approach to adolescents, it is useful to note that, across much of its history (from 1904 through this writing), the scientific study of adolescent development was conducted in the context of a widely prevalent deficit model, one initiated by Hall's (1904) conception of storm and stress. As such, many developmental scientists viewed adolescents through a lens of their being at risk, beset by problems, and endangered by inevitable, biologically based shortcomings (e.g., Anthony 1969; Freud 1969). This deficit view continues to be expressed by advocates of genetic reductionist ideas. As discussed in Lerner (2018a), an example of such reductionism involves ideas about the sexuality and reproductive behaviors of African American youth, as promulgated by evolutionary developmental psychologists and by neo-eugenicists (e.g., Belsky 2012, 2014; Belsky et al. 1991; Ellis et al. 2012).

From these deficit perspectives, promoting positive development in youth is a matter of making them less bad, where “good youth” are defined by what youth do not do or are kept from doing (e.g., regarding smoking, drinking, substance use, unsafe sex, or bullying). For instance, adolescent mental “health” was defined of absence in pathology and delinquency. Into the 1990s, this deficit perspective was the predominant lens for studying adolescents, despite more than 30 years of countervailing research findings (e.g., Bandura 1964; Block 1971; Douvan and Adelson 1966; Offer 1969).

In short, whereas there has always been an interest among developmental scientists in furthering positive behavior and

development among youth, until the 1990s this interest was largely instantiated through scholarship that sought to either ameliorate problems or prevent them. However, in the 1990s a new lens for viewing behavior and development emerged. The broad conceptual umbrella that is now termed *the PYD perspective* within developmental science (Lerner et al. 2015) was spurred by the convergence of the work of youth program professionals, such as Rick Little and Donald Floyd (see Lerner 2018a), and by theory and research in developmental biology and developmental science regarding *human plasticity* (Gottlieb 1992, 1998; Schneirla 1957; Woese 2004)—that is, by the potential to systematically change the features of youth development. The relative plasticity of human development has been regarded as a fundamental asset or strength of human development (relative plasticity enables flexible adjustments to changing ecological pressures and enables, as well, growth and malleability instead of stasis and fixity of structure and function; Cantor et al. 2018; Osher et al. 2018). Therefore, because of malleability, the path that an adolescent is following need not remain the path he or she stays on across life. The scientific work that provided the evidence base for these ideas is a sample case of theory-based research associated with relational developmental systems metatheory (Lerner 2018a; Overton 2015).

In sum, in the context of the history of scientific interest in understanding the process of optimizing positive development (previously understood as making youth less bad), a new, and alternative vision of development emerged. This vision was directed specifically to capitalizing on human plasticity and to testing strengths-based models (in contrast to a deficits-based one) of youth development. These strengths-based models are linked to relational developmental systems metatheory.

## Relational Developmental Systems Metatheory

A metatheory is a theory of theories. It is a set of ideas about how theories should be constructed and/or about the ideas that should be included in a theory. Contemporary developmental science is characterized by the centrality of theories or models derived from relational developmental systems (RDS) metatheory (Lerner 2015, 2018a; Overton 2015). RDS metatheory embraces an understanding of the role of biology in human development that is predicated on integrative understanding of evolution and of epigenetics, that is, the study of genetic activity caused by processes other than changes in DNA sequence and that result in changes passed on to other generations (Misteli 2013; see also; Jablonka and Lamb 2005; Meaney 2010, 2014; Woese 2004). The link between developmental and biological science enables scholars using RDS-based research to formulate and test

theories (e.g., dynamic systems models; Cantor et al. 2018; Fischer and Bidell 2006; Mascolo and Fischer 2015; Osher et al. 2018; Rose 2016) and enact applications to optimize human health and development and to promote social justice (Lerner 2017b; Lerner and Overton 2008; Masten 2007).

Within RDS metatheory, human development involves universal functions of a living, open, self-constructing (autopoietic), self-organizing, and integrated/holistic system. RDS metatheory is derived from a process-relational paradigm, wherein the organism is seen as inherently active, self-creating (autopoietic), self-organizing, self-regulating (agentic), nonlinear/complex, and adaptive (Overton 2015). Accordingly, within RDS metatheory the integration of different levels of organization frames understanding of life-span human development (Lerner 2018a; Overton 2015). The conceptual emphasis in RDS-based theories is placed on mutually influential relations between individuals and contexts, represented as individual  $\Leftrightarrow$  context relations.

These individual  $\Leftrightarrow$  context relations vary across place (e.g., culture) and across time (Elder et al. 2015); the “arrow of time,” or temporality, is history, which is the broadest level within the ecology of human development. History imbues all other levels with change. Such change may be stochastic (e.g., nonnormative life or historical events; Baltes et al. 2006) or systematic (e.g., history- or age-graded changes), and the potential for systematic change constitutes a potential for (at least relative) plasticity across the life span. As noted, such plasticity is a strength of human behavior and development (Lerner 1984, 2012), and it is this strength which is the chief idea upon which all contemporary models of PYD are built (Lerner et al. 2015); given the vast set of changes occurring during the adolescent period, the PYD perspective is predicated on the possibility of positively capitalizing on these changes to promote directions of change indicative of thriving (Lerner et al. 2015).

To actualize the potential for positive change, theories derived from an RDS metatheory, for example, dynamic systems models (e.g., Cantor et al. 2018; Fischer and Bidell 2006; Mascolo and Fischer 2015; Osher et al. 2018; Rose 2016) focus on the “rules,” the processes, that govern, or regulate, exchanges between (the functioning of) individuals and their contexts. Brandtstädter (1998) terms these relations “developmental regulations.” When developmental regulations involve mutually beneficial individual  $\Leftrightarrow$  context relations, then these developmental regulations are adaptive.

Developmental regulations are the fundamental feature of human life; indeed, all life exists through bidirectional exchanges with the physical and/or social context (Darwin 1859; Tobach and Schneirla 1968). Among humans, these exchanges involve physiological systems and functions (e.g., respiration, circulation, digestion, reproduction) and behaviors (e.g., social affiliation and cooperation, as might be involved in protection, hunting, and scavenging;

Johanson and Edey 1981), and involve both organismic self-regulation (e.g., hypothalamic functioning, circadian rhythms) and intentional self-regulation (e.g., goal selection, resource recruitment, and executive functioning; Gestsdóttir and Lerner 2008; McClelland et al. 2015). As individuals live and interact with the many systems in which their lives intersect, they both impact these systems and are impacted by them (Bronfenbrenner 1977, 1979, 2005; Bronfenbrenner and Morris 2006; Sameroff 1983). These transactions provide opportunities for regulation and growth. The developmental course of self-regulation is, in effect, the developmental course of human agency (Sokol et al. 2015).

In short, models derived from RDS metatheory emphasize that all levels of organization within the ecology of human development are systemically integrated across life. Therefore, any variable from any level is embodied in, or fused or integrated with, variables from all other levels; the structure and function of one variable is thus governed, or regulated, by the structure and function of other variables. For the developing person, these developmental regulations mean that individual  $\Leftrightarrow$  context relations are the basic unit of analysis within human development when seen through the lens of theories (e.g., dynamic systems models) framed by RDS metatheory.

As noted, plasticity is always a relative phenomenon within RDS. Temporally ordered events in the life or lives of an individual or a group, respectively, may constrain change as well as provide affordances for it (Lerner 1984). A system that promotes change can also function to diminish it. However, because of relative plasticity, developmental scientists may be optimistic that instances of individual  $\Leftrightarrow$  context relations may be found or may be created (through policies or programs) to promote more positive human development among diverse young people, and to promote social justice by providing opportunities for all individuals to optimize their chances of positive, healthy development (Lerner and Overton 2008; Masten 2007, 2014a).

The creation of such promotion and optimization efforts for diverse youth rests on the conduct of multidisciplinary research (that engages all levels of organization within the integrated, dynamic developmental system), the use of change-sensitive methodologies, and the translation of research into policies or programs (Lerner 2018a; Masten 2007, 2014a). Contemporary developmental science is marked by such scholarship within and across several substantive areas framing the field (Lerner 2018a). Within developmental science, two models, both linked to RDS metatheory and involving dynamic systems concepts of individual  $\Leftrightarrow$  context relations, have been used in regard to optimizing the development of diverse youth. These models involve resilience science (e.g., Masten 1999, 2001, 2007, 2014a, b, c; Masten and Reed 2002; Masten et al. 2015; Ungar et al. 2007, 2013) and the PYD perspective. Moreover,

both models have experienced comparable growth over the twenty-first century in engaging scientists around the globe in the respective theory-predicated research agendas associated with these models (e.g., Koller et al. 2017; Masten 2014b; Masten et al. 2015; Petersen et al. 2017; Tirrell et al. 2018). Not surprisingly, then, the two approaches share important areas of conceptual convergence. Discussion of relations between these two RDS-associated approaches will help situate the PYD perspective within contemporary developmental science. Accordingly, it is useful to briefly summarize resilience science and, in turn, to discuss the links between it and the PYD perspective.

## Resilience Science: An Overview

Masten and Reed (2002) explained that in about 1970 some developmental scientists began to study the evidence that some children at risk for problems and psychopathology nonetheless succeed in life (Masten 1999). These researchers asserted understanding the bases of such developmental phenomena, that is, of “resilience,” could inform programs, policies, and interventions aimed at promoting competence and preventing or ameliorating problems in the lives of young people that arose because of the experience of adversity. Akin to the increasing global interest in the PYD perspective, Masten (2014b) noted that across the first two decades of the twenty-first century there has been a marked increase in international interest in resilience science, due in large part to global concerns about the impact on human development of such events as environmental disasters, political violence, disease, malnutrition, and maltreatment. She pointed to the role of developmental science theory and research in enabling the global community to enhance resilience among diverse young people.

For instance, emphasizing that resilience involves individual  $\Leftrightarrow$  context relations within a dynamic system, Masten (2007) described resilience as the capacity of dynamic systems to withstand or recover from significant disturbances. She pointed to use of the methods associated with dynamic systems models (e.g., Molenaar et al. 2014) to measure and analyze the multiple levels of organization involved in these individual  $\Leftrightarrow$  context relations and, as such, to conduct research to test approaches to enhancing resilience by promoting the role of adaptive systems protecting youth development in the face of adversity. Indeed, Masten and her colleagues (e.g., Southwick et al. 2014) point to the multiple levels of organization integrated within the dynamic developmental systems (e.g., genetic, epigenetic, developmental, demographic, cultural, economic, and social) that enable programs aimed at enhancing resilience to enter the integrated, dynamic system at different levels of organization (e.g., individual, family, community, and culture).

In this regard, in order to assess whether there were culturally-specific pathways to resilience across cultures, Ungar et al. (2007) conducted a mixed methods study of resilience of 14 sites in 11 countries. Qualitative findings from interviews with 89 youth identified seven tensions that youth resolve in culturally specific ways: Access to material resources, relationships, identity, cohesion, power and control, social justice, and cultural adherence. Resolution of these tensions provided a foundation for resilience, but there was no one pattern of resolution of these tensions that predicted resilience better than another. Indeed, to elucidate the bases of such variation in the individual  $\leftrightarrow$  context relations involved in resilience, Ungar Ghazinour, and Richter (2013) point to the use of one instance of a dynamic systems model of human development, the bioecological model of Bronfenbrenner (e.g., 2005; Bronfenbrenner and Morris 2006; see too Lerner 2018a, b), as useful. For instance, such framing helps elucidate the bases of the differential impacts of both individual variables (e.g., youth perceptions of the resources available to them to address the risks they believe they face; see too Spencer et al. 2015) and contextual variables (e.g., the specific risks faced by youth and the quality of the resources available to address these risks). Similarly, this model may also help understand that different starting points in development (e.g., associated with different quantities and qualities of adversity) may nevertheless follow developmental pathways reflecting resilience and culminating in thriving. Moreover, Ungar et al. (2013) noted that this variation in trajectories of resilience is moderated by contextual and, again, perhaps specifically cultural variables (e.g., Liebkind 2012).

In sum, resilience science is framed by a dynamic systems understanding of the mutually influential relations between an individual and his or her context. As well, it draws on ideas found within RDS metatheory regarding the potential plasticity of human developmental trajectories. Accordingly,

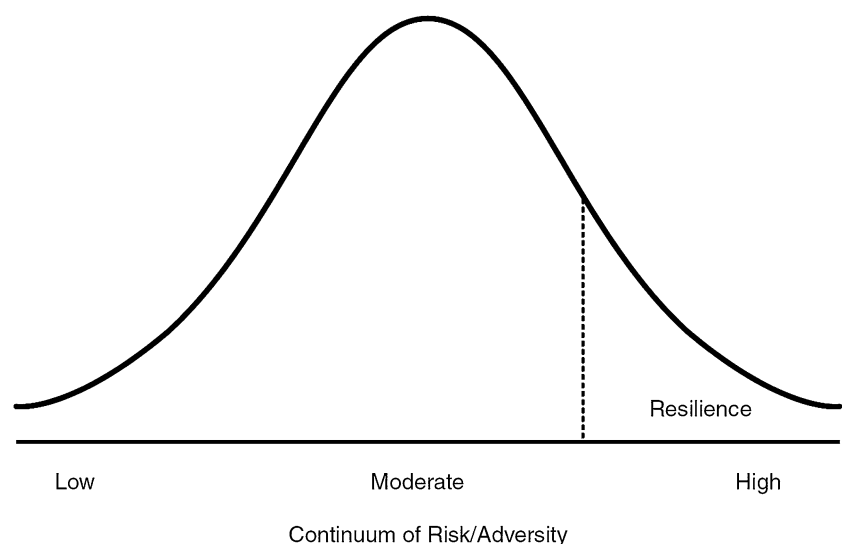
resilience science emphasizes that attributes of a young person and resources in his or her context can be aligned to result in thriving—in positive development—across quite disparate experiences of adversity in life. Indeed, underscoring the connection between the resilience science and the strengths-based ideas found within the PYD perspective, Panter-Brick and Leckman (2013) noted that resilience science shifts the lens of interventions aimed at addressing adversity-based youth development problems from efforts aimed at appraising risk or vulnerability to efforts enhancing strength or capability. It is useful to turn, then, to a discussion of the relations between resilience science and the PYD perspective.

### Links Between Resilience Science and the PYD Perspective

Masten (2014a) discussed the links between resilience and PYD. She noted that resilience is “the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development” (p. 1018). In turn, Masten pointed out that Lerner et al. (2013) defined resilience from a PYD perspective as a dynamic attribute involving the adaptive and mutually influential relations of an individual and that person’s context. Accordingly, resilience is a subset of individual  $\leftrightarrow$  context relations located at the high end of a continuum of risk or adversity (see Fig. 1). In other words, Masten (2014a) noted that resilience science differs primarily from the PYD perspective in its focus on adaptive functioning at the high end of the continuum of risk or adversity, which is only one portion of the range of concern in PYD.

Nevertheless, there are striking commonalities in the positive goals of the science conducted under these two umbrellas in developmental science concerned with youth. Perhaps the most salient shared feature of PYD and resilience

**Fig. 1** Theoretical probability distribution of instances of adaptive individual  $\leftrightarrow$  context relations in the face of differing levels of risk and adversity



scholarship is the focus on positive aspects of development, function, resources, and strengths, both in the individual and in the context. In addition, both bodies of work have focused considerable attention on defining and measuring positive adaptation; however, PYD has focused more on indicators of optimal function and thriving. In turn, resilience work has focused more attention on adequate or “okay” function, probably because so much of resilience research has centered on children and families facing enormous challenges (e.g., Masten and Reed 2002; Southwick et al. 2014; Ungar et al. 2007). Optimal adaptation, sometimes described in the resilience literature as “post-traumatic growth,” is acknowledged but not as heavily emphasized in PYD work.

It is not surprising that resilience research, concerned with survival and recovery from war, disaster, and many other kinds of severe adversity (e.g., Masten et al. 2015), would focus on doing “okay” rather than on thriving. However, resilience researchers have long observed the phenomenon of young people who thrive in the aftermath of great adversity (Masten 2014a, b, c). PYD has focused on indicators of thriving or general adaptive functioning, for example, often indexed within the PYD literature by the “Five Cs” of competence, confidence, character, connection, and caring (Lerner et al. 2015). Similarly, much of the early work in resilience studies also focused on defining and measuring good adaptation. For example, the Project Competence Longitudinal Study of Masten and Tellegen (2012) focused on defining effective behavior in context, both the developmental context and the contexts where children spend their time.

In sum, there is considerable conceptual overlap between the resilience science and the PYD approaches to youth development—a correspondence that is rooted in the linkage between both perspectives and RDS metatheory. As well, the two areas of scholarship have some distinct foci, if only insofar as being based on placing major research attention at different locations within the distribution of risk/adversity illustrated in Fig. 1. However, other areas of difference exist and, therefore, it is useful to turn now to a discussion of some of the issues of description, explanation, and optimization associated specifically with contemporary RDS-based models of PYD.

## RDS-based PYD Models

As noted, conceptions of PYD derived from RDS metatheory are strengths-based models. However, there is variation across all instances of PYD models that have been forwarded over the past two or three decades. In the main, this variation exists at the level of the manifest variables included in any of these models of PYD (see Lerner et al. 2015, for a review). In contrast, at the latent-variable level, all conceptions contend that the promotion of thriving among youth (e.g.,

whether that thriving involves measures of the purported Five Cs of PYD—i.e., competence, confidence, connection, caring, character, and caring; youth purpose; or individual and ecological developmental assets; see Lerner et al. 2015; Damon 2008, and; Benson 2008, respectively) rests on (1) the relative plasticity of development; and (2) identifying or creating the mutually influential relations between individuals and contexts (i.e., individual  $\Leftrightarrow$  context relations, relations that constitute the fundamental process through which plasticity is instantiated across the life span). Through a focus on individual  $\Leftrightarrow$  context relations, all PYD models focus on the process that could enhance the attributes of young people that are valued by them and others (e.g., parents, peers, teachers, mentors, coaches, faith leaders, and other community members), as compared to processes that reduce or prevent undesirable characteristics (Damon 2004; Larson 2000; Roth and Brooks-Gunn 2003).

As indicated earlier, the emergence of the contemporary, strengths-based and relational PYD construct occurred in the 1990s. The impetus for this emergence occurred when youth program innovator Rick Little proposed what he then termed the Four Cs of PYD (competence, confidence, connection, and character; Lerner et al. 2015). Developmental scientists who were attracted to this idea advanced their own formulations of the substance of PYD, and one of these formulations focused on what was subsequently labeled the Five Cs (caring or compassion was added to the above-noted four Cs), or the Five Cs plus one (contribution, seen as an outcome of the development of the other Cs) model (Lerner et al. 2015). However, other strengths-based PYD models burgeoned in the 1990s and in the early years of the twenty-first century, as evidenced by the models of, for instance, Benson (2008), Catalano, Hawkins, Berglund, Pollard, and Arthur (2002), Damon (2008), Larson (2000), Roth and Brooks-Gunn (2003), and Spencer (2006).

To summarize, then, all formulations of PYD that emerged beginning in the 1990s were linked to RDS metatheory, and the variation in descriptions of the variables involved in PYD were associated with a common explanation of the process through which PYD was instantiated in the life of any specific young person. This process involved mutually influential and beneficial relations (i.e., adaptive developmental regulations) between an individual and the specific features of his or her context. Importantly, these relations reflect the idiographic character of an individual’s thriving trajectory.

As discussed by Bornstein (2017), this idiography means that developmental scientists need to employ a specificity principle to understand, identify, and capitalize on youth strengths to promote any specific young person’s thriving. Such a principle would ask a multilevel set of “what” questions, that is, “What specific features of positive development (e.g., what Cs of PYD or what features of youth

purpose) emerge; that are linked to what specific trajectory of individual  $\Leftrightarrow$  context relations; for a youth with what specific set of individual psychological, behavioral, and demographic characteristics; living in what specific family, school, faith community, neighborhood, nation, culture, and physical ecology; at what specific points in ontogenetic development; and within what specific historical period?"

Arguably, the key asset of framing an interest in promoting positive development through an approach derived from such an RDS-based PYD model of individual  $\Leftrightarrow$  context relations is the optimism it entails regarding being able to capitalize on the developmental plasticity of young people to enhance the course of their lives. Indeed, the key hypothesis of the PYD model is that, if the specific strengths of a young person and the resources in his or her context (assets for positive development found in homes, schools, out-of-school-time activities, and faith communities, for instance) are aligned across development, then the life course of the young person can be enriched.

When knowledge of how to enhance the life of an individual young person is attained in this way, developmental scientists can then begin to empirically assess if aggregation to groups or to the nomothetic case is legitimate (Rose 2016). In turn, increasingly, powerful "assess and then (if empirically appropriate) aggregate" methods are becoming available to move from the idiographic to the group differential or the nomothetic levels of aggregation (e.g., Molenaar and Nesselrode 2014, 2015). These methodological innovations are discussed later in this article.

## Evidence for the Usefulness of RDS-Based Models of Youth Thriving

There is abundant evidence that, when the strengths of youth are aligned with the resources for positive development that exist in the ecology of young people—their families, school, and communities—thriving can be promoted among diverse youth (e.g., Koller et al. 2017; Lerner et al. 2015, 2018; Petersen et al. 2017; Smith et al. 2017). This evidence underscores that the developmental pathways of young people are malleable; the relative plasticity of human development, and the individual  $\Leftrightarrow$  context relations that instantiate this plasticity, can, through the above-noted alignment, enhance any young person's attributes of positive development.

Although the Lerner and Lerner "Five C's" model of PYD (Lerner 2018a) has garnered the most empirical support for the relational bases of youth thriving, both among U.S. samples (Heck and Subramaniam 2009) and among samples of global youth (Petersen et al. 2017), the other models of PYD noted earlier in this article have also found considerable empirical support. In short, then, there is little doubt that the RDS-based conception of the individual  $\Leftrightarrow$  context

relations process, through which positive youth development occurs, is useful. Several key publications have provided replicated information about the antecedents, moderators, components, and outcomes of this PYD process (e.g., see Lerner et al. 2015, 2018, for reviews).

## Antecedents and Moderators

Indicators of both the individual and the contextual components of the adaptive developmental regulations providing the basis of PYD have been identified. Intentional self-regulation (ISR), hopeful future expectations, school engagement, and spirituality are among the key individual-level components of these individual  $\Leftrightarrow$  context relations (Lerner 2018a). Variation in these constructs moderates trajectories of PYD across the elementary through high school years (Lerner et al. 2015).

In turn, human, organizational, and physical ecological variables have been identified as important indicators of the contextual-level indicators of the individual  $\Leftrightarrow$  context relations involved in PYD (Benson 2008; Benson et al. 2011; Theokas and Lerner 2006). For example, individuals in the ecology of a young person (parents, teachers, coaches, program leaders, faith leaders, and formal and informal mentors; Rhodes and Lowe 2009) are the most potent PYD-promoting ecological asset in the life of a young person, one that proves to be most salient in all the ecological settings of a young person, for instance, the family, school, or community (Theokas and Lerner 2006). This observation was the point made by Urie Bronfenbrenner more than 40 years ago (Bronfenbrenner 1977, 1979).

Similarly, authentic collaborations between young people and adults, for instance, regarding the structure or function of the school, community-building efforts, or charitable activities, are another important ecological asset linked to PYD (Theokas and Lerner 2006). Institutional and physical ecological contributors to the individual  $\Leftrightarrow$  context relations promoting PYD include organized out-of-school-time (OST) programs (e.g., Eccles and Gootman 2002; Vandell et al. 2015), parks, libraries, sports fields, museums, and faith-based activities; in addition, a community infrastructure that provides safe and efficient access to ecological assets for PYD is a necessary component of a contextual setting promoting youth thriving (Theokas and Lerner 2006).

Given the ubiquity around the globe of OST programs for youth (e.g., Vandell et al. 2015; YouthPower Learning 2017), several scholars have discussed the key attributes that these programs need to possess for PYD to be effectively promoted (e.g., Blum 2003; Eccles and Gootman 2002; Roth and Brooks-Gunn 2003). In reviewing these discussions based on U.S. OST programs, Lerner (2004) identified three characteristics of effective youth development

programs. He termed these attributes the “Big Three,” in that these features of youth development programs appear on all lists of important program characteristics proposed by scholars studying OST programs and PYD. That is, Lerner (2004) noted that, when delivered in a safe space, the key curricular features of a youth development program effective in promoting PYD are:

1. Positive and sustained adult-youth relationships between a young person and an adult (such as a mentor, coach, or teacher) who is competent, caring, and continually available for at least 1 year;
2. Life-skill building activities (e.g., enhancing skills pertinent to selection, optimization, and compensation); and
3. Opportunities for youth participation in and leadership of valued family, school, and community activities.

Lerner (2004) argued that these features of youth programs needed to be simultaneously and integratively present for PYD to be effectively promoted.

### Components of PYD and Outcomes of the PYD Process

The process of individual  $\leftrightarrow$  context relations (the adaptive developmental regulations) that produce PYD result in youth thriving. As explained earlier in this article, whereas all RDS-based models of PYD explain the emergence of thriving through reference to such a relational process, the constructs used to index positive development vary. As also noted, although the Five Cs (competence, confidence, caring, connection, and character) within the Lerner and Lerner model of PYD have been the most widely studied set of indicators (Lerner 2018a), the manifest variable indicators of PYD vary across different models.

For instance, Damon (2008) indexes PYD through the development of purpose. Within his model, purpose involves seeking to accomplish something that involves a focus that is meaningful to the self and makes a contribution beyond self-interest (e.g., to plant trees under whose shade you will never sit). Such a purpose provides a rationale and motivation for action, gives a young person a sense that he or she means something to other people, and organizes the self-definition, the identity, of a young person (e.g., Damon et al. 2003).

In turn, Benson (2008; Benson et al. 2011), through his field-building work of the “40 Developmental Assets” at the Search Institute, envisioned thriving to exist when a young person possessed a commitment to learning, positive values, social competencies, and positive identity. He argued that such attributes would be developed when the settings within which youth lived were marked by social support,

empowerment, boundaries and expectations, and opportunities for the constructive use of time.

In Spencer’s (2006; Spencer et al. 1991, 2015) conception of PYD, termed the Phenomenological Variant of Ecological Systems Theory (PVEST) model, there is also a focus on identity, as was the case in the models of both Damon (2008) and Benson (2008). In Spencer’s model, individual experiences and perceptions in relation to structural inequities in society are the key to understanding identity development, especially regarding youth of color. Spencer studies the self-evaluations and subsequent identity development of these youth in relation to cultural stereotypes and other biases within their experienced and perceived ecology. Spencer finds that positive development of youth of color rests on coping effectively with these prejudices and inequities.

Catalano, Hawkins, and their colleagues (e.g., Catalano, Fagan, Gavin, Greenberg, Irwin, Ross, & Shek, 2012; Catalano et al. 2002) focus on a large set of indicators of thriving that may be developed by youth participating in effective youth development programs. These indicators of PYD include: bonding, resilience, social competence, emotional competence, cognitive competence, behavioral competence, moral competence, self-determination, clear and positive identity, spirituality, self-efficacy, belief in the future, recognition for positive behavior, opportunities for prosocial involvement, and prosocial norms.

This sample of PYD models demonstrates the breadth of constructs developmental scientists have used to index thriving in young people. However, at the same time, this sample reflects a great deal of commonality at the manifest-variable level. For instance, across this sample, identity, values (character), and competence are foci of theorists’ conceptions of PYD.

Given the commonality of theorists’ conceptions of the PYD process and, as well, of the indicators they use to mark the presence of thriving among youth, it might not be surprising to learn that there is commonality as well in the ideas of theorists regarding the outcomes of a young person manifesting PYD. In fact, the models again show convergence in their conceptions of these outcomes. There is also replicated findings for the development of these outcomes.

It is an obvious inference that youth manifesting high levels of PYD, no matter how this construct might be operationalized at the manifest-variable level, should also manifest other positive attributes. Perhaps, as well, an associated inference is that these youth should be less likely to manifest problem or risk behaviors. That is, a quite reasonable inference to make is that there should be an inverse relation between positive and negative covariates (“outcomes”) of PYD.

Tests of the Lerner and Lerner PYD model and, as well, of other models generally confirm these expectations (Lerner et al. 2015). However, at the same time, these



data sets indicate that the inverse relation between positive and negative outcomes is far from perfect. Typically, only about 25% of the variance in these relations is accounted for across studies based in U.S. adolescent samples (Lerner et al. 2015). There is some evidence that, when youth with high levels of PYD engage in age-normative risk or problem behaviors during their adolescence (e.g., the initiation of sexual behavior or alcohol use), they do so more carefully (e.g., by engaging in “safe sex”) than do youth with lower levels of PYD (Schwartz et al. 2010). Nevertheless, both theory and research are needed to better describe and explain the imperfect inverse relation between positive and negative behaviors manifested by thriving youth.

Finally, there is also commonality across models in the specific sorts of positive behaviors conceptualized as outcomes of the PYD process. In the Lerner and Lerner model, there is the expectation that contribution—to self, family, community, and, ultimately, civil society and social justice—is the “6th C” of positive development (Lerner 2018a). Youth with high levels of competence, confidence, positive connections to others, caring (or compassion), and character should be motivated to make positive differences in their world, to contribute to making the world that is enhancing their lives a better place for others. Data from the Lerner, Lerner, and colleagues’ 4-H Study of Positive Youth Development confirm these ideas for youth ranging from Grades 5 to 12 in the U.S. (from late elementary school through high school) (Lerner et al. 2015).

Similarly, in Damon’s (2008) PYD model, indicators of a young person possessing authentic, positive, or “noble” purpose are engagement in activities promoting the common good and the welfare of others and, as well, more generally, manifesting positive and community contributions. As well, Benson’s (2008) conception of the constructive use of time by a thriving young person includes community contributions as an instance of such time use.

## Conclusions about RDS-based Models of PYD

There is considerable, replicated, and converging evidence that the strengths-based conceptions of youth thriving—whether approached from the perspective of resilience science or of PYD—are useful frames for describing, explaining, and optimizing the antecedents, moderators, components, and outcomes associated with thriving trajectories among youth. In the face of such evidence, it might seem reasonable to conclude that these strengths-based perspectives have “made their case,” that they may be considered useful alternatives to other conceptions of behavior and development among diverse young people that have focused on deficits-based views of youth development and, as such,

depicted thriving as the absence of problem behaviors, ones often regarded as based on the possession of problematic genes (e.g., Belsky 2014; Belsky et al. 1991; Ellis et al. 2012).

We would welcome such conclusions, but we would not make them at this point. Such conclusions are premature, to say the least. Developmental science is still at the beginning of tests of the PYD model, especially if one takes a global perspective about youth development. Key information is still absent and, as we turn to a discussion of these absences, we believe it is prudent to conclude that, at best, we are only at the end of the beginning of tests of RDS-based PYD models.

## Key Absences in Tests of RDS-based PYD Models

There is growing international recognition that it is important to conduct longitudinal research if appropriate evidence is to be obtained about what resources are needed to support the healthy development of diverse young people and, perhaps in particular, global youth from the majority world (e.g., Lansford and Banati 2018). The 2015 UNICEF report of its Global Longitudinal Research Initiative (GLORI) is a case-in-point (Dunn and Banati 2015). In addition, there are some excellent longitudinal studies of majority-world youth from some of the world’s poorest nations. Here, the Young Lives study is an exemplar (e.g., Bourdillion and Boyden 2014). This study assesses childhood poverty and such constructs as nutrition, health and well-being, cognitive and physical development, health behaviors, and education in four low-income countries (Ethiopia, India, Peru and Vietnam), each country involving a cohort of about 2,000 children aged between 6 and 18 months and about 1000 children aged between 7 and 8 years, recruited in 2002 and studied across multiple waves through, at this writing, 2017 (Barnett et al. 2013; Krutikova and Glewwe 2017).

However, despite this increasing global interest in and excellent examples of longitudinal research per se, the international interest in PYD models and, as well, in the Lerner and Lerner model in particular (Petersen et al. 2017), has not been transformed into major or many longitudinal studies of PYD among either majority world youth or global youth more generally. It is still the case at this writing that most of the developmental (i.e., longitudinal) tests of RDS-based models of PYD have been conducted in the U.S. Obviously, great caution must be taken when using any U.S.-based model in international settings. Spencer and Spencer (2014) have explained that most of the youth studied in the Lerner and Lerner 4-H Study were white, middle class, and rural. Youth of color were not adequately represented in the 4-H Study sample (Spencer and Spencer 2014). Therefore,

generalizability to representative samples of U.S. youth is uncertain, as is generalization to global youth, and perhaps especially to poor youth from the majority world.

Lerner et al. (2018) discussed the initial stages of implementation of the Compassion International Study of PYD, a multi-nation set of longitudinal studies conducted among youth in some of the poorest nations in the world (e.g., El Salvador and Rwanda) that assesses the individual and contextual bases of thriving among youth involved in the church-based programs of Compassion International and youth in comparative counterfactual groups. Lerner et al. note that, analogous to many youth of color in the U.S., youth from the majority world face structural challenges (e.g., gender prejudice, marginalization, or lack of access to institutions of power in their nation) and contextual problems (e.g., persistent and pervasive poverty, lack of adequate access to health care, deficiencies in educational opportunities) that must be considered when studying them empirically (Spencer and Spencer 2014). In addition, by failing to consider the unique contextual challenges that global youth may face, especially those living in poverty, researchers may be defining PYD too narrowly for these youth.

As Lerner et al. (2018) explain, if researchers approach positive development with an exclusive focus on any one Western-developed PYD model there may be an omission or an underestimation of the potentially unique and creative ways in which global youth may use contextual assets to cope with their settings and thrive, particularly when faced with exceptional circumstances (Spencer and Spencer 2014; Spencer et al. 2015). In turn, it may be that a focus on purpose, developmental assets, or the Five Cs, etc. is appropriate for many global youth, but the way in which these ideas are operationalized in non-U.S. settings may need revision; the constructs pertinent to any PYD model may be manifested differently in different national or cultural contexts. Clearly, future research needs to address these possibilities.

Moreover, this research must also move from being variable-centered to fully person-centered. To date, and despite the collection of several longitudinal data sets (Lerner et al. 2015), almost all of the empirical reports about PYD pertain to how variables covary within- or across-time. For instance, scores on intentional self-regulation, hope for the future, spirituality, or school engagement are used to predict indicators of PYD and/or contribution. Such analyses assess how variation across individuals involving one construct covaries with variation across individuals involving another construct. However, development is about intraindividual change. Accordingly, these analyses do not illuminate the potentially unique *individual pathways* through which the PYD process unfolds across adolescence.

Similarly, when group differential analyses are undertaken—growth mixture modeling, latent class, or latent trajectory analyses—information about groups of people are

provided. Nevertheless, such analyses also are mute regarding the idiographic pathways of development of the individuals involved in a specific group or trajectory. As such, if PYD research is to illuminate the bases of the development of specific youth developing at specific times and in specific places, then fully-idiographic analyses must be undertaken (Molenaar and Nesselroade 2014, 2015; Rose 2016). Only such research can address the several questions that we have noted are involved in using the Bornstein (2017) specificity principle to frame PYD research. With data sets organized on the basis of information collected about the specificity of individual pathways, PYD research could then be structured in manners consistent with the “assess then aggregate” approach recommended by Molenaar and Nesselroade (2014, 2015) and Rose (2016) and endorsed by the present authors.

Of course, even with such data sets in hand, the study of RDS-based PYD models would be incomplete, and perhaps again especially regarding global youth. Time and place matter in RDS-based models of human development (Elder et al. 2015) and, as well, so too does gender, race, socioeconomic status, and the host of other status and attribute variables that differentiate humans both within and across national borders. To use measures across these domains of variables, measurement invariance must be established. Invariance means that a measurement instrument performs in the same way across people, contexts, and time (Card 2017). Without evidence of measurement invariance across these domains of human life, measures of development—despite the reliability and validity they may possess with the specific samples with which the measures were developed—cannot be compared or integrated.

However, once invariance is established, sophisticated methods of Integrative Data Analysis (IDA) (Callina et al. 2017; Curran and Hussong 2009) can be used to integrate data sets. Such analyses can create integrated data sets that depict pathways of PYD across ages, people, and places. Unfortunately, however, the use of IDA methods to construct such views of PYD trajectories is not possible because few PYD data sets, in the U.S. or globally, have been demonstrated to possess measurement invariance.

In short, the absence of adequate measurement and data analysis methods means that, at this writing, developmental scientists cannot provide adequate answers to the question of whether the PYD construct has equivalent meaning across people, time, and place. A measure that is valid and reliable to assess PYD among 10-year-old girls living in rural areas of El Salvador cannot be used to assess PYD among 12-year-old boys living in an urban setting in Rwanda unless there is evidence of measurement invariance. However, there are enormous advances being made in theory-predicted, and methodologically-rigorous developmental science (e.g., Molenaar et al. 2014; Molenaar and Nesselroade 2015; Rose

2016). We believe that these advances in scholarship will eliminate these absences in the near future of the field (e.g., see Cantor et al. 2018; Osher et al. 2018).

## Conclusions

In 2017, the United States Agency for International Development (USAID) commissioned a systematic review documenting the application and impact of PYD approaches in low- and middle-income countries. The research, conducted by YouthPower Learning (2017), found that programs promoting PYD were doing so “without a theoretical underpinning or understanding of PYD” (p. 5) and, further, described “a lack of robust and consistent measurement of PYD outcomes” and “few instances of longitudinal studies or evaluations of PYD programs” (YouthPower Learning, p. 40). Indeed, in their conclusions, the research group emphasized “a tremendous need to invest in advancing the field, piloting new strategies, and rigorously evaluating and documenting programs that are being implemented” (p. 5–6).

Because of the rich set of individual and contextual constructs it integrates, and as a consequence of the way it frames the designs and measures of PYD research, RDS-based models of PYD continue to attract researchers, practitioners, and policy makers, which is an example of iterative “translational synergy” (Masten 2011). The above-noted Compassion International Study of PYD is a recent example of just such developmental science. The study involves a collaboration between researchers and practitioners interested in assessing the usefulness of the Lerner and Lerner PYD model as a frame for promoting thriving among youth participating in the child-sponsorship programs of Compassion International. As also exemplified by the Compassion International Study, RDS-based PYD models are also attractive to researchers, practitioners and, as well, policy makers because of the promise embodied in RDS conceptions regarding the provision of actionable means to align a young person and his or her world in ways that will create a healthy, happy, productive, competent, and fulfilled individual who will live a life of meaning and mattering to self, family, community, and society. The continuing and, in fact, growing interest in these RDS-based PYD models means that deficit models based on genetic reductionism, which have misinformed and, sadly, continue to misinform science and the public, do not coincide with empirical assessments of these programs (e.g., see Eccles and Gootman 2002, and; Vandell et al. 2015, for reviews).

For this reason alone, RDS-based PYD models have served and continue to serve an important function for science and for civil society, both within and across nations. However, for these models to continue to make this contribution and, even more, for them to fulfill their promise

to practitioners, policy makers, and to the diverse youth, families, and communities of the world, more science—and better science—is needed. The absences that we have identified need to be replaced with high-quality developmental data. As we have noted, we are optimistic that such advances are on the near horizon of developmental science (e.g., as discussed in Cantor et al. 2018; Osher et al. 2018).

As summarized in this article, considerable theory-predicted PYD research has been completed, and this work is valuable and has made important contributions to understanding and enhancing the lives of diverse youth of our world. However, we have pointed to the considerable work that remains to be done. We are, perhaps, then, at the end of the beginning of this scholarly journey. Additional scholarly endeavors aimed at enhancing the theory-predicted research-base pertinent to PYD will be important markers of progress as we continue this journey.

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## Compliance with ethical standards

**Conflict of interest** The authors report no conflicts of interest.

## References

- Anthony, E. J. (1969). The reactions of adults to adolescents and their behavior. In G. Caplan & S. Lebovici (Eds.), *Adolescence: Psychosocial Perspectives* (pp. 2017). New York: Basic Books.
- Baltes, P. B., Lindenberger, U., & Staudinger, U. M. (2006). Life span theory in developmental psychology. In R. M. Lerner (Ed.), *Handbook of child psychology: Vol. 1 Theoretical Models of Human Development* (6th edn., pp. 569–664). Editors-in-chief: W. Damon & R. M. Lerner. Hoboken: Wiley.
- Baltes, P. B., Reese, H. W., & Nesselroade, J. R. (1977). *Life-Span Developmental Psychology: Introduction to Research Methods*. Monterey: Brooks/Cole.
- Bandura, A. (1964). The stormy decade: Fact or fiction? *Psychology in the School*, 1, 224–231.
- Barnett, I., Ariana, P., Petrou, S., Penny, M. E., Duc, L. T., Galab, S., Woldehanna, T., Escobal, J. A., Plugge, E., & Boyden, J.

- (2013). Cohort profile: The young lives study. *International Journal of Epidemiology*, 42(3), 701–708.
- Belsky, J. (2012). The development of human reproductive strategies: Progress and prospects. *Current Directions in Psychological Science*, 21(5), 310–316.
- Belsky, J. (2014, November 30). The downside of resilience. *New York Times Sunday Review*.
- Belsky, J., Steinberg, L., & Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategy: An evolutionary theory of socialization. *Child Development*, 62, 647–670.
- Benson, P. L. (2008). *Sparks: How Parents Can Help Ignite the Hidden Strengths of Teenagers*. San Francisco: Jossey-Bass.
- Benson, P. L., Scales, P. C., & Syvertsen, A. K. (2011). The Contribution of the Developmental Assets Framework to Positive Youth Development Theory and Practice. In R. M. Lerner, J. V. Lerner & J. B. Benson (Eds.), *Advances in Child Development and Behavior: Positive Youth Development: Research and Applications for Promoting Thriving in Adolescence* (pp. 195–228). London: Elsevier.
- Block, J. (1971). *Lives Through Time*. Berkeley: Bancroft Books.
- Blum, R. W. (2003). Positive youth development: A strategy for improving health. In F. Jacobs, D. Wertlieb, & R. M. Lerner (Eds.), *Handbook of Applied Developmental Science: Promoting Positive Child, Adolescent, and Family Development Through Research, Policies, and Programs* (Vol. 2, pp. 237–252). Thousand Oaks, CA: Sage.
- Boring, E. G. (1929). *History of Experimental Psychology*. London: Century/Random House UK.
- Bornstein, M. H. (2017). The specificity principle in acculturation science. *Perspectives in Psychological Science*, 12, 3–45.
- Bourdillion, M., & Boyden, J. (Eds.). (2014). *Growing up in poverty: Findings from Young Lives*. New York: Palgrave Macmillan.
- Brandtstädter, J. (1998). Action Perspectives on Human Development. In W. Damon (Series Ed.) & R. M. Lerner (Volume Ed.), *Handbook of Psychology: Theoretical Models of Human Development* (Volume 1, 5th edition, pp. 807–863). New York, NY: Wiley.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513–531.
- Bronfenbrenner, U. (1979). *The ecology of Human Development: Experiments by Nature and Design*. Cambridge: Harvard University Press.
- Bronfenbrenner, U. (2005). *Making Human Beings Human: Bioecological Perspectives on Human Development*. Thousand Oaks: Sage.
- Bronfenbrenner, U., & Morris, P. A. (2006). The Bioecological Model of Human Development. In R. M. Lerner (Vol. Ed.), *Handbook of Child Psychology: Vol. 1 Theoretical Models of Human Development* (6th edn., pp. 793–828). Editors-in-chief: W. Damon & R. M. Lerner. Hoboken: Wiley.
- Callina, K. S., Johnson, S. K., Tirrell, J. M., Batanova, M., Weiner, M., & Lerner, R. M. (2017). Modeling pathways of character development across the first three decades of life: An application of integrative data analysis techniques. *Journal of Youth and Adolescence*, 46, 1216–1237.
- Cantor, P., Osher, D., Berg, J., Steyer, L., & Rose, T. (2018). Malleability, plasticity, and individuality: How children learn and develop in context. *Applied Developmental Science*. <https://doi.org/10.1080/10888691.2017.1398649>.
- Card, N. A. (2017). Methodological issues in measuring the development of character. *Journal of Character Education*, 13(2), 29–45.
- Catalano, R. F., Fagan, A. A., Gavin, L. E., Greenberg, M. T., Irwin, C. E. Jr., Ross, D. A., & Shek, D. T. (2012). Worldwide application of prevention science in adolescent health. *Lancet*, 379(9826), 1653–1664.
- Catalano, R. P., Hawkins, J. D., Berglund, M. L., Pollard, J. A., & Arthur, M. W. (2002). Prevention science and positive youth development: Competitive or cooperative frameworks? *Journal of Adolescent Health*, 31, 230–239.
- Curran, P. J., & Hussong, A. M. (2009). Integrative data analysis: The simultaneous analysis of multiple data sets. *Psychology Methods*, 14, 81–100.
- Damon, W. (2004). What is positive youth development? *The Annals of the American Academy of Political and Social Science*, 591, 13–24.
- Damon, W. (2008). *The Path to Purpose: Helping our Children find Their Calling in Life*. New York: Simon and Schuster.
- Damon, W., Menon, J. L., & Bronk, K. C. (2003). The development of purpose during adolescence. *Applied Developmental Science*, 7(3), 119–128.
- Darwin, C. (1859). *The Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life*. London: J. Murray.
- Douvan, J. D., & Adelson, J. (1966). *The Adolescent Experience*. New York: Wiley.
- Dunn, K., & Banati, P. (2015). *Strength in Numbers: How longitudinal Research Can Support Child Development*. Florence: UNICEF Office of Research–Innocenti.
- Ebbinghaus, H. (1908). *Abriss der psychologie*. Leipzig: Veit & Co.
- Eccles, J. S., & Gootman, J. A. (Eds.). (2002). *Community Programs to Promote Youth Development/Committee on Community-Level Programs for Youth*. Washington, DC: National Academy Press.
- Elder, G. H. Jr., Shanahan, M. J., & Jennings, J. A. (2015). Human development in time and place. In M. H. Bornstein & T. Leventhal (Eds.), *Handbook of Child Psychology and Developmental Science. Vol. 4 Ecological Settings and Processes in Developmental Systems* (7th edn., pp. 6–54). Hoboken: Wiley.
- Ellis, B. J., Schlomer, G. L., Tilley, E. H., & Butler, E. A., E. A. (2012). Impact of fathers on risky sexual behavior in daughters: A genetically and environmentally controlled sibling study. *Development and Psychopathology*, 24, 317–332.
- Fischer, K. W., & Bidell, T. R. (2006). Dynamic development of action and thought. In R. M. Lerner (Ed.), *Handbook of Child Psychology: Vol. 1 Theoretical Models of Human Development* (6th edn., pp. 313–399). Editors-in-chief: W. Damon & R. M. Lerner. Hoboken: Wiley.
- Freud, A. (1969). Adolescence as a developmental disturbance. In G. Caplan & S. Lebovici (Eds.), *Adolescence* (pp. 5–10). New York: Basic Books.
- Gestsdóttir, S., & Lerner, R. M. (2008). Positive development in adolescence: The development and role of intentional self-regulation. *Human Development*, 51, 202–224.
- Gottlieb, G. (1992). *Individual Development and Evolution: The Genesis of Novel Behavior*. New York: Oxford University Press.
- Gottlieb, G. (1998). Normally occurring environmental and behavioral influences on gene activity: From central dogma to probabilistic epigenesis. *Psychological Review*, 105, 792–802.
- Hall, G. S. (1904). *Adolescence: Its Psychology and Its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion, and Education*. New York: Appleton.
- Heck, K. E., & Subramaniam, A. (2009). *Youth Development Frameworks. [Monograph]*. Davis: 4-H Center for Youth Development, University of California.
- Jablonska, E., & Lamb, M. (2005). *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life*. Cambridge: MIT Press.
- Johanson, D. C., & Edey, M. A. (1981). *Lucy: The Beginnings of Humankind*. New York: Simon & Schuster.
- Koller, S. H., Motti-Stefanidi, F., Petersen, A. C., & Verma, S. (2017). Achieving Positive Development for Youth Globally: How Far Have We Come and What is Yet Needed? In A. C. Petersen, S. H. Koller, F. Motti-Stefanidi & S. Verma (Eds.), *Positive Youth*

- Development in Global Contexts of Social and Economic Change* (pp. 301–310). New York: Taylor & Francis Group.
- Krutikova, S., & Glewwe, P. (2017). Introduction to symposium on using the Young Lives data to study child poverty in developing countries. *Economic Development and Cultural Change*, 65(4), 653–656.
- Lansford, J. J., & Banati, P. (Eds.). (2018). *Handbook of Adolescent Development Research and Its Impact on Global Policy*. New York: Oxford University Press.
- Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychologist*, 55, 170–183.
- Lerner, J. V., Bowers, E. P., Minor, K., Lewin-Bizan, S., Boyd, M. J., Mueller, M. K., Schmid, K. L., Napolitano, C. M., & Lerner, R. M. (2013). Positive Youth Development: Processes, Philosophies, and Programs. In R. M. Lerner, M. A. Easterbrooks & J. Mistry (Eds.), *Developmental Psychology, Handbook of Psychology* (Vol. 6, 2nd edn., pp. 365–392). Editor-in-chief: I. B. Weiner. Hoboken: Wiley.
- Lerner, R. M. (1984). *On the Nature of Human Plasticity*. New York: Cambridge University Press.
- Lerner, R. M. (2004). *Liberty: Thriving and Civic Engagement Among American Youth*. Thousand Oaks, CA: Sage.
- Lerner, R. M. (2012). Essay review: Developmental science: Past, present, and future. *International Journal of Developmental Science*, 6(1–2), 29–36.
- Lerner, R. M. (2015). Preface. In *Handbook of Child Psychology and Developmental Science* (7th edn., pp. xv–xxi). Editor-in-chief: R. M. Lerner. Hoboken: Wiley.
- Lerner, R. M. (2017a). Commentary: Studying and testing the positive youth development model: A tale of two approaches. *Child Development*, 88(4), 1183–1185.
- Lerner, R. M. (2017b). Promoting positive development, health, and social justice through dismantling genetic determinism. In K. Bogard, V. M. Murry & C. Alexander (Eds.), *Perspectives on Health Equity and Social Determinants of Health* (pp. 57–76). Washington, DC: National Academy of Medicine.
- Lerner, R. M. (2018a). *Concepts and Theories of Human Development* (4th edn.). New York: Routledge.
- Lerner, R. M. (2018b). Character development among youth: Linking lives in time and place. *International Journal of Behavioral Development*, 42(2), 267–277.
- Lerner, R. M., Lerner, J. V., Bowers, E., & Geldhof, G. J. (2015). Positive Youth Development and Relational Developmental Systems. In W. F. Overton & P. C. Molenaar (Eds.), & R. M. Lerner (Editor-in-Chief), *Theory and Method. Vol. 1 of the Handbook of Child Psychology and Developmental Science* (7th edn., pp. 607–651). Hoboken: Wiley.
- Lerner, R. M., Lerner, J. V., Geldhof, G. J., Gestsdóttir, S., King, P. E., Sim, A. T. R., Batanova, M., Tirrell, J. M., & Dowling, E. (2018). Studying positive youth development in different nations: Theoretical and methodological issues. In J. J. Lansford & P. Banati (Eds.), *Handbook on adolescent development research and its impact on global policy*. New York: Oxford University Press.
- Lerner, R. M., & Overton, W. F. (2008). Exemplifying the integrations of the relational developmental system: Synthesizing theory, research, and application to promote positive development and social justice. *Journal of Adolescent Research*, 23(3), 245–255.
- Liebkind, K. (2012). Specifying social Psychological Adaptation of Immigrant Youth: Social Identity, Intergroup Attitudes, and Intergroup Interactions. In A. S. Masten, K. Liebkind & D. J. Hernandez (Eds.), *The Jacobs Foundation series on adolescence. Realizing the potential of immigrant youth* (pp. 203–229). New York: Cambridge University Press.
- Mascolo, M. F., & Fischer, K. W. (2015). Dynamic Development of thinking, feeling, and acting. In W. F. Overton & P. C. Molenaar (Eds.), *Handbook of Child Psychology and Developmental Science: Vol. 1 Theory and Method* (7th edn., pp. 113–161). Editor-in-chief: R. M. Lerner. Hoboken: Wiley.
- Masten, A. S. (1999). Resilience Comes of Age: Reflections on the Past and Outlook for the Next Generation of Research. In M. D. Glantz & J. L. Johnson (Eds.), *Resilience and Development: Positive Life Adaptations* (pp. 281–296). New York: Plenum.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56, 227–238.
- Masten, A. S. (2007). Resilience in developing systems: Progress and promise as the fourth wave rises. *Development and Psychopathology*, 19, 921–930.
- Masten, A. S. (2011). Resilience in children threatened by extreme adversity: Frameworks for research, practice, and translational synergy. *Development and Psychopathology*, 23, 141–154.
- Masten, A. S. (2014a). Invited commentary: Positive youth development and human complexity. *Journal of Youth and Adolescence*, 43, 1012–1017.
- Masten, A. S. (2014b). Global perspectives on resilience in children and youth. *Child Development*, 85(1), 6–20.
- Masten, A. S. (2014c). *Ordinary Magic: Resilience in Development*. New York: Guilford.
- Masten, A. S., Narayan, A. J., Silverman, W. K., & Osofsky, J. D. (2015). Children in war and disaster. In M. H. Bornstein & T. Leventhal (Eds.), *Handbook of Child Psychology and Developmental Science: Vol. 4, Ecological Settings and Processes* (7th edn., pp. 704–745). Editor-in-chief: R. M. Lerner. Hoboken: Wiley.
- Masten, A. S., & Reed, M.-G. J. (2002). Resilience in development. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of Positive Psychology* (pp. 74–88). New York: Oxford University Press.
- Masten, A. S., & Tellegen, A. (2012). Resilience in developmental psychopathology: Contributions of the Project Competence Longitudinal Study. *Development and Psychopathology*, 24, 345–361.
- McClelland, M. M., Geldhof, G. J., Cameron, C. E., & Wanless, S. B. (2015). Development and self-regulation. In W. F. Overton & P. C. Molenaar (Eds.), *Handbook of Child Psychology and Developmental Science: Vol. 1 Theory and Method* (7th edn., pp. 523–565). Editor-in-chief: R. M. Lerner. Hoboken: Wiley.
- Meaney, M. (2010). Epigenetics and the biological definition of gene x environment interactions. *Child Development*, 81, 41–79.
- Meaney, M. (2014). Epigenetics offer hope for disadvantaged children. *Child & Family Blog*. <https://childandfamilyblog.com/epigenetics-offer-hope-disadvantaged-children>.
- Misteli, T. (2013). The cell biology of genomes: Bringing the double helix to life. *Cell*, 152, 1209–1212.
- Molenaar, P. C. M., Lerner, R. M., & Newell, K. (Eds.). (2014). *Handbook of Developmental Systems Theory and Methodology*. New York: Guilford.
- Molenaar, P. C. M., & Nesselroade, J. R. (2014). New Trends in the Inductive Use of Relation Developmental Systems Theory: Ergodicity, Nonstationarity, and Heterogeneity. In P. C. Molenaar, R. M. Lerner & K. M. Newell (Eds.), *Handbook of Developmental Systems and Methodology* (pp. 442–462). New York: Guilford.
- Molenaar, P. C. M., & Nesselroade, J. R. (2015). Systems Methods for Developmental Research. In W. F. Overton & P. C. M. Molenaar (Eds.), *Handbook of Child Psychology and Developmental Science: Vol. 1 Theory and Method* (7th edn., pp. 652–682). Editor-in-chief: R. M. Lerner. Hoboken: Wiley.
- Offer, D. (1969). *The Psychological World of the Teenager*. New York: Basic Books.
- Osher, D., Cantor, P., Berg, J., Steyer, L., & Rose, T. (2018). Drivers of human development: How relationships and context shape learning and development. *Applied Developmental Science*. <https://doi.org/10.1080/10888691.2017.1398650>.
- Overton, W. F. (2015). Process and relational developmental systems. In W. F. Overton & P. C. M. Molenaar (Eds.), & R. M. Lerner

- (Editor-in-Chief). *Handbook of Child Psychology and Developmental Science. Vol.1 Theory and Method* (7th edn., pp. 9–62). Hoboken: Wiley.
- Panter-Brick, C., & Leckman, J. F. (2013). Editorial commentary: Resilience in child development—interconnected pathways to wellbeing. *Journal of Child Psychology and Psychiatry*, 54(4), 333–336.
- Petersen, A. C., Koller, S. H., Motti-Stefanidi, F., & Verma, S. (2017). *Positive Youth Development in Global Contexts of Social and Economic Change*. New York: Taylor & Francis Group.
- Rhodes, J. E., & Lowe, S. R. (2009). Mentoring in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of Adolescent Psychology: Vol. 2 Contextual Influences on Adolescent Development* (3rd edn., pp. 152–190). Hoboken: Wiley.
- Rose, T. (2016). *The End of Average: How We Succeed in a World that Values Sameness*. New York: HarperCollins.
- Roth, J. L., & Brooks-Gunn, J. (2003). What exactly is a youth development program? Answers from research and practice. *Applied Developmental Science*, 7, 94–111.
- Sameroff, A. J. (1983). Developmental Systems: Contexts and Evolution. In W. Kessen (Ed.), *Handbook of Child Psychology: Vol. 1 History, Theory, and Methods* (pp. 237–294). New York: Wiley.
- Schneirla, T. C. (1957). The Concept of Development in Comparative Psychology. In D. B. Harris (Ed.), *The Concept of Development: An Issue in the Study of Human Behavior* (pp. 78–108). Minneapolis: University of Minnesota Press.
- Schwartz, S. J., Phelps, E., Lerner, J. V., Huang, S., Brown, C. H., Lewin-Bizan, S., Li, Y., & Lerner, R. M. (2010). Promotion as prevention: Positive youth development as protective against tobacco, alcohol, illicit drug, and sex imitation. *Applied Developmental Science*, 14(4), 197–211.
- Smith, E. P., Petersen, A. C., & Leman, P. (Eds.), (2017). Positive youth development in diverse and global contexts. *Child Development*, 88(4), 1035–1397.
- Sokol, B. W., Hammond, S., Kuebli, J., & Sweetman, L. (2015). The development of agency. In W. F. Overton & P. C. M. Molenaar (Eds.), *Handbook of Child Psychology and Developmental Science: Vol. 1 Theory and Method* (7th edn., pp. 284–322). Editor-in-chief: R. M. Lerner. Hoboken: Wiley.
- Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: Interdisciplinary perspectives. *European Journal of Psychotraumatology*, 5(1), 25338.
- Spencer, M. B. (2006). Phenomenological Variant of Ecological Systems Theory (PVEST): A Human Development Synthesis Applicable to Diverse Individuals and Groups. In W. Damon & R. M. Lerner (Eds.) & R. M. Lerner (Vol, Ed.), *Handbook of Child Psychology: Vol. 6 Theoretical Models of Human Development* (6th edn., pp. 829–894). Hoboken: Wiley.
- Spencer, M. B., & Spencer, T. R. (2014). Exploring the promises, intricacies, and challenges to Positive Youth Development. *Journal of Youth and Adolescence*, 43, 1027–1035.
- Spencer, M. B., Swanson, D. P., & Cunningham, M. (1991). Ethnicity, ethnic identity and competence formation: Adolescent transition and identity transformation. *Journal of Negro Education*, 60(3), 366–387.
- Spencer, M. B., Swanson, D. P., & Harpalani, V. (2015). Development of the Self. In M. E. Lamb (Vol, Ed.), *Handbook of Child Psychology and Developmental Science: Vol. 3 Socioemotional Processes* (7th edn., pp. 750–793). Editor-in-chief: R. M. Lerner. Hoboken: Wiley.
- Theokas, C., & Lerner, R. M. (2006). Observed ecological assets in families, schools, and neighborhoods: Conceptualization, measurement, and relations with positive and negative developmental outcomes. *Applied Developmental Science*, 10(2), 61–74.
- Tirrell, J. M., Geldhof, G. J., King, P. E., Dowling, E. M., Sim, A. T. R., Williams, K., Iraheta, G., Lerner, J. V., & Lerner, R. M. (2018). Measuring spirituality, hope, and thriving among Salvadoran youth: Initial findings from the Compassion International Study of Positive Youth Development. *Child & Youth Care Forum*. <https://doi.org/10.1007/s10566-018-9454-1>.
- Tobach, E., & Schneirla, T. C. (1968). The Biopsychology of Social Behavior of Animals. In R. E. Cooke & S. Levin (Eds.), *Biologic Basis of Pediatric Practice* (pp. 68–82). New York: McGraw-Hill.
- Ungar, M., Brown, M., Liebenberg, L., Othman, R., Kwong, W. M., Armstrong, M., & Gilgun, J. (2007). Unique pathways to resilience across cultures. *Adolescence*, 42(166), 287–310.
- Ungar, M., Ghazinour, M., & Richter, J. (2013). Annual research review: What is resilience within the social ecology of human development? *Journal of Child Psychology and Psychiatry*, 54(4), 348–366.
- UNICEF. (2005). *Childhood under Threat: The State of the World's Children*. New York: United Nations Children's Fund.
- UNICEF. (2017). *A Familiar Face: Violence in the Lives of Children and Adolescents*. New York: United Nations Children's Fund.
- USAID. (2013). *State of the Field Report: Holistic, Cross-Sectoral Youth Development: USAID Youth Research, Evaluation and Learning Project*. Washington, DC: United States Agency for International Development.
- Vandell, D. L., Larson, R. W., Mahoney, J. L., & Watts, T. W. (2015). Children's organized activities. In M. H. Bornstein & T. Leventhal (Vol, Eds.), *Handbook of Child Psychology and Developmental Science, Vol. 4: Ecological Settings and Processes* (7th edn., pp. 305–344). Editor-in-Chief: R. M. Lerner. Hoboken: Wiley.
- Woese, C. R. (2004). A new biology for a new century. *Microbiology and Molecular Biology Reviews*, 68, 173–186.
- World Bank. (2000). *World Development Report 2000–2001: Attacking Poverty*. Washington, DC: World Bank Group.
- World Bank. (2007). *World Development Report 2007: Development and the Next Generation*. Washington, DC: World Bank Group.
- YouthPower Learning. (2017). *A Systematic Review of Positive Youth Development Programs in Low- and Middle-Income Countries*. Washington, DC: Making Cents International.