

**PROMOTING POSITIVE YOUTH DEVELOPMENT:
THEORETICAL AND EMPIRICAL BASES¹**

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The purpose of this chapter is to present the theoretical and empirical foundations of a relatively recently emerged conception of youth. Termed the “positive youth development” (PYD) perspective, the orientation to young people has arisen because of interest among developmental scientists in using developmental systems, or dynamic, models of human behavior and development for understanding the plasticity of human development and, as well, the importance of relations between individuals and their real-world ecological settings as the bases of variation in the course of human development. The PYD perspective has arisen as well through the development and, in some cases, the evaluation of interventions designed and delivered within community-based, youth serving programs that have worked to counter what have been seen as steady states across the past five to six decades of substantial incidences of risk behaviors among adolescents.

Accordingly, this chapter presents the conceptual foundations of the PYD perspective by reviewing the history of theories about adolescent development and by specifying the key theoretical ideas defining the PYD perspective. In turn, I will discuss the burgeoning empirical work being done to define the bases and features of the positive development of diverse youth. I will consider the implications of extant research both for future scholarship and for applications of developmental science aimed at improving the life chances of adolescents through the provision of policies and programs predicated on the use of a positive development perspective for understanding and enhancing the lives of adolescents.

A BRIEF HISTORY OF THEORY ABOUT ADOLESCENT DEVELOPMENT

Adolescence spans the second decade of life (Lerner & Steinberg, 2004), and has been described as a phase of life beginning in biology, with the advent of pubertal

changes, and ending in society, with the historically-, culturally-, and socially-constructed transition to young adulthood and the enactment of role choices forged during adolescence (Petersen, 1988). Given the multiple levels of organization within the ecology of human development that are involved in structuring the nature of developmental processes during this period, adolescence may be defined as the life span period in which most of a person's biological, cognitive, psychological, and social characteristics are changing in an interrelated manner from what is considered childlike to what is considered adult-like. When most of a person's characteristics are in this state of change the person is an adolescent.

Since the founding of the scientific study of adolescent development (Hall, 1904) the predominant conceptual frame for the study of this age period has been one of “storm and stress,” or of an ontogenetic time of normative developmental disturbance (Freud, 1969). Typically, these deficit models of the characteristics of adolescence were predicated on biologically reductionist models of genetic or maturational determination (e.g., Erikson, 1959, 1968), and resulted in descriptions of youth as “broken” or in danger of becoming broken (Benson, Scales, Hamilton, & Sesma, 2006), as both dangerous and endangered (Anthony, 1969), or as “problems to be managed” (Roth, Brooks-Gunn, Murray, & Foster, 1998). In fact, if positive development was discussed in the adolescent development literature – at least prior to the 1990s -- it was implicitly or explicitly regarded as the absence of negative or undesirable behaviors (Benson, et al., 2006). A youth who was seen as manifesting behavior indicative of positive development was depicted as someone who was not taking drugs or using alcohol, not engaging in unsafe sex, and not participating in crime or violence.

In short, for about the first 85 years of the scientific study of adolescent development, the field was framed almost exclusively by a deficit perspective about this period. Why? To address this question, we may divide the history of the field into three phases, beginning with the foundational contributions of G. Stanley Hall (1904).

The Beginning of the Scientific Study of Adolescence: The First Phase

Granville (G.) Stanley Hall (1844-1924) was the founder of the scientific study of adolescent development. In 1904, Hall published the first text on adolescence, a two volume work entitled: *Adolescence: Its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion, and education*. Hall launched the study of adolescence with a theory that saw the period as one marked by "storm and stress." Hall believed that "ontogeny recapitulates phylogeny." The changes that occur in a person's life mirror the changes that occurred in the evolution of the human species. Human evolution, he believed, involved changes that moved us from being beast-like to being civilized. Adolescence corresponds to the period in evolution when humans changed from being beasts to being civilized. Therefore, adolescence is a time of overcoming one's beast-like impulses.

Few scientists believed the specifics of Hall's theory of recapitulation. However, his prominence in American psychology did influence the general conception scientists – and society – had of adolescence, as a time of upheaval and stress. For instance, other scholars studying adolescent development adopted, in their theories, Hall's idea that adolescence was a necessarily stressful period. For example, Anna Freud (1969) viewed adolescence as a universal period of developmental disturbance that involved upheavals in drive states, in family and peer relationships, in ego defenses, and in attitudes and

values. Similarly, Erik Erikson (1959, 1968) spoke of adolescents as enmeshed in an identity crisis. In short, scientists defined young people as "at risk" for behaving in uncivilized or problematic ways and therefore as being dangerous to themselves and to others.

Simply, adolescents had a deficit in their behavior – their inherently “wild” and uncivilized behavior – that meant they were "broken" or in danger of becoming "broken." For the first half of the 20th century most writing and research about adolescence was based on this deficit conception of young people.

The Second Phase of the Scientific Study of Adolescence

As early as the 1960s, research began to appear that showed that Hall’s idea, that adolescence is a period of universal storm and stress, was not in fact universally true (e.g., Bandura, 1964; Douvan & Adelson, 1966; Offer, 1969; see too Block, 1971). Most young people do not have a stormy second decade of life, the period that most scientists denote as the adolescent period. In fact, although adolescents spend increasingly more time with peers than with parents, most adolescents still value their relations with parents enormously. Most adolescents have core values (e.g., about the importance of education in one’s life, about social justice, and even about spirituality) that are consistent with those of their parents. Most adolescents select friends who share these core values. Finally, there are numerous pathways (trajectories) across the adolescent years, and only some (a minority) of them reflect changes reflective of storm and stress.

However, scholarship about adolescence during this second phase of the development of the field was not marked by the use of major or grand theories (e.g., psychoanalysis, learning theory, or cognitive developmental theory; Lerner, 2002)

framing empirical work (Lerner & Steinberg, 2004). Rather, there was a burgeoning of research loosely tied to more molecular theories about the development of a particular facet of either (a) individual development, for example, ego identity development (e.g., Marcia, 1980), formal operations (Piaget, 1972) or, even more molecularly, adolescent egocentrism (e.g., Elkind, 1967) or moral development (e.g., Colby, et al., 1983); or (b) social development or youth-context relations, for instance, involving the effects of historical context on adolescent development (e.g., Nesselroade & Baltes, 1974; Elder, 1974) or parent-adolescent relations (e.g., Steinberg, 1988; Steinberg, Mounts, Lamborn, & Dornbusch, 1991). There were at least two contributions of great value that were associated with this research.

First, the level of empirical work regarding the development of individuals across the second decade of life elicited increasing interest in and enthusiasm about the study of adolescents and in enhancing their lives. For instance, the Carnegie Council on Adolescent Development was launched in the mid 1980s as a means to integrate research with application to address the problems of adolescence (Hamburg & Takanishi, 1996).

The research during this second phase thus both popularized and legitimated the field as an important area of scholarship within developmental science and, as well, helped the field to mature. Indicators of such maturity were the appearance of the first *Handbook of Adolescent Psychology* (Adelson, 1980), the organization of a scholarly society, the Society for the Study of Adolescence (SRA), and the launching of a major research journal sponsored by SRA, the *Journal of Research on Adolescence* (Lerner, 1991). In addition, the focus of developmental science on adolescence was enhanced by

the research conducted by the members of the Society for Adolescent Medicine (SAM) and by the publication of the Society's *Journal of Adolescent Health*.

Second, the substance of the research conducted by the members of the SRA and the SAM provided an empirical foundation for the synergistic generation, within the third stage of development of the field of adolescence, of the PYD perspective and of the use of research about adolescence as a key sample case for the elaboration of developmental systems theories of human development (Lerner & Steinberg, 2004). In essence, the study of adolescent development was in large part a product and a producer of theoretical developments within the broader study of human development across the life span; the synergy between the study of adolescence and the elaboration of a developmental systems frame for the study of the life span would make, by the end of the 1990s, developmental systems theories the predominant theoretical lens for the conduct of developmental science (Lerner, 2006).

In short, the second decade of life emerged as a key sample case of the use of such theories for both basic research theory and for application for promoting positive human development (Lerner & Steinberg, 2004). It is useful to summarize some of the key research findings arising within the second phase of the development of the field of adolescence that provided the basis of the two above-noted contributions.

Diversity in the features of adolescent development

Adolescent development involves adjustments to changes in the self (e.g., pertinent to puberty, cognitive and emotional characteristics, and social expectations), and also to alterations in family and peer group relations, and often to institutional changes as well (e.g., regarding the structure of the schools within which adolescents are

enrolled or opportunities or rules for community service) (see Lerner & Galambos, 1998; Lerner & Steinberg, 2004, for reviews). Not all young people undergo these transitions in the same way, with the same speed, or with comparable outcomes. Individual differences are thus a key part of adolescent development, and are caused by differences in the timing of connections among biological, psychological, and societal factors--with no one of these influences (e.g., biology) acting either alone or as the "prime mover" of change (Lerner, 2004).

In other words, a major source of diversity in developmental trajectories are the systematic relations that adolescents have with key people and institutions in their social context; that is, their family, peer group, school, workplace, neighborhood, community, society, culture, and niche in history (Lerner, 2002). These person-context relations result in multiple pathways through adolescence (e.g., Offer, 1969).

In short, intra-individual changes in development and inter-individual differences in intra-individual change typify this period of life. Both dimensions of diversity must be considered in relation to the general changes of adolescence. Moreover, the key process within this period (as is the case as well throughout the life span; Lerner, 2006) is a relational one involving mutually influential relations between the developing individual and the multiple levels of the ecology of human development.

Multiple levels of context are influential during adolescence

Adolescence is a period of extremely rapid transitions in physical characteristics. Indeed, except for infancy, no other period of the life cycle involves such rapid changes. While hormonal changes are part of the development of early adolescence (Dorn, Dahl, Woodward, & Biro, in press; Susman & Rogel, 2004), they are not primarily responsible

for the psychological or social developments during this period. Instead, the quality and timing of hormonal or other biological changes influence, and are influenced by, psychological, social, cultural, and historical factors (e.g., Stattin & Magnusson, 1990). For example, the physiological changes of early pubertal maturation have been linked to delinquency in adolescent girls, but only among girls who attend mixed-sex schools (Caspi, Lynam, Moffitt, & Silva, 1993) or among those who socialize with older friends instead of same-age friends (Stattin & Magnusson, 1990). Early maturation among girls in single-sex schools or in sex-age peer groups was not linked with higher delinquency.

Other good examples of the integrated, multilevel changes in adolescence arise in the area of cognitive development during this period (Graber & Petersen, 1991; Kuhn, 2006). Perspectives on adolescence that claim that behavioral disruptions or disturbances are a universal part of this period of life (e.g., Freud, 1969) might lead to the assumption that there are general cognitive disruptions inherent in adolescence that are linked to pubertal change. However, evidence does not support this assumption. Global and pervasive effects of puberty on cognitive development do not seem to exist. When biological effects are found, they interact with contextual and experiential factors (e.g., the transition to junior high school) to influence academic achievement (Simmons & Blyth, 1987). Moreover, rather than reflecting evidence of a deficit in mental functioning (e.g., associated with the burgeoning brain growth of the period, e.g., Keating, 2004), cognitive abilities are enhanced in early adolescence, as individuals become faster and more efficient at processing information--at least in settings in which they feel comfortable in performing cognitive tasks (Kuhn, 2006). In sum, relations among hormonal and neural changes, personality and cognitive development, and the social

context of youth illustrate the multiple levels of human life that are integrated throughout adolescent development.

Adolescence as an ontogenetic laboratory

Given the structure and substance of the range of interrelated developments during adolescence, in the 1970s and 1980s many scholars of life-span development began to regard the adolescent period as an ideal “natural ontogenetic laboratory” for studying key theoretical and methodological issues in developmental science (Lerner, 2002; Lerner & Foch, 1987; Steinberg & Morris, 2001). Examples come from research that studies the relations between individual-levels changes (e.g., in personality, intelligence, or social relationships) and historical changes of both normative and non-normative character (e.g., Elder, 1974, 1980; Nesselroade & Baltes, 1974). There are several reasons for the special salience of the study of adolescent development to understanding the broader course of life-span development.

First, although the prenatal and infant period exceeds adolescence as an ontogenetic stage of rapid physical and physiological growth, the years from approximately ten to twenty not only include the considerable physical and physiological changes associated with puberty but, as well, mark a time when the interdependency of biology and context in human development is readily apparent (Susman & Rogel, 2004). Second, as compared to infancy, the cognizing, goal setting, and relatively autonomous adolescent can, through reciprocal relations with his or her ecology, serve as an active influence on his or her own development, and the study of adolescence can inform these sorts of processes more generally (Lerner, 2002). Third, the multiple individual and contextual transitions into, throughout, and out of this period, involving the major

institutions of society (family, peers, schools, and the work place), engage scholars interested in broader as well as individual levels of organization and, as well, provide a rich opportunity for understanding the nature of multi-level systemic change.

Finally, there was also a practical reason for the growing importance of adolescence in the broader field of developmental science: As noted by Steinberg and Morris (2001), the longitudinal samples of many developmental scientists who had been studying infancy or childhood had aged into adolescence. Applied developmental scientists were also drawn to the study of adolescents, not just because of the historically unprecedented sets of challenges to the healthy development of adolescents that arose during the latter decades of the 20th century (Dryfoos, 1990; Lerner, 1995) but, as well, because interest in age groups other than adolescents nevertheless frequently involved this age group (e.g., interest in infants often entailed the study of teenage mothers and interest in middle and old age frequently entailed the study of the “middle generation squeeze,” wherein the adult children of aged parents cared for their own parents while simultaneously raising their own adolescent children).

In sum, during the second phase of the development of the field of adolescence, there was increasing documentation of the diversity of adolescent development and of the nature of the interrelations of individual and context that were involved in shaping the specific directions of change found across this period of life. These findings provided evidence for plasticity of development (that is, for systematic variation in the course of ontogenetic change); substantial plasticity in the direction of intraindividual change could be inferred to exist as a consequence of the range of interindividual differences in intraindividual change found to be present across the second decade of life.

However, despite these findings the predominant lens for conceptualizing the nature of adolescence continued to be (until the 1990s – when, increasingly, the study of adolescence became intermeshed with the emerging ideas associated with developmental systems theories) one that implicitly or explicitly used a deficit model of youth. Indeed, even at this writing, literally hundreds of millions of federal tax dollars continue to be spent each year to reduce or prevent the problems “caused” by the alleged deficits of adolescents. These problems include alcohol use and abuse; unsafe sex and teenage pregnancy; school failure and drop out; crime and delinquency; and depression and self-harming behaviors.

Of course, one cannot deny the existence of problems during the adolescent years, or the importance of efforts to prevent problems. Nevertheless, the advent of a developmental systems perspective about adolescence led, over the course of the still ongoing third phase of development of the field of adolescence, to the idea that the best way to prevent problem behaviors was to focus on adolescent strengths, not deficits, and to promote positive changes across the second decade of life.

The Third Phase of the Scientific Study of Adolescence

The third phase in the development of the field of adolescence has been marked by at least three foci: A focus on developmental systems ideas as a frame for research and application; an interest in application that involves interactions among, and occasionally collaborations involving, researchers and practitioners in the field of youth development; and an interest in the ideas associated with the PYD perspective, both for advancing theory and research within the scholarly community and for enhancing policies and programs for youth within the practitioner community. In many ways the

interest in PYD integrates the other two foci of concern within the third phase of the field's development.

Accordingly, it is important to understand the origins, foundations, and features of the PYD perspective. In addition, it is equally important to understand the empirical standing of this approach to adolescence. The remainder of this chapter will discuss each of these issues, i.e., origins, foundations, features, and empirical status.

THE POSITIVE YOUTH DEVELOPMENT PERSPECTIVE

In the late 1990s and early 2000s psychological science has paid increasing attention to the concept of “positive psychology” (e.g., Seligman, 1998a, 1998b, 2002). However, the emergence of a positive youth development (PYD) perspective during the third phase of the study of adolescence was not linked to this work.

Origins of the PYD perspective

The roots of the PYD perspective are found in the work of comparative psychologists (e.g., Gottlieb, 1997; Schneirla, 1957) and biologists (e.g., Novikoff, 1945a, 1945b; von Bertalanffy, 1933, 1965) who had been studying the plasticity of developmental processes that arose from the “fusion” (Tobach & Greenberg, 1984) of biological and contextual levels of organization. The use of these ideas about the import of levels of integration in shaping ontogenetic change began to impact the human developmental sciences in the 1970s (Cairns, 2006; Gottlieb, Wahlsten, & Lickliter, 20006; Lerner, 2002, 2006; Overton, 1998; 2006). Examples are the theoretical papers by Overton (1973) and by Lerner (1978) on how the nature-nurture controversy may be resolved by taking an integrative, relational perspective about genetic and contextual influences on human development.

However, as the research about the features of adolescent development began to burgeon during the second phase of the development of the field, and as this research continued to point to the potential plasticity of adolescent development that arose because of the mutually influential relations among biological, individual, and contextual levels of organization within the ecology of youth development, developmental scientists who were using adolescence as their ontogenetic laboratory began to explore the use and implications of the ongoing work in comparative psychology and biology for devising a new theoretical frame for the study of adolescence. In turn, developmental scientists interested in other portions of the life span (e.g., adulthood and aging) were drawn to the study of adolescence because of its use as an ontogenetic laboratory (e.g., Lerner, Freund, De Stefanis, & Habermas, 2001). The exploration of adolescence by developmental scientists interested in developmental systems theory resulted in the elaboration of the PYD perspective.

Accordingly, to understand the direction of scholarship within the third phase of the study of adolescent development, it is important to understand the scholarship that was conducted about adolescence as both a product and a producer of the broader scholarly approach to the study of the entire human life span that had been ongoing for a much longer period, for about 40 years (Baltes, 1983; Baltes, Lindenberger, & Staudinger, 2006). I believe that it is difficult to overestimate the importance of the synergy between the growing influence of developmental systems theories within developmental science and the elaboration of a strength-based approach to the study of adolescent development within the third phase of the development of the field of adolescence. In fact, the changed frame for the study of human development, from a

focus most likely to be labeled as “developmental psychology” to one that is now prototypically termed “developmental science,” may be due in large part to the synergy between the development of the PYD perspective about adolescence and the growing interest in developmental systems theories.

For instance, little more than a decade ago most scholars studying human development labeled the field as either developmental psychology or, if they were not themselves psychologists (e.g., Elder, 1998), as a field wherein one had to recognize that psychological science was the predominant lens through which the span of human life was studied. Today, however, the field has become much more deeply and broadly multidisciplinary (and, in some sub-areas, actually interdisciplinary or, in other words, disciplinarily integrative, e.g., see Elder & Shanahan, 2006; Gottlieb, et al., 2006; Shweder, et al., 2006). As a consequence, more and more scholars of human development refer to their field as developmental science (e.g., see Cairns, 2006; Magnusson & Stattin, 2006) and at least one leading graduate textbook in the field has changed its title from *Developmental Psychology* (Bornstein & Lamb, 1999) to *Developmental Science* (Bornstein & Lamb, 2005).

The change of name for the field studying the human life span reflects in large part a key intellectual change across the last decade. There has been a “demise” of Cartesian, split conceptions of the nature-nurture issue, and of reductionistic approaches to either nature formulations (sociobiology or behavior genetics) or to nurture formulations (e.g., S-R models or functional; analysis approaches) (Overton, 2006; Valsiner, 2006). In turn, there has been an ascendant focus on theoretical models that eschew nature or nurture splits and reductionism, and on conceptions that seek to fuse

systemically the levels of organization involved in the ecology of human development (from biology and physiology through culture and history; e.g., see Baltes, Lindenberger, & Staudinger, 2006; Elder & Shanahan, 2006; Gottlieb, et al., 2006; Thelen & Smith, 2006). As well, there has been a growing emphasis on relations among levels, and not on the “main effects” of any level itself, as constituting the fundamental units of analysis of developmental analysis (e.g., see Bronfenbrenner & Morris, 2006; Brandtstädter, 2006; Fischer & Bidell, 2006; Magnusson & Stattin, 2006; Rathunde & Csikszentmihalyi, 2006). It was within this conceptual context that interest in developmental systems models not only grew but, in fact, rapidly flourished.

This growth is illustrated by the range of chapters in the most recent (sixth) edition of the *Handbook of Child Psychology* (Damon & Lerner, 2006) that are instances of or, at the least, are framed by developmental systems ideas about the relational processes linking the multiple, integrated levels of organization within the ecology of human development. Within the *Handbook* there exists a diverse theoretical family of such models that are used to conceptualize both “traditional” areas of interest within the study of human development, for example, biological development (Gottlieb, et al., 2006); perceptual and motor development (Thelen & Smith, 2006); personality, affective, and social development (Brandtstädter, 2006; Bronfenbrenner & Morris, 2006; Elder & Shanahan, 2006; Magnusson & Stattin, 2006; Rathunde & Csikszentmihalyi, 2006); culture and development (Shweder, et al., 2006); cognitive development Baltes, et al., 2006; Fischer & Bidell, 2006), and “emergent” areas of intellectual interest, for example, spiritual and religious development (Oser, Scarlett, & Bucher, 2006), the development of

diverse children (Spencer, 2006), and positive youth development (Benson, Scales, Hamilton, & Sesma, 2006).

Across these diverse instantiations of developmental systems theories, there remain several commonalities of such models. Taken together, these commonalities operationalize the fundamental features of developmental systems theories.

Theoretical Foundations of the PYD Perspective:

Defining features of developmental systems theories

The focus within the contemporary study of human development is on concepts and models associated with developmental systems theories (Cairns, 2006; Gottlieb, Wahlsten, & Lickliter, 2006; Lerner, 2002, 2006; Overton, 2006). The roots of these theories may be linked to ideas in developmental science that were presented at least as early as the 1930s and 1940s (e.g., Maier & Schneirla, 1935; Novikoff, 1945a, 1945b; von Bertalanffy, 1933), if not even significantly earlier, for example, in the concepts used by late 19th century and early 20th century founders of the study of child development (see Cairns, 2006). There are several defining features of developmental systems theories. These include:

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

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

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

4. Integrated actions, individual \leftrightarrow context relations, are the basic unit of analysis within human development. The character of developmental regulation means that the integration of actions – of the individual on the context and of the multiple levels of the context on the individual (individual \leftrightarrow context) – constitute the fundamental unit of analysis in the study of the basic process of human development.

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

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

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

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

be achieved by aligning the strengths (operationized as the potentials for positive change) of individuals and contexts.

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

Representative Instances of Change-Sensitive Methodologies: Framing the research agenda of human development

What becomes, then, the key empirical question for developmental scientists interested in describing, explaining, and promoting positive human development? The key question is actually five (5) interrelated “what” questions:

1. What attributes?; of
2. What individuals?; in relation to
3. What contextual/ecological conditions?; at
4. What points in ontogenetic, family or generational, and cohort or historical, time?; may be integrated to promote
5. What instances of positive human development?

Answering these questions requires a non-reductionist approach to methodology. Neither biogenic, psychogenic, nor sociogenic approaches are adequate. Developmental science needs integrative and relational models, measures, and designs (Lerner, Dowling,

& Chaudhuri, 2005). Examples of the use of such methodology within developmental systems oriented research conducted about adolescent development include the scholarship of Eccles and her colleagues on stage $\leftarrow \rightarrow$ environment fit (e.g., Eccles, Wigfield, & Byrnes, 2003); of Damon and his colleagues on the community-based youth charter (Damon, 1997, 2004; Damon & Gregory, 2003); of Theokas (2005; Theokas & Lerner, in press) on the role of actual developmental assets associated with families, schools, and neighborhoods on positive youth development; and of Leventhal and Brooks-Gunn (2004), and Sampson, Raudenbush, and Earls (1997) on the role of neighborhood characteristics on adolescent development.

The methodology employed in individual $\leftarrow \rightarrow$ context integrative research must also include a triangulation among multiple and, ideally, both qualitative and quantitative approaches to understanding and synthesizing variables from the levels of organization within the developmental system. Such triangulation may usefully involve the “classic” approach offered by Campbell and Fiske (1959) regarding convergent and discriminant validation through multitrait-multimethod matrix methodology. Simply, triangulation across different observational systems is needed to establish convergent and divergent validation.

Of course, diversity-sensitive measures are needed within such approaches. That is, indices need to be designed to measure change and, at the same time, to possess equivalence across temporal levels of the system (age, generation, history), across differential groups (sex, race, religion), and across different contexts (family, community, urban-rural setting, or culture). Moreover, to reflect the basic, integrative nature of the developmental system, researchers should seek to use scores derived from relational

measures (e.g., person-environment fit) as their core units of analysis. Accordingly, trait measures developed with the goal of excluding variance associated with time and context are clearly not optimal choices in such research. In other words, in order to reflect the richness and strengths of our diverse humanity our repertoire of measures must be sensitive to the diversity of person variables, such as race, ethnicity, religion, sexual preferences, physical ability status, and developmental status, and to the diversity of contextual variables such as family type, neighborhood, community, culture, physical ecology, and historical moment.

Diversity- and change-sensitive measures must of course be used within the context of change-sensitive designs. Options here include longitudinal or panel designs (Cairns, 2006; Lerner, et al., 2005; Magnusson & Stattin, 2006) and the various sequential designs proposed by Schaie (1965; Schaie & Baltes, 1975). Moreover, it is particularly important that our change-sensitive designs and measures be sensitive as well to the different meanings of time. Divisions of the x-axis in both our designs -- and in the analyses of our data -- should be predicated on theoretical understanding or estimation of the nature of the changes prototypic of a given developmental process.

For example, are the changes continuous or abrupt? For instance, are there periods of “punctuated equilibria” (e.g., Gould, 1976, 1977) that are preceded or followed by rapid change in the slope of growth? Are changes linear or curvilinear? Moreover, since understanding of the developmental process is of paramount importance in such analyses, developmental scientists should consider inverting the x- and the y-axis, and make age the dependent variable in analyses of developmental process (Wohlwill, 1973). That is, if we believe that a process is linked systematically to age, we should be able to

specify points along the x-axis that reflect different points in the process and these points should then be associated with distinct ages.

Not unrelated here, of course, is the selection of participants in developmental research. Theory should decide what types of youth are studied at what points in ontogenetic time. In addition, researchers should decide whether it is important theoretically to use age as the selection criterion for participants or whether different statuses along a developmental process should be used as the basis for the selection of youth and for the partitioning of participant variance.

Insightful formulations about the different meanings of time within the dynamic developmental system have been provided by Elder (1998; Elder & Shanahan, 2006), Baltes (Baltes, et al., 2006), and Bronfenbrenner (2005; Bronfenbrenner & Morris, 2006). Our methods must appraise, then, age, family, and historical time and must be sensitive to the role of both normative and non-normative historical events in influencing developmental trajectories.

Choices of data analytic procedures should also be predicated on optimizing the ability to understand the form and course of changes involving multiple variables from two or more levels of organization. Accordingly, multivariate analyses of change, involving such procedures as structural equation modeling, hierarchical linear modeling, or growth curve analysis, should be undertaken. It is important to note here that, over the course of the last decade or so, there have been enormous advances in quantitative statistical approaches, arguably especially in regard to the longitudinal methods required to appraise the changing relations within the developmental system between the individual and the context (e.g., see Duncan, Magnuson, & Ludwig, 2004; Laub &

Sampson, 2004; McArdle & Nesselroade, 2003; Molenaar, 2004; Nesselroade & Ram, 2004; Phelps, Furstenberg, & Colby, 2002; Raudenbush & Bryk, 2002; Singer & Willett, 2003; Skrondal & Rabe-Hesketh, 2004; von Eye, 1990; von Eye & Bergman, 2003; von Eye & Gutierrez Pena, 2004; Willett, 2004; Young, Savola, & Phelps, 1991). Moreover, there has been an increased appreciation of the importance of qualitative methods, both as valuable tools for the analysis of the life course and as a means to triangulate quantitative appraisals of human development; as such, there has been a growth in the use of traditional qualitative methods, along with the invention of new qualitative techniques (e.g., Giele & Elder, 1998; Mishler, 2004).

In addition, to enhance the ecological validity of developmental scholarship and, as well, to increase the likelihood that the knowledge gained from research will be used in communities and families to improve the lives of young people, our research methods should be informed by not only colleagues from the multiple disciplines with expertise in the scholarly study of human development. Our methods should be informed as well by the individuals and communities we study (Lerner, 2002, 2004a, 2004b, 2004c; Villarruel, Perkins, Borden, & Keith, 2003). They too are experts about development, a point our colleagues in cultural anthropology, sociology, and community youth development research and practice have been making for several years.

Most certainly, participants in our community-based research and applications are experts in regard to the character of development within their families and neighborhoods. Accordingly, research that fails to capitalize on the wisdom of its participants runs the real danger of lacking authenticity, and of erecting unnecessary

obstacles to the translation of the scholarship of knowledge generation into the scholarship of knowledge application (Jensen, Hoagwood, & Trickett, 1999).

In sum, the possibility of adaptive developmental relations between individuals and their contexts and the potential plasticity of human development that is a defining feature of ontogenetic change within the dynamic, developmental system (Baltes, et al., 2006; Gottlieb, et al., 2006; Thelen & Smith, 2006) stand as distinctive features of the developmental systems approach to human development and, as well, provide a rationale for making a set of methodological choices that differ in design, measurement, sampling, and data analytic techniques from selections made by researchers using split or reductionist approaches to developmental science. Moreover, the emphasis on how the individual acts on the context to contribute to the plastic relations with the context that regulate adaptive development (Brandtstädter, 2006) fosters an interest in person-centered (as compared to variable-centered) approaches to the study of human development (Magnusson & Stattin, 2006; Overton, 2006; Rathunde & Csikszentmihalyi, 2006).

Furthermore, given that the array of individual and contextual variables involved in these relations constitute a virtually open set (e.g., there are over 70 trillion potential human genotypes and each of them may be coupled across life with an even larger number of life course trajectories of social experiences; Hirsch, 2004), the diversity of development becomes a prime, substantive focus for developmental science (Lerner, 2004a; Spencer, 2006). The diverse person, conceptualized from a strength-based perspective (in that the potential plasticity of ontogenetic change constitutes a fundamental strength of all humans; Spencer, 2006), and approached with the expectation

that positive changes can be promoted across all instances of this diversity as a consequence of health- supportive alignments between people and settings (Benson, et al., 2006), becomes the necessary subject of developmental science inquiry.

It is in the linkage between the ideas of plasticity and diversity that a basis exists for the extension of developmental systems thinking to the field of adolescence and for the field of adolescence to serve as a “testing ground” for ideas associated with developmental systems theory. This synergy has had at least one key outcome, i.e., the forging of a new, strength-based vision of and vocabulary for the nature of adolescent development. In short, the plasticity-diversity linkage within developmental systems theory and method provided the basis for the formulation of the PYD perspective.

Features of the PYD perspective

Beginning in the early 1990s, and burgeoning in the first half decade of the twenty-first century, a new vision and vocabulary for discussing young people has emerged. These innovations were framed by the developmental systems theories that were engaging the interest of developmental scientists. The focus on plasticity within such theories led in turn to an interest in assessing the potential for change at diverse points across ontogeny, ones spanning from infancy through the 10th and 11th decades of life (Baltes, et al., 2006). Moreover, these innovations were propelled by the increasingly more collaborative contributions of researchers focused on the second decade of life (e.g., Benson, et al., 2006; Damon, 2004; Lerner, 2004), practitioners in the field of youth development (e.g., Floyd & McKenna, 2003; Little, 1993; Pittman, Irby, & Ferber, 2001; Wheeler, 2003), and policy makers concerned with improving the life chances of diverse youth and their families (e.g., Cummings, 2003; Gore, 2003). These interests converged

in the formulation of a set of ideas that enabled youth to be viewed as resources to be developed, and not as problems to be managed (Roth & Brooks-Gunn, 2003a, 2003b). These ideas may be discussed in regard to two key hypotheses. Each hypothesis is associated with two subsidiary hypotheses.

Hypothesis 1. Youth-Context Alignment promotes PYD

Based on the idea that the potential for systematic intraindividual change across life (i.e., for plasticity) represents a fundamental strength of human development, the hypothesis was generated that, if the strengths of youth are aligned with resources for healthy growth present in the key contexts of adolescent development – the home, the school, and the community -- then enhancements in positive functioning at any one point in time (i.e., well-being; Bornstein, Davidson, Keyes, Moore, & the Center for Child Well-Being, 2003) may occur; in turn, the systematic promotion of positive development will occur across time (i.e., thriving; e.g., Dowling, et al., 2004; Lerner, 2004; Lerner, et al., 2005) can be achieved.

Hypothesis 1 A. Contextual Alignment involves Marshaling Development Assets

A key subsidiary hypothesis to the notion that aligning individual strengths and contextual resources for healthy development is that there exist, across the key settings of youth development (i.e., families, schools, and communities), at least some supports for the promotion of PYD. Termed “developmental assets” (Benson, et al., 2006), these resources constitute the social and ecological “nutrients” for the growth of healthy youth (Benson, 2003). There exists some controversy in the literature about the number of developmental assets that may exist in different social ecologies. For instance, are there 40 developmental assets (half having their locus within the individual and the other half

having their locus in the social ecology) as initially suggested by Search Institute (e.g., Benson, et al., 1998), or are there only 14 developmental assets (half associated with the individual and half associated with the social ecology), as recently reported by colleagues from the Institute for Applied Research in Youth Development and Search Institute (Theokas, et al., 2005). There exist questions as well about whether developmental assets should be measured via youth reports, or perceptions, as is done in the survey research of Search Institute (e.g., Benson, et al., 1998; Leffert, et al., 1998; Scales, et al., 2000) and/or through objective assessment of the actual ecology of youth development, as is done in the work of the Institute for Applied Research in Youth Development (Theokas & Lerner, in press).

Moreover, a question exists about whether, from both theoretical and measurement standpoints, individual developmental assets can be differentiated from constructs related to indicators of PYD (which I discuss below, in Hypothesis 2, as the “Five Cs” of PYD; Eccles & Gootman, 2002; Lerner, 2004); and, if such differentiation is not feasible conceptually or empirically, then through what processes does the youth contribute to the developmental regulations driving developmental changes (Lerner, et al., 2005; Jellicic, et al., 2006; Phelps, et al., 2006)? As I discuss below as well, one path taken in research is to explore the use of processes of intentional self-regulations, for instance the goal directed processes of selection, optimization, and compensation studied by M. Baltes and P. B. Baltes and colleagues (e.g., M. Baltes & P. B. Baltes, 1990; Baltes, et al., 2006; Freund, Li, & Baltes, 1999), as a means of individual contribution to the developmental regulatory process linking an individual with ecological assets (Gestsdottir & Lerner, 2005).

Finally, there remains a question about whether the mere accumulation of assets, whatever their source (family, school, or community) is the best predictor of PYD or, in turn, whether there exist particular assets that are of specific salience for youth living in specific communities. While there is a good deal of evidence for the idea that “more is better” (e.g., Benson, et al., 2006), this notion has been tested primarily through assessing only youth perceptions of developmental assets. However, there is both some theory, pertinent to the development of African American youth living in urban areas (e.g., Spencer, 2006; Taylor, 2003; Taylor, et al., 2003), and some data (Theokas & Lerner, in press) involving the objective assessment of assets, indicating that there are in fact specific developmental assets in specific settings that are most important as predictors of PYD.

Hypothesis 1 B. Community-Based Programs are a Vital Source of Developmental Assets

Despite this controversy about the nature, measurement, and impact of developmental assets, there is broad agreement among researchers and practitioners in the youth development field that the concept of developmental assets is important for understanding what needs to be marshaled in homes, classrooms, and community-based programs to foster PYD. In fact, a key impetus for the interest in the PYD perspective among both researchers and youth program practitioners and, thus a basis for the collaborations that exist among members of these two communities, is the interest that exists in ascertaining the nature of the resources for positive development that are present in youth programs, e.g., in the literally hundreds of thousands of the after-school programs delivered either by large, national organizations, such as 4-H, Boys and Girls

Clubs, Scouting, Big Brothers/Big Sisters, YMCA, or Girls, Inc., or by local organizations. The focus on youth programs is important not only for practitioners in the field of youth development, however. In addition, the interest on exploring youth development programs as a source of developmental assets for youth derives from theoretical interest in the role of the macrolevel systems effects of the ecology of human development on the course of healthy change in adolescence (Bronfenbrenner & Morris, 2006); interest derives as well from policy makers and advocates, who believe that at this point in the history of the United States community-level efforts are needed to promote positive development among youth (e.g., Cummings, 2003; Gore, 2003; Pittman, et al., 2001).

There are data suggesting that, in fact, developmental assets associated with youth programs, especially those that focus on youth development (i.e., programs that adopt the ideas associated with the PYD perspective; Roth & Brooks-Gunn, 2003a, 2003b), are linked to PYD. For instance, Scales et al. (2000) found that youth reports of three or more hours a week of participation in sports, clubs, or organizations at school or in the community was the single developmental asset (of the 40 assets they surveyed) that was most linked to thriving outcomes among the adolescents in the Search Institute sample. Lerner (2004) hypothesized that this relationship emerges due to what he calls the “Big Three” features of optimal youth development programs, i.e., positive and sustained (for at least one year; Rhodes, 2002) adult-youth relationships; skill building activities; and opportunities to use these skills by participating in, and leading, community-based activities. Although reviews by Blum (2003), Eccles and Gootman (2002), Larson, Walker, & Pearce (2005), and Roth and Brooks-Gunn (2003a, 2003b) differ in the

number of attributes they propose as important for the conduct of youth programs effective in promoting PYD, all of these scholars endorse the importance of the three attributes of after-school activities noted by Lerner (2004) as crucial for promoting exemplary positive development. In addition, Roth and Brooks-Gunn (2003b), in making the above-noted differentiation between youth programs and youth development programs, report that findings of evaluation research indicate that the latter programs are more likely than the former ones to be associated with the presence of key indicators of PYD.

This finding raises the question of what are in fact the indicators of PYD. Addressing this question involves the second key hypothesis of the PYD perspective.

Hypothesis 2. PYD is Comprised of Five Cs

Based on both the experiences of practitioners and on reviews of the adolescent development literature (Eccles & Gootman, 2002; Lerner, 2004; Roth & Brooks-Gunn, 2003b), “Five Cs” -- Competence, Confidence, Connection, Character, and Caring -- were hypothesized as a way of conceptualizing PYD (and of integrating all the separate indicators of it, such as academic achievement or self esteem). These five Cs were linked to the positive outcomes of youth development programs reported by Roth and Brooks-Gunn (2003a). In addition, these “Cs” are prominent terms used by practitioners, adolescents involved in youth development programs, and the parents of these adolescents in describing the characteristics of a “thriving youth” (King, et al., 2005).

Hypothesis 2 A. Contribution is the “6th C”

A hypothesis subsidiary to the postulation of the “Five Cs” as a means to operationalize PYD is that, when a young person manifests the Cs across time (when the

youth is thriving), he or she will be on a life trajectory towards an “idealized adulthood” (Csikszentmihalyi & Rathunde, 1998; Rathunde & Csikszentmihalyi, 2006).

Theoretically, an ideal adult life is marked by integrated and mutually reinforcing contributions to self (e.g., maintaining one’s health and one’s ability therefore to remain an active agent in one’s own development) and to family, community, and the institutions of civil society (Lerner, 2004). An adult engaging in such integrated contributions is a person manifesting adaptive developmental regulations (Brandtstädter, 1998, 1999, 2006).

Hypothesis 2 B. PYD and Risk/Problem Behaviors are Inversely Related

A second subsidiary hypothesis to the one postulating the Five Cs is that there should be an inverse relation within and across development between indicators of PYD and behaviors indicative of risk behaviors or internalizing and externalizing problems. Here, the idea – forwarded in particular by Pittman and her colleagues (e.g., Pittman, et al., 2001) in regard to applications of developmental science to policies and programs -- is that the best means to prevent problems associated with adolescent behavior and development (e.g., depression, aggression, drug use and abuse, or unsafe sexual behavior) is to promote positive development.

In sum, replacing the deficit view of adolescence, the PYD perspective sees all adolescents as having strengths (by virtue at least of their potential for change). The perspective suggests that increases in well-being and thriving are possible for all youth through aligning the strengths of young people with the developmental assets present in their social and physical ecology. An initial model of the development process linking mutually influential, person \leftrightarrow context relations, the development of the Five Cs (i.e.,

well-being, within time, and thriving across time), and the attainment in adulthood of an “idealized” status involving integrated contributions to self, family, community, and civil society was presented in Lerner (2004) and Lerner, et al. (2005). The model is included here as Figure 1.

 Insert Figure 1 about here

Although still at a preliminary stage of progress, there is growing empirical evidence that the general concepts and main and subsidiary hypotheses of the PYD perspective find empirical support. Using research within the Institute for Applied Research in Youth Development – the 4-H Study of Positive Youth Development -- as a focus of discussion, I will review this evidence.

Empirical status of the PYD perspective

The 4-H Study of Positive Youth Development

The 4-H Study of Positive Youth Development is a longitudinal investigation supported by a grant from the National 4-H Council. The study began in 2002-2003 by studying a national cohort of about 1,700 fifth grade youth (from 13 states across all regions of the United States) and their parents. Now in its fourth wave (2005-2006), and involving about 3,500 youth from more than 25 states and about 1,500 of their parents, the 4-H study was designed to test the theoretical model shown in Figure 1, that is, a model about the role of developmental assets and individual actions in the promotion of PYD, as conceptualized by the “Five Cs” of PYD (competence, confidence, connection, character, and caring) and of the “sixth C” of contribution, and in the diminution of

problem and risk behaviors (full details of the methodology of the 4-H Study have been presented in Lerner, et al., 2005; Theokas & Lerner, in press; see too Jellicic, et al., 2006).

The increase in sample size that exists across the waves of the study occurs because the 4-H Study uses a form of longitudinal sequential design (Baltes, Reese, & Nesselroade, 1977). Fifth graders, gathered during the 2002-2003 school year (Wave 1 of the study), were the initial cohort within this design and this cohort was the only one studied in Wave 1. However, to maintain at least initial levels of power for within-time analyses and to assess the effects of retesting, all subsequent waves of the study involve the addition of a “retest control” cohort of youth of the current grade level of the initial cohort; this new cohort is then followed longitudinally. Accordingly, in Wave 2 of the study (sixth grade for the initial cohort) a retest control group of sixth graders who were new to the study were gathered; these youth became members of a second longitudinal cohort. Similarly each subsequent wave of the study introduces a new cohort which is then followed longitudinally throughout the rest of the study.

Accordingly, analyses of the 4-H Study data set may be derived from several subsamples of youth. For instance, when analyzing data from the first two waves of the 4-H Study, analyses may involve at least three different subsets of the overall set of study participants. First, data from the participants studied longitudinally at the first two waves of testing may be used; second, all fifth grade participants studied at Wave 1 (i.e., the initial cohort involved in the study) may be used in analyses aimed at examining initial patterns of covariation; and third, all sixth grade participants (the participants from the initial cohort that remained in the longitudinal sample for Wave 2 and the new cohort of

sixth graders, introduced into the study as members of the Wave 2 retest control group) may be used in analyses aimed at examining patterns of covariation within this grade.

Framed by an instance of developmental systems theory, developmental contextualism (Lerner, 2002, 2004), the 4-H Study intends to follow youth across the second decade of life. The data set is and will be used to bring empirical evidence to bear on the two main hypotheses of the PYD perspective and, as well, on the subsidiary hypotheses associated with each of the two main hypotheses. Given that prior to the 4-H Study, there were no data indicating the reality of the Five Cs, and thus no measure that could be used to test the purported positive outcomes of the individual-context alignments of concern in the first hypothesis associated with the PYD perspective, we began the 4-H Study by seeking to test ideas derived from the second hypothesis.

Is PYD composed of the Five Cs?

Using the fifth grade data from the first wave of assessment within the 4-H Study, Lerner, et al. (2005) provided initial evidence for the Five Cs – using the definitions of these constructs presented in Table 1 – and for PYD construct. Lerner, et al. (2005) reported that the results of an initial structural equation modeling (SEM) analysis used to test the “Five Cs” model proved to be adequate. In addition, however, fit was substantially improved in a model that derived from, first, a content analysis procedure regarding the specific substantive character of the items involved in the several measures used to assess the Cs and, second, from the subsequent modifications made to the model.

Insert Table 1 about here

Although an ideal model assumes no correlation among manifest variables, Lerner, et al. (2005) did not expect this to be the case, as the measures of manifest constructs were anticipated to overlap somewhat conceptually (e.g., self-worth and positive identity should be related). As expected, Lerner, et al. found that allowing the residuals of scales within the same latent variable to correlate resulted in a better fit of the model to the data.

In short, Lerner, et al. (2005) found evidence that the Five Cs exist as latent constructs accounting for variance in several desirable “surface traits” (e.g., in regard to “Competence,” measures of academic, social, and vocational abilities), and of their convergence on a second-order construct of PYD. Moreover, consistent with the predictions associated with Hypotheses 2 A and 2 B, discussed earlier, additional evidence was presented that PYD correlated positively with the purported “Sixth C” of youth contribution (Lerner, 2004) and negatively with indices of risk and problem behaviors (Lerner, et al., 2005).

Jelicic, et al. (2006), using data from the first two waves of the 4-H Study (i.e., fifth and sixth grades), extended the findings of Lerner, et al. (2005). Jelicic, et al. reported that Grade 5 PYD covaried positively with Grade 6 scores for youth contribution and negatively with scores for risk and problem behaviors.

However, Lerner, et al. (2005) noted that even the evidence found for the revised model of the Five Cs was not perfect, that of course the model could be improved. For instance, in the revised model there was shared variance between the first order factors of Confidence/Competence and Character/Caring that were not accounted for by the model, and this finding suggested the presence of an additional structure. Such additional

structure could arise because some of the Cs may represent the same latent construct, resulting in fewer than five Cs. In addition, there may be an additional level of latent constructs present in the model, for instance, between the first order factors and the second order factor. Moreover, some of the latent constructs of the revised model were underspecified. For example, the construct of caring did not seem to be conceptually complete, and this level of measurement may have accounted for the finding that there were lower correlations between caring and the other Cs -- as compared to the correlations among the other Cs (Lerner, et al., 2005).

Accordingly, Phelps, et al. (2006) revised the item set used to index caring with the second (sixth grade) wave of data collection, a procedure undertaken not only to enhance the potential psychometric quality of the measurement of this construct but, as well, as a consequence of the developmental approach to measurement framing the overall study. That is, just as interest across the life-span in the construct of intelligence requires the use of measurement models that are, at the same time, developmentally appropriate for the age level being studied and as well possessing the attribute of measurement equivalence, the approach to measurement used within the 4-H Study is to assess within each wave PYD and its subordinate latent constructs with measures that are appropriate for the developmental level of the participants and equivalent across the entire developmental period of interest.

Given the developmentally evolving measurement model used in the 4-H Study, the substantive interest in ascertaining whether PYD may be operationalized by the Five Cs in sixth grade, and as a consequence of this interest a concern with whether constancy and/or change between fifth and sixth grade characterizes this operationalization, Phelps,

et al. (2006) used SEM procedures (LISREL 8.54; Jöreskog & Sörbom, 1996) to assess whether the Five C model of PYD fit the sixth grade data. Given that the longitudinal design of the 4-H Study is cohort sequential (Baltes, Reese, & Nesselroade, 1977), several cross-validation options were available for use as part of this assessment. In addition to the initial (2002-2003) cohort of fifth graders designed to be followed throughout the study, the “retest control” group added at Wave 2 (2003-2004) meant that both sixth graders who were tested in Wave 1, as fifth graders, and a new group of previously untested sixth graders could be assessed. Moreover, the youth who did not participate in Wave 2 formed an attrition (drop-out) control group.

Accordingly, for the first two waves of the 4-H Study (i.e., fifth and sixth grades), Phelps, et al. (2006) were able to test the Five Cs model of PYD (a) among the Grade 5-Grade 6 panel, at both grade levels; (b) the cross sectional groups present at both Grade 5 and at Grade 6; (c) the sixth grade retest control group; and (d) the Grade 5 drop-out control group. Moreover, for each test of the PYD model Phelps, et al. (2006) were able to appraise the evidence for convergent and divergent validity by assessing unitemporal and, in the case of the Grade 5-Grade 6 panel, longitudinal patterns of covariation with indices of the contribution and of problem and risk behaviors, respectively.

In sum, by assessing longitudinal and unitemporal patterns of covariation present within the Wave 1 and Wave 2 (fifth and sixth grade) data sets of the 4-H Study, Phelps, et al. (2006): 1. Found evidence that the Five Cs model of PYD identified by Lerner, et al. (2005) among fifth graders is present as well among sixth graders; 2. Found constancy for the Five Cs model of PYD across the fifth to sixth grade span among the longitudinal panel, the two cross-sectional groups, the retest control group, and the drop-

out control group; and 3. Once again found that, consistent with theoretical expectations (Hypotheses 2 A and 2 B), PYD covaried positively with scores for youth contribution and negatively with scores for risk and problem behaviors. Given the support found for both the second PYD hypothesis and for its two subsidiary hypotheses, the researchers involved in the 4-H Study turned to work designed to provide initial tests of the first PYD hypothesis.

Does youth-context alignment promote PYD?

To begin to bring empirical data to bear on this hypothesis, two preliminary but vital steps needed to be undertaken. First, because of the problems associated with relying only on youth perceptions as the basis for obtaining scores for developmental assets (Theokas, 2005), a means to measure assets independent of youth reports needed to be developed and tested.

Second, it was unclear how the internal assets assessed by Search Institute (e.g., Benson, et al., 1998; Scales, et al., 2000; Theokas, et al., 2005) could be convincingly argued to be conceptually and psychometrically independent of the Cs of PYD (Gestsdottir, 2005; Gestsdottir & Lerner, 2005). For instance, in their 40 developmental asset model, there are four categories of internal assets studied by Search Institute, i.e., commitment to learning, social competencies, positive values, and positive identity. It was not clear to us how these four categories (and the items nested within them) were different from the definitions for, or items used to index, features of the Cs of competence, character, and confidence. Accordingly, if, as done in both Lerner, et al. (2005) and Phelps, et al. (2006), the items in our assessment tool associated with the Search Institute internal developmental assets were used to index facets of the Five Cs,

then we would need another way to conceive of what the individual adolescent contributed to the person \leftrightarrow context relation that, over time, is expected to result in a developmental trajectory marked by thriving and contribution.

In short, then, before we could assess the impact of developing person \leftrightarrow context relations of PYD, we needed to rethink and re-measure the left side of the model present in Figure 1. We needed to revise our approach to assessing both ecological developmental assets and individual's contributions to person \leftrightarrow context relations. At this writing, we are completing the first set of studies involved in the revision of the model. We discuss first the work being conducted on measuring, independent of youth perceptions, the ecological developmental assets for PYD.

Assessing the role of ecological characteristics for PYD: Ecological resources in homes, school, and communities. Ecological assets should index the presence, quantity, and accessibility of human, material, and social resources in the environment of adolescents (Theokas & Lerner, in press). Such assets should reflect the characteristics of individuals and the physical features of contextual settings and serve as indicators of the quality of developmental settings.

Of course, these assets do not specify youths' actual history of experiences in these settings, or the process of youth \leftrightarrow context interaction that drives development. However, it is assumed that when these features form the backdrop of youths' experiences, positive developmental outcomes are more likely to be facilitated.

That is, structural and normative features of settings necessarily precede youth experiences in a setting. Without the availability of opportunities, no attempts can be made by youth to develop new skills or build meaningful and supportive relationships

with caring adults. For example, without athletic fields or access to computers and books, youth cannot learn to play a sport, to use the Internet, or to read and learn about things of interest. The presence of resources are “affordances” (Gibson, 1962); they do not mandate experience, but they may serve to make youth aware of opportunities and to encourage or at least allow experiences to happen.

Theokas (2005; Theokas & Lerner, in press) sought to measure four domains of observed ecological assets – human, physical/institutional, collective activity, and accessibility, arguing that these four domains of assets organized the actual resources and opportunities in the environments of youth. Each asset dimension was intended to be able to be indexed within each major social setting of the ecology for youth: neighborhoods, schools, and families.

The first key dimension of actual or observed measures of ecological assets involves the individuals in the environment. Human resources are defined as the strengths, skills, talents, and abilities of people as instantiated by the roles they have (Coleman, 1988; Kretzmann & McKnight, 1993). For example, individuals can model conventional behaviors, standards, and expectations (e.g., high school graduation, civic engagement) or can reflect maladaptive, unengaged citizenship (e.g., involvement with drug dealing). Across the contexts of family, school, and community, human assets were represented by individuals who were engaged in developmentally appropriate activities (e.g., attending school regularly, being employed, mentoring, volunteering), were meeting societal standards of behavior, and represented and acted as role models and mentors for youth, for instance, in community-based, after-school programs (Theokas & Lerner, in press).

The second dimension of actual ecological assets is the physical and institutional resources present in the social environment. These assets index opportunities for learning, recreation, and engagement with individuals and the physical world around oneself and, as well, for providing routines and structure for youth. For example, when families have medical and dental insurance, children and youth are regularly seen by physicians who monitor their physical health and well-being. These experiences become routine for children and youth and part of how they think about themselves and of how they view the procedures needed to address their (in this case physical) needs. Thus, the presence of these resources regulates experiences and opportunities for youth. One assumption is that proximity to resources (or presence of resources within the family) increases awareness, opportunity, and the likelihood of involvement. For example, at the neighborhood level, the presence of libraries, community centers, after-school programs, and/or cultural experiences that are within walking distance, are drop-off points on school bus routes, or are easily accessible with public transportation may increase their use and thus their potential benefits (Theokas & Lerner, in press).

The third dimension of assets is collective activity. This asset dimension indexes mutual engagement between community members, parents, youth, school personnel, and institutions of society. These organizations, youth-serving programs, groups, or mutual activities represent the combined efforts and actions of different sets of individuals. In some cases, these coalitions symbolize group efforts for advocacy (e.g., a Parent Advisory Committee) or civic leadership (e.g., a neighborhood watch); in others they denote shared activity (e.g., a parent leads a 4-H club). Similar to the identification of physical resources for opportunity, documenting these relationships provides an

understanding of the social ties and connections among community members (Theokas & Lerner, in press). The primary bases for this component of the model derives from Coleman's (1988) notion of social capital and Sampson's (2001) ideas regarding collective efficacy. Documenting ties and networks in the community is one way of establishing objectively measurable instances of a community's associational life and the climate of the key contexts of development.

The final dimension is accessibility. This domain is unique to this model as an index of assets in the contexts of development for youth. Similar to the dimension of collective activity, this dimension attempts to capture the dynamic relation between individuals and contexts. As such, this category indexes the ability of residents to partake of human resources and resource opportunities in the context. Accessibility can be conceptualized and operationalized in multiple ways. First, accessibility can refer to the transportation capacity and hours of operation of local businesses, youth-serving, after-school programs, infrastructure, or cultural institutions in a local community. This is the first level and documents physical ease of access. Second, accessibility can refer to the potential of youth to interact with the adults in the setting. For example, what is the ratio of adults to children in a given neighborhood or in an after-school program, or how long has a family lived in a neighborhood, so that local youth and adults can get to know one another. In this case accessibility is ease of access of the human resources. Finally, accessibility can be conceived of in terms of safety of the physical environment. It is perhaps the case that businesses, after-school programs, and adults in the community are accessible to youth (Theokas & Lerner, in press). However, the physical environment must also be safe and free of dangers (e.g., crime) and promote the care and maintenance

of the ecology (e.g., provision of rules in a family or community policing) to make attempts to access these resources prudent (Lauver & Little, 2005; Taylor, 2003; Weiss, Little, & Bouffard, 2005).

Theokas and Lerner (in press) used Wave 1 (fifth grade) data to assess the relations between these four domains of actual developmental assets and indices of PYD and risk/problem behaviors. Four communities within the larger 4-H Study data set were studied, i.e., Worcester, Massachusetts, Puma, Arizona (which includes Tucson), Missoula, Montana, and Dade County, Florida (which includes Miami). Gender and race/ethnicity were controlled for in all analyses. The individual demographic control variables accounted for 3% to 8% of the variance in the regression analyses. Gender was significantly related to PYD, Contribution, and Risk Behaviors. Girls reported higher PYD and Contribution and lower risk behaviors. Race/ethnicity was only a significant predictor for Risk Behaviors, with African American youth reporting higher scores.

Adding the ecological asset composites improved each regression model and accounted for an additional 5% to 18% of the variance. The ecological asset composites had the largest impact on the overall PYD score (18%) and on an index of internalizing problems, i.e., a score for depression score (14%). Collective Activity in the Family was the only ecological asset composite that predicted decreased risk behaviors. The demographic control variables were more predictive of risk behaviors. No neighborhood asset variables predicted contribution. Family assets accounted for larger portions of the variance for all outcomes with the exception of Contribution, for which school assets accounted for more variance.

Finally, consistent with the notion that there are specific assets that are most important in particular contexts, Theokas and Lerner (in press) found that within each context a different variable had the greatest effect on developmental outcomes. However, in all cases, the key variable related to assets provided by people. Thus, in the family context collective activity (e.g., eating dinner together) was the chief predictor of PYD, in the school accessibility (e.g., small school size and low teacher: student ratios) was most important, and in the community (and reflective of one of the key elements of the “Big 3;” Lerner, 2004) the presence of a mentor was the most important developmental asset.

Assessing the role of after-school programs in the promotion of PYD.

Although the developmental assets within the family were found to be the best predictors of PYD within the subsample of the 4-H Study assessed by Theokas and Lerner (in press), evidence was also found for the association between community-based programs and PYD. Accordingly, Theokas, et al. (in press) and Balsano, et al. (2006) sought to ascertain the impact on PYD and risk/problem behaviors of youth activity participation within the first two waves of the study (fifth and sixth grades).

Using information presented by Eccles and Gootman (2002) about the diversity of community-based activities available in the lives of youth, a list of 18 structured after-school activities and programs engaged in by the participants were categorized into four groupings: 1. Youth development (YD) programs (e.g., 4-H, YMCA/YWCA, Boys & Girls Clubs, Scouts, Big Brothers/Big Sisters); 2. Sports; 3. Arts (e.g., music, drama, dance); and 4. Other after-school clubs. Table 2 displays the frequency of participation in each type of program in Grades 5 and 6, respectively, of the 4-H Study (that is, in Waves 1 and 2 of the study).

Insert Table 2 about here

Youth also participate in unstructured activities including playing with friends and homework completion and, as well, have after-school jobs; however, the focus here was on structured activities that may provide opportunities for learning and engagement with adult mentors and with opportunities for using skills to participate in or to lead valued community activities. Compared with unstructured after-school activities, structured activities are associated more often with indicators of positive development (e.g., Fredricks & Eccles, in press-a, in press-b; Hirsch, 2005; Hirsch, Deutsch, Pagano, & DuBois, 2005; Mahoney & Stattin, 2000; Posner & Vandell, 1994).

The initial findings have been striking regarding the breadth and changing profile of youth activity participation in early adolescence. For example, as shown in Table 3 only about 11% of the fifth grade and 9% of the sixth grade youth studied by Lerner and his colleagues did not participate in any after-school activity. Of the remaining youth, only about 19% of fifth graders and about 26% of sixth graders participated in a single type of program and, of these youth, only 2% of youth in either grade participated in a youth development program only. About 24% of fifth grade youth and about 36% of sixth grade youth participated in two or more types of programs.

Insert Table 3 about here

However, even more striking is the finding that when a fifth grader participates in a youth development program, the vast majority of the time (i.e., more than 98% of the time) they are also participating in one or more other types of programs. The corresponding percentage for sixth graders is 97%. Independent of the distribution of hours allocated to the various types of programs, a parameter that complicates the nature of the after-school ecology of youth even further, is that youth development programs share youth time with other types of after-school programs, and have to present their “message” of PYD within a cacophony of messages presented by other programs. These messages may or may not be congruent with the YD message or with the principles of programming (e.g., the “Big Three”) associated with such programs.

Further complicating this challenge are the longitudinal changes from fifth to sixth grade in youth after-school participation choices. As shown in Table 4, most youth change their profile of program participation across these two grades. For instance, about 94% of youth who, in fifth grade, were only in a YD program changed their profile in sixth grade. Indeed, about 70% of youth who, in fifth grade, participated in any combination of YD programs and other program types changed their participation profile in sixth grade. These changes may be expected to increase as youth transition across middle school and high school. Community-based organizations struggle to maintain enrollment during these critical years (Floyd & McKenna, 2003).

Insert Table 4 about here

Moreover, these instances of heterogeneity and change in program participation are complicated further by the presence of some gender differences in patterns of youth participation and in the links between participation and scores for PYD. For example, boys are more likely to participate in some sports and girls are more likely to participate in some instances of the arts. In addition, girls score higher in indicators of PYD than do boys, and PYD scores are significantly associated with breadth of participation for girls but not for boys (Balsano, et al., 2006).

However, Balsano, et al. (2006) report that, whereas for both sexes there are some significant associations between indicators of PYD and at least some instances of after-school activities, in contrast to findings among older adolescents (e.g., Fredricks & Eccles, in press-a, in press-b; Larson, Hansen, & Moneta, in press), for both sexes relatively few and all small relations existed between PYD and either breadth of activity participation or activity type. Moreover, no relations between boys' participation and PYD existed across Grades 5 and 6, although for both sexes there were some significant relations across grades between activities and scores for contribution (Balsano, et al., 2006). Nevertheless, the amounts of variance accounted for by any one activity or by any group of activities are small, even when the relations are significant.

In essence, then, YD programs not only have a competitive window for hitting the target (of reaching youth to promote PYD and to diminish risk/problem behaviors) but, as well, the target is a moving one! Moreover, the target is different and moves across time differently for girls than for boys.

Thus, at any one grade level the message of YD programs is shared with programs that may have a consonant or a dissonant message, and that whatever

programming strategy is used at this grade level to provide a program effective in promoting PYD and in diminishing risks/problems will have to be altered, given the changing after-school activity profile of youth.

After-school programs are embedded in unique social, cultural, and physical ecologies that impact individual motivation and engagement and provide different opportunities and resources for youth (Mahoney, Larson, & Eccles, 2005; Noam, 2004; Simpkins, Ripke, Huston, & Eccles, 2005). Indeed, it is the process of reciprocal relations between contextual opportunities/constraints and individual characteristics (individual \leftrightarrow context relations) that drives behavior and development. As such, we must recognize that the challenge for understanding the impact of after-school activity participation, generally, or YD programs, specifically, on PYD and risks/problems is far more complex than perhaps articulated among either practitioners, researchers, or program evaluators. Certainly, randomized control designs involving appraisals of the impact of a YD program experienced alone during the course of a grade level seem inadequate and, in fact, inappropriate for evaluating the ecologically prototypic reality of YD programs either within or across time (Huston, 2005; McCall & Green, 2003). As discussed by McCall and Green (2003; Green & McCall, 2005) and Lerner (2002; Lerner, Dowling, & Chaudhuri, 2005), our approach in this work is to “control by systematic variation” (instead of to “control by systematic equation”).

Accordingly, the task of the 4-H Study, to unravel the complex, mutually influential relations between individual strengths and the developmental assets of contexts, that are proposed as the key process through which PYD is enhanced and risk/problem behaviors are diminished, is made more difficult given the complex and

changing ecology of one key potential source of developmental assets for youth, after-school programs. In turn, the work involved in our longitudinal analyses of the individual's contributions to person \leftrightarrow context relational process is no less complicated, especially in light of our above-noted misgiving about using the Search Institute model of internal developmental assets as a means to represent person contributions. We turn, then, to the work we have launched to identify youth contributions to the developmental regulations involved in PYD.

Assessing intentional self-regulation as the basis of individual's contribution to developmental regulation. The relation between the way people act upon their context and the way the context acts upon people has been labeled earlier in this chapter as developmental regulation. The attributes and means through which the individual contributes to such regulation may be termed self-regulation. There are two components of self-regulation, organismic and intentional.

Intentional self-regulation is characterized by goal-directed behaviors which, while potentially not conscious, are more readily available to consciousness than processes and structures of organismic regulation, which are broad, consistent attributes of a person that involve biologically-based, physiological structures and functions that contribute to the relationship an individual has with the environment (cf. Eisenberg, et al., in press, who uses the terms effortful control and reactive control, respectively, to denote these two features of self-regulation). Organismic instances of self-regulation (e.g., involving hypothalamic control of body temperature, circadian rhythms, pubertal timing, and temperamental attributes such as threshold of responsiveness or quality of mood) are at best under limited control of the person, and do not involve intentional or effortful

effects of the person to regulate his or her exchanges with the context (Eisenberg, et al., in press). Organismic regulatory characteristics tend to show relative stability through the life span and contribute to consistencies in behavior across situations and over time (Hooker & McAdams, 2003; Susman & Rogol, 2004).

While organismic regulation continues to contribute to the relationship that a person has with his or her environment throughout the life span (Kagan, 1998), intentional self-regulation may be expected to undergo significant developmental change in adolescence. Few age periods are characterized by as dramatic developmental changes as the adolescent period, a period encompassing the second decade of life (Lerner & Steinberg, 2004). The individual-level changes that occur during adolescence and the changing world in which the adolescent is embedded means that the relationship between the young person and his or her context is changing as well, making it especially pertinent to study self-regulation in early adolescence (Lerner, 1982; Lerner, Theokas, & Jelicic, 2005).

Accordingly, we sought to examine processes of intentional self-regulation during adolescence and on the role of such regulation in successful (positive) adolescent development (Gestsdottir, 2005; Gestsdottir & Lerner, 2005). To pursue this end we used a measure of intentional self-regulation developed by the Baltes group in Germany (e.g., M. Baltes & P. B. Baltes, 1990; Baltes, 1997; Baltes, et al., 1998, in press; Baltes & Baltes, 1990; Freund & Baltes, 2002), the Selection, Optimization, and Compensation model, wherein individuals identify goals (selection), recruit the resources to attain goals (optimization), and modify behaviors in the face of the blocking or loss of goal-directed actions (compensation). Our expectation is that SOC processes should covary positively

with PYD and inversely with indicators of problem and risk behaviors (e.g., see Eisenberg, et al., in press).

Support for this expectation derives from extensive research pertinent to the tripartite SOC model (Baltes, 1997; Baltes, et al., 1998, in press; Baltes & Baltes, 1990; Freund & Baltes, 2002); this scholarship has both indicated the reliability and validity of the measure developed by Freund and Baltes (2002) to assess the three SOC processes. The measure has been found to be useful in understanding successful regulation in adult and aging populations. This utility has been manifested in regard to both general functioning and to domain-specific behaviors.

However, the SOC model has not been empirically tested, or the SOC measure used, with early adolescent samples, although it has been proposed as a promising approach to understanding intentional self-regulation in adolescence (Lerner, Freund, De Stefanis, & Habermas, 2001). Accordingly, our research (Gestsdottir & Lerner, 2005) was the first to explore the use of the SOC model and of a measure developed by Freund and Baltes (2002) to index the three SOC action components.

This exploration involved the assessment of whether, in early adolescence, the structure of regulatory processes is sufficiently differentiated, such that the three SOC processes may be empirically identified or whether, consistent with some theoretical views, intentional self-regulation is manifested as a global feature of individual functioning (e.g., Freund and Baltes, 2002). Accordingly, using data from the fifth and sixth grades, we assessed: 1. the structure of intentional self-regulation in early adolescence, as indexed by the SOC measure; the psychometric characteristics of the Freund and Baltes (2002) SOC measure. We appraised reliability, as indexed by

Cronbach alpha scores for internal consistency; and 3. concurrent validity (through findings associated with data from within the fifth and sixth grades, respectively) and predictive validity (assessed through longitudinal findings across the fifth to sixth grades), so that we could test theoretical expectations that better intentional self-regulation (i.e., higher SOC scores) covaries positively with indicators of PYD and negatively with indicators of problem or risk behaviors (Gestsdottir & Lerner, 2005).

The factor structure of the SOC measure was not well defined in a longitudinal sample of fifth and sixth graders, suggesting that the SOC strategies may still be developing during this developmental period. However, principal component analyses, reliability analyses, and an assessment of convergent, divergent, and predictive validity of the measure suggest that it is a valid measure of intentional self-regulation in early adolescence. As shown in Table 5, scores on SOC were related to indicators of positive and negative development in the predicted directions.

Insert Table 5 about here

In sum, while intentional self-regulation appears to be expressed as a global regulatory process in the early portion of adolescence, this facet of adolescent functioning is linked in expected ways to indicators of both PYD and risk/problem behaviors. Accordingly, we are encouraged that we have found a means to index the individual adolescent's contributions to the connections between him or her and the developmental assets in his or her social and physical ecology; these are the resources that we believe are associated with healthy and positive developmental trajectories across adolescence and

into a productive adulthood marked by contributions to self and context. Of course, the key next steps in our work involve representing this dynamic person \leftrightarrow context link in our data analyses, and in appraising what range of variation associated with this index of the developmental regulation process may nevertheless be associated with ontogenetic trajectories that, with equifinality, reflect thriving and result in “idealized” adult behavior.

In this work we will be guided by a revised conception of the developmental process presented in Figure 1. Our revised model, presented in Figure 2, differentiates in a more nuanced manner the developmental assets (Theokas & Lerner, in press) and the individual regulatory characteristics (Gestsdottir & Lerner, 2005) that we believe must be integrated across the second decade of life to foster healthy functioning and positive development in adolescence.

More generally, we believe that our findings to date provide at least initial support for all the key and subsidiary hypotheses associated with the PYD perspective. As such, we are encouraged that the new vision of young people represented by this perspective not only has empirical utility but, as well, holds the promise of revising and enhancing the applications of developmental science to policies and programs in manners that will improve the life chances of all young people.

Insert Figure 2 about here

CONCLUSIONS

The theoretically interesting and socially important changes of adolescence constitute one reason why this age period has attracted increasing scientific attention

(e.g., Lerner & Steinberg, 2004). To advance basic knowledge and the quality of the applications aimed at enhancing youth development, scholarship should be directed increasingly to elucidating the developmental course of diverse adolescents. In turn, policies and programs related to interventions must be specific to a group's developmental and environmental circumstances (Lerner & Galambos, 1998; Lerner & Steinberg, 2004). Because adolescents are so different from each other, one cannot expect any single policy or intervention to reach all of a given target population or to influence everyone in the same way.

Therefore, the stereotype that there is a single pathway through the adolescent years--for instance, one characterized by inevitable "storm and stress" (Hall, 1904)--cannot be expected to stand up in the face of current knowledge about diversity in adolescence. In future research and applications pertinent to adolescence, scholars and practitioners must extend their conception of this period to focus on changing relations between the individual characteristics of a youth and his or her complex and distinct ecology.

The future of civil society in the world rests on the promotion of positive development and a commitment to positive and socially just community contributions by the young (Lerner, 2004). Adolescents represent at any point in history the generational cohort that must next be prepared to assume the quality of leadership of self, family, community, and society that will maintain and improve human life. Scientists have a vital role to play to make in enhancing, through the generation of basic and applied knowledge, the probability that adolescents will become fully engaged citizens who are capable of, and committed to, making these contributions. As evidenced by the chapters

in the *Handbook of Adolescent Psychology* (Lerner & Steinberg, 2004), high-quality scientific work on adolescence is in fact being generated at levels of study ranging from the biological through the historical and sociocultural.

Contemporary developmental science – predicated on a relational metatheory and focused on the use of developmental systems theories to frame research on dynamic relations between diverse individuals and contexts – constitutes an approach that may integrate the scholarship pertinent to these diverse levels of organization and, by so doing, may facilitate understanding and promoting positive human development. As we believe has been demonstrated by reviewing the ongoing work of the 4-H Study of Positive Youth development, developmental systems approaches to developmental science offer a means to do good science, work informed by philosophically, conceptually, and methodologically useful information from the multiple disciplines having knowledge bases pertinent to the integrated, individual \leftrightarrow context relations comprising the ecology of human development. Such science is admittedly more difficult to enact than the ill-framed and methodological flawed research that was employed pursuing the split and reduction paths taken often within the field during prior historical eras (Cairns, 2006; Overton, 2006). Moreover, this approach to developmental science underscores the diverse ways in which adolescents, in dynamic exchanges with their natural and designed ecologies, can create for themselves and others opportunities for health and positive development.

As Bronfenbrenner (2005) eloquently puts it, it is these relations that make human beings human. Accordingly, the relational, dynamic, and diversity-sensitive scholarship that now defines excellence within developmental science may both document and

extend the power inherent in each person to be an active agent in his or her own successful and positive development (Brandtstädter, 2006; Lerner, 1982; Lerner & Busch-Rossnagel, 1981; Lerner, Theokas, & Jelicic, in press; Magnusson & Stattin, 2006; Rathunde & Csikszentmihalyi, 2006). A developmental systems perspective leads us to recognize that, if we are to have an adequate and sufficient science of human development, we must integratively study individual and contextual levels of organization in a relational and temporal manner (Bronfenbrenner, 1974; Zigler, 1998).

Anything less will not constitute adequate science. And if we are to serve America's and the world's individuals, families, and communities through our science, if we are to help develop successful policies and programs through our scholarly efforts, then we must accept nothing less than the integrative temporal and relational model of diverse and active individuals that is embodied in the developmental systems perspective.

Through such research, developmental science has an opportunity to combine the assets of our scholarly and research traditions with the strengths of our people. We can improve on the often-cited idea of Kurt Lewin (1943), that there is nothing as practical as a good theory. We can, through the application of our science to serve our world's citizens, actualize the idea that there is nothing of greater value to society than a science devoted to using its scholarship to improve the life chances of all people. By understanding and celebrating the strengths of all individuals, and the assets that exist in their families, communities, and cultures to promote these strengths, we can have a developmental science that may, in these challenging times, help us, as a scientific body and as citizens of democratic nations, finally ensure that there is truly liberty and justice for all.

In sum, through developmental science research predicated on developmental systems models, we have a historically unique opportunity to conduct scholarship that will fruitfully address what may be argued to be the “really big” question for science and society, that is “What actions (e.g., actions predicated on the “Big Three”), of what duration, with what youth, in what communities, at what points in ontogenetic and historical time, will result in what features of positive youth development and contributions to self, family, community, and civil society? Or, more simply, we may answer the question of “How do we foster mutually beneficial relations between healthy youth and a nation marked by social justice, democracy, and liberty?”

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Table 1 (adapted from Lerner, et al., 2005)**Measurement Model of the Five Cs and PYD**

Confidence

Positive Identity (Benson, et al., 1998; Theokas, et al., 2005a)

Self-Worth (Harter, 1983)

Competence

Academic Competence (Harter, 1983)

Grades (Self-reported) (Benson, et al., 1998; Theokas, et al., 2005a)

School Engagement (Benson, et al., 1998; Theokas, et al., 2005)

Social Competence (Harter, 1983)

Character

Personal Values (Benson, et al., 1998; Theokas, et al., 2005a)

Social Conscience (Benson, et al., 1998; Theokas, et al., 2005a)

Values Diversity (Benson, et al., 1998; Theokas, et al., 2005a)

Interpersonal Values and Skills (Benson, et al., 1998; Theokas, et al., 2005a)

Caring

Sympathy: Disadvantaged (Eisenberg et al., 1996)

Sympathy: Loneliness (Eisenberg et al., 1996)

Sympathy: Unfortunate (Eisenberg et al., 1996)

Sympathy: Pain (Eisenberg et al., 1996)

Sympathy: Rejection (Eisenberg et al., 1996)

Connection

Family (Benson, et al., 1998; Theokas, et al., 2005a)

School (Benson, et al., 1998; Theokas, et al., 2005a)

Community (Benson, et al., 1998; Theokas, et al., 2005a)

Peers (Benson, et al., 1998; Theokas, et al., 2005a)

Table 2**Percentage of Youth Who Participated in Each Program Type in Grades 5 and 6 of the 4-H Study of Positive Youth Development**

5 th Grade			
	Total	Males	Females
YD Programs	39.3	39.2	39.7
Sports	65.2	67	64
Arts	68.8	61	75.5*
Clubs	42.4	37.8	46.6*
6 th Grade			
YD Programs	35.4	33.3	37.1
Sports	72.1	78.5	66.9*
Arts	64.4	52.4	72.4*
Clubs	26.5	24.2	28.4

Note: Dichotomized participation

* $p < .05$

Table 3

Breadth of Structured After School Activity Participation during the 5th and 6th Grade Shown in Percentages of Youth Who Participated

	5 th Grade	6 th Grade
No Program	11.0	8.5
Single Programs	19.0	25.5
YD Program Only	1.8	1.9
Sports Only	6.9	13.6
Arts Only	9.0	8.9
Clubs Only	2.2	1.1
Two Types of Programs	21.2	34.4
YDP & Sports	3.5	5.6
YDP & Arts	2.9	3.0
YDP & Clubs	0.7	0.7
Sports & Arts	11.7	20.0
Sports & Clubs	2.4	3.0
Arts & Clubs	5.0	2.1
Three Types of Programs	28.3	23.3
YDP, Sports, Arts	10.8	12.1
YDP, Sports, Clubs	2.7	2.0
YDP, Arts, Clubs	2.3	1.7
Sports, Arts, Clubs	12.5	7.5
All Four Types	14.7	8.3

Note: Dichotomized Participation

Table 4

**Change in Structured After School Activity Participation From the 5th to 6th Grade
as Reflected in the Percentage of Youth Whose Participation Changed**

No Program	81.2
Single Programs	
YD Program Only	94.1
Sports Only	67.2
Arts Only	78.6
Clubs Only	100.0
Two Types of Programs	
YDP & Sports	73.5
YDP & Arts	85.7
YDP & Clubs	85.7
Sports & Arts	58.3
Sports & Clubs	87.0
Arts & Clubs	95.7
Three Types of Programs	
YDP, Sports, Arts	69.9
YDP, Sports, Clubs	96.2
YDP, Arts, Clubs	90.9
Sports, Arts, Clubs	75.6
All Four Types	75.9
Note: Dichotomized Participation	

Table 5

SOC and indicators of positive and negative development: Correlations within the same wave of assessment (Wave 1 and Wave 2) and among SOC at Wave 1 and indicators of development at Wave 2.

	SOC at W1 Indicators at W1	N	SOC at W2 Indicators at W2	N	SOC at Wave 1 Indicators at W2	N
Indicators of positive development						
Confidence	.379***	942	.361***	1227	.306***	677
Competence	.352***	1212	.353***	1313	.335***	723
Connection	.264***	1212	.297***	1544	.273***	833
Character	.324***	996	.322***	1334	.255***	731
Caring	.205***	1400	.197***	1435	.128***	823
PYD ^a	.390***	1159	.382***	1563	.310***	841
Indicators of negative development						
Depression	-.255***	1374	-.309***	1508	-.190***	814
Risk behaviors	-.122***	1468	-.145***	1531	-.104**	827
Delinquency	-.175***	1444	-.229***	1524	-.142***	820

*** $p < .001$ ** $p < .01$ * $p < .05$

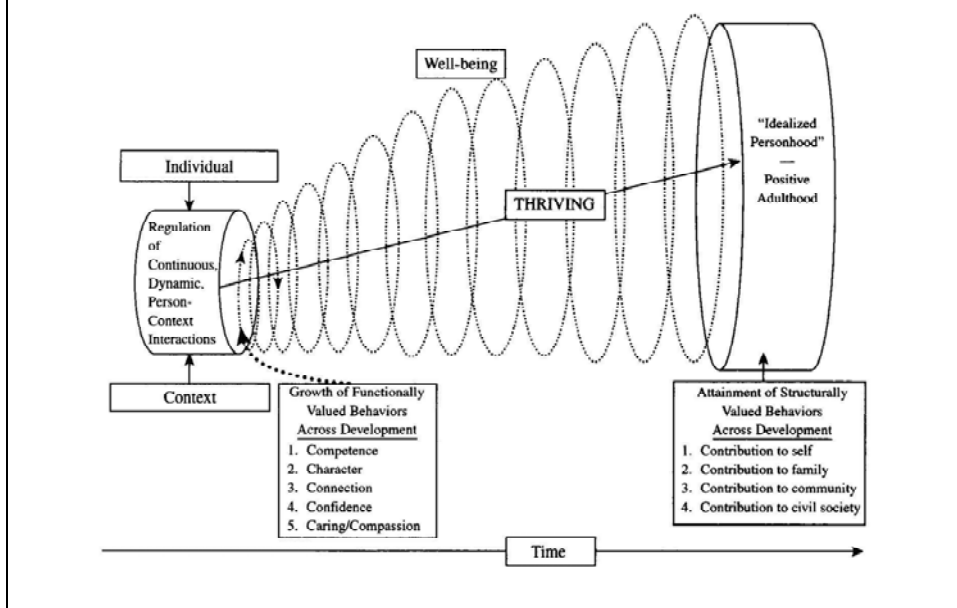
^aPYD is a composite of Confidence, Competence, Connection, Character, and Caring.

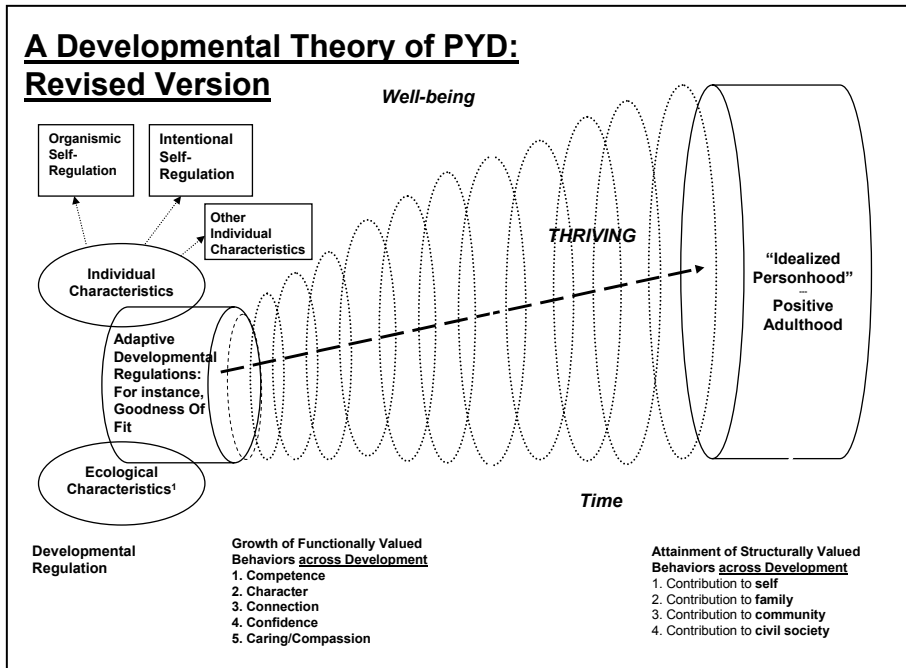
Figure Legends

Figure 1. A Developmental Contextual Theory of PYD: Initial Model

Figure 2. A Developmental Contextual Theory of PYD: Revised Model

A Developmental Contextual Theory of PYD: Initial Version





¹Human resources; physical/institutional resources; collective activity; and accessibility in families, schools, and communities (Theokas, 2005)