

**Positive Youth Development, Participation in  
Community Youth Development Programs,  
and Community Contributions  
of Fifth-Grade Adolescents:  
Findings From the First Wave Of the 4-H Study  
of Positive Youth Development**

Richard M. Lerner  
*Tufts University*

Jacqueline V. Lerner  
*Boston College*

Jason B. Almerigi

Christina Theokas

Erin Phelps

Steinunn Gestsdottir

Sophie Naudeau

Helena Jelacic

Amy Alberts

Lang Ma

Lisa M. Smith

Deborah L. Bobek

David Richman-Raphael

Isla Simpson

*Tufts University*

Elise DiDenti Christiansen

*Boston College*

Alexander von Eye

*Michigan State University*

*The 4-H Study of Positive Youth Development (PYD), a longitudinal investigation of a diverse sample of 1,700 fifth graders and 1,117 of their parents, tests developmental contextual ideas linking PYD, youth contributions, and participation in community youth development (YD) programs, representing a key ecological asset. Using data from Wave 1 of the study, structural equation modeling procedures provided evidence for five first-order latent factors representing the "Five Cs" of PYD (competence, confidence, connection, character, and caring) and for their convergence on a second-order PYD latent construct. A theoretical construct, youth contribution, was also created and examined. Both PYD and YD program participation independently related to contribution. The importance of longitudinal analyses for extending the present results is discussed.*

**Keywords:** *positive youth development; plasticity; developmental assets; youth development programs; thriving*

The 4-H Study of Positive Youth Development (PYD) is a longitudinal investigation that seeks to identify the individual and ecological bases of healthy, positive development among diverse adolescents. Framed by an instance of developmental systems theory, developmental contextualism (Lerner, 2002, 2004), the 4-H Study is designed to follow youth across the second decade of life and to examine their developmental trajectories. This article describes the theoretical and methodological components of the study and reports some key findings derived from the first wave of data collection, which occurred in 2002 through 2003.

Although we present the theoretical and empirical literature that legitimates the structural model and the design of the study and, in turn, provide details about all features of the measurement model, we do not present analyses pertinent to all research questions, particularly because key facets of this model are optimally tested with change-sensitive data that will be available only through subsequent longitudinal waves of the study. Instead, we present findings pertinent to the presence and structure of the several characteristics presently focused on in the literature as composing positive youth development (PYD; i.e., the Five Cs of competence, confidence, character, connection, and caring; Eccles & Gootman, 2002). We also propose a theoretical measure of youth contribution appropriate for early adolescents and examine unitemporal patterns of covariation with the Five Cs.

Simply, before we could test with longitudinal data our developmental-contextual conception of the process through which PYD occurs, we needed to establish that the concept of PYD, as it had been discussed in the literature, had empirical reality, both in its purposed structure and covariation with

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This study was supported in part by a grant from the National 4-H Council. Correspondence should be addressed to Richard M. Lerner, Institute for Applied Research in Youth Development, Eliot-Pearson Department of Child Development, 301 Lincoln Filene Building, Tufts University, Medford, MA 02155; e-mail: richard.lerner@tufts.edu.

other key individual and ecological variables<sup>1</sup>. Accordingly, we address the question of whether, in the present data set, there is evidence for the theoretical expectations that PYD is positively related to contribution and negatively related to adolescent risk and problem behaviors and, also, whether there is an association between PYD and youth participation in community-based, youth development (YD) programs. Such programs are regarded as a key resource in the ecology of youth (Benson, 1997), purportedly linked to PYD (Roth & Brooks-Gunn, 2003a, 2003b; Scales, Benson, Leffert, & Blyth, 2000).

To organize this presentation, the article first discusses the theoretical and empirical work that legitimates the concept of PYD. Drawing on developmental contextualism (Lerner, 2002, 2004) to depict the system of mutually influential relations between individual and context that comprises the process of human development in developmental systems theories, we explain that this theoretical model affords optimism that all young people, when they develop in the context of communities rich in assets aligned with their strengths, may evidence positive development (Benson, 2003). This discussion provides a rationale for both the 4-H Study, in general, and the particular set of questions and analyses that we report in this first publication from the project. To provide the scientific community with a description of the entire project, we describe the overall components of our methodology, including the details of all the measures involved in the first wave of data collection.

In addition, we describe how we used a subset of these measures to address the particular empirical issues of concern in this article. In the Results section of the article, we present both (a) some important preliminary analyses, that is, analyses that enable description of the nature of the sample and the behavior of the measures involved in the data set; and (b) findings pertinent to the key questions of the present report (i.e., the presence and structure of the Five Cs and their association with contribution, risk and problem behaviors, and participation in YD programs). Finally, findings are discussed in regard to the contributions and limitations of the Wave 1 data and to how longitudinal data from future waves of the study will be used to address these limitations and add additional information about the change process pertinent to our developmental-contextual theoretical model.

### **Theoretical and Empirical Bases of the Concept of Positive Youth Development**

Beginning in the early 1990s and burgeoning in the first half decade of the 21st century, a new vision and vocabulary for discussing young people has emerged. Propelled by the increasingly more collaborative contributions of

scholars (Benson, 2003; Damon, 1997; Lerner, 2004; Roth, Brooks-Gunn, Murray, & Foster, 1998), practitioners (Little, 1993; Pittman, Irby, & Ferber, 2001; Wheeler, 2003), and policy makers (Cummings, 2003; Gore, 2003), youth are viewed as resources to be developed. The new vocabulary emphasizes the strengths present within all young people and involves concepts such as developmental assets (Benson, 2003), moral development (Damon, 1990), civic engagement (Flanagan & Sherrod, 1998; Youniss, McLellan, & Yates, 1999), well-being (Bornstein, Davidson, Keyse, Moore & the Center for Child Well-Being, 2003), and thriving (Dowling et al., 2004; Dowling, Gestsdottir, Anderson, von Eye, & Lerner, 2003; Scales et al., 2000). These concepts are predicated on the idea that every young person has the potential for successful, healthy development and that all youth possess the capacity for positive development.

This vision for and vocabulary about youth has evolved in the context of the growth, across the past three decades, of developmental-systems theoretical models that stress that human development derives from dynamic and systemic (and therefore bidirectional and mutually influential) relations among the multiple levels of organization that comprise the human-development system (Lerner, 1998). For instance, developmental systems theories, such as developmental contextualism (Lerner, 2002, 2004), eschew the reduction of an individual to fixed genetic influences and, in fact, contends that such a hereditarian conception of behavior is counterfactual (Gottlieb, 1997, 1998). Instead, this instance of developmental systems theory stresses the inherent plasticity of human development, that is, the potential for systematic change throughout development. This potential exists as a consequence of mutually influential relationships between the developing person and his or her biological, psychological, ecological (family, community, culture), and historical niche.

Plasticity, then, is instantiated from the regulation of the bidirectional exchanges between the individual and his or her multilevel context (which may be represented as individual  $\leftrightarrow$  context relations). When such individual  $\leftrightarrow$  context relations are mutually beneficial, that is, when there exists adaptive developmental regulations (Brandstädter, 1998; Lerner, 2004), healthy, positive individual and societal development should occur. Thus, the concepts of relative plasticity and developmental regulation combine to suggest that there is always at least some potential for systematic change in behavior and, as such, that there may be means found to improve human life.

Plasticity legitimizes an optimistic view of the potential for promoting positive changes in humans. The presence of plasticity in development is a key strength of human development. When plasticity is combined with adap-

tive developmental regulation, one may hypothesize that there will be an alignment between the assets of an individual and the assets that exist in the ecology of human development (Bronfenbrenner, 2001, 2005) and that, as a result, positive human development will be promoted.

### **The Positive Development Perspective Versus the Deficit View**

As illustrated by developmental contextualism, developmental systems theory legitimizes the concept of positive human development. This viewpoint has arisen in competition with deficit views of human behavior and development, especially in regard to the study of adolescent development (Lerner, 2004). Indeed, 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 as an ontogenetic time of normative developmental disturbance (Freud, 1969).

In fact, if positive development was discussed in the literature prior to the past decade, it was implicitly or explicitly regarded as the absence of negative or undesirable behaviors (Benson, 2003). 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. Typically, such descriptions were predicated on the assumption that children are “broken” or in danger of becoming broken (Benson, 2003), and thus were regarded as “problems to be managed” (Roth et al., 1998).

Even as recently as 1999 and even in programs purportedly focused on promoting PYD, a predominant emphasis in the youth development field continued to be a reliance on the deficit model of youth and on defining PYD as the absence of adolescent problem behaviors. For instance, Catalano, Berglund, Ryan, Lonczak, and Hawkins (1999, p. vi) noted that “currently, problem behaviors are tracked more often than positive ones and, while an increasing number of positive youth development interventions are choosing to measure both, this is still far from being the standard in the field” (p. vi). They go on to note that

A major obstacle to tracking indicators of positive youth development constructs is the absence of widely accepted measures for this purpose. Although such outcomes as academic achievement, engagement in the workforce, and financial self-sufficiency are commonly used, many aspects of positive youth development go unassessed due to the underdeveloped state of the assessment tools. (pp. vi-vii)

There are of course some words for describing positive behaviors in youth, for example, pertaining to academic achievement and activities relating to current or potentially successful entrepreneurship. Nevertheless, the vocabulary for depicting youth as “resources to be developed” (Roth et al., 1998) is not as rich or nuanced as the one available for depicting the perceived problematic propensities of young people. Although people are justifiably pleased when rates of drug abuse or teenage crime decrease, there are certainly relatively few positive indicators to which people may point to reflect the desirable, healthy, and valued behaviors among their children and adolescents (Lerner, 2004).

### **The Emerging Vocabulary of PYD**

The absence of an accepted vocabulary for the discussion of PYD is a key obstacle for both basic and applied scholarship in the study of adolescence. The absence of a standard vocabulary to discuss PYD and of evidence that it can be objectively measured (as other than the absence of problem behaviors) obviates the possibility of testing developmental-systems ideas about the role of adaptive developmental regulations, that is, of aligning the assets of individuals and contexts, in promoting PYD, and of setting goals for YD programs beyond enabling adolescents to be problem free. In addition, the absence of a standard vocabulary, or in other terms, of a structural model of PYD, and of a viable measurement model, means that there can be no certain evaluation of the effectiveness of programs or policies aimed at promoting PYD.

However, the new vision and vocabulary used to discuss youth development that has emerged across the past 15 years has been associated with the use of several metaindicators of PYD, that is, terms that constitute latent constructs that may capture the essence of to-be-developed indicators of the numerous mental, behavioral, and social relational elements that could comprise PYD. Initially proposed by Little (1993), these theoretical latent constructs were first discussed as the four Cs of PYD, that is, competence, confidence, (positive social) connection, and character. Eccles and Gootman (2002), Roth and Brooks-Gunn (2003a, 2003b), and Lerner (2004) reviewed evidence from research and practice that converges in stressing the use of these Cs and potentially of a fifth C, caring (or compassion), in understanding the goals and outcomes of community-based programs aimed at enhancing youth development.

**TABLE 1: Working Definitions of the Five Cs of Positive Youth Development**

<i>Five Cs</i>	<i>Definition</i>
Competence	Positive view of one's actions in domain specific areas including social, academic, cognitive, and vocational. Social competence pertains to interpersonal skills (e.g., conflict resolution). Cognitive competence pertains to cognitive abilities (e.g., decision making). School grades, attendance, and test scores are part of academic competence. Vocational competence involves work habits and career choice explorations.
Confidence	An internal sense of overall positive self-worth and self-efficacy; one's global self-regard, as opposed to domain specific beliefs.
Connection	Positive bonds with people and institutions that are reflected in bidirectional exchanges between the individual and peers, family, school, and community in which both parties contribute to the relationship.
Character	Respect for societal and cultural rules, possession of standards for correct behaviors, a sense of right and wrong (morality), and integrity.
Caring and Compassion	A sense of sympathy and empathy for others.

SOURCE: Lerner (2004) and Roth & Brooks-Gunn (2003a).

Derived from this literature, the current working definition of these Cs are presented in Table 1. As explained below, these definitions frame the measurement model and the structural equation modeling (SEM) procedures undertaken in this current research.

In turn, Rick Little (personal communication, March 31, 2000) and Lerner (2004; Lerner, Dowling, & Anderson, 2003) have suggested that, when these five Cs are present in a young person, there emerges a sixth C, contribution. That is, a young person enacts behaviors indicative of the Five Cs by contributing positively to self, family, community, and, ultimately, civil society (Lerner, 2004). Such contributions are envisioned to have both a behavioral (action) component and an ideological component (i.e., the young person possesses an identity that specifies that such contributions are predicated on moral and civic duty; Lerner, Dowling et al., 2003). In other words, when youth believe that they should contribute to self and context and when they act on these beliefs, they will both reflect and promote further advances in their own positive development and, also, the health of their social world. Theoretically, there will be adaptive individual ↔ context developmental regulations.

The developmental course of the ideological and behavioral components of contributions to self and society remains to be determined. For example, given the orthogenetic principle (Werner, 1957), it may be that these components are differentiated (e.g., weakly correlated) in early developmental periods (e.g., at the beginning of adolescence) and become integrated later in ontogeny. Nevertheless, there is reason to believe that both positive development and youth contributions to self and to their ecology are likely to take place in the context of community-based YD programs. Scales et al. (2000; see also Blum, 2003; Roth & Brooks-Gunn, 2003a, 2003b) have identified participation in youth programs as the key asset linked to exemplary positive development, or thriving, among contemporary American youth. In addition, YD programs promote youth contribution by assuring that the young person has a sustained relationship with at least one committed adult, who provides skill-building opportunities to the youth and acts to enhance the young person's healthy and active engagement with the community (Lerner, 2004). Roth and Brooks-Gunn (2003a, 2003b) indicate that participation in such programs is likely to result in a competent, confident, and caring youth, who has character and positive social connections. Lerner (2004) proposes that such a young person will be oriented to making integrative contributions to self, family, community, and civil society. In turn, such a young person should show negligible or low levels of risk behaviors, as well as internalizing problems (Scales et al., 2000).

A demonstration of this relation would be quite significant for healthy adolescent development. Many of these risk behaviors (e.g., drug and alcohol use and abuse, unsafe sex, teenage pregnancy and parenting, and intrapersonal and interpersonal violence; Dryfoos, 1990; Perkins & Borden, 2003) not only decrease the likelihood of a youth living a healthy, successful life, but also decrease his or her life expectancy (see Blum, 2003).

However, as made clear by Eccles and Gootman's (2002) report, as well as by other reviews of the literature of youth development (Blum, 2003; Lerner, 2004; Roth & Brooks-Gunn, 2003a, 2003b), there are relatively few data, and certainly none derived from large-scale longitudinal studies, pertinent to the model of individual ↔ context relations that defines the process of development within developmental systems theories, such as developmental contextualism (Lerner, 2002, 2004); the empirical composition of any of the Five Cs of positive youth development; and the association of developmental assets, in particular, community-based YD programs and PYD. Similarly, there are no longitudinal data indicating that PYD varies positively with youth contributions and negatively with risk or problem behaviors. The present report is derived from such a large, longitudinal study.

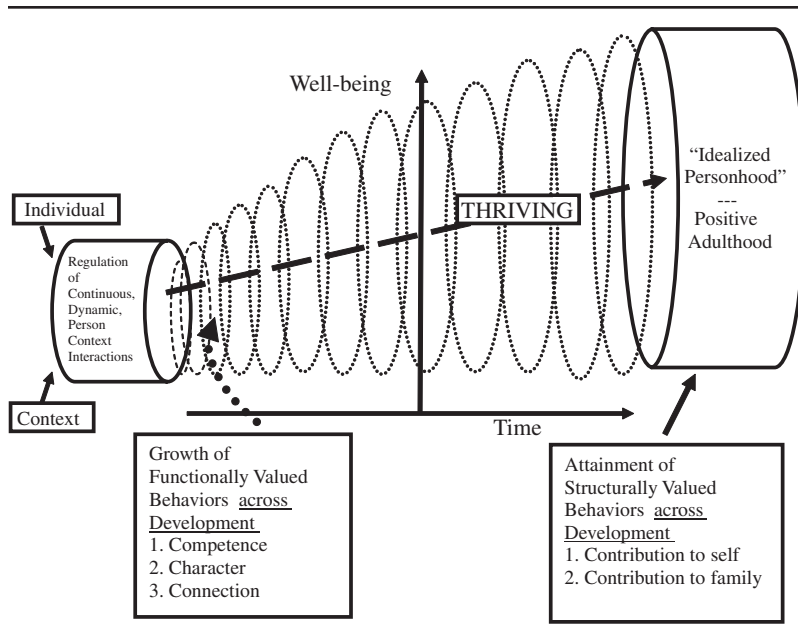


### The 4-H Study of PYD

The 4-H Study of PYD is a project funded by the National 4-H Council. The 4-H Study is designed to ascertain whether empirical evidence can be found for the developmental contextual view of the individual ↔ context process through which PYD is thought to emerge and, in turn, to appraise the purported structure and covariates of PYD. In the present article, this empirical test involves an assessment of the Five Cs of PYD. In this report, we also seek to describe the association of PYD with a purportedly key ecological asset for its development (i.e., participation in community-based YD programs).

In other words, the overall goal of the 4-H Study is to understand the processes that are involved in the emergence of PYD. In the present report, our purpose is to gain more information about the latent and manifest variables that constitute PYD and the components of the developmental system that combine to enhance the likelihood of PYD, that is, that create conditions for healthy functioning at this point in time (i.e., what we term *well-being*; Lerner, Bornstein, & Smith, 2003; Lerner, Dowling, et al., 2003) and that support the development of exemplary PYD (i.e., what we term *thriving*) across the adolescent years. In short, the 4-H Study is interested in understanding what propels the young person along a healthy developmental trajectory (i.e., what fosters the process of thriving; Lerner, 2004; Lerner, Dowling, et al., 2003), and thus what leads youth toward an idealized adulthood, one marked by effective contributions to self, family, community, and civil society (Csikszentmihalyi & Rathunde, 1998; Hein, 2003; Lerner, Dowling, et al., 2003).

Figure 1 provides a general characterization of our developmentally contextually framed theoretical perspective and illustrates how it shapes the specific issues of interest in the present report. The figure presents our conception of the thriving process that we have used to frame the research conducted within the 4-H Study (Lerner, 2004; Lerner, Dowling, et al., 2003). Derived from the developmental contextual idea that mutually beneficial developmental regulations (i.e., adaptive individual ↔ context relations) propel a person along a healthy developmental trajectory across life (and that at any one point in time enable a person to be in a state of well-being), the model specifies that, when there is an alignment between individual strengths and ecological assets that promote healthy development, the Five Cs will evolve across the course of an individual's development. This development of the Five Cs will result in the above-noted, idealized adulthood and, thus, in the multifaceted contributions of individuals to their selves and their contexts that maintain and perpetuate adaptive individual ↔ context relations.



**Figure 1: A Developmental Contextual View of PYD.**  
NOTE: PYD = positive youth development.

In sum, to begin to test this model, the present article presents data from the first wave of data of the 4-H Study (2002 through 2003). The cross-sectional information that we present will obviously not be able to specify the developmental course of the Five Cs because, as we have explained, only change-sensitive data (e.g., data derived from longitudinal research) can do this. Accordingly, in the present report, we evaluate the unitemporal status of the Five Cs (and thus, in regard to the model presented in Figure 1, appraise well-being) and provide a baseline for subsequent reports of developmental change in both PYD and for the association between youth participation in community-based YD programs and the presence of the Cs of PYD.

Specifically, the current report addresses three questions about the unitemporal patterns of covariation present within the Wave 1 4-H Study data set:

1. Is there empirical evidence for the conception that PYD may be instantiated by the Five Cs of competence, confidence, connection, character, and caring?
2. Is there empirical evidence for the theoretically specified relation between PYD and youth contributions and lower risk behaviors?

3. Is there evidence in the present data that YD programs, as potentially key instances of assets present in the ecology of adolescent development, are associated with PYD, contribution, and lower risk behaviors?

## METHOD

### Sample

Our goal was to construct a sample that would facilitate a longitudinal test of our developmental-contextual model of positive youth development among a demographically diverse sample of youth. For the first wave of the longitudinal study (2002 through 2003), we were able to secure cooperation from sites in 40 cities or towns located in 13 states that, together, provided regional, rural-urban, racial or ethnic, and religious variation. In turn, to identify the moderating role of community-based YD programs in promoting PYD, we sought also to develop a sample that would reflect the breadth of variation in youth participation in such organizations and in other types of school- and community-based youth activities (i.e., in programs that did not have a youth development mission, in individually focused youth activities, or youth involved in no individual or group activity at all).

Given our interest in ascertaining if PYD varies positively with the development of contribution and negatively with the appearance of risk behaviors and internalizing problems, and if YD programs promote PYD and prevent or delay the emergence of problem behaviors or slow their growth, the study was launched with fifth graders to obtain baseline levels of behaviors from which to measure change across time. The literature shows that one may expect low levels of risk among youth of this grade level (Dryfoos, 1990; Perkins & Borden, 2003).

Data were collected by giving surveys to the youth and to one parent or guardian per child. Both surveys are described in the procedure section. The majority of the data were obtained directly from the adolescent, but the parent questionnaire was administered to obtain some additional information (e.g., family income, mother's education level) and to allow cross-validation of some of the information from the youth (e.g., participation in activities, physical development).

Wave 1 youth participants were a diverse group of 1,700 fifth-grade adolescents (47.2% males, mean age = 11.1 years,  $SD = .53$  years; 52.8% females, mean age = 10.9 years,  $SD = .46$  years) and 1,117 of their parents (82.5% mothers, mean age = 38.4 years,  $SD = 6.8$  years; 13.9% fathers, mean age = 41.6 years,  $SD = 6.2$  years; only one parent per student was sampled).

Other adults who completed the survey were grandparents (1.3%), other adults (0.4%), stepmothers (0.4%), stepfathers (0.2%), and foster parents (0.2%). The remaining 1.2% of adults did not specify their relation to the child. The overall rate of parent (or other adult) participation was 65.7%. Table 2 provides further information about the characteristics of the participants.

### **Procedure**

Schools were chosen as the main method for collecting our sample. Given the rationale of beginning with early adolescents (10 through 11 year olds), schools and their fifth-grade youth provided us access to a large, diverse sample of developmentally similar youth with different activity participation. Such variation may have been less likely if data were collected in community-based programs. The United States was divided into four regions corresponding to those used by the Cooperative Extension System (i.e., northeastern, north central, southern, and western) to organize their services, and schools were sought within each region by making contacts with either individual schools or with school district offices. Within each school, students in all fifth-grade classes were contacted for participation. After-school sites were recruited in an analogous manner (i.e., by contacting the chief operating officer of the program), after which contacts were made with specific club directors and with program staff.

To obtain parent consent, the teachers or program staff gave each fifth-grade child an envelope to take home to the parent. The envelope contained a letter explaining the study, two consent forms (one to return to the school and one for the parent's records), a parent questionnaire (PQ), and a self-addressed stamped manila envelope for returning the PQ. Teachers were responsible for collecting returned materials and for keeping track of which children had parental permission to participate. In a subset of the sample, ( $N = 583$  youth), parents gave consent for their children to participate but did not return the PQ, and this situation resulted in the total of 1,117 PQs that we have paired with student questionnaires (SQ) in Wave 1. No information is available in regard to household incomes for those students whose parents did not submit a PQ.

Data collection was conducted by trained study staff or hired assistants for remote locations. A detailed protocol was used to create a uniform administration of the questionnaire and to ensure the return of materials. Each data collection began with reading the general instructions on the front page of the questionnaire to the youth. Participants were instructed that they could skip any questions that they did not want to answer. Participants completed the

**TABLE 2: Participants' Characteristics: Geographic Region, Race or Ethnicity, Religion, Parent Education Level, Parent Marital Status, and Household Income**

	(%)
Participants' geographic location	
Northeastern: MA, MD, NY	39.4
North Central: KS, MN, WI	7.7
Southern: AL, FL, NC, TN	27.8
Western: AZ, MT, WA	25.1
Students' race or ethnicity (as reported by student)	
European American	57.9
Latino or Latina	18.0
African American	8.1
Native American	4.1
Asian American, Pacific Islander	3.3
Multiethnic or Multiracial	5.7
Other	3.0
Students' religious affiliation (as reported by parent)	
Catholic	50.0
Protestant	18.7
Jewish	1.8
Buddhist	0.7
Muslim	0.6
Hindu	0.4
Other	18.2
Nonreligious	9.7
Parent educational level	
Eighth grade or less	3.0
Some high school	6.6
High school diploma	22.2
Some college	22.3
2-year college	15.3
4-year college (BA or BS)	20.9
Graduate degree	9.7
Parent marital status:	
Married	73.5
Divorced	9.9
Single (never married)	6.5
Separated	3.3
Cohabiting	2.9
Remarried	2.2
Widowed	1.7
Household income	
Under \$15,000 per year	10.0
\$15,000 to \$24,999 per year	10.9

*(continued)*

**TABLE 2 (Continued)**

	(%)
\$25,000 to \$34,999 per year	10.7
\$35,000 to \$44,999 per year	8.5
\$45,000 to \$54,999 per year	10.1
\$55,000 to \$64,999 per year	8.7
\$65,000 to \$79,999 per year	12.4
More than \$80,000 per year	28.6

cover page with their personal information but were informed that all identifying information would be detached from their questionnaires and kept confidential. At all school or after-school sites, a 2-hr block of time was allotted for data collection, which included a rest period of 5 to 15 min after 1 hr of questionnaire administration.

The length of the questionnaire was challenging to some adolescents, but the 2-hr period generally allowed enough time for completion of the questionnaire. Some measures required additional instruction, either to the group, as a whole, or to individuals. To ensure that youth received the support they needed, we provided enough data collectors at each site so that questions were answered as soon as they came up. We also gathered feedback from data collectors regarding difficulties that participants had answering specific measures or items. Youth generally did understand how to answer all the measures, but when problems were reported, they often involved the same scales or items. Because the Harter Self-Perception Profile for Children was challenging to some youth, data collectors were instructed to have all participants answer that scale at the same time, and extra instructions were provided. Adolescents also needed some additional guidance when answering some of the open-ended questions. Other problems usually involved vocabulary or wording of specific questions. Based on this information, instructions were added to the data collection protocol, which provided data collectors with additional instructions or suggestions about answering specific questions.

Assessment was conducted in 57 schools and in four after-school programs. The schools varied in type (public or private), size, grades and students served, and along various socioeconomic characteristics (e.g., percentage of students eligible for free or reduced lunch; see Table 3). All demographic data were collected from the National Center for Education Statistics 2002 through 2003 school profiles. Moreover, the schools were dis-

**TABLE 3: School Characteristics: Geographic Region, Race or Ethnicity, Religion, Parent Education Level, Parent Marital Status, and Household Income**

	<i>Percentage (n)</i>
Type of school	
Public	89.5 (51)
Coed	98.2 (56)
School size	
Up to 250	10.5 (6)
251 to 500	40.3 (23)
501 to 750	31.6 (18)
Greater than 751	17.5 (10)
Grades served	
K through 5th	56.1 (32)
K through 6th	14.0 (8)
K through 8th	22.8 (13)
K through 12th	3.5 (2)
3rd through 5th	1.8 (1)
5th through 8th	1.8 (1)
Students served (% Non-European American)	
0% through 25%	36.5 (19)
26% through 50%	17.3 (9)
51% through 75%	7.6 (4)
76% through 100%	38.5 (20)
Free and reduced lunch participation	
0% through 25%	44.0 (12)
26% through 50%	26.0 (7)
51% through 75%	0.0 (0)
76% through 100%	8.7 (5)
Location	
Cities	26.3 (15)
Urban fringe	47.4 (27)
Towns	3.5 (2)
Rural	22.8 (13)

NOTE: Percentage of non-European American and free and reduced lunch participation was not available for all schools

tributed across various locale types. The designation of each school's locale, by the National Center for Education Statistics, is based on its geographic location and population attributes (e.g., density) as determined by the United States Census. Individual participation rates varied across schools (range = 6% through 91%, mean = 41%).

The four after-school programs were located in diverse urban communities and served primarily minority and low-income children and families.

The programs operated as drop-in centers, thus, youth participated on an as-needed or desired basis, thus resulting in a changing fifth-grade population in attendance. Obtaining and collecting consent from parents was more difficult in these locations, given no established protocol was in place to send materials home to families, as was the case with the school sites. Overall, less than 2% of participants were recruited from after-school programs. The average individual participation rate across programs was approximately 9% (range = 2% through 16%).

### Measures

The measurement model used to initiate this study was designed to provide indices that could be used across subsequent waves to test the developmental contextual individual ↔ context model of the development of PYD. Accordingly, the overall measurement model used to fit this structural model included measures pertinent to the regulation of mutually influential relations between youth and their contexts, including indices of current regulatory functioning and goal-oriented behaviors; the Five Cs of PYD; youth contribution; risks and problems behaviors; and ecological assets theoretically linked to the development of the Cs and the diminution of problem behaviors among youth (and here, especially, we focused on participation in YD programs; i.e., items were included also to assess youth participation in activities and involvement with community-based organizations). In addition, standard demographic questions about youth and their families (sex, date of birth, race or ethnicity, household composition, number of years in current neighborhood, and time spent without an adult present) were included. Finally, given that pubertal variation and ego development have been linked repeatedly within the adolescent literature to a range of positive and problem behaviors in adolescence (Nurmi, 2004; Susman & Rogol, 2004), we assessed these constructs for exploratory purposes.

Basic descriptive data are provided about each measure for our Wave 1 sample. However, we should note here that not all measures included in the SQ and the PQ were used in the analyses reported in this article. As we have explained, the key focus of the present data analyses involved measurement of the Five Cs (and of their covariation with contribution, risks or problem behaviors, and YD program participation). We explain in the Results section the ways in which we explored the use of the measures included in the SQ and PQ to maximize our ability to measure the Cs. Thus, in the Results section we provide information regarding the structure of the Cs and their relations to PYD and to these other constructs.



### **The PQ**

One parent- or guardian-per-youth participant was asked to complete the parent questionnaire for each child participating in the study. The PQ was composed of two types of items: (a) items about the parent or guardian and (b) items about the child. Items about the parent or guardian included relationship to the child, age, sex, current marital status, race or ethnicity, religion, health status, education level, mother's education level (if the person completing the survey was not the mother), number of years spent in their current neighborhood, socioeconomic status, number of children in the household, number of people in the household, primary language spoken in the household, and importance of religion in the participant's family life.

Items about the child included birth date, birth order, height, weight, race or ethnicity, religion, hours of sleep per night, clubs, groups, and activities in which the child participated in, both now and in the past. The list of options for these activities included 4-H Clubs, Boys Clubs or Girls Clubs, YMCA or YWCA, Girl Scouts or Boy Scouts, Big Brother or Big Sister, religious youth groups, school band, martial arts, acting or drama, dance, music, arts or crafts, academic clubs, school government, religious education, sports, after-school child care program, volunteer work, paid work, mentoring or peer advising, tutoring, and others. Many of these items were included in the PQ to cross-validate the information provided by the child.

### **The SQ**

The SQ was composed of measures pertinent to the Cs of PYD, problem behaviors, pubertal level of development, individual and ecological assets, developmental regulation, activities, and demographics. The measures or item sets associated with these domains of measurement are described below.

### **Positive Development and Assets**

*Profiles of Student Life—Attitudes and Behaviors Survey (PSL-AB).* The Search Institute's (SI) PSL-AB (Benson, Leffert, Scales, & Blyth, 1998) was used to index several of the Cs of PYD and select ecological assets. The PSL-AB is a 156-item survey. We included 99 of the items (i.e., those that pertained to the measurement of assets and PYD); we excluded the PSL-AB items that indexed either demographic characteristics or risk behaviors because, as noted below, we elected to use other items to assess these domains. Fifty of the SI items that we used are hypothesized by SI to measure external

assets (e.g., support, boundaries, and expectations), and 42 items are believed to measure internal assets (e.g., commitment to learning, positive identity). External assets are provided to youth by parents, peers, schools, and communities, whereas internal assets are intended to be self-processes and dispositions that develop across time and enhance the probability of engagement in positive actions (Benson et al., 1998; Leffert et al., 1998; Scales et al., 2000). Seven additional PSL-AB items were used to include SI's index of thriving behaviors (school success, leadership, maintenance of physical health, delay of gratification, values diversity, overcomes adversity, and risk avoidance) and are distributed across constructs of interest (e.g., school success for academic competence). All items are measured with Likert-type scales.

Scale development for the 99 PSL-AB items used in the 4-H Study is reported in Theokas et al. (2005 [this issue]). The 14 scales that emerge were examined for their conceptual integrity and were associated with the appropriate construct in the present study. For example, some of the scales were retained for use as ecological assets (e.g., Parental Monitoring). However, other scales that included items previously designated as internal or external assets (e.g., Connection to School or School Engagement) were used to index one of the Cs of PYD. The results section and Table 4 present descriptive information for each of the scales and the Cronbach's alphas in the current sample.

*Teen Assessment Project (TAP) Survey Question Bank.* Several items sets from the TAP Survey Question Bank (Small & Rodgers, 1995) were used to assess ecological assets.

The six items associated with "Reasons for Not Participating in Community Activities" were used to assess the frequency of factors that may not allow or may impede children from participating in different activities (e.g., not enough money, lack of transportation). The response format ranged from 1 = *never* to 5 = *very often* and can be summed to determine barriers to participation. In the present data set, the Cronbach's alpha is .76.

Five items associated with "Healthy Life Style Behavior" were included to assess health-related behavior, such as exercising and sleeping. There, items had varied response formats. Examples of items include "What time do you go to sleep on a school night?" and "How often do you wear a seat belt when driving or riding in a motor vehicle?"

*Child's Report of Parenting Behaviors Inventory (CRPBI).* Portions of the CRPBI (Schludermann & Schludermann, 1970) were included also to assess ecological assets. The CRPBI is a widely used self-report measure of children's assessment of parenting practices. The instrument has three subscales:

**TABLE 4: Search Institute, PSL-AB: Developmental Assets and Thriving Behaviors: Numbers of Items, Ranges, Means, Standard Deviations, n.s., and Significant Regression Effects for Youth Sex, and Race or Ethnicity, and Parent Income and Mothers' Education**

	# items	Range	$\bar{X}$	SD	N	Cronbach's Alpha	Significant Regression Effects ( $p < .001$ )
<b>Developmental assets</b>							
Social Conscience	6	1 through 5	4.01	0.94	1,074	.924	F > M
Positive Identity	6	1 through 5	3.84	0.75	1,109	.705	Income+
Risk Avoidance	7	1 through 5	3.76	0.57	1,230	.603	Income+ African American > Others
Community Connection	5	1 through 5	3.66	0.90	1,232	.868	
Parent Involvement	4	0 through 5	3.46	0.74	1,439	.641	Latino < Other
Interpersonal Values <sup>a</sup>	3	1 through 5	3.94	0.90	1,389	.682	F > M Latino > Other
Decision-Making Skills <sup>a</sup>	4	1 through 5	3.90	0.86	1,371	.697	F > M Latino > Other
Values Diversity <sup>a</sup>	4	1 through 5	3.73	0.92	1,345	.731	F > M
Adult Mentors	4	1 through 4	2.74	1.05	1,284	.831	F > M Income+
School Connection	7	1 through 5	3.75	0.65	1,258	.779	F > M Income+
Activity Participation	6	0 through 5	1.27	0.91	1,214	.698	
Family Connection	6	1 through 5	4.19	0.67	1,443	.786	
Personal Values	5	1 through 5	4.06	0.90	1,050	.888	F > M
Rules and Boundaries	4	1 through 5	4.09	0.69	1,245	.555	
School Engagement	4	-3 through +3	0.01	0.69	1,499	.586	F > M
Contextual Safety	3	0 through 4	0.80	0.82	1,235	.530	
<b>Thriving indicators</b>							
Succeeds in School	1	1 through 8	6.66	1.38	1,305		Income+ Mother's education+
Values Diversity	1	1 through 5	3.45	1.25	1,066		
Maintains Physical Health	1	0 through 7.75	5.48	0.89	1,197		
Exhibits Leadership	1	1 through 5	1.43	1.43	1,235		
Delays Gratification	1	1 through 5	3.63	1.35	1,431		
Overcomes Adversity	1	1 through 5	3.88	1.32	1,367		

NOTE: PSL-AB = Profiles of Student Life: Attitudes and Behaviors; F = female; M = male; Income = household income. The plus sign indicates a positive relationship.

a. These scales have been derived from the PSL-AB construct of Interpersonal Values and Skills described in Theokas et al. (this issue) for use in the measurement model presented here.

Warmth, Behavioral Control, and Psychological Control. Only the Parental Warmth scale was used. Parental warmth was conceptualized as behaviors that indicate acceptance, nurturance, support, and a feeling of being loved and wanted by the parent (Gray & Steinberg, 1999). The CRPBI has adequate reliability (Cronbach's  $\alpha = .80$ ; Schludermann & Schludermann, 1970). In regard to validity, factor analyses have revealed that Warmth is a replicable factor (Reusen, Schafer, & Levy, 1968; Schaerfer, 1965; Schwarz, Barton-Henry, & Pruzinski, 1985). There is evidence for adequate convergent and discriminant validity, for example,  $r$ s between ratings by siblings were  $.50$  ( $p < .01$ ) for maternal warmth and  $.53$  ( $p < .01$ ) for paternal warmth;  $r$ s between adolescents and parents for warmth were in the  $.4$  range (Schwarz et al., 1985). In the present data set, the Cronbach's  $\alpha$  for this measure is  $.94$  for maternal warmth and  $.96$  for paternal warmth.

Examples of parental warmth items include "My mother speaks to me in a warm and friendly way" and "My mother cheers me up when I am upset." The same questions were asked about experiences with fathers. The response format ranges from 1 = *almost never* to 5 = *almost always*. Higher scores indicate higher warmth and nurturance.

*Parental Monitoring Scale (PMS)*. The eight-item PMS (Small & Kerns, 1993) was included to assess ecological assets. This instrument assesses the extent to which parents know the whereabouts of their youngster after school and at night and have knowledge of a youth's friends and their parents. The PMS scale has been reported to have adequate reliability (Cronbach's  $\alpha = .87$ ) and predictive validity (Small & Kerns, 1993). For instance, PMS scores were strongly related to whether a youth reported experiencing unwanted sexual contact by a peer (Small & Kerns, 1993). For both female and male adolescents, levels of parental monitoring were closely associated with sexual experience (i.e., adolescents who were carefully monitored were less likely to be sexually experienced; Small & Luster, 1994). In the present data set, the Cronbach's  $\alpha$  for the PMS is  $.89$ .

Examples of parental monitoring items include "My parents know where I am after school" and "My parents know how I spend my money." The response format ranges from 1 = *never* to 5 = *always*, with higher scores indicating higher parental monitoring.

*Target-Based Expectations Scale (TBES)*. The TBES (Buchanan & Hughes, 2004) assesses adolescents' beliefs about what behaviors and traits will characterize them during adolescence. The scale was used as a measure of individual assets. Three subscales were used: Prosocial (11 items; e.g.,

giving, hard working), Difficult (6 items; e.g., talking back, stubborn), and Alienated (3 items; e.g., angry, depressed). Students were presented with a list of words and asked to rate, on a scale from 1 = *not at all well* to 10 = *very well*, how well the word would describe themselves or their behavior during their teenage years. The TBS has good validity and reliability. Cronbach's alpha coefficients for the Difficult, Prosocial, and Alienated subscales have been reported to be .81, .89, and .65, respectively (Whiteman & Buchanan, 2002). In the present data set, the Cronbach's alphas associated with these scales are .81, .89, and .54, respectively.

*Self-Perception Profile for Children (SPPC)*. The SPPC (Harter, 1983) was used to index several of the Cs of PYD. The SPPC was developed to assess perceived competence in regard to five specific domains of functioning and one of global self-worth: (a) academic competence (reflecting school performance), (b) social competence (emphasizing peer popularity), (c) physical competence (stressing ability at sports and outdoor games), (d) physical appearance (assessing satisfaction with one's appearance), (e) conduct or behavior adequacy (emphasizing behaving in accordance with rules for conduct), and (f) self-worth (indexing feelings of self-esteem, in general). Harter (1982) developed a structured alternative response format to assess perceived competence or adequacy of functioning. Participants are initially asked to choose between two types of people, for example, "some kids are happy with the way that they look" or "other kids are not happy with the way that they look." After a respondent chooses the person he or she is most like, the participant must decide if it is "really true for me" or "sort of true for me." Half of the items begin with a positive sentence, reflecting high competence, and the other half with a negative sentence, reflecting low competence. The items belonging to any one domain are distributed across the scale, and, within each scale, the items are counterbalanced. Each item is scored from 1 to 4, where a score of 1 indicates low perceived competence and a score of 4 reflects high perceived competence. Overall scores are computed for each of the six scales.

Each of the six subscales of the SPPC has been shown to have adequate to good reliability and validity (i.e., Cronbach's alphas across the six subscales range from .76 through .90; East et al., 1992; Harter, 1983; Talwar, Schwab, & Lerner, 1986; Windle et al., 1986) and moderate and significant correlations exist between self and other ratings and scores on standardized assessments (East et al., 1992; Harter, 1982; Talwar et al., 1986; Windle et al., 1986). In the present data set, the alpha coefficients for the six above subscales of the SPPC were .72, .64, .67, .70, .69, and .71, respectively.

*Peer Support Scale (PSS)*. The four items of the PSS (Armsden & Greenberger, 1987) assess adolescents' relationships with friends and were included to index Connection. The response format ranges from 1 = *always true* through 5 = *almost never true*. Examples of items include "I trust my friends" and "My friends care about me." When all items are reverse coded, higher scores indicate higher peer support. In the present data set, the Cronbach's alpha for the PSS is .89.

*Eisenberg Sympathy Scale (ESS)*. The five items of the ESS (Eisenberg et al., 1996) were used to assess the degree to which participants feel sorry for the distress of others. This measure was included as a measure of Caring. The ESS shows adequate reliability (Cronbach's alphas range from .63 to .73; Eisenberg et al., 1996, 1998) and there is evidence for its validity. Teachers' reports of sympathy were significantly related to children's reports of sympathy when watching a film intended to induce sympathy ( $r = .38, p < .001$ ) and to children's physiological response to the film (Eisenberg et al., 1996). Sympathy scores have also been modestly to moderately related to a variety of measures of social competence, including teachers' ratings of social skills and peers' reports of popularity (Eisenberg et al., 1996; Murphy, Shepard, Eisenberg, Fabes, & Guthrie, 1999). In the present data set, the Cronbach's alpha for the ESS is .87.

Examples of items include "I feel sorry for people who don't have the things I have" and "I feel sorry for other kids who don't have toys and clothes." The response format ranged from 1 = *really like you* through 3 = *not like you*. High scores indicate low levels of sympathy.

*Social Responsibility Scale (SRS)*. The four items of the SRS (Greenberger & Bond, 1984) were included to assess positive development. The SRS assesses adolescents' contributions to community and society, and the response format ranges from 1 = *strongly agree* through 5 = *strongly disagree*. Examples of items include "I often think about doing things so that people in my future can have things better" and "It is important to me to contribute to my community and society." Two items are reverse coded when calculating the overall score of the scale. Higher scores indicate higher social responsibility. In the present data set, the Cronbach's alpha for the SRS is .37.

*Ideology regarding community contribution*. To assess ideology regarding community contribution (i.e., whether youth think that positive development includes giving back to the world around them), we used a set of three open-ended questions created for this study:

1. Everybody knows kids in their school or neighborhood who they think are doing well in all areas of their life. In your opinion, what is he or she like? What sort of things does he or she do?
2. Everybody also has an idea about how she or he would like to be. If you imagine yourself doing really well in all areas of your life, what would you be like? What sort of things would you do?
3. Think about yourself and your life now. How would you describe how you are doing? What are you like? What sorts of things do you do?

For each question, answers were coded by two independent raters as either 0 = *does not contribute*, 1 = *cares about and acts positively about the world around them*, or 2 = *contributes significantly by giving back to the world around them*. Examples of answers that were coded as 0 include “someone who gets an A on every test,” and “someone who is a really good soccer player.” Examples of answers that were coded as 1 include “someone who is kind to others” and “someone who is nice.” Examples of answers that were coded as 2 include “someone who goes to talk to the governor about school issues,” “someone who likes to help other people,” and “someone who gives money to charities.”

Interrater agreement between two raters was 90% or above for each of the three questions. To reach 100% interrater agreement, both raters revisited the answers that they had initially coded differently and came to consensus about the correct coding.

### **Risk Behaviors**

*Center for Epidemiological Studies Depression Scale (CES-D)*. The CES-D (Radloff, 1977) is a widely used self-report measure of depressive symptomatology and was included as a measure of risk. The instrument has been reported to have adequate reliability ( $\alpha = .85$ ) and validity (e.g., the CES-D correlates significantly with other measures of mood states such as the Profile of Mood States-Short Form and the Bradburn Positive and Negative Affect Scale; Conerly, Baker, Dye, Douglas, & Zabora, 2002; Radloff, 1977; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). In the present data set, the Cronbach's alpha for this measure is .83.

Adolescents' responded to 20 individual items and reported how often they felt that way during the past week. Examples of items include “I was bothered by things that usually don't bother me” and “I felt sad.” The response format ranged from 0 = *rarely or none of the time* through 3 = *most or all of the time*. Items are summed for a total score. Higher scores are indicative of higher depressive symptomatology.

*Indicators of risk behavior and delinquency.* Indicators of risk behavior and delinquency were measured with a set of questions developed for this study. The questions were modified from items included in PSL-AB Scale (Leffert et al., 1998) and the Monitoring the Future (2000) questionnaire. Five items assess the frequency of substance use (e.g., cigarettes, alcohol) in the past year. The response format ranges from 1 = *never* to 5 = *regularly*. Four items assess the frequency of delinquent behaviors. The response format ranges from 1 = *never* to 5 *five or more times*. A sample item is "During the last 12 months, how many times have you hit or beat up someone?"

### **Regulation and Goal-Oriented Behaviors**

*Selection, Optimization and Compensation (SOC) Questionnaire.* The Selection, Optimization and Compensation (SOC) Questionnaire (Freund & Baltes, 2002) was used to measure developmental regulation, that is, the process of individual-context relations. For this study, three subscales from the short version of SOC were used: Elective Selection, Optimization, and Compensation. Each of the scales has six items. Elective Selection (S) represents the development of preferences or goals, the construction of a goal hierarchy and the commitment to a set of goals. Optimization (O) refers to acquisition and investment of goal-relevant means to achieve one's goals, and Compensation (C) refers to the use of alternative means to maintain a given level of functioning when specific goal-relevant means are not available anymore.

The SOC measures have been found to have adequate psychometric properties of reliability (e.g., Elective Selection, Cronbach's  $\alpha = .75$ ; Optimization, Cronbach's  $\alpha = .70$ ; Compensation, Cronbach's  $\alpha = .67$ ; Freund & Baltes, 2002). In the present data set, the Cronbach's alphas associated with these scales are .24, .30, and .12, respectively. An overall alpha for all 18 items was .35. Although the SOC measure was not used for the purposes of this article, items that had low item-total correlation and whose deletion resulted in a higher overall alpha were excluded from the scale. Eleven items were deleted through this process. The remaining 9 items yielded an overall alpha of .54. Future publications will address the most appropriate use of the SOC measure for this sample. Freund and Baltes (2002) report that SOC has good convergent and divergent associations with other psychological constructs (e.g., goal pursuit, thinking styles) and positive correlations with measures of well-being (Brandstädter & Renner, 1990; Freund & Baltes, 2002).

The items in SOC are forced-choice format, and each item consists of two statements, one describing behavior reflecting S, O, or C and the other



describing a non-SOC-related strategy. Participants are asked to decide which of the statements is more similar to how they would behave. An item from the Elective Selection scale is “I concentrate all my energy on few things [Person A]” or “I divide my energy among many things [Person B].” An Optimization scale item is “When I do not succeed right away at what I want to do, I don’t try other possibilities for very long [Person A]” or “I keep trying as many different possibilities as are necessary to succeed at my goal [Person B].” An item from the Compensation scale is “Even if something is important to me, it can happen that I don’t invest the necessary time or effort [Person A]” or “For important things, I pay attention to whether I need to devote more time or effort [Person B].” Affirmative responses are summed to provide a score for each individual on each subscale.

*School and career aspirations or expectations.* School and career aspirations or expectations were measured with four open-ended questions. Participants were asked to indicate the highest level of education they dreamed of completing and the highest level of education they believed they would actually complete. Answers were coded on a scale ranging from 1 = *eighth grade or less* through 8 = *Ph.D. or professional degree*. “Don’t know” types of answers were coded as 0, and unclear answers were coded as 9.

Participants were also asked to note the job that they would like to have as an adult, if they really thought they would attain the job, and, if not, what job they thought they would actually have. Answers were coded using the 1989 Socioeconomic Index for all Detailed Categories in the 1980 Census Occupational Classification (Nakao & Treas, 1994). In this index, each profession is given a code that reflects both the level of education necessary to attain this position and the average salary or income that people in this profession are expected to receive or generate. Codes range from 0 through 100. Higher scores are indicative of professions that are associated with a higher status in society (e.g., the profession of physician is given a code of 97.16, whereas the profession of crossing guard is given a code of 23.33).

*Thinking About the Future.* Thinking About the Future is a set of questions created for this study to assess students’ perception of the chances that some things (e.g., graduating from college, being healthy, being safe, being active in religious community, having a happy family life) are going to happen to them in the future. There are 16 items, and the response format ranged from 1 = *very low* through 5 = *very high*. High scores indicate an increased likelihood of the events happening. In the present data set, the Cronbach’s alpha for these set of questions is .88.

### **Demographic Variables, Measure of Puberty, Participation in Activities**

*Puberty Development Scale (PDS).* The PDS (Petersen, Crockett, Richards, & Boxer, 1988) is a widely used eight-item self-report measure of physical development. The scale has been reported to have adequate validity and reliability. For boys, alphas ranged from .68 through .78, and for girls, from .76 to .83 (Petersen et al., 1988). In the present data set, the Cronbach's alpha for boys is .58, and the alpha for girls is .71. In regard to validity, high correlations were found between PDS and the Sexual Maturation Scale (correlations ranged from .72 through .80; Petersen et al., 1988; Tanner, 1962), and between the questionnaire version of PDS and physician ratings (correlations ranged from .61 through .67; Brooks-Gunn, Warren, Rosso, & Gargiulo, 1987; Petersen et al., 1988).

Obviously, there is a separate form for boys and girls. Examples of items include "Do you think your development is any earlier or later than most other girls or boys your age?" and "Have you noticed a deepening of your voice?" The scale also asks students to report their height and weight. A five-level pubertal status score is calculated separately for girls and boys using the coding scheme developed by Petersen et al. (1988).

*Erikson Psychosocial Stage Inventory (EPSI).* Three subscales of the EPSI (Rosenthal, Gurney, & Moore, 1981) were used to assess the resolution of the conflict associated with developmental stages purportedly framing early adolescence: Industry, Identity, and Intimacy. The subscales have adequate reliability (Industry, Cronbach's alpha = .75; Identity, Cronbach's alpha = .71; Intimacy, Cronbach's alpha = .63; Rosenthal et al., 1981). Industry, Identity, and Intimacy subscales showed high correlations with subscales from the Psychosocial Maturity Inventory (Form D), providing evidence of construct validity (Greenberger & Sorensen, 1974; Rosenthal et al., 1981). In the present data set, the Cronbach's alphas associated with these scales are .72, .51, and .54, respectively. The lower alphas for Identity and Intimacy scales were anticipated because the fifth graders are not yet expected to reach these two levels of Erikson's stage.

Each of the EPSI subscales has 12 items, half of which reflect successful and half unsuccessful resolution of the crisis of the stage. Representative items for each of the subscales are Industry, "I am a hard worker," Identity, "I like myself and am proud of what I stand for," and Intimacy, "I am warm and friendly." The response format ranges from 1 = *hardly ever true* through 5 = *almost always true*, with higher scores representing greater resolution of stage crises.

*Participation in Activities.* Participation in Activities is a set of 21 questions created for the purpose of this study, which assessed students' involvement in different clubs and groups. How children spend their time in various activities can measure productive engagement and also be indicative of their potential contributions to society (Lerner, 2004; Mahoney, Larson, & Eccles, in press; Sherrod, Flanagan, & Youniss, 2002). Items ask whether the student participates in specific activities (e.g., acting or drama, martial arts) or programs offered by youth development organizations (e.g., 4-H, YMCA, or YWCA) in the present and whether he or she was involved in these activities or programs in the past. Frequency of participation in these activities is also measured (1 = *once a week* through 5 = *a few times a year*).

## Results

Although the overall goal of the 4-H Study is to test the developmental contextual view of the thriving process, that is, of the individual  $\leftrightarrow$  context relations that, across adolescence, are involved in PYD (see Figure 1), our aim in the analyses of data from the first wave of the study was to establish the empirical reality of the Five Cs of PYD, of the construct of PYD itself, and of the links between these constructs and youth contribution, risks or problem behaviors, and YP program participation. Evidence that the measures of PYD behaved in accordance with extant theory would enable us to have a foundation for using these measures in our subsequent longitudinal analyses of the thriving process.

Analysis of the data from Wave 1 proceeded through several steps, all aimed at answering the three key questions of concern in the 4-H Study of Positive Youth Development:

1. Is there empirical evidence for the conception that PYD is composed of the Five Cs of competence, confidence, connection, character, and caring?
2. Is there empirical evidence for a relationship between PYD, contribution and lower risk behaviors at a single point in time?
3. Is there a relation between participation in a community-based, youth development program, PYD, contribution, and lower risk behaviors?

To address these questions, the primary task was to determine if evidence exists for a latent construct of PYD and, if so, whether it can be operationalized by lower order latent constructs representing the Five Cs. Of course, and as emphasized above, because the present article reports findings from only the initial wave of testing within the 4-H Study, we cannot ascertain the development of the Cs, per se; only data that assess change can appraise development. As such, and consistent with the theoretical model of exem-

plary positive development, thriving, that we have used to frame our research, we are, in actuality, assessing in this first wave of testing the unitemporal status of PYD (i.e., what we label in Figure 1 as well-being). Nevertheless, once this issue is addressed, we can determine if this unitemporal assessment of PYD was associated with youth contribution and if participation in community-based YD programs, as a key instance of ecological assets for youth, covaries with PYD.

### **Preliminary Analyses**

Before addressing the key questions of the present report—about the Five Cs, PYD, connection, and YD program participation—we present background information about each of the measures included in the SQ and PQ. Descriptive analyses were conducted to determine whether there was systematic variation in the measures described above with selected youth and parent background variables: sex, race or ethnicity, and social class. Two tables present descriptive information for youth participants on scale scores: Table 4 presents information for the PSL-AB empirically derived scale scores (see Theokas et al., 2005) and Table 5 presents information for the remaining measure scale scores. Scale scores were computed for participants where 60% or more of the items were answered to allow for missing data on individual items.

Correlations among the youth and parent background variables are presented in Table 6. The variables included are youth sex, youth race or ethnicity (recoded as European American or non-European American), household income, mother's education, and number of children in the household. Youth sex is not correlated with the other variables. Household income and mother's education are significantly positively correlated and both are negatively correlated with the number of children in the household. Being European American is positively correlated with household income and mother's education and negatively correlated with number of children in the home.

Hierarchical multiple regression analyses were computed for each scale score as the dependent variable and sex, race or ethnicity, household income, mother's education, and number of children in the home as a set of independent variables. In addition, two-way interactions between race or ethnicity and sex and race or ethnicity and household income were tested as a second set of independent variables. Race or ethnicity was assessed through the use of three dummy variables (European American, African American, Latino and Latina vs. the reference category of all other designations, shown in Table 2). These analyses are based on participants whose parents answered the PQ, with a maximum sample size of 1,117.

**TABLE 5: Youth Measures (Other Than PSL-AB): Numbers of Items, Ranges, Means, Standard Deviations, and n.s. and Significant Regression Effects for Youth Sex, and Race or Ethnicity, and Parent Income and Mothers' Education**

	# Items	Range	$\bar{X}$	SD	N	Significant Regression Effects ( $p < .001$ )
Positive development and assets						
TAP barriers to participation	6	1 through 5	1.04	0.82	1,185	Income+
TAP healthy lifestyle	5	NA	NA	NA	NA	
CRPBI parent warmth-maternal	8	1 through 5	4.01	1.02	1,381	Income+
CRPBI parent warmth-paternal	8	1 through 5	3.74	1.20	1,303	Income+
Parental Monitoring scale	8	0 through 4	3.46	0.71	1,350	F > M Income+
TBES prosocial	6	1 through 10	7.93	1.68	1,599	F > M
TBES difficult	6	1 through 10	3.04	1.83	1,577	
TBES alienated	3	1 through 10	3.46	2.02	1,579	
SPPC academic	6	1 through 4	2.95	0.65	1,405	Mother's education+
SPPC social competence	6	1 through 4	3.00	0.62	1,403	European American > Others
SPPC physical competence	6	1 through 4	2.93	0.64	1,397	European American > Others
SPPC physical appearance	6	1 through 4	2.89	0.68	1,381	
SPPC conduct	6	1 through 4	3.06	0.63	1,395	F > M Income+
SPPC self-worth	6	1 through 4	3.14	0.61	1,393	Income+ European American > Others
Peer Support scale	4	1 through 5	4.24	0.92	1,528	Income+ African American < Others
Eisenberg Sympathy scale	5	1 through 3	2.60	0.51	1,456	F > M
Social Responsibility scale	4	1 through 5	3.49	0.68	1067	F > M Income+
Ideology concerning community contribution	3	0 through 2	0.41	0.48	1,418	F > M
Risk behaviors						
CES-D	20	0 through 54	14.18	9.30	1,422	Income-
Risk behaviors	5	0 through 15	0.25	0.80	1,531	F > M

(continued)

TABLE 5 (Continued)

	# Items	Range	$\bar{X}$	SD	N	Significant Regression Effects ( $p < .001$ )
Delinquent behaviors Regulation and goal-oriented behaviors	4	1 through 16	0.99	2.05	1,505	F > M Income–African American > Others
SOC elective selection	6	0 through 6	2.53	1.27	1,450	
SOC optimization	6	0 through 6	1.79	1.23	1,490	
SOC compensation	6	0 through 6	2.51	1.18	1,445	
School aspirations or expectations	2	1 through 8	NA	NA	NA	
Career aspirations or expectations	2	NA	NA	NA	NA	
Think about the future	16	1 through 5	4.27	0.55	1,547	F > M Latino > Others
Puberty, Erikson						
PDS (puberty)	7	1 through 5	2.52	0.87	1,279	F > M
EPSI industry (Erikson)	12	1 through 5	3.80	0.63	1,632	
EPSI identity (Erikson)	12	1 through 5	3.60	0.52	1,626	
EPSI intimacy (Erikson)	12	1 through 5	3.36	0.57	1,611	

NOTE: TAP = Teen Assessment Project; CRPBI = Child's Report of Parenting Behaviors Inventory; Income = household income; F = female; M = male; TBES = Target-Based Expectations Scale; SPPC = Self-Perception Profile for Children; CES-D = Center for Epidemiological Studies Depression Scale; SOC = Selection, Optimization and Compensation; PDS = Puberty Development Scale; EPSI = Erikson Psychosocial Stage Inventory. A plus sign indicates a positive relationship. A minus sign indicates a negative relationship.

**TABLE 6: Correlations Among Background Variables<sup>a</sup>**

	Youth Sex	European American or Non-European American	Household Income	Mother's Education
European American or Non-European American	.026			
Household income	.033	.301***		
Mother's education	.001	0.115***	0.475***	
Number of children	.017	-.133***	-.134***	-.67*

a. *N*s range from 958 through 1,094; total number of parents = 1,102.

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

Because there are 48 measures, the significance level was adjusted to control for Type I error. Starting with a  $p$  value of .05, we adjusted our  $p$  value to be .001, using the standard correction of  $p$  value or  $N$  of analyses (.05 or 48, respectively). Using this corrected  $p$  value, none of the two-way interactions were significant. Number of children as a variable was also dropped from the analyses because it never added a significant proportion of variance after other variables were included.

Tables 4 and 5 present information about the significant predictor variables when controlled for by the other variables and show the nature of the relationships. Youth sex and household income are significantly related to the measures in expected ways: Girls have higher scores for, and household income is positively related to, most of the measures. Once household income is controlled for, there remain a few significant relationships with race or ethnicity. The race or ethnicity effects that are present show that Latino and Latina fifth graders report greater parent involvement, value interpersonal relationships and skills, value diversity in their relationships, and think more about the future than fifth graders from other groups. Compared to other youth, African American fifth graders report lower support from peers and engage in more delinquent behaviors, but report greater risk avoidance. European American fifth graders report higher perceived social and physical competence and greater self-worth than youth in the other race or ethnicity groups. Future work will explore the complex relationships among these variables within our model of PYD.

#### **PYD and the Five Cs**

Specification of the measurement model of the Five Cs proceeded through multiple steps. First, an extensive literature review was conducted to identify

a set of measures that would serve as indicators for each of the Five Cs. Second, these measures were assessed in a pilot study involving 339 youth from five cities and towns in Massachusetts. Scales were assessed in relation to their ability to capture the essential definitions of the Five Cs developed for use in this study (see Table 1). Following the evaluation of the pilot results, the survey was revised to better represent the constructs. Third, and concurrent with Wave 1 data collection, the factor structure of the internal and external assets, as measured by the Search Institutes' PSL-AB measure, was reevaluated and restructured to reflect both empirical and substantive considerations (see Theokas et al., 2005). These modifications led to revisions of the initial measurement model.

To accomplish this revision, several of the authors independently categorized all scales included in the SQ as either an index of one of the Five Cs, an index of the sixth C of contribution, an index of internal assets, an index of external assets, an index of regulation, or as not relevant to any of the constructs (e.g., pubertal maturation, race, and sex were constructs placed by all authors or raters into this last category). When at least 80% of all raters categorized a measure as reflecting one of the constructs, this measure was considered as an operationalization of it. Table 7 presents the measurement model for the Five Cs. Table 8 provides the correlation matrix, with means and standard deviations for the final set of indicators used for the Five Cs.

Confirmatory factor analysis (CFA) was conducted to assess the degree to which the Five Cs or PYD model fit the data.<sup>2</sup> Model-fitting analyses were conducted to assess the adequacy of the a priori model; subsequent analyses were used to assess model improvement following theoretically sound modifications. LISREL 8.54 (Jöreskog & Sörbom, 1996a), using maximum likelihood estimation on raw data within a PRELIS 2.0 file (Jöreskog & Sörbom, 1996b), was used for all CFA analyses.

The initial model (Model 1) contained 19 manifest indicators; five first-order latent factors, one for each of the Five Cs; and one second-order latent factor, representing the PYD construct. All hypothesized pathways were significant, but the model has a relatively poor fit,  $\chi^2 = 1933$ ,  $df = 147$ ,  $p < .01$ ; root mean square error of approximation (RMSEA) = 0.085; goodness of fit index (GFI) = 0.89; comparative fit index (CFI) = 0.94; nonnormed fit index (NNFI) = 0.94. The Five Cs or PYD model was therefore retained and subjected to model-improving modifications.

Inspection of the modification indices suggested several changes to improve model fit. Considering the high intercorrelations among the indicators, as seen in Table 8, Model 2 allowed residual errors among the indicators, Social Competence, Academic Competence, and Self-Worth, to correlate on the assumption that scores on these scales, which are subscales from the



**TABLE 7: Measurement Model of the Five Cs and PYD**

	<i>Standardized ML Estimate</i>	<i>Residual Error</i>
Confidence		
Positive Identity	.91	.18
Self-Worth	.64	.50
Competence		
Academic Competence	.51	.74
Grades	.56	.69
School Engagement	.72	.48
Social Competence	.46	.79
Character		
Personal Values	.76	.42
Social Conscience	.79	.37
Values Diversity	.70	.51
Interpersonal Values and Skills	.67	.54
Caring		
Sympathy: disadvantaged	.72	.48
Sympathy: loneliness	.81	.30
Sympathy: unfortunate	.74	.46
Sympathy: pain	.80	.37
Sympathy: rejection	.76	.43
Connection		
Family	.60	.64
School	.71	.40
Community	.44	.81
Peers	.43	.81
PYD		
Confidence	.77	.41
Competence	.82	.33
Character	.82	.32
Caring	.49	.76
Connection	.91	.18

NOTE: ML = maximum likelihood; PYD = positive youth development.

Harter SPPC scale (Harter, 1998), share method variance not accounted for by the model. The freeing of these residuals resulted in a better model,  $\chi^2 = 1,455$ ,  $df = 144$ ,  $p < .01$ ; RMSEA = 0.073; GFI = 0.92; CFI = 0.96; NNFI = 0.95.

In Model 3, residual errors were allowed to correlate between indicators within factors. Consistent with the definitions presented by Roth and Brooks-Gunn (2003b), within Competence, residuals between Grades and Academic Competence and, in turn, between School Engagement and Social Competence were allowed to correlate. Within Character, residuals between Personal Values and Social Conscience and, in turn, between Values Diversity

TABLE 8: Interitem Correlations, Means, and Standard Deviations of Variables Included in Model Testing

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Positive Identity	1.000																			
Self-Worth	.584	1.000																		
Academic Competence	.479	.553	1.000																	
Grades	.393	.296	.436	1.000																
School Engagement	.444	.325	.391	.436	1.000															
Social Competence	.382	.534	.392	.227	.225	1.000														
Personal Values	.449	.310	.262	.252	.360	.209	1.000													
Social Conscience	.447	.264	.234	.258	.338	.241	.816	1.000												
Values Diversity	.378	.267	.198	.212	.257	.226	.538	.570	1.000											
Interpersonal Values	.383	.282	.207	.239	.302	.257	.492	.523	.651	1.000										
Sympathy: disadvantaged	.162	.112	.067	.106	.157	.113	.237	.302	.296	.313	1.000									
Sympathy: loneliness	.199	.139	.105	.135	.143	.101	.276	.324	.291	.318	.603	1.000								
Sympathy: unfortunate	.166	.103	.055	.109	.149	.088	.270	.343	.333	.315	.696	.616	1.000							
Sympathy: pain	.228	.161	.095	.155	.180	.110	.312	.359	.323	.344	.557	.631	.595	1.000						
Sympathy: rejection	.209	.149	.123	.149	.190	.118	.303	.342	.303	.315	.546	.531	.523	.618	1.000					
Connection to Family	.401	.304	.242	.188	.304	.215	.380	.367	.321	.306	.215	.245	.256	.267	.227	1.000				
Connection to School	.433	.309	.294	.280	.402	.288	.391	.425	.331	.370	.194	.237	.221	.272	.239	.425	1.000			
Connection to Community	.245	.147	.120	.137	.215	.209	.248	.274	.228	.231	.154	.144	.165	.199	.175	.372	.526	1.000		
Connection to Peers	.259	.247	.196	.194	.205	.251	.213	.211	.232	.274	.125	.127	.132	.163	.180	.226	.338	.235	1.000	
Mean	3.83	3.12	2.92	6.63	0.00	2.97	4.04	3.99	3.70	3.93	2.61	2.63	2.57	2.61	2.57	4.35	3.76	3.65	4.24	
Standard Deviation	0.67	0.59	0.62	1.25	0.68	0.59	0.76	0.80	0.81	0.84	0.59	0.59	0.60	0.57	0.58	0.62	0.57	0.78	0.88	

NOTE: All values based on the full sample ( $n = 1,700$ ). All correlations are significant at the 5% level, with a mean interitem correlation of 0.291 and a range from 0.055 through 0.816.

**TABLE 9: Fit Indices and Fit Change for Models 1 Through 4**

	$\chi^2$ (df)	RMSEA	GFI	CFI	NNFI	$\Delta\chi^2$ ( $\Delta df$ )	$\Delta$ Significant
Model 1	1933 (147)	0.085	0.89	0.94	0.94		
Model 2	1455 (144)	0.073	0.92	0.96	0.95	478 (3)	$p < .01$
Model 3	622 (136)	0.048	0.96	0.98	0.98	833 (8)	$p < .01$
Model 4	522 (134)	0.043	0.97	0.99	0.98	100 (2)	$p < .01$

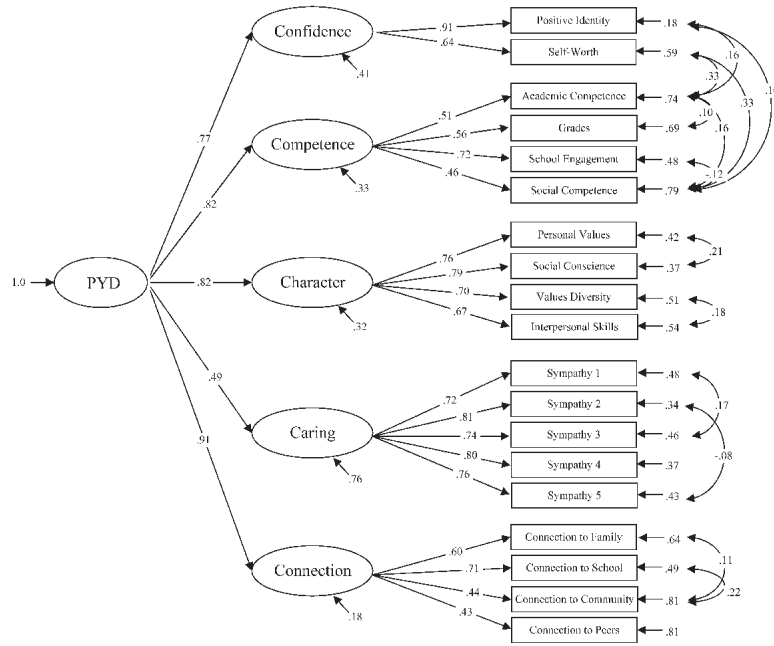
NOTE: RMSEA = root mean square error of approximation; GFI = goodness of fit index; CFI = comparative fit index; NNFI = nonnormed fit index.

and Interpersonal Values were allowed to correlate. Within Caring, residuals between Sympathy for Disadvantaged and Sympathy for Unfortunate and, in turn, between Sympathy for Rejected and Sympathy for Loneliness were allowed to correlate. Finally, within Connection, residuals between Connection to Family and Connection to Community and, in turn, between Connection to School and Connection to Community were allowed to correlate. All together, these modifications also improved model fit,  $\chi^2 = 662$ ,  $df = 136$ ,  $p < .01$ ; RMSEA = 0.048; GFI = 0.96; CFI = 0.98; NNFI = 0.98.

Inspection of the modification indices for the Model 3 indicated that model fit could be further improved by correlating two more pairs of residuals: Positive Identity with Academic Competence and, in turn, Positive Identity with Social Competence. Such relations may reflect the theoretically and empirically established relations between adolescent achievements in academic and social areas and their positive self-regard (Brown, 2004; Eccles, 2004; Harter, 1998). Following these modifications, Model 4 provided better model fit,  $\chi^2 = 552$ ,  $df = 134$ ,  $p < .01$ ; RMSEA = 0.043; GFI = 0.97; CFI = 0.99; NNFI = 0.98.

Fit indices and significance tests for fit differences between each of the four models are listed in Table 9. As each model is nested within the next, significance in model fit can be tested, that is,  $(\chi^2_{\text{Model 1}} - \chi^2_{\text{Model 2}}) \div (df_{\text{Model 1}} - df_{\text{Model 2}})$ . As shown in Table 9, each of the models fit the data significantly better than the previous one. These modifications, although representing close fit to the data, were not able to perfectly model the data.

Inspection of the modification indices for Model 4 suggested that additional structure in the relationships among the first-order factors has not been exhausted by either the correlated residuals among the respective indicators or their respective loading on the second-order factor of PYD. Specifically, two pairs of first-order factors, Confidence or Competence and Character or Caring, continued to share variance not accounted for by the model. Rather than specifying additional structure to the model, we retained the more parsimoni-



**Figure 2: Retained Factor Model with Standardized Maximum Likelihood Estimates.**

NOTE: All estimates are significant at the 0.05 level.

ous model described below and allocated additional refinement of and evaluation of sample specific effects on the model to future waves of the 4-H Study—waves that would allow us to take advantage of longitudinal data and retest control samples for purposes of cross-validating the model (Browne & Cudeck, 1993; Cudeck & Browne, 1983).

The retained model is depicted in Figure 2. Although the model chi-square was significant at four times the model degrees of freedom ( $\chi^2 = 552$ ,  $df = 134$ ), it is sensitive to sample size. With large sample sizes, the  $\chi^2$  statistic can become unreasonably powerful at detecting discrepancies between the model and the data, and, under realistic conditions, perfect model fit is not to be expected (Bollen, 1989, pp. 266-269). Following prior recommendations (McDonald & Ho, 2002; Raykov, Tomer, & Nesselroade, 1991; Tomer & Pugesek, 2003), we evaluated a variety of fit indices. For this model, the GFI (Jöreskog & Sörbom, 1996a), a measure of absolute fit, was 0.97, well above

the 0.90 minimum criterion of close fit suggested by Hoyle and Panter (1995). The CFI (Bentler, 1990) was 0.99, suggesting that the specified model is 99% better than an independence model where all observed variables are assumed to be uncorrelated. Likewise, the NNFI (Bentler & Bonett, 1980), which takes into account model complexity and performs well with large sample sizes was 0.98, again indicating close fit. Finally, the RMSEA (Steiger & Lind, 1980), which is a measure of fit per degree of freedom and is sensitive to model misspecification (Hu & Bentler, 1995), was 0.043 with a 90% confidence interval of 0.039 through 0.047. A value of .05 or less indicates a close fit (Browne & Cudeck, 1993).

As shown in Table 7, standardized factor loadings for the 19 manifest variables ranged from .43 through .91, indicating that the Five-Cs factors accounted for 18% through 83% of the indicators' variance. In turn, the second-order factor of PYD accounted for an average of 60% of the variance in the latent factors for the Five Cs. This explained variance (or common variance) ranged from 24% for Caring to 83% for Connection.

Latent factor scores for the Five Cs and PYD were calculated in LISREL 8.54 for use in remaining analyses (Jöreskog, Sörbom, du Toit, & du Toit, 2001). These scores should be treated with caution because they are indeterminate, with individual-level rank ordering on a specified factor varying widely depending on how the scores are calculated (Bollen, 1989). It should be noted, however, that correlations between the LISREL-computed factor scores and mean scores calculated from the standardized indicator variables (so-called "coarse factor scores"; Grice, 2001) were all high ( $> 0.93$ ).

Table 10 presents descriptive information for the six latent factors: means, standard deviations, and *ns*. In addition, hierarchical multiple regression analyses were computed using factor score as the dependent variable and sex, race or ethnicity, and household-income predictor variables to provide comparable background information as for the indicator scale scores. Girls have higher scores than boys on Caring, Character, Competence, Connection, and PYD. European American and Latino or Latina youth have higher Confidence scores than other youth. Youth from families with higher incomes have higher scores on all but the Caring constructs. Table 11 provides the correlation matrix among the Five C factor scores. As can be seen, correlations between all scores are moderate to high.

### **Youth Contribution**

Using the indicators of contribution present in the Wave 1 data, two measures were constructed which are distinct and match the definition of contri-

**TABLE 10: Measures of the Five Cs: Confirmatory Factor Analysis Factor Scores**

	Mean	Significant Regression Effects ( $p < .001$ ; F test, $df = 6,956$ )
Caring	0.630	F > M
Character	1.000	F > M Income+
Competence	0.628	Income+ F > M
Confidence	1.000	Income+ European American > Others Latino or Latina > Others
Connection	0.676	F > M Income+
PYD	0.000	F > M Income+

NOTE: F = female; M = male; Income = household income; PYD = positive youth development. A plus sign indicates a positive relationship. A minus sign indicates a negative relationship.

**TABLE 11: Correlations Among the Five Cs Latent Factor Scores (N = 1,700)**

	1	2	3	4	5
Competence	1.000				
Confidence	0.628	1.000			
Connection	0.744	0.693	1.000		
Character	0.676	0.630	0.746	1.000	
Caring	0.405	0.378	0.447	0.407	1.000

NOTE: All correlations are significant at the  $p < .01$  level.

bution introduced in this article (i.e., that within adaptive individual ↔ context developmental regulations there is both an ideological and a behavioral component to youth contributions; Lerner, Dowling, et al., 2003). The first measure reflects ideology of contribution and was obtained by coding responses to two open-ended questions. These questions asked youth to describe themselves as they would like to be and as they actually are, in terms of what they are like and what sorts of things they do. Responses that reflect a desire for or commitment to giving back to the world around them were coded as *absent* (0), *present* (1), or *important* (2). The second measure pertains to the behavioral component of contribution and describes the amount of participation in activities that reflect active engagement with the world around oneself. These activities consist of being a leader in a group, helping friends and neighbors, helping in sports activities, participating in school government and religious youth groups, volunteering in the community, and mentoring and tutoring others.

The items used to measure contribution were considered a variable set, and a sum score was computed for all youth with the ideology and participation scores equally weighted. Higher scores represent a composite indicating more involvement in contribution activities and an ideology of giving back to the world around oneself. This sum score was analyzed as an outcome regressed on youth sex, race or ethnicity, and household income and then compared with factor scores on each of the Five Cs and PYD. Because fewer parents answered the questionnaire, the sample size drops significantly when household income is included in the analyses, so the results are displayed with and without household income. When included in the analyses, household income is significantly and negatively related to contribution in fifth graders. However, the results are nearly identical for the other variables whether income is controlled for. Table 12 shows the results of the hierarchical regressions, displayed twice, with and without income.

Females have significantly higher contribution scores than males, and there are no significant differences for the race or ethnicity variables. Positive youth development is significantly related to contribution when the background variables are controlled for. When the Five Cs are entered as a group instead of PYD, the joint contribution is significant (e.g., the change in  $R^2(5, 1,047) = .037, p < .001$  without controlling for income). The pattern for the individual Cs varies somewhat when income is not included: Confidence and Character are significantly related to contribution when income is not controlled for, and Competence alone is significant when income is controlled for. This difference is likely because of sample size variation with the inclusion of parent variables.

These results provide empirical support for the theoretically specified relationship between PYD and the Five Cs and contribution. Of course, these results represent a one-time pattern of covariation among the constructs. The longitudinal data from the subsequent waves of data collection to occur within the 4-H Study will permit assessment as to whether PYD and particular Cs, at an earlier point in time, predict the growth of contribution beyond any within-time relationships among the constructs. In addition, such data will enable analysis of the reverse direction of influence seen as possible within the developmental systems theoretical perspective, that is, contribution at an earlier time may promote positive growth (Lerner, 2004). In fact, if youth are engaged in community-based, YD programs that foster civic engagement, the development of positive behaviors and the diminution of risk behaviors would be expected. The final set of analyses to be reported in this article, aimed at appraising the association of participation in such YD programs with PYD, risk reduction, and contribution will elucidate this possibility.

**TABLE 12: Parameter Estimates,  $p$  values, and Associated Goodness-of-Fit Statistics for a Nested Taxonomy Of OLS-Fitted Regression Models That Describe the Relationship Between Youth's Community Contribution and the Five Cs or PYD, Controlling For Sex, Race or Ethnicity, and Household Income**

	Models Without Household Income (n = 1,024)			Models With Household Income (n = 625)		
	M1	M2	M3	M1a	M2a	M3a
Intercept	3.435***	3.555***	3.453***	3.941***	4.536***	3.9092***
Sex	1.034***	0.871***	0.803***	1.049***	0.789**	.722***
European American	-0.034	-0.160	-0.090	0.194	0.047	0.071
Latino or Latina	-0.176	-0.143	-0.099	0.192	0.026	0.043
African American	0.174	0.351	0.431	-0.001	0.095	0.119
Household Income				-0.114*	-0.198***	-0.193***
PYD		0.518***			0.744***	
Confidence			-0.314*			-0.180
Competence			0.196			0.410*
Character			0.383**			0.307
Caring			0.022			0.132
Connection			0.198			0.199
$R^2$	0.027***	0.053***	0.065***	0.033***	0.079***	0.0873***
$R^2$ change from M1 or M1a		.026***	.037***		.046***	.054***
SSE	1,0232.431	9,962.514	9,840.291	6,440.715	6,132.414	6,081.709
d/E	1,065	1,051	1,047	644	643	639

NOTE: PYD = positive youth development; SSE = sum of squares for error; d/E = degrees of freedom for error.

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



### **Youth Development Program Participation, the Five Cs, Risk Reduction, and Contribution**

Given that YD programs have been identified in theory (Lerner, 2004) and research (Roth & Brooks-Gunn, 2003a, 2003b; Scales et al., 2000) as key assets in promoting positive development among youth, we address the question of whether the level of participation in YD programs is associated with either PYD or contribution. Our view is that YD programs promote youth contribution by assuring that the young person has a sustained relationship with at least one committed adult, who provides skill-building opportunities to the youth and acts to enhance the young person's healthy and active engagement with the context (Lerner, 2004).

To reflect this orientation toward YD programs, a measure of participation in YD programs was designed to describe a youth's maximum depth of involvement with any of four kinds of programs: 4-H, Boy Scouts and Girl Scouts, YMCA or YWCA programs, and Boys and Girls Clubs. These programs were selected from among the many activities we asked youth to report on because their mission statements specifically emphasize a PYD perspective. Because we were interested in sustained level of involvement, current and past participation was included and indexed by amount of participation per month in the activity with the greatest level of participation. For example, if a youth was active a couple of times a week in 4-H and went to the Boys and Girls Clubs twice a month, the activity level in 4-H of eight times per month was their participation score. Thus, this measure was developed to assess depth of participation rather than the number of programs participated in.

Three regression analyses were conducted to address the question of the relationships among PYD, participation in YD programs, and contribution. This analysis was done in an exploratory fashion as a first step toward assessing, while controlling for youth sex and race or ethnicity, whether participation contributes to the relationship between PYD and contribution for the fifth graders in this study. Three regression analyses were conducted to examine these relationships, and the results are displayed in Table 13.

In this sample, at Wave 1, both PYD and program participation are significantly related to contribution. The relationship between PYD and program participation is not significant. This pattern of results suggests that for this age group, PYD and program participation are each independently related to contribution rather than PYD being moderated by program participation. In addition, analysis of risk behaviors for Wave 1 indicated that, overall, adolescents reported a very low incidence of substance use and delinquency (see Table 5). In addition, the level of depression reported by adolescents was not

**TABLE 13: Parameter Estimates, *p* values, and Associated Goodness-of-Fit Statistics for Regression Models That Describe the Relationships Between Youth's PYD, Program Participation, and Community Contribution, Controlling for Sex, Race or Ethnicity, and Household Income**

	<i>Outcome Variable</i>		
	<i>Program Participation</i>	<i>PYD</i>	<i>Contribution</i>
Intercept	3.353***	-0.250***	2.734***
Sex	0.054	0.374***	0.840***
European American	0.341	-0.189***	-0.105
Latino or Latina	-0.793*	-0.032	-0.097
African American	0.635	-0.261**	0.641*
Program participation		0.001	0.082***
PYD			0.530***
<i>R</i> <sup>2</sup>	.009**	0.061***	0.068***
SSE	29,939.299	1,216.752	13,206.183
<i>d</i> fE	1,424	1,423	1,422

NOTE: PYD = positive youth development; SSE = sum of squares for error; *d*fE = degrees of freedom for error.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

in the risk range. Based on the extant literature (e.g., Perkins & Borden, 2003), we expect that, in future waves within this study, the incidence and variability of these risk indicators will increase. Such changes will afford a more in-depth analysis of the relationship of the role of youth development programs in promoting the Five Cs and in diminishing problem behaviors. Thus, analyses of future waves of data will allow us to refine this finding and determine if there is a causal link between PYD and program participation and the nature and direction of the link.

## Discussion

The present article presents data from the first wave of data of the 4-H Study of PYD and, thus, provides cross-sectional information that will provide a baseline for subsequent longitudinal reports of the nature of developmental change in PYD; in the ideological and behavioral components of youth contributions; and in the relationships among participation in YD programs, the Cs of PYD, and youth contributions. Building on this foundation, future publications will further refine the model of the Five Cs presented in this article. As an example, the correlations that exist among the Five Cs will be explored, and their significance to the conceptual model of PYD will be

addressed. Furthermore, data from future waves of the study will allow for a more comprehensive appraisal of the model presented in Figure 1 and for the assessment of constructs not addressed in this article, such as regulation and individual and contextual assets.

Although we provided preliminary, descriptive information about the behavior of all the measures included in the measurement model employed for Wave 1 of the study, the main analyses in the present report focused on only those measures that enabled us to address three issues, that is, the nature of the empirical evidence for (a) the conception that PYD may be instantiated by the Five Cs of Competence, Confidence, Connection, Character, and Caring, and assessed in the present report through the unitemporal patterns of covariation available in the Wave 1 data set; (b) the theoretically specified relation between PYD and contribution; and (c) the purported relations among participation in youth development programs, PYD, and contribution.

The results of the preliminary data analyses suggested that all the previously used measures and the scale scores derived from them behaved as expected, based on prior results reported in the adolescent development literature (Harter, 1998). Levels of reliability and validity reported in past research were replicated within the present sample. In addition, the measures that were devised for use in the present research (e.g., the assessment of youth school and career aspirations or expectations) were found to possess moderate to high response or coding reliability; the theoretically expected patterns of association between these measures and other assessments within our measurement model (e.g., with the Cs of PYD) suggest the validity of these measures as well.

In regard to differential behavior of the scores in our data set across subgroups of the youth participants, we found that, given the number of preliminary comparisons made and the power of these analyses, relatively few instances of systematic variation existed in relation to major demographic categories within the sample (e.g., gender, race or ethnicity, household income, and mother's education). Given that these differences reflect unitemporal patterns of covariation and, therefore, that their developmental significance cannot be ascertained through cross-sectional analyses, we believe that it is prudent to delay interpretation of the possible significance of such variation pending the replication of these differences in our longitudinal data.

Moreover, even when these few differences arose, they reflected contrasts between groups evidencing overall positive healthy behaviors. That is, other general findings from the descriptive analyses indicated that the participants in this study were reporting their behavior to be positive and healthy. Of course, the location of these central tendencies in our data may reflect the oft-

reported positive bias in dependent variables associated with people agreeing to participate in a longitudinal study (Baltes, Reese, & Nesselroade, 1977; Schaie & Strother, 1968) and the fact that America's contemporary cohorts of young people exist in a far more positive state than prior deficit-based accounts of today's youth would predict (Benson, 2003).

The viability of these two nonmutually exclusive interpretations may be better ascertained as the 4-H Study continues its waves of data collection and participants enter the higher risk years of middle and late adolescence (Dryfoos, 1990; Perkins & Borden, 2003) and, in addition, are compared to retest control participants. In any event, we regarded the evidence that we found for the psychometric quality of the present set of measures and the magnitude of the comparable behavior of the measures across demographic categories within the sample supportive of the use of these assessment tools in the analyses we conducted to address the three key issues addressed in this report.

Turning to the first issue, whether the unitemporal instantiation of PYD that was tested in the present report may be represented by the Five Cs of Competence, Confidence, Connection, Character, and Caring, this article provides the first evidence to date of the empirical reality of these five Cs and of their convergence on a second-order latent variable of PYD. The structural model initially tested in an attempt to verify the presence of these Cs and of PYD was derived from our interpretation of the extant theoretical and meta-evaluation evidence pertinent to the conceptualization of PYD (Benson, 2003; Damon, 1997; Eccles & Gootman, 2002; Lerner, 2004; Roth & Brooks-Gunn, 2003a, 2003b; Scales et al., 2000). Although the results of the SEM analyses testing this model proved to be adequate, model fit was substantially improved in the 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. Although an ideal model assumes no correlation between the manifest variables, we did not expect this to be the case, as these measures are expected to overlap somewhat conceptually (e.g., self-worth and positive identity should be related). As expected, we 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.

Of course, even the revised model can be improved. The apparent shared variance between the first-order factors of Confidence or Competence and Character or Caring that are not accounted for by the model suggest the presence of an additional structure. There are three potential ways in which these results can be interpreted. First, some of the Cs may represent the same latent construct, resulting in fewer than five Cs. Second, there may be an additional

level of latent constructs present in our model, for instance, between the first-order factors and the second-order factors. Third, these findings may have resulted from the fact that all latent constructs are measured by self-report. For example, our working definition of Competence clearly articulates that a purer measure of Competence would result if the actions of youth were directly measured. In this study, Competence was measured through self-report. These different possible interpretations of our Wave 1 findings will require cross-validation in subsequent waves of the 4-H longitudinal study, as well as in independent research that uses both the present measurement model and other potential indices of the Five Cs.

Furthermore, some of the latent constructs of the revised model are underspecified. As an example, the construct of Caring seems not to be conceptually complete, as may be reflected in the lower correlations between Caring and the other Cs, as compared to the correlations among the other Cs. Steps to improve the model have already been taken (e.g., by adding items to improve the measure of Caring), and this process will continue through future waves of the study. Nevertheless, the current data provide strong, albeit preliminary and cross-sectional, evidence about the empirical reality of the constructs associated with the new vision and vocabulary about healthy youth development (Benson, 2003; Damon, Menon, & Bronk, 2003; Lerner, 2004; Roth & Brooks-Gunn, 2003a, 2003b).

There are also provocative preliminary findings from the first wave of the 4-H Study that are pertinent to the sixth C, Contribution, and, thus, to the second key issue of interest in the present report (i.e., the nature of the theoretically specified relation between PYD and contribution). Both PYD and the Cs were related to the construct of Contribution, which was indexed by combining scores for each of the two components of this construct (i.e., of ideology and of action) that we believe comprise youth contributions. However, the strength of the relations identified in the present report may be attenuated by the fact that the means by which fifth grade youth in America can contribute to their communities is relatively constricted by prototypic ecological circumstances (e.g., 10-year-old youth cannot drive themselves to community service sites, and, in some cases, there is no public transportation that is convenient or even available). Nevertheless, the positive relations found among the PYD and contribution are consistent with theoretical expectations (Damon, 1997; Damon et al., 2003; Lerner, 2004).

Moreover, these theoretical ideas, which suggest that there exists a bidirectional relation between youth civic engagement and thriving (Lerner, 2004; Sherrod et al., 2002), require time-ordered, lagged data for adequate testing. Accordingly, a key question to be addressed, when at least three waves of data are available within the 4-H Study, is the nature of the

antecedent-consequent relations between Contribution (civic engagement) and PYD (thriving). In other words, in the civically engaged youth  $\leftrightarrow$  thriving relationship, does one direction of effect lead the other in its influence on the course of development?

Of course, the opportunity for youth to contribute to their communities often occurs within the context of their participation in community-based YD programs. As such, the third key question addressed in the present research is about the association between participation in YD programs, PYD, and contribution. As with the engaged youth  $\leftrightarrow$  thriving relationship, data fully adequate to address this question must at least be longitudinal in character. Nevertheless, the Wave 1 findings that we have reported above offer some provocative ideas that will be tested as the 4-H Study moves into its longitudinal phases.

The present research indexed depth of participation in YD programs and found that these scores for participation constituted a source of variation in youth contributions that was independent of scores for PYD. Given the theoretical belief in the bidirectional associations among PYD, YD program participation, and contributions by youth to self and context (Lerner, 2004; Lerner, Dowling et al., 2003; Scales et al., 2000), the independent contributions of program participation and PYD to contributions is puzzling. However, it may be that future developmental analyses across the adolescent years will elucidate the relation among these three domains of youth functioning. Developmentally, and again recalling the orthogenetic principle (Werner, 1957), it may not be until a more developmentally mature portion of adolescence emerges that an integration among PYD, YD program participation, and self  $\leftrightarrow$  contribution is evidenced. Once again, this possibility can only be appraised through analyses of the 4-H Study data set that include information from additional waves of observation.

Such analyses may be usefully extended by ascertaining the personological and ecological characteristics of youth participating in specific clusters of particular YD programs and by considering both hours per week of participation, as well as the number of programs per se in which a youth participates. The results of such analyses will then be able to inform subsequent longitudinal analyses (e.g., wherein number of programs or frequency of participation at Time 1 can be used as a covariate in analyses of the relations at Time 2 among program participation, PYD, and risk).

Moreover, the questions that remain to be addressed in regard to the third issue addressed in this study (i.e., the issue of the association between YD program participation and the positive development of youth) are just a sample of the questions that we need to investigate in further analyses of Wave 1

and subsequent data in the 4-H Study. For instance, further analyses will address key facets of the theoretical model of PYD that we introduced in this article and, specifically, the role of individual ↔ context developmental regulations involving the individual and ecological assets of youth in promoting PYD. As noted earlier, in our presentation of the SOC measure (Freund & Baltes, 2002; Freund, Li, & Baltes, 1999), the present article elected not to focus on the developmental regulation component of our theoretical model, despite its fundamental significance within the conceptualization we present of PYD. This decision was based primarily on the fact that developmental regulation can only be understood with change-sensitive data. As such, these analyses remain priorities for future reports of the 4-H Study data set.

In addition, given the relative power and richness of the data set, we will be able to focus future work on patterns of individual differences in the youth development trajectories that we will be able to assess across the waves of this longitudinal study. For instance, we will be able to also assess how different groups of youth (e.g., males and females, adolescents from different regions, youth involved in different constellations of activities, or adolescents having different family experiences may differ in regard to the structure and levels of the Five Cs, PYD, and contribution).

As noted earlier, these analyses will be enhanced by improvement of the measurement model that we use to index key constructs in our structural model of the adolescent ↔ context relation, for example, ecological assets that can be indexed objectively through measures of the actual ecology of human development (Theokas & Lerner, in press) and conceptualized as distinct from the Cs of PYD (as evidenced by the nature of our revised measurement model). Indeed, the opportunity in future waves to index constructs through both self-report and independent and objective means will enhance the level of triangulation within the data set and, also, will diminish the possibility that method variance may constrain our ability to generate valid and generalizable data.

The changes in the measurement model for the Five Cs that were introduced by the formulation of our revised measurement model and the use of an enhanced measurement model for such constructs as ecological assets or contribution (which can be indexed through school- and community-based records) will enable us to appraise better the developmental-systems notion that adaptive developmental regulation (i.e., mutually beneficial individual ↔ context relations) are linked to PYD.

Finally, a key asset to be provided by the analysis of further waves of data from the 4-H Study is that causality can be modeled, which of course cannot be done by cross-sectional, unitemporal data. Accordingly, reports of the

results of analyses of the dynamic influences on PYD of the system of relations within which a young person is developing will be a key contribution of the work deriving from the future waves of this longitudinal study.

In sum, the current investigation provides empirical support for the conceptualization of PYD as competence, confidence, connections, character, and caring; for the conception of youth contribution presented in this article; and for the role that youth development programs play in PYD. These findings, together with future publications of the 4-H Study that will be focused on a comprehensive model of PYD, provide important information to scholars, practitioners, and policy makers who have called for a model of the strengths that young people possess. This important work can facilitate efforts to promote and support thriving among young people and their families.

### NOTES

1. The theoretical conception of positive youth development (PYD) tested in the current article views this construct as composed on (defined by) the Five Cs (Eccles & Gootman, 2002; Lerner, 2004; Roth & Brooks-Gunn, 2003a, 2003b). In this conception, PYD is regarded as a linear combination of the Cs, one wherein higher scores on each of the Cs contributes equally to a resultant higher score for PYD. Of course, other models of PYD may be formulated and tested (e.g., there may be constructs other than the Cs associated with PYD, especially in different cultural groups; King et al., 2005 [this issue]; or it may be that some Cs in some youth suffice to produce PYD, even in the face of low scores on other Cs). Future use of the 4-H Study data set will involve sets of such alternatives. In the present article, however, we have opted to begin our analyses of PYD by ascertaining if the extant theoretical model is empirically viable.

2. Missing data ranged from 6% through 40% across variables. Variables at the end of the survey contained more missing data than variables at the beginning. Considering that this pattern suggests a fatigue effect and that the order of the survey was not outwardly related to fatigue-related variables, we assumed that the data were missing at random (Little & Rubin, 1987). To maximize statistical power, replacement values for missing data were estimated using the expectation maximization algorithm as implemented in SYSTAT 10.2 (Marcantonio & Pechnyo, 2002). All confirmatory factor analyses were computed using a complete data file containing actual and imputed data.

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*Richard M. Lerner is the Bergstrom chair in applied developmental science and the director on the Institute for Applied Research in Youth Development in the Eliot-Pearson Department of Child Development at Tufts University.*

*Jacqueline V. Lerner is a professor at the Boston College Lynch School of Education.*

*Jason B. Almerigi is a postdoctoral fellow at the Institute for Applied Research in Youth Development in the Eliot-Pearson Department of Child Development at Tufts University.*

*Christina Theokas is a doctoral student in the Eliot-Pearson Department of Child Development at Tufts University.*

*Erin Phelps is the director of research at the Institute for Applied Research in Youth Development and lecturer in statistics and data analysis at the Eliot-Pearson Department of Child Development at Tufts University.*

*Steinunn Gestsdottir is a doctoral student in the Eliot-Pearson Department of Child Development at Tufts University.*

*Sophie Naudeau is a doctoral student in the Eliot-Pearson Department of Child Development at Tufts University.*

*Helena Jelacic is a Jacobs Foundation fellow and a doctoral student in the Eliot-Pearson Department of Child Development at Tufts University.*

*Amy Alberts is a doctoral student in the Eliot-Pearson Department of Child Development at Tufts University.*

*Lang Ma is a Jacobs Foundation fellow and a doctoral student in the Eliot-Pearson Department of Child Development at Tufts University.*

*Lisa Smith is a master's student in the Eliot-Pearson Department of Child Development at Tufts University.*

*Deborah L. Bobek is the managing director of the Institute for Applied Research in Youth Development in the Eliot-Pearson Department of Child Development at Tufts University.*

*David Richman-Raphael is a master's student in the Eliot-Pearson Department of Child Development at Tufts University.*

*Isla Simpson is a recent master's graduate of the Eliot-Pearson Department of Child Development at Tufts University.*

*Elise DiDenti Christiansen is a doctoral student in the Applied Developmental and Educational Psychology program at Boston College.*

*Alexander von Eye is a professor in the Department of Psychology at Michigan State University.*