SPRINGER BRIEFS IN WELL-BEING AND QUALITY OF LIFE RESEARCH

Laura H. Lippman · Kristin Anderson Moore
Lina Guzman · Renee Ryberg
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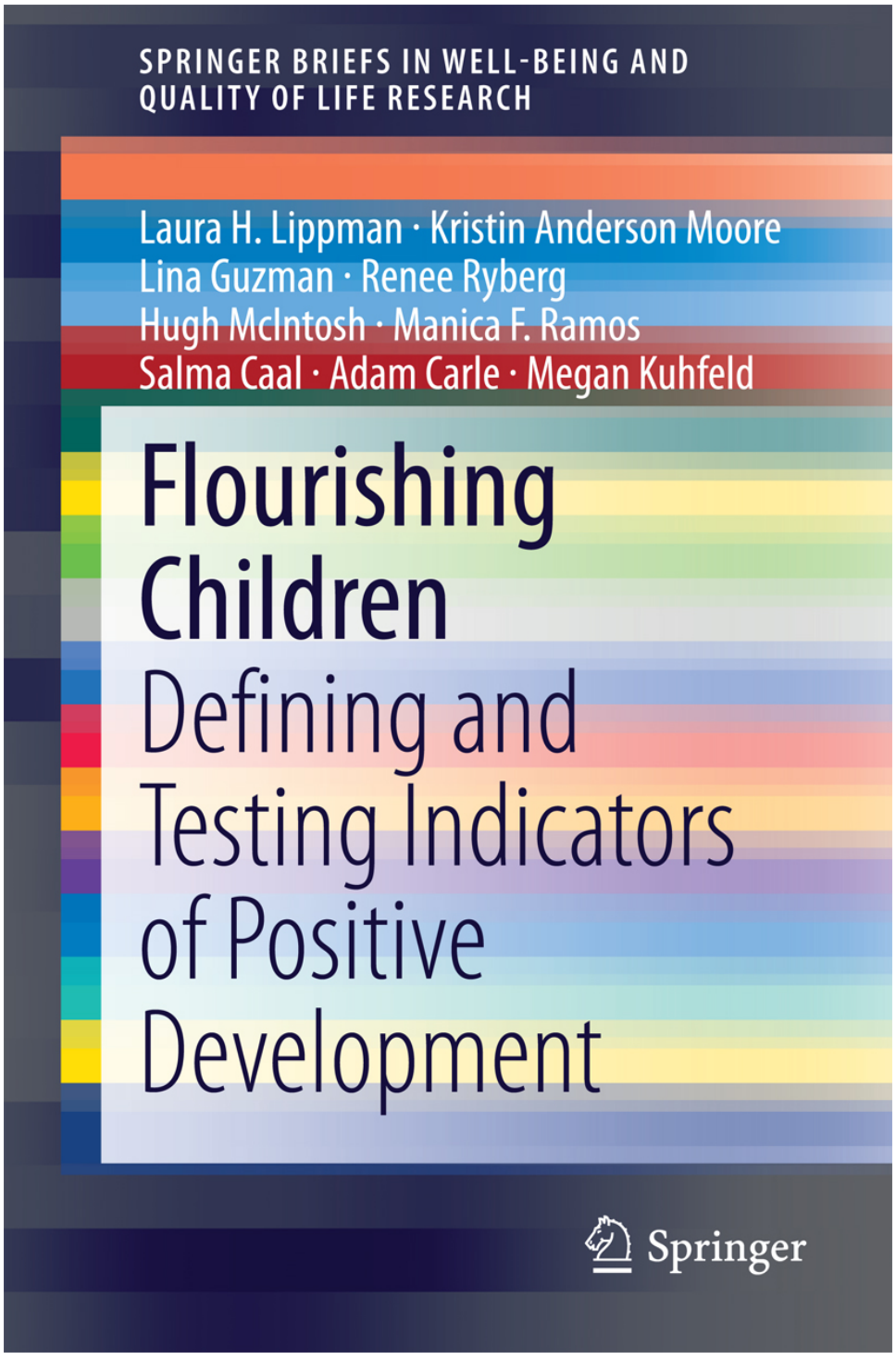
Flourishing Children

Defining and Testing Indicators of Positive Development

Springer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Laura H. Lippman
Child Trends, Bethesda, MD, USA

Kristin Anderson Moore
Child Trends, Bethesda, MD, USA

Lina Guzman
Child Trends, Bethesda, MD, USA

Renee Ryberg
Child Trends, Bethesda, MD, USA

Hugh McIntosh
George Mason University, Fairfax, VA, USA

Manica F. Ramos
Child Trends, Bethesda, MD, USA

Salma Caal
Child Trends, Bethesda, MD, USA

Adam Carle
University of Cincinnati School of Medicine, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, USA

Megan Kuhfeld
Graduate School of Education and Information Studies, University of California, Los Angeles, USA

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1. Studying Aspects of Flourishing Among Adolescents

Laura H. Lippman[1], Kristin Anderson Moore[1], Lina Guzman[1], Renee Ryberg[1], Hugh McIntosh[2], Manica F. Ramos[1], Salma Caal[1], Adam Carle[3] and Megan Kuhfeld[4]

(1) Child Trends, 7315 Wisconsin Avenue, Suite 1200W, Bethesda, MD 20814, USA
(2) George Mason University, 4400 University Drive, 3F5, Fairfax, VA 22030, USA
(3) University of Cincinnati School of Medicine, Cincinnati Children's Hospital Medical Center, 3333 Burnet Avenue, MLC 7014, Cincinnati, OH 45229, USA
(4) Graduate School of Education and Information Studies, University of California, Los Angeles, USA

Laura H. Lippman (Corresponding author) Email: llippman@childtrends.org

Kristin Anderson Moore Email: kmoore@childtrends.org

Lina Guzman Email: lguzman@childtrends.org

Renee Ryberg Email: rryberg@childtrends.org

Hugh McIntosh Email: humac1@verizon.net

Manica F. Ramos Email: mramos@childtrends.org

Salma Caal Email: scaal@childtrends.org

Adam Carle Email: adam.carle.cchmc@gmail.com

Megan Kuhfeld Email: megan.kuhfeld@gmail.com

Abstract
The Flourishing Children Project responds to a call for rigorous indicators of positive development in adolescents by creating scales for 19 constructs of positive development in the categories of flourishing in school and work, personal flourishing, flourishing in relationships, relationship skills, helping others to flourish, and environmental stewardship. Each scale can be used alone or in combination to fill gaps in available measures of important constructs of adolescent flourishing. This chapter presents background and overview of the project. Our work is based on a framework for generating positive indicators that we developed previously. The current project began with a review of the research and extant measures for the constructs. With that information, we created definitions for each of the 19 constructs that represented a consensus from the literature. We then selected existing items that measure these constructs or adapted or created new items, which we tested through three rounds of cognitive interviews. To ensure that they were suited for national surveys, the scales were tested on a nationally representative sample of adolescents and parents. Finally, we conducted psychometric analyses to ensure the scales possessed desired psychometric properties.

Keywords Adolescent development – Adolescent well-being – Positive youth development – Developmental assets – Positive indicators – Flourishing – Positive child development – Child well-being indicators – Child well-being frameworks

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1.1 Introduction to the Project

The Flourishing Children Project responds to a call for rigorous indicators of positive development in adolescents. Much rigorous research has accumulated over the last decade demonstrating that positive (or promotive)

and protective factors are linked in important ways to positive (or less negative) outcomes for adolescents (Catalano et al. 2004; Lerner 2009; Lippman et al. 2013). Yet, available measures of these positive factors are often not developmentally appropriate, not representative of and proven to work in diverse populations, or neither short enough nor rigorous enough to meet the standards of national surveys and program evaluations. This project addresses these shortcomings by creating scales for 19 constructs of positive development in the categories of flourishing in relationship, relationships skills, flourishing in school and work, helping others to flourish, environmental stewardship, and personal flourishing.

The purpose of this project is to measure selected aspects of flourishing that matter for improving adolescent outcomes. It is by no means comprehensive of all aspects of flourishing. The constructs of flourishing were selected because they were deemed important by our research team based upon prior research. However, they needed measurement development or refinement either because (a) no construct measures existed for adolescents, (b) when measures did exist, they needed to be refined in order to be appropriate and comprehensible in diverse adolescent and parent populations, (c) promising work on small convenience samples needed further testing to assess their appropriateness for national samples, or (d) long scales needed to be shortened while retaining good psychometric properties.

This project does not intend to replicate work that has already been done. There are many excellent positive indicators, such as those for positive health behaviors and volunteering, that meet rigorous criteria and that have been used in surveys such as the Health Behaviors in School-Aged Children Survey, the National Longitudinal Survey of Youth, the National Survey of Children's Health, and Monitoring the Future. Thus, there is no need to develop measures of such constructs. We have recommended a framework for generating positive indicators, reviewed existing frameworks and positive measures in national and international surveys, and provided examples of measures in a previous paper (Lippman et al. 2009, 2011). In addition, we have surveyed rigorous research studies linking positive and protective factors to positive outcomes for adolescents (Lippman et al. 2013; Moore and Lippman 2005). Such reviews will only be touched upon here so that we can focus upon our study and findings.

This project also does not develop an index of adolescent well-being or a survey comprised of comprehensive domains of well-being. Rather, we have developed scales of 19 independent constructs of flourishing, and each scale is intended to be used alone or in combination in surveys, research studies, and evaluations, as needed, to fill gaps in available measures of important constructs of adolescent flourishing.

1.1.1 Why Measure What Adolescents Need to Flourish?

After decades of monitoring child well-being, we have observed that what gets measured is what gets valued. By providing statistics on problem behaviors, we can help governments, schools, and nongovernmental organizations to focus on addressing these behaviors in the populations most at risk, as well as to monitor the results of those efforts. Likewise, by providing rigorous statistics on indicators of flourishing, we can help these organizations to focus on developing the strengths that lead to positive outcomes for adolescents.

Measures of well-being reflect our values. If we want adolescents to flourish, we need to conceptualize flourishing clearly with consensus definitions and to measure flourishing with the same rigor that negative indicators of “ill-being” have been measured so that such measures can be included in surveys, research, and program evaluations. Good measurement contributes to strategies that increase public understanding of the value of investing in constructive and preventive actions to achieve these positive goals.

While the world struggles with economic, social, and political challenges that strain families and children, one might question why our focus is on developing positive indicators of child well-being rather than refining indicators of deprivation. As adolescents grow up in this challenging environment, as new families form, and as governments create policies (or not, given budget deficits) to support children and families, it is essential for governments and service organizations to have access to clear definitions of how flourishing is defined and how encouraging the development of specific aspects of flourishing in adolescents can maximize their potential. In addition, flourishing needs to be measured in a way that complements and adds value to existing negative indicators of adolescent

well-being so that negative and positive indicators can be used together in surveys, research studies, and evaluations. In fact, at this time of challenge, it may be particularly opportune to conceptualize and measure positive well-being.

Many current indicators of adolescent well-being actually measure ill-being, such as drug use and crime. The original intent of child well-being indicators was to monitor child survival (Ben-Arieh 2008). Consequently, national social indicator systems have focused on threats to survival and well-being, bringing attention to problems that needed to be addressed (Moore 1997).

While designed to monitor the "well-being" of the population, statistical surveys about children and families and the indicator reports that use them have included few positive indicators. The U.S. government's monitoring report is just one of many examples of this situation. *America's Children: Key National Indicators of Well- Being*,published annually by the U.S. Federal Interagency Forum on Child and Family Statistics from 1997 through 2013, includes only a few positive measures, primarily in the area of education, but provides data on a number of problem behaviors and conditions, such as illicit drug use, violent crime, obesity, smoking, asthma, emotional and behavior difficulties, mortality, and adolescent childbearing. In press releases, "good news" is often the reduction in something bad, like a decline in the teen birth rate. There are few measures available which allow the field to monitor increases in desired behaviors (Bradshaw et al. 2007). While it is critical to monitor problems and to take action to rectify them, positive well-being needs to be incorporated in these monitoring reports so that the effects of policies and programs to enhance positive behaviors, relationships, and competencies can be monitored. Several countries have already successfully produced child well-being indicator volumes that incorporate both positive and negative indicators, such as those of Ireland, England, Canada, Australia, and New Zealand.

The focus on the negative can contribute to a widespread perception on the part of taxpayers that children are doing poorly and that there is little that can be done to improve things (Public Agenda 1997). This negative perspective can undermine the public will to invest in children, at least in the US. It may also undermine private actions, such as volunteering to work with children (Guzman et al. 2003; Moore and Halle 2001; Public Agenda 1997).

While negative indicators receive substantial attention from the media, policy makers, and the public, there is a growing sense of the need to build upon strengths in popular culture, as well as in specific areas such as psychology and education. In addition, policy makers have expressed increased interest in positive characteristics in at-risk populations, such as youth in poverty and minority youth (Valladares and Moore 2009). This issue has received ongoing research attention in the study of resilience (Catalano et al. 2004; Steinberg 2005).

Another important reason to develop positive indicators is that it represents good science. The study of child development, and human development more broadly, encompasses both positive and negative developmental processes (Bornstein et al. 2002; Eccles and Gootman 2002; Huston and Ripke 2006; Shonkoff and Phillips 2000). Thus, to focus solely on the negative is scientifically inappropriate. In addition, research on youth perspectives, the sociology of childhood, education, health, social and emotional learning, positive psychology, developmental psychology, child rights, human capital formation, and social capital supports and informs the development of a field of positive indicators.

Yet, another reason to develop positive indicators is that practitioner wisdom suggests that people recognize the strengths of their families, children, and communities and do not want to hear only negative messages about failure and problems. Yet, they need to have their perspective validated by research that informs them about which strengths matter for which outcomes, which strengths have a strong research base, and which strengths can be measured rigorously for specific populations that may be targeted by programs and communities. Practitioners also know that adolescents will attend and respond to programs that build their assets and avoid programs that seek to quash negative behaviors (Moore and Keyes 2003). Thus, programs need to be able to monitor how they are doing in building the assets of their participants.

Moreover, the positive youth development approach and the language of assets have been found to resonate at the community level and among service providers, if not the tabloids. In addition, programs and practices that foster positive youth development are increasingly receiving research, evaluation, and policy attention at the national and community level.

Perhaps most importantly, adolescents themselves talk about positive attitudes, qualities, competencies, behaviors, and relationships when

interviewed about their well-being (Fattore et al. 2009; Hanafin and Brooks 2005; Matthews et al. 2006). They do not identify with, nor wish to be known by, problem behaviors. Asking adolescents about their strengths in the course of conducting interviews or surveys can validate those strengths by demonstrating that adults are aware of and curious about them. This interaction can increase cooperation with data collection. Likewise, when asking parents about their teen's positive behaviors and qualities, parents are happy to talk about them. These experiences have demonstrated to our research team the critical importance of incorporating and measuring the positive in any research study on adolescents.

Finally, there is a need to improve existing measures of positive well-being in adolescents from a methodological perspective. There is a perception that positive measures are "soft" and "squishy," lacking both the research base enjoyed by decades of research on negative indicators and the rigorous psychometric properties of negative measures that have been used repeatedly in national and international studies. Rigorously collected data on diverse populations, as well as psychometric analyses and reporting of the results of the scales, are needed to convince survey directors that positive measures of well-being can be rigorously measured and collected. There is a need for evidence that positive constructs and measures are valid and reliable across varied race/ethnicity, gender, and socioeconomic-status groups, as well as across nations.

There is also a need for clarity and common definitions in conceptualizing and defining indicators of flourishing. Developmental constructs have become more and more differentiated over time, with each researcher using a specific definition and measure for very similar constructs. When these constructs are measured, they are assessed with specific scales that are each highly differentiated (Moore and Lippman 2005). Conversely, available measures for conceptually different constructs often overlap at the item level, as we found in reviewing countless scales for each construct in our project.

The length of many existing scales is also problematic. Recent work in the developmental sciences has taken a more inclusive and positive approach to assessing individual characteristics, and the measures used in these studies also tend to be quite lengthy, making them expensive to include in large-scale national surveys where a single minute of survey time can cost more than $100,000 (Child Trends 2003). For example, Lerner and

colleagues (2005) have developed the Five Cs of positive youth development (competence, confidence, character, caring, and connection), but the survey associated with this conceptualization is more than 20 pages long. Similarly, Peterson and Seligman (2004) have developed a classification of human virtues including 24 strengths such as creativity, persistence, and humor for adults. The measurement model includes 10 questions for each of 24 strengths. While these are thoughtful and carefully constructed measures, shorter versions need to be developed for use in large-scale national surveys.

In addition, many existing positive survey items and scales suffer from a lack of specificity in measurement, either in the item or the response categories. Strengths are more prevalent than deficits in populations, so there is a need for specificity in the measurement of flourishing. There is also a tendency toward upward bias in reporting on positive measures by respondents, so care must be taken in designing response categories that differentiate among respondents at the upper end of the response spectrum. This situation also speaks to the need for high-threshold items that truly distinguish those who score exceptionally high on a strength from others who score somewhat lower. To address the tendency toward upward bias, researchers often include negative items in a scale as a reality check, but this approach introduces issues for internal consistency and fit. In addition, prior research demonstrates that predictive validity tends to be variable for positive indicators and that when there is a positive relationship with outcomes, the strength of the relationship tends to be moderate (Day 2010; Lippman et al. 2013). Thus, there is much room for improvement in the measurement and tests of validity for measures of flourishing. Our project addresses these weaknesses head on.

1.2 Overview of Project Activities

This project took place over three and a half years (2009–2012), during which we completed the following sequence of tasks:

- reviewing the literature on the constructs and their measures, as well as any psychometric information available;
- developing consensus definitions, including subelements to drive specific measurement of each component of the definition;

- identifying existing items that measure each subelement of each definition of each construct;
- revising existing items and/or developing new items;
- conducting three rounds of cognitive interviews, in person and by phone, with respondents across the nation;
- revising items based upon the cognitive interviews and developing pilot instruments and experiments to embed in the pilot study;
- administering a pilot study with a national sample of adolescents and parents;
- completing psychometric analyses of the pilot data;
- finalizing the scales for adolescents and parents, using tests of reliability and fit statistics;
- conducting analyses of subgroups to ensure that the scales work for each group;
- conducting analyses of concurrent validity of the scales to outcomes in the areas of health, education, social behavior, and emotional health which were included in the pilot study; and
- disseminating our findings.

1.2.1 Item Development and Review

Item development to produce brief but robust scales entailed a multistage, sequenced process. First, extensive literature searches for extant measures of the positive constructs being investigated were conducted, gathering available psychometric data and research on how well the extant measures worked in varied samples. Following this review, the most promising measures that were appropriate for adolescents were selected. An advisory board of 13 prominent researchers with expertise in the constructs of interest also contributed to the item identification and selection process.

Next, based on the review of the literature, definitions were developed for each construct. The definitions identified subelements for each construct and operationalized each subelement by identifying specific corresponding measures (items) that tapped into each one. In some cases, extant measures which had not been validated for use among adolescents were revised to be more appropriate for this age group and/or to more closely align with the

definition of the construct or subelement. New items were also developed when a definitional subelement or a construct was not well represented by existing items.

Items were also revised to make the wording simpler or clearer, to provide greater range or variation for responding, to create items that would not be easy to endorse, and to develop items appropriate for all populations (e.g., girls as well as boys, and younger as well as older adolescents).

1.2.2 Cognitive Interviews

To test the validity of items and identify problems with item wording, three rounds of cognitive interviews with adolescents ages 12–17 years and parents were conducted across the country. Parents were included since in many federal surveys the respondents are parents reporting on their children's characteristics and behaviors. A total of 68 cognitive interviews were conducted with adolescents, and 23 parallel interviews were completed with parents, across 15 cities in the United States. The sample was spread across a spectrum of racial/ethnic groups, adolescent age groups (12–13 years old and 14–17 years old), and income groups.

A variety of techniques were used in the interviews, including concurrent and retrospective "think alouds," follow-up probes, paraphrasing, and the use of semistructured, open-ended items. The feedback received as part of these cognitive interviews was used to address issues with wording and comprehension and to revise the items and response categories in preparation for the pilot survey. (See Chap. 2for more information on the cognitive interviews.)

1.2.3 Pilot Test

To ensure that the items developed thus far are suited for administration in national surveys and possess the desired psychometric properties, such as internal reliability and concurrent validity across subgroups, the items were tested on a nationally representative sample of adolescents and parents. The web-based survey, conducted in conjunction with Knowledge Networks, yielded a sample of 1,951 adolescents and 2,240 parents, or 1,833 parent-adolescent dyads. (See Chap. 3for more information on the pilot study.)

1.2.4 Psychometric Work

Psychometric analyses were conducted on the scales and items that were tested in the pilot survey. First, levels of missing data and distributions of responses were examined to determine whether the data were highly skewed. Next, confirmatory factor analysis was performed on the predicted scales to extract distinct factors. Scales were also examined for their reliability (alpha). In addition, multilevel confirmatory factor analysis was used to examine whether individual constructs were tapping larger underlying constructs.

Analyses of critical subgroups (e.g., age, gender, and income groups) were conducted on final scales to examine their function across subgroups. The scales' concurrent validity was also investigated by examining the correlations between scales and markers of poor development, such as depression and smoking. (See Chap. 3for information on findings from the analyses.)

1.3 Conceptual Framework and Constructs

At an early stage in this work, we conducted a review of 43 frameworks for generating positive indicators and created a new composite framework, building upon these prior frameworks and developmental research (Lippman et al. 2009). In our review, we identified many frameworks which categorized child well-being according to some version of the following four domains: physical, intellectual, psychological and emotional, and social well-being [e.g., the framework produced by the National Academy of Sciences' landmark study, *Community Programs to Promote Youth Development*(Eccles and Gootman 2002)]. The Flourishing Children Project focuses on just two of these four domains—psychological and emotional development, and social development.

Several reasons guided our decision to concentrate on these two domains. First, several national surveys already examine positive indicators of physical health (National Survey of Children's Health and the National Health Interview Survey, for example) and intellectual development (National Assessment of Educational Progress, Education Longitudinal Survey, National Household Education Survey, and Early Childhood Longitudinal Study, for example).

Second, psychological and emotional development has traditionally been measured through documentation of problems, such as suicide [e.g., the Foundation for Child Development's Child and Youth Well-Being Index (Land 2006)], rather than strengths, and our review of measures internationally found few validated positive measures of psychological and emotional development that are short enough to use in national surveys (Lippman et al. 2009).

Finally, measures of social development, when they do exist, have not typically been rigorously tested or adapted for diverse populations. Two national indicator efforts, America's Children and the Key National Indicators Initiative, do not currently include indicators of child emotional and psychological and social well-being. This is true despite the fact that the Foundation for Child Development called for such measures as early as 1975 (Zill and Brim 1975) in order to measure child well-being comprehensively and to track well-being over time.

A critical issue in the field of positive youth indicators centers on the development of measures for individuals and their contexts. Some of the frameworks reviewed strike a balance between the individual-level domains of well-being and those pertaining to the social context. For example, the framework created by the Search Institute includes 40 developmental assets —20 pertaining to the child (internal) and 20 to the child's context (external) (Benson et al. 1998; Search Institute 2008). The importance of ecological contexts of development, such as families, schools, and communities, and the interaction of the individual with those contexts is a basic tenet of developmental science (Bronfenbrenner and Morris 1998). In developing positive indicators, it is important to distinguish measures of the context of well-being from measures of individual adolescent flourishing. Failing to do so conflates contextual inputs to well-being with well-being itself and muddies the water for those seeking to develop effective interventions and policies or to monitor progress at the appropriate ecological level (Moore et al. 2013). In addition, contextual indicators and individual indicators are only weakly correlated, suggesting that they should be tracked separately (Moore et al. 2008).

Another critical issue centers on relationships. Relationships have been treated with ambiguity in indicator systems, sometimes being treated as a characteristic of the individual and sometimes considered a contextual variable. While positive relationships are highly related to positive

outcomes (Hair et al. 2005; Scales 2003), they are not just inputs, since adolescents themselves contribute to the quality of relationships. Many qualitative studies of well-being in adolescents have found that relationships are considered to be the most important area of their lives. They report in interviews that, when their relationships flourish, they flourish (Fattore et al. 2009; Hanafin and Brooks 2005; Matthews et al. 2006). Considering these observations, our study team placed relationships in its own domain of indicators, separate from either the individual or the contextual domain. While indicators on the number of peer relationships and caring adults and on time spent with them have been well-measured in surveys, the quality of those relationships has not been well measured reliably, particularly in diverse populations. The separate domain for relationships adds value to other available indicator frameworks and acknowledges that the quality of the interaction between individuals and their contexts is worthy of its own area of focus for indicator development.

Thus, taking the above arguments into consideration, we developed a conceptual framework for generating indicators of flourishing (Table 1.1). Our framework has three overarching domains: individual, relationships, and context. The individual domain has the following subdomains, which are more specified than those in many other frameworks: physical health, development, and safety; cognitive development and education; psychological and emotional development; social development and behavior; and spiritual development and religiosity.

Table 1.1 Positive Indicator Framework

Developmental and ecological domains		
Individual	**Relationships**	**Context**
Physical Health, development, and safety	Family	Family
Cognitive development and education	Peers	Peers
Psychological/emotional development	School	School
Social development and behavior	Community	Community
Spiritual development and religiosity	Macrosystems	Macrosystems

This framework was created to generate positive indicators for the UNICEF Innocenti Research Centre (Lippman et al. 2009) and revised to include spirituality as a separate domain in light of recent research (Lippman et al. 2011)

The constructs for which we chose to develop scales emerged from (a) our understanding of gaps in currently available measures, (b) our prior work, in which researchers identified and tested promising measures of flourishing which they had been using in small-scale studies but which required revision and evidence of reliability in diverse national samples (Moore and Lippman 2005), and perhaps most importantly (c) constructs that were suggested as critical to flourishing by the diverse teens we interviewed (Matthews et al. 2006). We did not develop scales for any constructs in the context domain, as those, in general, tend to be already well measured.

The 19 constructs that we developed into scales are further grouped into the specific areas of flourishing shown in Tables 1.2and 1.3, where they are fit under the domains and subdomains of our conceptual framework.

Table 1.2 Constructs by areas of flourishing

Area of flourishing	Construct
Relationship skills	Empathy
	Social competence
Flourishing in relationships	Parent-adolescent relationship
	Peer friendship
Flourishing in school and work	Diligence and reliability
	Educational engagement
	Initiative taking
	Thrift
	Trustworthiness and integrity
Helping others to flourish	Altruism
	Generosity/helping family and friends
Environmental stewardship	Environmental stewardship
Personal flourishing	Forgiveness
	Goal orientation
	Gratitude
	Hope
	Life satisfaction
	Purpose
	Spirituality

Table 1.3 Positive indicator framework with Flourishing Children Project constructs

Developmental and ecological domains		
Individual	**Relationships**	**Context**
Physical health, development, and safety	**Family**	**Family**
	Parent-adolescent relationships	
Cognitive development and education	**Peers**	**Peers**
Educational engagement	Peer friendships	
Initiative taking		
Psychological/emotional development	**School**	**School**
Life satisfaction	Educational engagement	
Goal orientation		
Purpose		
Gratitude		
Hope		
Diligence and reliability		
Thrift		
Social development and behavior	**Community**	**Community**
Trustworthiness and integrity	Altruism	
Forgiveness	Environmental stewardship	
Altruism		
Social competence		
Empathy		
Generosity/helping family and friends		
Spiritual development and religiosity	**Macrosystems**	**Macrosystems**
Spirituality	Environmental stewardship	
Purpose		

Constructs for each developmental and ecological domain are noted below the corresponding domain. Note that some constructs for which we developed indicators in this project are listed twice in the table, since they are related to more than one domain of flourishing. Blank cells indicate areas which, while important for positive indicator development, are either already well measured or were beyond the scope of this project

---

1.4 Constructs

Our approach to developing measures began with a review of the research and the extant measures of each construct. We created a definition of the

construct that represented a consensus from the research literature and then identified subelements of each definition to guide item development. In this way, we ensured that items would be developed and tested for each subelement in order to capture the full spectrum of the construct in each scale.

1.4.1 Relationship Skills

1.4.1.1 Empathy

After reviewing the literature, we developed the consensus definition of empathy as the affective and cognitive ability to feel and understand what someone else is feeling.

Empathy in adolescence is related to the development of positive relationships in adulthood (Barber 2005). In addition, empathy is related to positive approaches to conflict management in the present and to prosocial behavior both in the present and in the future (Bandura et al. 2003; Wentzel et al. 2007). In addition, empathy is negatively related to aggression, as well as a conflict-engagement style of conflict management in the present, and to depression and delinquency both in the present and over time (Bandura et al. 2003; De Kemp et al. 2007; Wentzel et al. 2007).

1.4.1.2 Social Competence

Social competence is defined as a set of positive skills necessary to get along well with others and function constructively in groups, including: respecting and expressing appreciation for others; being able to work well with others, present ideas and listen to others' ideas, and work and cooperate in heterogeneous groups; demonstrating context-appropriate behavior and the ability to behave according to social norms; and using a range of skills or processes aimed at resolving conflict.

Adolescents who demonstrate social competence have been found to have higher levels of academic achievement, educational attainment, involvement in sports, participation in extracurricular clubs and organizations, community service, close relationships with parents, and parental knowledge of friends (Blumberg et al. 2008; Stepp et al. 2011). Social competence in adolescence has been found to be protective against cigarette use (Beyers et al. 2004) and delinquency in young adulthood

(Stepp et al. 2011). In addition, the workplace readiness, college readiness, and youth development literatures all agree that this is one of the key competencies necessary for a successful transition to college, work, and adulthood (Lippman et al. 2008; Rychen and Salganik 2003).

1.4.2 Flourishing in Relationships

1.4.2.1 Parent-Adolescent Relationship

Parent-adolescent relationship is defined as the quality and types of attitudes and interactions between a parent and his/her adolescent, including (a) identification with a parent, (b) affective connection between adolescent and parent, (c) positive interactions, and (d) constructive communication.

Research indicates that adolescents who have strong positive relationships with their parents are more likely to experience a myriad of positive outcomes, including academic competence, good grades, and life satisfaction. They are also less likely to participate in risky behaviors such as violence, suicide, cigarette use, alcohol use, marijuana use, risky sex, conduct problems, delinquency, aggression, or suspension (Blum and Rinehart 1997; De Kemp et al. 2007; Hair et al. 2005; Li et al. 2010; Oberle et al. 2010; Pearce et al. 2003; Resnick et al. 1997).

1.4.2.2 Peer Friendship

Peer friendship is defined as having peer relationships characterized by the mutual experience of (a) support and encouragement, (b) affect (caring, validation), (c) companionship, (d) loyalty/standing up for one another, and (e) trust.

While positive peer friendships are a key part of flourishing in children and adolescents, there are surprisingly few measures available to assess the quality of those relationships. The studies that do exist have found that adolescents with positive friendships are more likely to have high levels of academic achievement and life satisfaction and are less likely to use drugs or alcohol, externalize problems, or self-deprecate (Dekovic 1999; Oberle et al. 2010; Oman et al. 2004; Roeser et al. 2008; Wentzel and Caldwell 1997).

1.4.3 Flourishing in School and Work

1.4.3.1 Diligence and Reliability

"Diligence and reliability" is defined as the performance of tasks with thoroughness and effort from start to finish where one can be counted on to follow through on commitments and responsibilities.

Diligence is often grouped with the terms industriousness, perseverance, tenacity, self-discipline, thoroughness, and hard-working. These terms, while sometimes considered synonymous with diligence and reliability, are nevertheless often considered subelements of conscientiousness. Klimstra (2010) found that diligent and reliable adolescents in the Netherlands were less likely to be depressed or aggressive.

1.4.3.2 Educational Engagement

Educational engagement encompasses three areas: behavioral engagement, emotional engagement, and cognitive engagement. Behavioral engagement is defined as participation in school-related activities, involvement in academic and learning tasks (e.g., coming to class prepared), positive conduct, and the absence of disruptive behaviors. Emotional engagement includes caring about doing well in school, being energized by the subject matter, and feeling that one's identity as a student is central. Cognitive engagement involves curiosity about subject matter and an investment of time and energy in learning and a willingness to go beyond the basic requirements to master difficult skills (Fredricks et al. 2005; Furlong et al. 2003).

Educational engagement is protective against risk behaviors such as dropping out of school for boys (Connell et al. 1995) and early sexual debut, depression, and risk behaviors (Li et al. 2008). It predicts higher academic achievement (Catsambis and Beveridge 2001; Davis and Jordan 1994; Keith et al. 1993; Lau and Roeser 2002; Thomson 2010; Wentzel 1998); higher grades and academic competence (Cook et al. 2005; Lau and Roeser 2002; Li et al. 2008, 2010); as well as higher expectations for current success in school, future schooling, and optimism (Goodenow 1993; Regnerus 2000; Thomson 2010).

1.4.3.3 Initiative Taking

Initiative taking is defined as the practice of initiating and manifesting activity toward a specific goal by adopting the following characteristics: (a) reasonable risk taking and openness to new experiences, (b) drive for achievement, (c) innovativeness, and (d) willingness to lead (Knight 1921; McClelland 1961; Zhao and Seibert 2006).

A review of existing measures found none available on initiative taking and scant research on the issue in adolescents. Yet initiative taking is closely aligned to entrepreneurship in adults, which is important for success in the world of work (Lippman et al. 2008). Employers identified entrepreneurial skills as one of the most critical areas for students entering the workforce (The Conference Board et al. 2006).

1.4.3.4 Thrift

Thrift is defined as having the capacity and propensity to use time and money efficiently and to display restraint so that one can reach a short- or long-term goal or purpose.

Research has found that thrift is related to elevated levels of environmental conservation and self-esteem and negatively related to cigarette smoking (Kasser 2005).

1.4.3.5 Trustworthiness and Integrity

"Trustworthiness and integrity" is defined as whether one can be counted on to be truthful and to consistently keep commitments over time. The definition also includes whether one can be counted on to act with integrity, which includes keeping to one's principles even when it's difficult to do so, engaging in ethical behavior, and respecting others' privacy and property.

Research finds that honesty/trustworthiness is positively correlated with self-esteem and life satisfaction (Dew and Huebner 1994; Huebner et al. 1999).

1.4.4 Helping Others to Flourish

1.4.4.1 Altruism

Altruism is defined as showing unselfish concern for the welfare of others in one's thoughts and actions. Altruism has not been well specified or

measured for adolescents, and although distinct in concept from generosity, it is sometimes considered and measured similarly to generosity.

In adults, altruism has been linked to qualities such as empathy, sensitivity, and nurturance, as well as specific caring actions, completion of an organ donor card, and responses to emergency situations (Peterson and Seligman 2004; Piliavin and Charng 1990).

1.4.4.2 Generosity/Helping Family and Friends

Generosity is defined as the voluntary act of giving one's time, attention, and/or material goods with the following characteristics: (a) neutral or positive feelings about the act, (b) not attaching conditions or expecting benefit, and (c) internal motivation to give.

This construct has been linked to environmental conservation, happiness, self-esteem, and lower rates of alcohol use, fighting, and getting in trouble at school (Kasser 2005).

1.4.5 Environmental Stewardship

1.4.5.1 Environmental Stewardship

Environmental stewardship is defined as the practice of caring for or improving the earth's environment by being informed, assuming or recognizing personal responsibility, and taking action.

A review of existing measures did not find measures available on environmental stewardship, other than one item in the "Monitoring the Future" survey.

1.4.6 Personal Flourishing

1.4.6.1 Forgiveness

Forgiveness is defined as one's ability to overcome negative feelings in response to the perception of being harmed by another person(s). The capacity for forgiveness applies to forgiveness of the self and others.

While there is a dearth of research on forgiveness in adolescents, research has found a strong link between forgiveness and well-being in adults. Research conducted with adults suggests that those who forgive

have lower levels of stress and anxiety, are more satisfied with their lives, and are physically healthier (Egan and Todorov 2009).

1.4.6.2 Goal Orientation

Goal orientation is defined as an adolescent's motivation and ability to make viable plans and take action toward desired goals. Adolescents with goal orientation tend to be more cognitively engaged and act out less than their peers with lower levels of goal orientation (Roeser et al. 2002). Planful competence in adolescence, a similar construct to goal orientation, is related to marital stability, educational attainment, life satisfaction, and career success (Shanahan 2000).

1.4.6.3 Gratitude

Gratitude is defined as having an appreciation of positive things in one's life through (a) the recognition of positive things in one's life, (b) the experience of gratitude, and (c) the expression of thanks.

In general, research has found that gratitude shapes identity, predicts subjective well-being and positive emotions and actions, and has links to spirituality. More specifically, gratitude has been linked to higher levels of academic achievement, life satisfaction, social integration, prosocial behavior, and flow, as well as to lower levels of depression and envy (Froh et al. 2010, 2011).

1.4.6.4 Hope

Hope is defined as a general and broad trust that the future will turn out well.

Articles rigorously assessing hope demonstrate a relationship with a number of positive outcomes, including substance use avoidance (specifically, alcohol, cigarettes, and marijuana), lower levels of depression, positive youth development (as defined by the 5 C's: competence, confidence, connection, character, and caring), and social contribution (leadership, service, and helping) (Caldwell et al. 2006; Carvajal et al. 1998; Schmid et al. 2011).

1.4.6.5 Life Satisfaction

Life Satisfaction is defined as children's self-perception of the extent to which they are happy with their life and that their life is on the right track (Keyes 2006).

Self-reported life satisfaction is a key indicator of positive well-being related to psychological and emotional health and is protective against adverse events. Specifically, research has found life satisfaction to be related to higher levels of self-esteem and lower levels of internalizing and externalizing behaviors, depression, anxiety, sense of inadequacy, and sensation seeking in adolescence (Huebner et al. 2000; Suldo and Huebner 2004).

1.4.6.6 Purpose

The definition of purpose contains three components. First, purpose is defined as having a sense of directedness that stimulates one's goals, manages one's behaviors, and provides one a sense of meaning. Purpose is also defined as a broad and sustained intention to accomplish something one finds meaningful to the self and, often, also of consequence to the world beyond the self. Third, purpose drives life goals and daily decisions by guiding the use of finite attention and energy (Damon 2008; Damon et al. 2003; McKnight and Kashdan 2009).

Although the relationship of purpose to aspects of flourishing has not been rigorously evaluated in adolescents, research has documented a strong connection between purpose and well-being in adults (Damon 2008).

1.4.6.7 Spirituality

Spirituality is defined as seeking or experiencing awareness or awakening to a universal unity; being or becoming aware of the sacredness of one's self, others, and the universe (which may be understood as including the divine); and cultivating identity, relationships, meaning, and purpose that flow from this awareness (Benson et al. 2012).

Spiritual awareness is experienced with great diversity and may include the following experiences and perspectives: (a) awareness of a sacred inner source of one's being or soul; (b) transcendent awareness (connection to a unity of life that transcends the self, which can include experiences of awe, nature, and an awareness of a life force that connects all life), and (c) awareness of a creator, divinity, and or spiritual beings in a spiritual realm

that extends beyond one's physical self, such as ancestral spirits or angels, who provide protection and blessings. Spiritual awareness can include seeking to connect to oneself, to others, and to one's understanding of the transcendent (often including an understanding of God) and seeking to live a life that incorporates an awareness of the sacred (Benson et al. 2012).

Available research rarely looks at spirituality separately from religiosity when investigating the connection to outcomes in adolescents. However, there is now a consensus among researchers that spirituality and religiosity are indeed separate constructs and that some adolescents identify as spiritual but not religious, while others are both, only religious, or neither (Benson et al. 2005; Fuller 2001; Lippman and Keith 2006; Zinnbauer et al. 1997). While there is a huge literature on the relationship of religiosity to positive adolescent outcomes, prior quantitative research connecting spirituality to outcomes in adolescents is sparse (Lippman et al. 2013). However, there is an indication that spirituality is protective against drug use. In fact, one study found that spirituality was a stronger protective factor than the more common measure of religiosity (Hodge et al. 2001).

In sum, the need for rigorous indicators of flourishing in adolescents is clear from a substantive and methodological perspective, as well as from practitioner and policy perspectives. Our review of frameworks of positive indicators and of the literature on the relationship of positive and protective factors to positive adolescent outcomes, as well as our review of extant measures of flourishing currently in use in large- and small-scale studies, informed our selection of constructs to develop into scales. Consensus definitions of each promising aspect of flourishing were developed from the literature by our team, and these definitions, in turn, drove the item development for each construct during subsequent phases of the Flourishing Children Project.

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2. Cognitive Interviews: Designing Survey Questions for Adolescents

Laura H. Lippman[1], Kristin Anderson Moore[1], Lina Guzman[1], Renee Ryberg[1], Hugh McIntosh[2], Manica F. Ramos[1], Salma Caal[1], Adam Carle[3] and Megan Kuhfeld[4]

(1) Child Trends, 7315 Wisconsin Avenue, Suite 1200W, Bethesda, MD 20814, USA
(2) George Mason University, 4400 University Drive, 3F5, Fairfax, VA 22030, USA
(3) University of Cincinnati School of Medicine, Cincinnati Children's Hospital Medical Center, 3333 Burnet Avenue, MLC 7014, Cincinnati, OH 45229, USA
(4) Graduate School of Education and Information Studies, University of California, Los Angeles, USA

Laura H. Lippman (Corresponding author) Email: llippman@childtrends.org

Kristin Anderson Moore Email: kmoore@childtrends.org

Lina Guzman Email: lguzman@childtrends.org

Renee Ryberg Email: rryberg@childtrends.org

Hugh McIntosh Email: humac1@verizon.net

Manica F. Ramos Email: mramos@childtrends.org

Salma Caal Email: scaal@childtrends.org

Adam Carle Email: adam.carle.cchmc@gmail.com

Megan Kuhfeld Email: megan.kuhfeld@gmail.com

Abstract
The Flourishing Children Project responds to a call for rigorous indicators of positive development in adolescents by creating scales for 19 constructs of positive development in the categories of flourishing in school and work, personal flourishing, flourishing in relationships, relationship skills, helping others to flourish, and environmental stewardship. Each scale can be used alone or in combination to fill gaps in available measures of important constructs of adolescent flourishing. This chapter describes how items for the scales were developed, revised, and tested in cognitive interviews to ensure that items in the scales assessed each construct as it was conceptually defined and that items could be answered by respondents. To test the validity of items and identify problems with item wording, three rounds of cognitive interviews with adolescents ages 12–17 years and parents were conducted in 15 cities across the United States. A variety of techniques were used in the interviews, including concurrent and retrospective "think alouds," follow-up probes, paraphrasing, and the use of semistructured, open-ended items. Sixty-eight cognitive interviews were conducted with adolescents and 23 parallel interviews were completed with parents. The adolescent sample was spread across racial/ethnic, age (12–13 years old and 14–17 years old), and income groups.

Keywords Adolescent development – Adolescent well-being – Positive youth development – Developmental assets – Positive indicators – Flourishing – Positive youth development – Child well-being indicators – Child well-being frameworks

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2.1 Introduction

All too often, survey items are fielded without careful testing. During this stage of the Flourishing Children Project, we engaged in three rounds of

cognitive testing to assess whether items were clear to respondents and whether their understanding of the questions aligned with the definitions presented above. This chapter discusses the process and the implications of the cognitive interview study.

2.1.1 Rationale for Cognitive Testing

National surveys have recognized the importance of collecting data about adolescents directly from adolescents. To that end, it is desirable for adolescents to be included as respondents in large-scale surveys (Scott 1997). The Youth Risk Behavior Survey, National Longitudinal Survey of Youth, Monitoring the Future, and National Longitudinal Study of Adolescent Health all collect survey data directly from adolescents. Despite interest in and the recognized importance of collecting data directly from adolescents, however, little is known about how best to do it. The majority of research on survey-item development, aimed at improving the reliability and validity of measures, has been conducted on adult subjects. Given developmental differences, it is unclear the extent to which this research can be applied to adolescents.

Researchers also use parents to report data about their children. The National Survey of Children's Health, some waves of the National Household Education Survey, the National Survey of America's Families, the High School Longitudinal Study, and the Education Longitudinal Study, for example, all use parents' reports of their children's behaviors. Although using parents' reports about their children, either as complements to children's own reports or as stand-alone proxies, may sometimes be appropriate, it is typically assumed that parents cannot provide accurate reports on adolescent risk-taking behaviors (e.g., sexual activity, drinking, delinquency, or drug use). Little is known about the accuracy of collecting data from parents about their adolescents' attitudes, values, and character strengths.

As discussed in Chap. 1, most research to date focuses on negative adolescent behaviors and characteristics. Our goals here are, of course, to develop robust positive measures. We have a secondary goal as well, though, which is to fill the gap in the literature on the best practices when developing measures of adolescent behaviors and characteristics, in particular with respect to positive measures.

To address these goals, we developed initial measures of 19 constructs of positive adolescent development. Given the exploratory nature of this stage of the work and the goal of the project—to develop measures for use in federal surveys and basic research—we tested the newly developed items through a series of cognitive interviews with parents and adolescents.

2.1.2 What is Cognitive Interviewing?

Cognitive interviews have proven to be an effective and efficient method for identifying problems with question wording, comprehension, and recall and for ensuring that items are capturing the underlying construct they were developed to tap (Willis 2004). In general, cognitive interviews help determine what information respondents possess or do not possess, reveal potential sources of measurement error, and help refine question wording.

A main objective of cognitive interviews is to give researchers a window into respondents' cognitive processes when answering survey questions, thus assisting in identifying problems and potential solutions at each step in this process. For this reason, cognitive interviews are useful in testing newly developed items and assessing the extent to which all questions are working as intended. Cognitive interviews can also shed light on how well items are working with specific subgroups and the extent to which target groups have the required information needed to answer the questions. In addition, cognitive interviews provide insight into the value of varied response categories.

In sum, cognitive interviews allow researchers to more thoroughly understand the cognitive process respondents undergo while answering questions. This understanding, in turn, helps to identify comprehension problems, assess whether questions are working as intended, ascertain if respondents possess and are able to recall necessary information, and determine whether respondents can accurately apply their responses to the answer choices provided. Additionally, cognitive interviews help identify other unanticipated issues affecting data quality. Information gathered through cognitive interviews can help researchers to construct, formulate, and ask better survey questions (see Presser and Blair 1994; DeMaio 1993; Forsyth and Lessler 1991).

2.1.3 Research on Developing Survey Questions for Adolescents

In order to understand why children differ from adults in response reliability on survey items, it is important to consider how children's developing cognitive processes may affect the way they think about and answer survey questions. A standard question–answering process model describes four steps a respondent may go through to formulate a response: (a) understand and interpret the intent of the question; (b) retrieve the relevant information from memory; (c) integrate this information into a summarized thought; and (d) report this thought by translating it into the format of the response scale in the question (Tourangeau and Rasinski 1988; Sudman et al. 1996).

This model has been expanded by Krosnick's satisficing theory, which states that some survey respondents avoid substantial cognitive effort required by certain questions by taking mental shortcuts to avoid going through all the steps to come up with an adequate answer (Krosnick 1991). The ability to use satisficing to generate an accurate and reliable final answer depends on the respondent's motivation and cognitive abilities, as well as the difficulty of the question. For this reason, it is hypothesized that children with lower cognitive abilities will be more likely to use satisficing and have more trouble producing valid responses.

It has also been proposed that there is an interaction effect causing less cognitively developed respondents to be more sensitive to difficult or demanding questions. Children aged 11 years and older are generally thought to be able to use formal thinking and logic and to understand hypothetical situations (Caskey and Anfara 2007). Nevertheless, their cognitive processes are still not as advanced as those of adults, and older children show significant differences in ability to quickly and accurately go through the question–answer process model (Scott 2000). Moreover, younger adolescents may have difficulty manipulating ideas about hypothetical situations (de Leeuw et al. 2004).

Due to the well-documented differences between the cognitive functioning of adults and adolescents, best practices for developing survey questions that work well for adults may or may not apply when developing survey questions for adolescents, especially younger adolescents.

Unfortunately, there is very limited research on cognitive interviews for adolescents. Research on the ability of adolescents to successfully participate in "think alouds"—thinking aloud while answering survey questions—is mixed. For example, Strussman et al. (1993) found that adolescents struggled to articulate their thoughts during think alouds. Adolescents tended to give the bare minimum response necessary to answer the researcher's questions. In many instances, this was one word. In contrast, Hess et al. (1998) found that adolescents had no problem thinking aloud while answering survey items. Zukerberg and Hess (1996) also concluded that adolescents are able to handle the demands of the cognitive interview; however, younger adolescents have more difficulty with some tasks (e.g., skip patterns). In particular, adolescents struggled with issues of comprehension on long and complex questions, had difficulty recalling information, and had difficulty on questions which assumed that the researcher and respondent shared the same value system (Strussman et al. 1993). De Leeuw et al. (2004) suggest that a combination of think alouds and cognitive probing (including paraphrasing) works well for adolescents.

Both Strussman et al. (1993) and Hess et al. (1998) found that adolescents had difficulty with reference periods. Hess et al. found that adolescents ignored reference periods, while Strussman et al. found that younger respondents, especially, reported the same responses over multiple response periods. In addition, both studies found that adolescents fared better with concrete ("once per week") rather than vague, more abstract ("sometimes" or "in a typical month") reference periods. In another study, adolescent respondents expressed a strong preference for response categories with specific time frames rather than vague qualifiers when reporting frequencies (Zukerberg and Hess 1996). Hence, it may be especially useful to use reference periods that follow the school calendar (e.g., September through May), rather than the calendar year (January through December), when writing questions for adolescents, given the salience of school as an organizing principle for time for adolescents.

2.1.4 Research on Surveying with Parents as Proxy Reporters

Parents are frequently used as proxies to report about their children in an attempt to reduce cost. However, on many topics, parents may not provide

the same responses that their children would. The assumption that parents will have the information to report for their children may be more accurate in some areas than others. For example, parents' ability to report for or about their children is questionable for behaviors, interactions, and experiences not directly observed by parents, such as those that occur in classrooms or between friends. This may be especially the case as children enter adolescence, where independence is more normative. Again, little is known about whether or when parents possess the information necessary to report for their children or about the type of information parents do possess when they are able to report. Relevant to this project, it is not known for which positive domains parents may be more or less accurate reporters.

Studies on parents' reporting as proxies for or about their children tend to focus on the health and quality of life of chronically ill children. One study of chronically ill adolescents and their parents looked at adolescent and parent reports of the adolescents' health-related quality of life (Sattoe et al. 2012). The authors found that about 50 % of adolescents and their parents agreed. Disagreements were statistically significant, but the authors considered them generally minor as half of the disagreements were of less than 1 standard deviation. Disagreements were related to a variety of factors including adolescent's age and adolescent's and parents' educational levels. More generally, research has found that parents tend to rely on generic information rather than specific episodes when reporting for their children (Groves et al. 2009). They also have different knowledge to base their responses on than their adolescents do.

2.1.5 Best Practices for Survey-Item Development

In addition to the studies discussed above, much research has gone into developing best practices for survey-item development with adults. The field now has agreed on a number of key recommendations for survey-item development, including the following nine:

1. Use simple, common words (Krosnick and Presser 2010).
2. Use easy-to-understand syntax (Krosnick and Presser 2010).
3. Use concrete, specific, unambiguous wording to reduce misunderstanding and various item interpretations (Devellis 2003; Tourangeau and Bradburn 2010; Krosnick and Presser 2010).

4. Use exhaustive, mutually exclusive response categories (Krosnick and Presser 2010).
5. Avoid leading questions (Krosnick and Presser 2010).
6. Avoid double-barreled questions (Krosnick and Presser 2010).
7. Avoid negative wordings (Krosnick and Presser 2010).
8. Use context, including reference groups and reference periods, to increase response accuracy and aid recall (Tourangeau and Bradburn 2010; Groves et al. 2009).
9. Minimize social desirability bias by eliminating the interviewer, offering anonymity to respondents, legitimizing the less socially desirable responses by using an example in the question, using response scales in lieu of dichotomous yes/no responses, and discouraging the use of the "don't know" category (Krosnick and Presser 2010).

These key recommendations were kept in mind while developing items for the adolescent and parent surveys as part of the Flourishing Children Project. After the items were developed, we used cognitive testing to evaluate them. Below we present the lessons learned from that study.

2.2 Method

2.2.1 Recruitment

Study participants were recruited in a variety of ways including ads posted on websites such as Craigslist, word of mouth through family and friends, and flyers posted at community centers and other strategic locations within neighborhoods. Respondents were offered $50.00 to participate. Interested individuals were asked to contact the study site via a toll-free number and complete a brief screener interview to establish study eligibility. The same procedures were used for both parents and adolescents.

Institutional Review Board approval was obtained for all study procedures and materials. Ultimately, 68 adolescents (ages 12–17 years) and 23 parents (of a subset of the adolescents interviewed) in 15 cities across the United States were selected for the study.

2.2.2 Sample

To ensure that the items worked well across age, income, gender, and racial/ethnic groups, the sample of adolescent participants was segmented by these characteristics. Slightly more than half (n = 38, 56 %) of adolescents were between the ages of 14 and 17. The majority of adolescents were, intentionally, from low-income families (n = 39, 57 %), and 41 % (n = 28) were male. The sample had roughly equal numbers of White (n = 19, 28 %), Black (n = 26, 38 %), and Hispanic (n = 23, 34 %) adolescent participants.

Although the sample size is small relative to quantitative studies, it is appropriate for exploratory qualitative research and for the techniques used (see Krueger and Casey 2000; Willis 2005; Patton 2002). Saturation is quickly reached with five to nine interviews of any one type of group (Willis 2005). Additionally, we maximized the utility of the sample by using a purposive sampling design, segmenting and selecting participants based on characteristics prior research has shown are important to the study of constructs or, in the case of interviews, may be associated with the survey response process (e.g., age) (Patton 2002). Purposive sampling allowed us to compare and contrast data from groups and interviews across key background characteristics such as age or race/ethnicity. Lastly, although not random or representative, our sample includes participants from groups that are often underrepresented in national surveys, particularly racial/ethnic minorities and those from low-income households.

2.2.3 Study Design

We conducted a cognitive interview with each of the 68 adolescents, testing items for the 19 constructs in our conceptual framework in three rounds of interviews, with later rounds being informed by preceding rounds (Table 2.1).

Table 2.1 Constructs tested in each round of cognitive interviews

Construct	Round 1	Round 2	Round 3
Altruism			X
Diligence and reliability	X		
Educational engagement		X	
Empathy		X	

Construct	Round 1	Round 2	Round 3
Environmental stewardship	X		
Forgiveness	X		
Generosity/Helping family and friends			X
Goal orientation		X	
Gratitude	X		
Hope		X	
Initiative taking			X
Life satisfaction	X		
Parent-adolescent relationship			X
Peer friendship	X		
Purpose	X		X
Social competence		X	
Spirituality		X	X
Thrift			X
Trustworthiness and integrity		X	

Similarly, we conducted a cognitive interview with each of the 23 parents, testing items for all of the constructs except Spirituality in three rounds. Thus in each round, items for six or seven constructs were tested with 21–24 adolescents and seven to eight parents.

Seventeen of the constructs tested well and did not need to be retested. The items for the constructs of Spirituality and Purpose were found to be problematic, however, and thus were revised and retested in the final round of interviews with adolescents.

A key goal of the overarching project is to develop items that can be used for a variety of purposes, including federal surveys and program evaluations, that may be conducted through a variety of modes (e.g., paper and pencil, phone, in-person, web, etc.). For this reason and in order to maximize project resources, cognitive interviews were conducted both in person and over the phone.[1] Conducting interviews over the phone also allowed us to see if the items worked well with adolescents and parents in different geographic areas across the United States. In addition, this approach allowed us to maximize what could be learned from a relatively small number of interview rounds.

2.2.4 Study Procedures

Members of Child Trends' research staff trained in cognitive interviewing techniques administered the cognitive interview protocol, which included the newly developed items, as well as probes and open-ended questions. Interviews lasted between 1 and 1.5 h. In-person interviews were conducted in a private, quiet location convenient to the participant, such as the research study center, local recreation facilities that serve teens, the participant's home, or other private and quiet public locations (e.g., public libraries or coffee shops). Participants interviewed over the phone were asked to find a quiet, private space; interviewers verbally confirmed this with participants before the interview commenced.

Parental consent and adolescent assent were obtained for adolescent interviews. Participant consent was obtained for parent interviews. Interviews were recorded, and transcriptions were composed targeting specific sections of the interview identified as problematic for the respondent.

2.2.5 Protocols

In total, six semistructured cognitive interview protocols were developed across the three rounds of interviews—three for adolescents and three for parents. The main objective of the protocols was to standardize the use of cognitive probes that assessed item comprehension, appropriateness of wording, whether items worked as intended, and whether participants (in particular, parents) had the information needed to answer the questions, as well as to identify problems, if any, with recall and response format.

In answering questions, adolescents were asked to respond to the items from their own perspective, while parents were asked to respond to the items from their adolescent's perspective. Parents were reminded of this directive throughout the interview. For example, they were asked, "Were you answering from your perspective or your child's perspective?"

To assess how the items were working and to identify problems, a variety of techniques were used, including the following:

- Concurrent and retrospective "think alouds" in which respondents were asked to talk through the process by which they arrived at their answer. Think alouds are particularly helpful in identifying problems with comprehension, information retrieval, and recall.

- Follow-up probes (e.g., *What did you think I meant by …? How did you arrive at your answer? Can you tell me more about that?*) and paraphrasing techniques (e.g., *Can you repeat the question in your own words?*). These techniques are helpful in learning whether the questions are interpreted and understood in the intended manner (DeMaio 1993). Additionally, to ensure that parents had the information needed to answer the items, we included probes such as *Did you have the information you needed to answer the questions*? throughout the protocol.
- Use of semistructured, open-ended items (e.g., *Before we get started, can you tell me in your own words what you consider to be the most important characteristics adolescents your age should have?* or *What comes to mind when you think of spirituality?*). Open-ended questions are useful in confirming whether the operationalization of key concepts by researchers matches the ways that the target population thinks and talks about the concepts. Additionally, the information collected through the open-ended items helped to identify issues and concepts that were missing or were more salient to certain subgroups, as well as phrases or terms that were used by the target population. Such terms and phrases were, in turn, incorporated into items developed and revised to measure the target concept, and they increased the applicability of questions.
- Confidence assessments such as *How confident are you of your answers to these questions?* can help to assess whether the respondents have the information needed to answer questions. Confidence assessments may be particularly useful when parents are asked to report as proxies for teens.

2.2.6 Data Analysis

The detailed summaries drafted after the interviews, hand-written notes taken during the interviews, targeted transcriptions, and recordings served as the data for this stage of the project. Throughout the field period, a series of debriefing sessions were held with study-team members to review interview summaries and notes. The summaries and audio recordings were also reviewed by senior study staff for data quality assurance. The focus of the debriefings was to identify any comprehension or clarity issues, to

determine if the questions and answer choices were working as intended, and to determine if respondents were able to recall needed information and find the answer choice that closely matched their formulated response. More specifically, interviewers reviewed responses item by item across respondents, documenting items that appeared to work well, as well as highlighting any problems identified through the interviews. If problems were detected, the research team explored potential sources (e.g., item clarity, comprehension, recall/response formation, etc.) and identified ways to improve the items. Recommendations about which items to drop were also made.

Special attention was placed on identifying patterns that reflected real underlying problems as well as patterns across interviews and respondent characteristics. In order to minimize the potential for type II errors—in this case, making changes to the instrument that were unnecessary—changes were only made when patterns and sources of the problem were identified. Quantitative data, including the responses generated from the measures and respondent demographics, were entered into an SPSS database. Analysis of these data helped to distinguish items with a good amount of variance in the responses, as well as items with little-to-no variance, and to corroborate cases where problems were suspected. The small parent sample size in each round makes it difficult to determine the degree to which variance is present or absent in parent reports. Thus, most of our assessments of variance are limited to data from adolescent respondents.

2.3 Results

In this section, we present seven lessons learned or confirmed from our study, as well as illustrative examples from the data.

2.3.1 Lesson 1: Reference Groups

Focus on concrete, clear, and salient reference groups. Items that worked well tapped into concrete behaviors, experiences, and characteristics and had clear and salient reference groups (e.g., school and family life). For parents, items that tapped into the “observable” also appeared to yield high-quality data and increased the likelihood that parents would be able to report the information required by the question. Below we illustrate through

the words of a 16-year-old Latino and African American female respondent how the quality of data (in particular, reliability of responses) may be compromised when a question lacks specificity.

> *Interviewer*: … I am happy when others succeed. Not at all like you, a little like you, somewhat like you, a lot like you, or exactly like you.
>
> *Respondent*: It kind of depends on the person. [Chuckles]
>
> *Interviewer*: How so?
>
> *Respondent*: Because if the person seems fake … or something like that, then I'll be a little annoyed. I won't be happy for them. They didn't earn it. Well, some people at my school, they can buy their way into things. Like a girl, she didn't earn her ticket to get into choir.

2.3.2 Lesson 2: Construct Selection

Avoid abstract constructs. Avoid items that tap into abstract constructs and concepts. Respondents, particularly adolescents, appear to interpret items better when the items connect closely with their reality and tangible experiences. Although the problem was not limited to younger adolescents, abstract items were particularly difficult for those aged 12–14. In order to facilitate comprehension, items tapping into abstract constructs should, to the extent possible, include concrete examples and/or lead respondents to draw from their everyday experiences. The closer the connection to respondents' reality and tangible experiences, the more likely the item will be interpreted as intended.

More specifically, adolescents, especially younger adolescents, reported comprehension problems and were confused with several initial items. For example, six of 23 adolescent respondents in round 2 reported comprehension problems with the item *I seek or experience an awareness of an inner source of my being, or soul* as the following quote from a 13-year-old Black female illustrates:

> *Interviewer*: I seek or experience an awareness of an inner source of my being, or soul.
>
> *Respondent*: Yes!
>
> *Interviewer*: What does the phrase "inner source of my being, or soul" mean to you?
>
> *Respondent*: Um, I don't know!

Interviewer: Um, what did you think of when you answered the question?

Respondent: Um, I don't know!

Interviewer: How did you decide which choice to pick?

Respondent: Um—I'm not sure.

As the quote above indicates, adolescents (in particular, younger adolescents) were willing to provide responses despite not being able to articulate their understanding the question or why they chose their response, raising doubts about the meaning of their responses.

2.3.3 Lesson 3: Clarity of Items

Avoid items that are ambiguous, can carry multiple meanings, or are double-barreled. Using items that are as concise and specific as possible will facilitate data analyses and interpretation. Interpretation issues occurred with adolescents, as others have found with adults, when items were ambiguous or double-barreled (i.e., items that ask about two distinct issues but require only one answer). With the latter, respondents may provide a response for one or both of the issues, and thus, the analyst will not know how responses should be interpreted. Interpretation problems were also observed with items that did not provide sufficient context; the resulting ambiguity left respondents to interpret the items using their own diverse perspectives and experiences. Resolution of these issues is critical to developing reliable measures for any population including adolescents. The following quote from a 15-year-old Black female provides further evidence of how participants struggled with ambiguous items.

Interviewer: I have a meaningful life. Do you strongly agree, somewhat agree, neither agree nor disagree ….

Respondent: I'd skip that because I don't really—I don't really understand … when you say, "I have a meaningful life."

Interviewer: Mm-hmm *Respondent*: Is that like you understand your life?

For another example, the item *When I look at the world, I do not see much to be thankful for* was interpreted in multiple ways. One interpretation included adolescents thinking about worldwide events, such as wars, and

thus, they thought that they did not have much for which to be thankful. The following quote from a 16-year-old Hispanic male illustrates this point:

> Like, in parts of the world, there's a lot of conflicts are happening, and that is something you can't stop.

Other adolescents compared their life to less fortunate parts of the world and thought they had a lot to be thankful for in comparison, as illustrated by the following quote from a 16-year-old Hispanic female.

> Because when I do look at the world, I see that I have a lot to be thankful for. Like, when you look at all the perspectives of each country, in each part of the world, you tend to realize that you might be lucky. You just have to be thankful for what you have, even though some might have more or so might have less than you.

In the item in the above example, the lack of a reference point caused ambiguity for respondents and led them to create their own reference points and thus led to very different interpretations of the questions and responses.

Similarly, the item *I do just enough school work to get by* was problematic because adolescents applied different standards for the meaning of "get by." For many adolescents, it meant doing the bare minimum to pass, whereas other adolescents reported that it meant doing just enough to earn a B. In addition, one 13-year-old White teen pointed out a potential interpretation issue:

> Well, um, doing just enough school work. It's just kind of not specific-ish! Um, the fact that given … it's kind of hard to answer because sometimes you don't know yourself, kind of how much you usually do. … Also, with the options that you're given, if you say "None of the time," that could even go as you overachieve on things and you do more than you're supposed to, or it could mean that you're doing less than you're supposed to. … See what I mean?

As noted above by this teen, a response of "none of the time" could be interpreted as "I never even do the bare minimum to get by" or "Since I always do school work I am never doing just enough to get by." As a result, this item was dropped.

2.3.4 Lesson 4: Item Salience

Use what is salient. Items should use references (periods, groups, and times) that are relevant to how a target construct is organized and thought of by adolescents (e.g., use school year when asking about school activities). Consider what is salient developmentally for adolescents (e.g., school and classmates are very salient).

As illustrated by this quote from a 16-year-old Latino and African American female, classmates are a very salient reference group.

> *Interviewer:* Okay! Um, now the next question is: I understand how those close to me feel. Not at all like you, a little like you, somewhat like you, a lot like you, or exactly like you.
>
> *Respondent:* I'm sorry. What was the question? I understand what?
>
> *Interviewer:* I understand how those close to me feel.
>
> *Respondent:* Hah! Um, a little like me.
>
> *Interviewer:* Now, who were you thinking of, if anyone?
>
> *Respondent:* My group of friends at school. … I'm kind of different than all my friends because they all live in live really wealthy neighborhoods. They all have pretty much perfect families, so I don't really relate.

2.3.5 Lesson 5: Parent Reports

Ask parents to report on what they know and observe. Parents' ability to answer some questions and the accuracy of their responses appear to depend, in part, on the relationship they have with their children, whether the item is about a behavior that parents observe, and the extent to which they communicate about the target issue with their adolescents. Parents also appeared to sometimes have difficulty separating their opinions from their perceptions and from those of their child.

Our findings indicate that some parents struggled to answer some of the questions from their adolescent's perspective and instead answered from their own perspective, such as what they thought their child should do or how they perceived their child to be, as illustrated by the following quote from a parent of a 15-year-old White male.

> *Interviewer*: When my child gives to others, he feels good.

Respondent: Somewhat.

Interviewer: Do you feel you can answer this question from your child's perspective?

Respondent: It's hard. Um, I don't know how he would answer these … because as an only child, I see selfishness in him. … And I don't know if he sees it.

It may be that in these cases parents were filling in information gaps with their best guesses, as suggested by the following quote from a parent of a 13-year-old Black female.

Interviewer: Do you feel that you were able to answer this set of questions about your child?

Respondent: Yes, but I did feel that I had to keep saying from her perspective,'cus when I feel strongly about something, it kind of … surfaces ….

I had to read it twice and be like, "Wait a minute." I strongly disagree, but she may somewhat disagree because she is, you know, 12 …

But she's aware of [this] because these are things that we promote.

As illustrated in the above example, this difficulty is exacerbated when parents' opinions or expectations differed from those of their child. Parents also reported that their ability to answer some questions and the accuracy of their responses depended, in part, on the relationship they had with their child and the extent to which they communicated about the target issue.

For example, regarding parental knowledge about their adolescent's friendships, the following quote from a Black mother illustrates this point:

Interviewer: My child finds it hard to make friends.

Respondent: Not that I'm aware of! I mean, I don't know if he struggles inside or not.

A mother of a 13-year-old White female reported that she struggled between answering from her own opinion and from her child's opinion.

Interviewer: My child feels like her life is meaningless.

Respondent: No, I don't think she thinks that!

Interviewer: Okay! Is this something that you think parents can answer about their child?

Respondent: … Again, I don't think that most people are having …. I mean, it seems like this is a very philosophical question. That's the word. I don't think that it's psychological or spiritual. Like, they're really philosophical questions and talking as a parent, you worry about the day-to-day. Like, what do you want to eat for dinner and what friend are you going to spend time with and what are you doing with this class and what are you doing in that. I mean, me as a parent don't really go to that kind of level—philosophical things like, um, you know? I just think that that's kind of—maybe they're thinking about that stuff. You never know if people think about those things.

Interviewer: And when you were talking about these questions, were you thinking about how your child feels or what you personally think?

Respondent: Well, you know? I was following instructions. I was trying all the time to do what you instruct me to do. I just found the questions—they're philosophical and they're hard. To the best of my abilities, knowing my child, it's hard for me to know. I'm guessing, but I'm not saying what my beliefs are.

For some topics and items, some parents simply reported not having the information needed to respond. As illustrated by the quote below, a mother of a 13-year-old Black female reports not being able to answer some questions about her child's friendship because technology has replaced the in-person, public interactions that she could observe.

Interviewer: … do you think most parents or a number of parents don't have enough information to answer this type of question?

Respondent: That's hard. It's hard. I don't want to be in a bubble. … But… um, I know that with society, the way it is now, kids could be doing so many things that parents are not aware of in terms of communicating with each other. If the friend is not there, isn't visible or physically there … I don't know if they're texting them, if they're writing them, if they're e-mailing them, if they're webcamming them. You don't know. And it might not be intentional that you don't know. It just may be, just the way, uh—children, you know, are … they're

acting. And I don’t know if this pertains off the record, but I’ve been in my car driving with my children’s friend, in the car with me, and they’re texting each other, instead of having an open communication.

Interviewer: So, they may not share everything with their parents?

Respondent: I don’t think they do. I don’t think mine do.

To address this issue, several strategies were used at both the construct and item levels.

At the construct level, we first eliminated constructs from the parent surveys that were personal in nature to adolescents (i.e., Purpose and Spirituality) because, based on the cognitive interviews and the literature, we believe these are internalized constructs and that parents would not have the information needed to accurately respond from their child’s perspective. Second, we asked parents to respond from their own perspective in the parent-adolescent relationship section. We suspect that it would be difficult for parents to disentangle their own perspectives from their child’s when reporting on the parent-adolescent relationship.

In terms of items, we dropped selected items to which parents struggled to respond (e.g., not having the needed information or having trouble answering from their child’s perspective). We also revised some items to focus on adolescent behaviors that parents were able to observe. For example, we eliminated parent items about adolescents’ school behaviors because parents are not likely to observe those behaviors. Lastly, throughout the survey, we included a “don’t know” category for parents to endorse when they do not have the needed information to respond or when they have difficulty responding from their adolescent’s perspective, to eliminate parent data that may not be accurate.

2.3.6 Lesson 6: Response Variability

Address the lack of variability in responses. As noted above, a common problem in developing positive items is the lack of variance or the presence of upward bias in response options. For example, we found evidence that the full range of the life satisfaction scale that goes from zero to ten, developed by The Gallup Organization, was not being used, as the quote below from a 16-year-old White male illustrates.

Interviewer: Okay! So, now if we could talk about what the numbers on the scale mean to you. What numbers on the scale do you think correspond to someone who is doing well?

Respondent: That's doing well?

Interviewer: Yeah!

Respondent: I guess around 8 and 9 and 10.

Interviewer: And what about the number that corresponds to someone who is not doing well?

Respondent: Um, I'd say like 5 and 4.

In the example above, the respondent ignored the lower end of the scale to describe the "the worst possible life" and instead used what is considered the middle range of the scale. The lack of a full use of a response scale is problematic because it leads to responses that are either upwardly or downwardly biased and may make it difficult to detect differences across respondents, in particular, differences that might be small but meaningful (i.e., a child who is flourishing versus one who is doing pretty well).

More generally, data from the cognitive interviews suggested that there was a lack of variability in responses when: (a) item thresholds were too low or failed to distinguish between high and low scores or (b) items were inherently desirable and elicited social desirability bias (the tendency to provide responses that are viewed favorably).

To improve variability in the response scales, it is clearly necessary to select or develop items that have at least moderate variability. Also, when possible, our results suggest that it is advisable to tap into behaviors in lieu of attitudes. Behaviors provide a more concrete anchor on which to base questions, which is especially important for abstract concepts. Similarly, when revising items, we relied, whenever possible, on the use of frequency scales. This practice captures greater variability, especially for socially desirable items, since frequency scales allow adolescents and parents to report, not whether, but how "often" something occurs.

In tackling social desirability, we worked hard to use or develop high-threshold items. We increased item thresholds or revised items to make it more difficult for all (or most) respondents to easily respond affirmatively. We also included items that had greater specificity, again, to provide a concrete anchor for responses. And we tried to develop negative items to tap the lack of a positive characteristic. Additionally, we included a short

scale with psychometric properties that have already been established, in order to detect social desirability bias in the course of our psychometric analyses.

2.3.7 Lesson 7: Developing Congruent Response Options

Match response options with underlying constructs. The results of the cognitive interviewing suggest that, when possible, survey developers should match the response options to the underlying construct the question is addressing. For example, if you want to know how important something is, use a scale that ranges from “not at all” to “very important” instead of an attitudinal item (I think X is important) on an “agree” scale. Using agree/disagree items in such an instance requires two cognitive tasks: (a) deciding how important one thinks X is and (b) translating one’s beliefs to match the agree/disagree scale. Using a scale that taps into the underlying construct eliminates the need for the second cognitive task (Dykema et al. 2011). This is especially important in order to decrease the cognitive load for adolescents because, developmentally, they are still developing the capacity for higher-level thinking.

Also, response scales should match the frequency with which the underlying construct is done. For example, under environmental stewardship “recycling” should have an “everyday” response option but “plant trees” should not.

However, a problem pertaining to a frequency scale (for example, never, once or twice a month, once or twice a week, almost every day), in comparison to an agree scale, was found in that some adolescents and parents had difficulty matching their answer to the response options provided because they had arrived at a proportional answer (e.g., about three-fourths of the time), but the response scale asked them to provide a frequency. The following quote from a 12-year-old White female provides an example of this problem:

> *Interviewer*: Now, for the last set of questions, we used a new set of response choices. We had “Never,” “Once or twice a month,” “Once or twice a week,” and “Almost every day.” Did you have any trouble picking an answer choice?

Respondent: Yeah!

Interviewer: Um, can you tell me a little bit more about that?

Respondent: Um, so questions I wasn't thinking in like a month or a week. I was just thinking in general, like more specifically, like I wasn't thinking about every two weeks, but like, every time it happened. Not like every day! Like, I don't go to the grocery store, like every day, but every time we do go, we do use reusable bags.

As such, adolescents thought they needed a middle category to reflect an answer that was not dichotomous, as illustrated by the quote below from a 13-year-old Black female (she refers to these items by their alphabetic order).

Interviewer: And, now I'm going to ask you to look at … page 4 [in handout]. These are "Yes" or "No" questions … about a close friend. And, so please answer them and when you're finished, I'll have some follow-up questions for you.

Respondent: This is just talking about our friends—my friends, right?

Interviewer: Yeah! So, yeah … it's a close friend that you have.

Respondent: It's not in between sometimes, so I'll go with "Yes."

Interviewer: So, you think that for "B" is less of a "Yes" or "No" and more of a sometimes question?

Respondent: And "C."

Interviewer: For "B" and "C" you wish there was like a "Sometimes" option?

Respondent: Yeah… and "F" because sometimes my friend doesn't like doing things I like doing. Like, going to a school party that we had, she didn't want to go. That made me mad. … And for "I" because my best friend told a secret to this girl, about this boy that I like.

2.4 Discussion

In this chapter, we summarized the key lessons learned through cognitive testing for developing survey items of positive adolescent development for both adolescents and their parents. We used these lessons to further refine the items that we developed and to construct a survey that was administered

to a national sample of parents and their adolescent children (see also Chap. 3).

Specifically, to identify the most promising measures to pilot we: (a) selected those that showed the most variance based on the results of the cognitive interviews, where appropriate; (b) selected or refined items so that they had clear or salient reference points (such as school or close friends, school year vs. calendar year); (c) eliminated those items for which we had evidence that they were subject to social desirability; (d) focused on items that were behavioral in nature, again, to improve the variability in responses; (e) limited the constructs and, within constructs, the questions asked of parents to those they were most likely to have information on and were likely to observe; (f) dropped items that were either ambiguous in meaning or whose responses could have multiple interpretations; and (g) developed concrete items for abstract constructs and cut items that were written abstractly or that were considered vague by participants.

Additionally, we selected items within constructs that focused on salient aspects of adolescents' lives while tapping into the underlying construct, as defined by our literature review. Also, as noted above, recognizing that not all parents have the information needed to report on all constructs or, within constructs, on all items we added a "don't know" response to all items in the parent survey. Likewise, based on prior research and the results of cognitive testing, which indicated that spirituality may be a difficult construct to ask of all adolescents, we added a "don't know" response category for the majority of items asked of adolescents in this construct. An analysis of the use of "don't know" responses by parents including the characteristics of parents who do and do not use the "don't know" option may provide insights into which parent is the best reporter and whether the quality of parent reporting varies by the gender composition of parent–child dyads or by some other characteristic such as age of child or frequency of communications. Comparisons of parent and adolescent reports from the pilot survey will also provide important information about the level of agreement between parent and adolescent and how much this varies by topic or by parent–child characteristics. This information will be important in determining what parents can be asked to report about accurately and when direct reports from adolescents are needed.

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Footnotes

1 Researchers have explored the administration of cognitive interviews over the telephone (Willis 1999; Beatty and Schechter 1994; Schechter et al. 1996) to increase similarity between test and survey modes, gain the participation of respondents who are unlikely to agree to in-person interviews, increase access to hard-to-reach populations (e.g., participants across the nation and in rural areas), and reduce costs.

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3. Pilot Study and Psychometric Analyses

Laura H. Lippman[1], Kristin Anderson Moore[1], Lina Guzman[1], Renee Ryberg[1], Hugh McIntosh[2], Manica F. Ramos[1], Salma Caal[1], Adam Carle[3] and Megan Kuhfeld[4]

(1) Child Trends, 7315 Wisconsin Avenue, Suite 1200W, Bethesda, MD 20814, USA
(2) George Mason University, 4400 University Drive, 3F5, Fairfax, VA 22030, USA
(3) University of Cincinnati School of Medicine, Cincinnati Children's Hospital Medical Center, 3333 Burnet Avenue, MLC 7014, Cincinnati, OH 45229, USA
(4) Graduate School of Education and Information Studies, University of California, Los Angeles, USA

Laura H. Lippman (Corresponding author) Email: llippman@childtrends.org

Kristin Anderson Moore Email: kmoore@childtrends.org

Lina Guzman Email: lguzman@childtrends.org

Renee Ryberg Email: rryberg@childtrends.org

Hugh McIntosh Email: humac1@verizon.net

Manica F. Ramos Email: mramos@childtrends.org

Salma Caal Email: scaal@childtrends.org

Adam Carle Email: adam.carle.cchmc@gmail.com

Megan Kuhfeld Email: megan.kuhfeld@gmail.com

Abstract
The Flourishing Children Project responds to a call for rigorous indicators of positive development in adolescents by creating scales for 19 constructs of positive development in the categories of flourishing in school and work, personal flourishing, flourishing in relationships, relationship skills, helping others to flourish, and environmental stewardship. Each scale can be used alone or in combination to fill gaps in available measures of important constructs of adolescent flourishing. In the final stage of the project, described in this chapter, the items chosen for each scale were tested in a pilot study based on a survey of a nationally representative sample to ensure that they were suited for administration in national surveys and possessed the desired psychometric properties. The web-based survey, conducted in conjunction with Knowledge Networks, yielded a sample of 1,951 adolescents and 2,240 parents, or 1,833 parent-adolescent dyads. To assess the psychometric properties of each scale, data from the pilot survey were analyzed for reliability (alpha), concurrent validity, skewness, differences among subgroups (e.g., age, gender, and income groups), and other characteristics.

Keywords Adolescent development – Adolescent well-being – Positive youth development – Developmental assets – Positive indicators – Flourishing – Positive child development – Child well-being indicators – Child well-being frameworks

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3.1 Pilot Study Introduction

During earlier stages of the Flourishing Children Project described above, items were developed, revised and tested in cognitive interviews to assure that the items in the scales assessed each construct as it was conceptually defined and that items could be answered by respondents. Next, as

described in this chapter, the items chosen for each scale were tested in a pilot study based on a survey of a nationally representative sample. Data from the pilot survey were then analyzed to assess the psychometric properties of each scale. The goal was to have short scales that achieved a good distribution, internal reliability, and validity for adolescents and, where applicable, for parents.

3.1.1 Recruitment

Participants were recruited from Knowledge Networks' nationally representative sample of persons living in the United States. Knowledge Networks selects households by using random digit dialing or address-based sampling. Because surveys are conducted on the Internet, households are provided with access to the Internet and hardware, if needed. The Knowledge Networks sample is based on a sampling frame that includes both listed and unlisted numbers, and those with and without a landline telephone. It is not limited to current Internet users or computer owners, and does not accept self-selected volunteers. Once persons are recruited to the panel, they are contacted primarily by e-mail.

Knowledge Networks selected parents with children aged 12–17 from its sample to participate in our pilot study. The selected parents were asked to consent for their children to participate in the study. If no consent was given, no further direct communication to the adolescents was attempted.

3.1.2 Procedures

After participants were recruited into the study, parents completed a screener and consented for their child to participate. In addition to parental consent for the teen to participate, teen assent was also obtained.

Parents and teens completed their surveys separately but had the option of completing their respective surveys in one sitting. Reminder e-mails and automated phone calls were used to remind parents and teens to complete the surveys.

3.1.3 Incentives

Initially, incentives of $5 for parents and $5 for teens were offered. Because parent completion rates in this study were much higher than teen

completion rates, teen incentive amounts were increased during data collection. Teens who completed the survey were given $20 or a gift card. Parents who completed the survey were given $5 or a gift card.

3.1.4 Survey

Findings from cognitive testing with parents and teens (described in Chap. 2) informed item and survey development. The pilot survey included items on 19 constructs. Whenever possible, parallel parent items were developed.

To reduce respondent burden, constructs were randomly assigned to one of two ballots. Each parent-teen dyad was assigned the same ballot. Respondent surveys had on average eight or nine constructs. This design allowed us to compare parent and adolescent reports and to perform a number of experiments on response scales and wording.

The teen protocol contained 147 items and the parent protocol contained 125 items. The number of items per web screen was limited to seven in order to provide visual variation and stimulation.

Nineteen teen cases were dropped from analyses because the respondents completed the survey in less than 7 min. We determined that the quality of these responses was poor due to straight lining, or filling out one response category for multiple items without reading the questions.

3.2 Psychometric Analyses

3.2.1 Overview of Psychometric Analyses

Data from the pilot survey were used to assess the validity and other psychometric properties of our proposed scales.

Generally, scales use an individual's responses to questions about him/herself to measure one or more latent (indirectly observed) constructs (also called factors or latent traits). With respect to each construct, scale designers frequently expect that a single summary score of an individual's responses serves as a sufficient estimate of the construct. However, the possibility exists that, although responses to a set of questions were designed to measure a single construct, responses to the questions may seem to measure more than one construct. If the questions appear to measure multiple constructs, one should not create a single summary score.

Rather, one should create individual scores for each construct (McDonald 1999).

It is important to avoid using a single summary score when a scale measures multiple constructs because the single summary score is not valid and likely masks important information, as it combines information across two constructs into a single score (Carle and Weech-Maldonado 2012). For example, consider a hypothetical set of questions meant to measure community engagement. It may be that these questions measure two aspects of community engagement: "immediate" community engagement (engagement with the adolescent's neighborhood) and "wide" community engagement (engagement with the community beyond the immediate neighborhood). If the questions measure two constructs, an adolescent could be high on immediate engagement but low on wide engagement. Another adolescent could be low on immediate engagement but high on wide engagement. Using a single summary score would miss this distinction and present the two adolescents as nearly equal despite the fact that they differ substantially on the two constructs. Thus, it is essential to establish valid scoring systems.

Internal validity refers to the extent to which responses to a scale measure what the researcher expects them to measure (McDonald 1999). If responses are designed to measure a single construct (supporting a single summary score), this expectation should be empirically tested (Carle and Weech-Maldonado 2012). For each scale developed in this project, we expected responses to questions associated with each scale to measure a single construct. Psychometricians call data measuring a single construct unidimensional and data measuring multiple constructs multidimensional (Bollen 1989; McDonald 1999). Although we sought to develop unidimensional scales, we recognized a priori the need to empirically test this hypothesis for each scale's item set. And we recognized the need to develop empirically based alternative measurement models when tests of unidimensionality failed (revealing, for example, a two-factor model instead of a unidimensional model) (Carle and Weech-Maldonado 2012). To this end, we used confirmatory factor analysis (Bollen 1989; Carle and Weech-Maldonado 2012; Muthén 1989).

Confirmatory factor analysis uses a mathematical model to describe the way people tend to respond to questions. It is confirmatory in the sense that researchers hypothesize (i.e., specify) a specific model and then examine

the extent to which the model-implied covariance matrix differs from the observed covariance matrix (Bollen 1989). If a single construct (factor) accounts for the covariance among responses, the model will do a good job of reproducing the covariance. If a single factor does not cause the covariance, the differences between the model implied and observed covariance matrices will be large. Models that "fit well" do a good job of reproducing the covariance matrix (Hu and Bentler 1998; Hu and Bentler 1999; Bollen 1989).

Our first interest was to assess the validity of creating a single summary score (i.e., composite) for each scale. Therefore, we first tested a single-factor model's fit for each scale. We did this independently for each scale. If the model fit well, we considered this evidence for a single summary score based on the questions' responses. If the model did not fit well, as suggested by Carle and Weech-Maldonado (2012) and Reise et al. (2011), we examined whether the data appeared "essentially" unidimensional. Following the guidelines and methods described by Reise et al. (2011) and Carle and Weech-Maldonado (2012), we developed and tested the fit of bifactor models to examine "essential" or "sufficient" unidimensionality. Bifactor models posit that a general factor primarily (though not fully) accounts for the covariance among responses. One or more small "specific" (as opposed to general) factors account for the remaining covariance. These specific factors tend not to represent substantively meaningful constructs. Rather, they correspond to things such as common response options, item ordering, or similar item content (e.g., a set of items on a scale that all ask about behaviors in the home vs. another set all asking about behaviors in a school). If a bifactor model that fits the data well can be developed, the extent to which the loadings on the general factor in the bifactor model differ from loadings on the general factor in the unidimensional model can be examined. If the loadings do not differ substantively, it can be concluded that the data appear essentially unidimensional (Reise et al. 2011). We used this approach to test for sufficient unidimensionality as evidence for a single summary score.

Finally, in cases where the data did not appear unidimensional or sufficiently unidimensional, we used theory, the unidimensional model's modification indices (which identify ill-fitting constraints), and exploratory factor analyses to develop and test the fit of a multidimensional model (Bollen 1989). In some cases (described in more detail below), we did not

successfully develop a multidimensional model. In these cases, we trimmed items from the scale in an effort to develop a unidimensional model. After trimming items, we proceeded through the steps described above to test unidimensionality.

For all models, we examined fit using empirically validated ideal fit indices and levels suggested by Hu and Bentler (1998, 1999): root mean square error of approximation (RMSEA) values less than 0.05 and comparative fit index (CFI) and Tucker-Lewis index (TLI) values greater than 0.95.

The confirmatory factor analyses were conducted on teens who were part of dyads (i.e., teens whose parents also completed the survey; n = 1,915) and on all parents (n = 2,421). All other analyses were conducted on all parents and teens, whether or not they were part of a complete dyad (n = 2,490).

All analyses appropriately addressed the data's ordered-categorical nature (e.g., never … always), used Mplus statistical software, its theta parameterization and robust weighted least squares estimator, and its missing data estimation capability to estimate the means and covariances (rather than item-level imputation) (Little and Rubin 2002; Muthén 1984; Muthén and Muthén 1998-2010). Cronbach's alpha was also assessed for each indicator. The unstandardized value is presented for each scale. In addition, for each scale, we discuss the distribution of the scores. Table 3.1 summarizes the measurements we used.

Table 3.1 Psychometric measurements and criteria

Measure	Ideal level	Accepted level
Cronbach's alpha (alpha)	≥0.70	≥0.70
Comparative fit index (CFI)	>0.95	>0.95
Tucker-Lewis index (TLI)	>0.95	>0.95
Root mean square error of approximation (RMSEA)	<0.05	≤0.085

3.2.2 Subgroups

We tested the final adolescent and parent models with subgroups to examine whether the model fit for different subsets of respondents in the same manner as the overall sample. We present results for subgroups according to the same fit statistic requirements that we used for the overall models. We present whether the subgroup models meet these cut-offs or

not. If the fit criteria are just outside the window of acceptability, they are listed as not fitting. This is a conservative estimate.

The models were tested by gender (male, female), adolescent age (12–14 years old, 15–17 years old), and household income (below median sample income, at or above median sample income).

When a model comprised only three items, subgroup analyses were performed on a joint model that contained both teen and parent items. This was necessary in order to test models with small numbers of items.

Due to relatively small sample sizes and sparse categorical responses resulting in too many bivariate empty cells, we were not able to fit all of the models. In the tables below, the subgroups for which we were not able to fit a model are indicated with N/A. A check mark indicates that the model fit for the subgroup and a "–" indicates that the model did not fit for the indicated subgroup.

3.2.3 Construct Validity

To validate the measures, concurrent validity was also examined between the scales and a select number of outcome variables. Four single-item measures representing a social behavior, a health behavior, emotional health, and an academic outcome were used to test the concurrent validity of the scales. As a measure of social behavior, the following item from the Youth Risk Behavior Survey (YRBS) measuring fighting was used: *During the past 12 months, how many times were you in a physical fight?*

To measure the health behavior of smoking, the following item was borrowed from YRBS: *During the past 30 days, on how many days did you smoke cigarettes?*

Teen-reported depressive symptoms served as a measure of emotional health with this item from YRBS: *During the past 12 months, did you ever feel so sad or hopeless almost every day for 2 weeks or more in a row that you stopped doing some usual activities?*

Finally, as a measure of an academic outcome, the following parental item was modified from the Monitoring the Future survey: *Now I would like to ask you about (his/her) grades during the LAST school year. Overall, across all subjects (he/she) takes at school, did (he/she) get…Mostly As; Mostly Bs; Mostly Cs; Mostly Ds and lower; (His/her) school does not give these grades.*

These outcomes were converted into dichotomous dummy variables and were analyzed by quartiles in multivariate analyses, controlling for teen gender, teen age, teen race, household income, household size, parental education, parental marital status, parental home ownership, parental employment, metropolitan area, and region of residence.

To provide information that users of each scale might find useful to guide coding, we also provide information on how the quartiles can be coded. These quartiles are based on weighted data from the nationally representative pilot study sample.

3.3 Results

3.3.1 Relationship Skills

3.3.1.1 Empathy

Empathy is the ability to feel and understand what another person is feeling and includes both cognitive and affective elements. To assess empathy, parents and adolescents were each asked a set of four questions, using a response scale that ranges from “a lot like me (my child)” to “not at all like me (my child).” The questions asked of parents and adolescents are the same, except that the parent items are adapted so that the parents can report about their child.

The alpha for the parent scale is 0.87, indicating high internal reliability. The alpha for adolescents is comparable, at 0.84. The fit statistics, as assessed by the CFI, TLI, and RMSEA, are excellent for both the parent-reported scale and for the adolescent-reported scale, easily exceeding our criteria (see below). Moreover, the distribution for each scale is quite good, as shown in the bar graphs below. Although positive constructs are often positively skewed, the empathy scale is not highly skewed.

Multivariate analyses to test for concurrent validity were conducted, controlling for adolescent gender, adolescent age, adolescent race, household income, household size, parental education, parental marital status, parental home ownership, parental employment, and metropolitan area and region of residence.

Adolescents with lower levels of empathy were significantly more likely to report that they get into fights, smoke cigarettes, and feel sad or hopeless and are less likely to receive grades of mostly As at school (see

Fig. 3.3). The differences between those scoring high and low on empathy are quite substantial and are easier to see graphically using the bivariate analyses. For example, comparing across quartiles, more than a quarter of the adolescents in the lowest empathy quartile reported frequent fights in the previous 12 months, compared with about 20 % of those in the second quartile and less than 15 % of adolescents in the two highest quartiles. Also, for smoking, more than 8 % of those in the lowest quartile on empathy reported smoking in the previous 30 days, compared with less than 1 % in the other three quartiles. For depressive symptoms, more than 20 % of those in the bottom quartile reported feeling sad or hopeless, while just 10–15 % of those in the other quartiles reported feeling sad or hopeless. In addition, less than 40 % of those in the lowest quartile on empathy received mostly As, while 55–60 % of the adolescents scoring higher on empathy reported mostly As. Clearly, this measure of empathy is picking up those adolescents on the low end of the spectrum of well-being, and it is also identifying substantively important differences between adolescents scoring low on empathy compared with those scoring higher on empathy.

Psychometric analyses were conducted for several critical subgroups, as well as for the sample as a whole. Our criteria were met for all of the subgroups, except for teens in low and higher income groups and parents of older adolescents. With these exceptions, the empathy scale satisfies all of our criteria.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- My child feels bad when someone gets their feelings hurt.
- My child feels happy when others succeed.
- My child understands how those close to him/her feel.
- It is important to my child to understand how other people feel (Fig. 3.1).

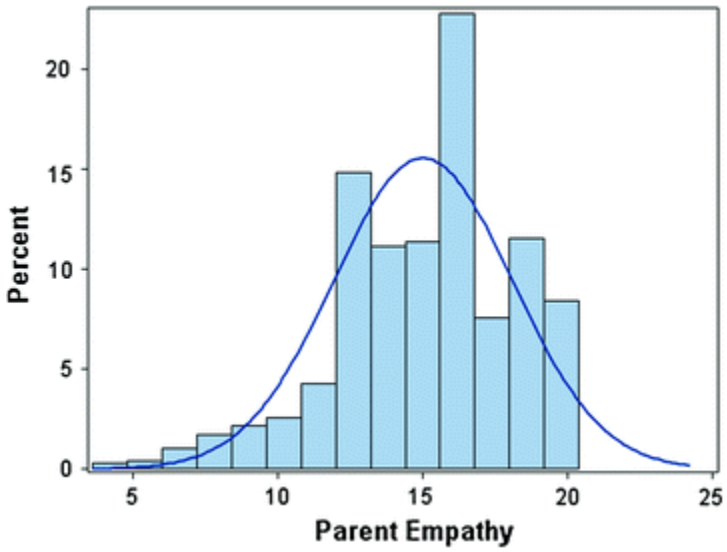

Fig. 3.1 Parent empathy distribution. Alpha = 0.87, CFI = 1.000, TLI = 0.999, RMSEA = 0.026

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I feel bad when someone gets their feelings hurt.
- I understand how those close to me feel.
- It is important to me to understand how other people feel.
- I am happy when others succeed (Fig. 3.2).

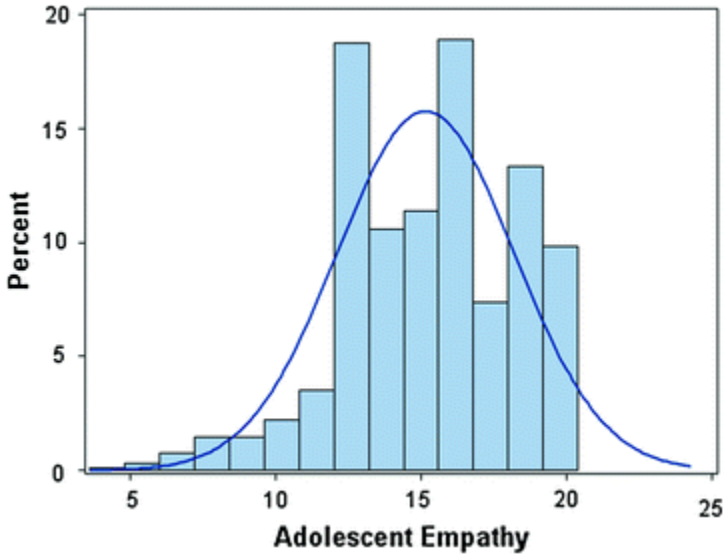

Fig. 3.2 Adolescent empathy distribution. Alpha = 0.84, CFI = 1.000, TLI = 0.999, RMSEA = 0.0336

Scale psychometrics for subgroups were assessed in Table 3.2.

Table 3.2 Empathy subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale		✓	–	–	✓	✓
Parent scale	✓	✓	✓	✓	✓	–

✓The model fit for this subgroup – The model did not fit for this subgroup

Concurrent validity is shown in Table 3.3 and Fig. 3.3.

Table 3.3 Empathy concurrent validity from multivariate analyses

Fighting	Smoking	Depression	Grades
−0.12***	−0.16***	−0.10***	0.10***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

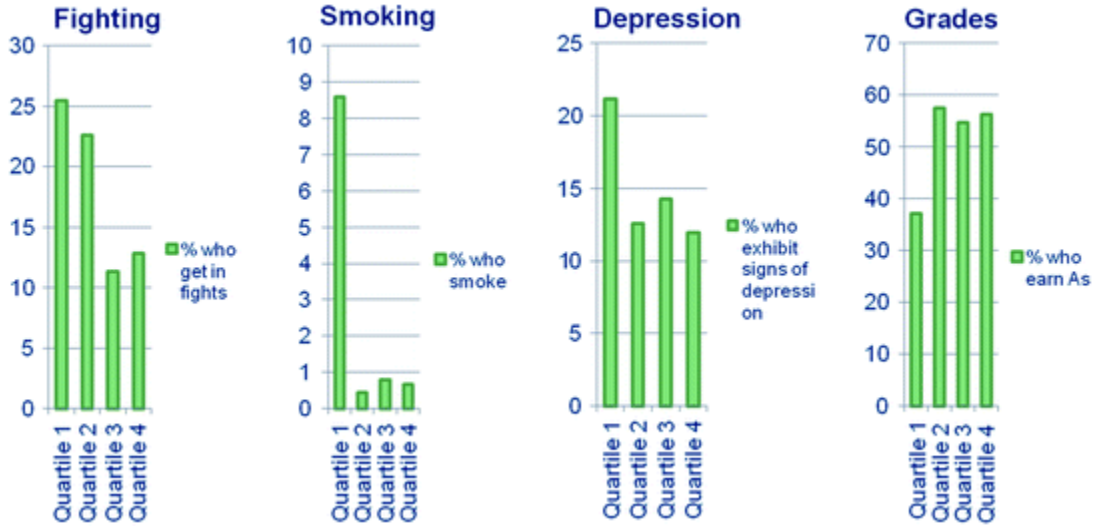

Fig. 3.3 Empathy concurrent validity. Quartiles of empathy by social, health, emotional, and academic outcomes

Quartiles

To inform coding decisions for potential users, we note that the parent empathy scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 13, quartile 2: 14–16, quartile 3: 17, quartile 4: > 17.

The adolescent empathy scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 13, quartile 2: 14–15, quartile 3: 16–17, quartile 4: > 17.

3.3.1.2 Social Competence

Social competence reflects the positive skills needed to function constructively in groups and get along well with other individuals. Parents were asked six items assessing aspects of their child's social competence, while adolescents responded to nine questions. The additional questions asked of adolescents covered whether the adolescent can control his or her anger during a disagreement, discuss a problem with a friend without making it worse, and listen to other students' ideas. Items were asked using a frequency scale and the "Exactly like me" to "Not like me" response categories.

Reflecting the larger number of items, the alpha is larger for the adolescent-reported scale, at 0.79, than for the parent-reported scale, at 0.62. However, the fit statistics are excellent for both the adolescents and parents. Moreover, both scales have good distributions, and the psychometrics for all of the subgroups met our criteria.

Quartiles on social competence for the adolescent-reported scale are associated significantly with all four measures of concurrent validity. In particular, adolescents in the lowest quartile on social competence are considerably more likely to report that they fight, smoke, and feel symptoms of depression. The proportion who get As in school increases steadily across the four quartiles of the social competence scale.

In sum, the social competence scale seems fit for use.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- My child avoids making other kids look bad.

- If two of my child's friends are fighting, my child finds a way to work things out.
- When my child works in groups, he/she does his/her fair share.

How often … (None of the time … All of the time)

- does your child get along well with people of different races, cultures, and religions?
- does your child follow the rules at a park, theater, or sports event?
- does your child respect other people's point of view, even if he/she disagrees? (Fig. 3.4).

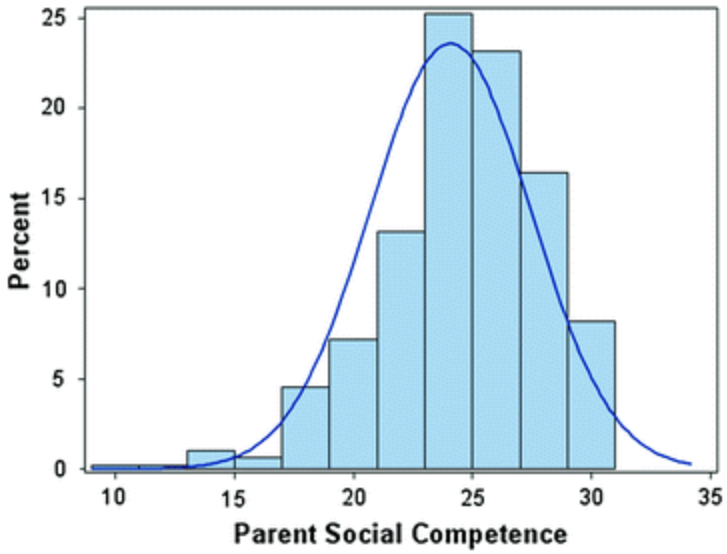

Fig. 3.4 Parent social competence distribution. Alpha = 0.62, CFI = 0.983, TLI = 0.971, RMSEA = 0.040

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I avoid making other kids look bad.
- If two of my friends are fighting, I find a way to work things out.
- When I work in school groups, I do my fair share.

Please indicate how often this happens. How often … (None of the time … All of the time)

- do you get along well with people of different races, cultures, and religions?
- do you listen to other students ideas?
- do you control your anger when you have a disagreement with a friend?
- can you discuss a problem with a friend without making things worse?
- do you follow the rules when you are at a park, theater, or sports event?
- do you respect other points of view, even if you disagree? (Fig. 3.5).

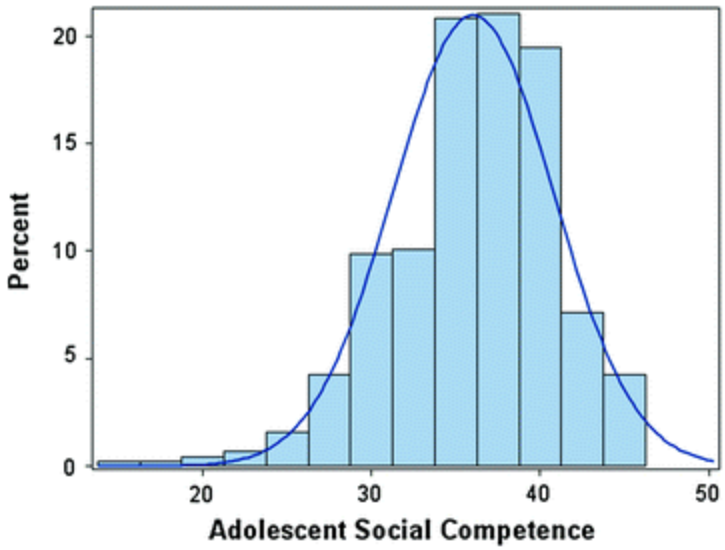

Fig. 3.5 Adolescent social competence distribution. Alpha = 0.79, CFI = 0.986, TLI = 0.981, RMSEA = 0.042

Scale psychometrics for subgroups were assessed in Table 3.4.

Table 3.4 Social competence subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	✓	✓	✓	✓	✓	✓
Parent scale	✓	✓	✓	✓	✓	✓

✓ The model fit for this subgroup

Concurrent validity is shown in Table 3.5 and Fig. 3.6.

Table 3.5 Social competence concurrent validity

Fighting	Smoking	Depression	Grades
−0.14***	−0.28***	−0.10**	0.12***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

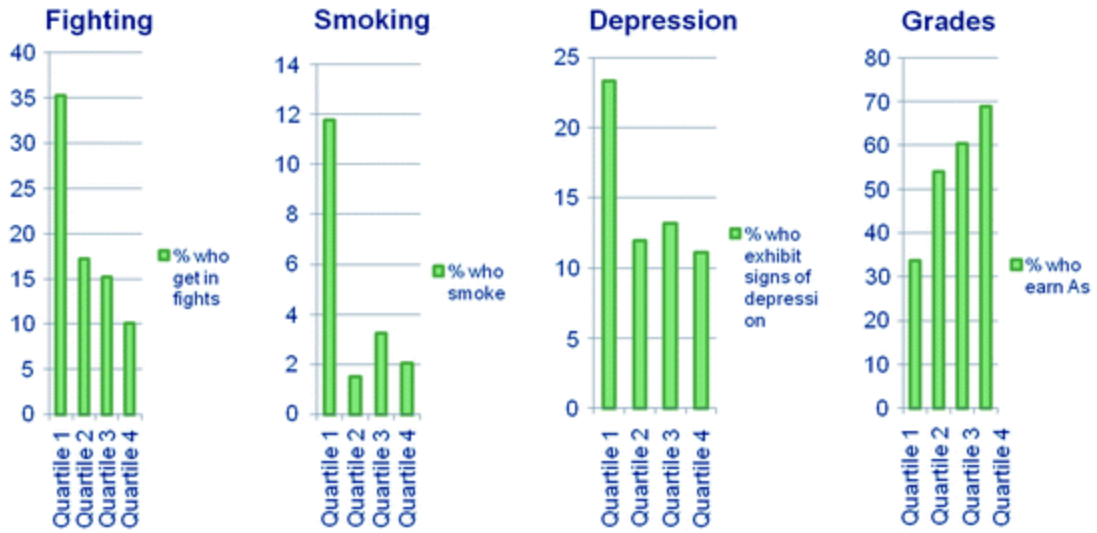

Fig. 3.6 Social competence concurrent validity. Quartiles of social competence by social, health, emotional, and academic outcomes

Quartiles

The parent social competence scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 22, quartile 2: 23–24, quartile 3: 25–27, quartile 4: > 27.

The adolescent social competence scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 33, quartile 2: 34–37, quartile 3: 38–39, quartile 4: > 39.

3.3.2 Flourishing in Relationships

3.3.2.1 Parent-Adolescent Relationship

This scale assesses the quality and types of attitudes and interactions that occur between an adolescent and his/her parent. Items are assessed using a frequency scale (“None” to “All of the time”). The scale for adolescents has six items, with an excellent alpha (0.92). The parent-reported scale has seven items (the one additional item being “Even if my child knows I’d be disappointed, he/she can come to me for help with a problem”) and achieves a very good alpha of 0.86.

The fit statistics for both scales are excellent, and the distributions, while positively skewed, provide a distribution of scores. Moreover, the adolescent-reported scale is significantly and strongly related to all four dependent variables. The fit statistics met our criteria for all subgroups except girls. The parent-reported measure did not meet the criteria for older adolescents or for girls.

Overall, this scale can be used, though reservations for girls are necessary. The adolescent-reported version appears to be somewhat preferable over the parent-reported scale, at least for adolescents ages 15–17.

Parent-Reported Items

Please indicate how often this happens. (None of the time … All of the time)

- I show my child that I am proud of him/her.
- I take an interest in my child’s activities.
- I listen to my child when he/she talks to me.
- My child can count on me to be there when he/she needs me.
- My child and I talk about the things that really matter.
- My child is comfortable sharing his/her thoughts and feelings with me.
- Even if my child knows I’d be disappointed, he/she can come to me for help with a problem (Fig. 3.7).

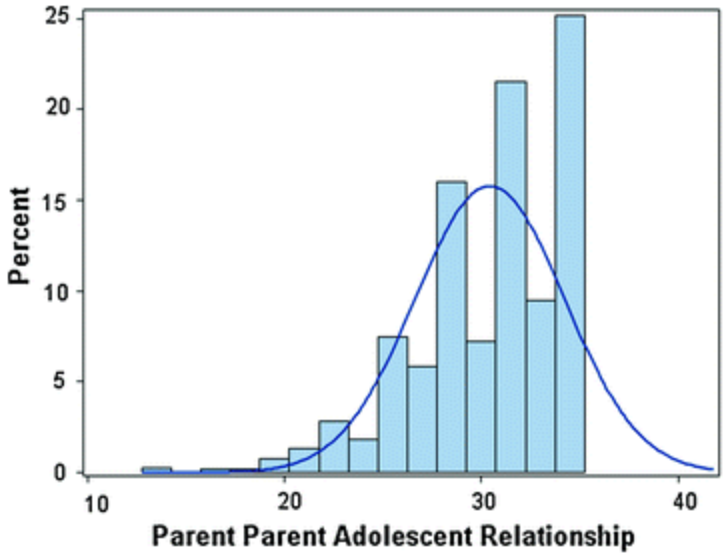

Fig. 3.7 Parent parent-adolescent relationship distribution. Alpha = 0.86, CFI = 0.994, TLI = 0.986, RMSEA = 0.070

Adolescent-Reported Items

For each of the following statements, please tell me how often this happens. (None of the time … All of the time)

- My father/mother shows me he/she is proud of me.
- My father/mother takes an interest in my activities.
- My father/mother listens to me when I talk to him/her.
- I can count on my father/mother to be there when I need him/her.
- My father/mother and I talk about the things that really matter.
- I am comfortable sharing my thoughts and feelings with my father/mother (Fig. 3.8).

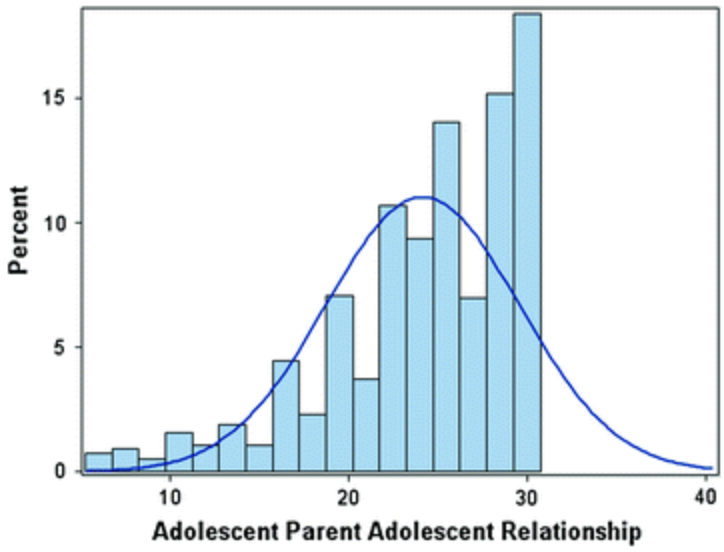

Fig. 3.8 Adolescent parent-adolescent relationship distribution. Alpha = 0.92, CFI = 0.999, TLI = 0.997, RMSEA = 0.053

Scale psychometrics for subgroups were assessed in Table 3.6.

Table 3.6 Parent-adolescent relationship subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	✓	–	✓	✓	✓	✓
Parent scale	✓	–	✓	✓	✓	–

✓ The model fit for this subgroup – The model did not fit for this subgroup

Concurrent validity is shown in Table 3.7 and Fig. 3.9.

Table 3.7 Parent-adolescent relationship concurrent validity

Fighting	Smoking	Depression	Grades
−0.09***	−0.09***	−0.12***	0.03**

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

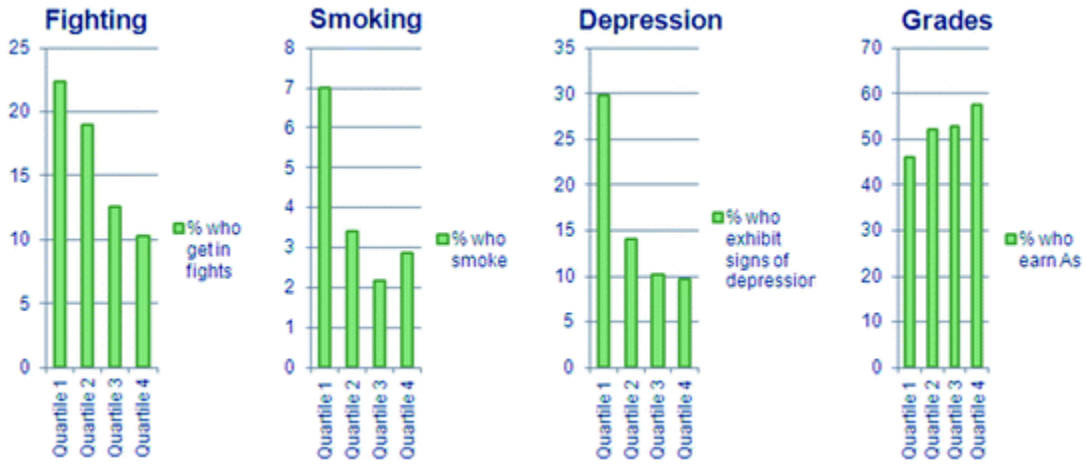

Fig. 3.9 Parent-adolescent relationship concurrent validity. Quartiles of parent-adolescent relationship by social, health, emotional, and academic outcomes

Quartiles

The parent parent-adolescent relationship scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 28, quartile 2: 29–31, quartile 3: 32–34, quartile 4: > 34.

The adolescent parent-adolescent relationship scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 21, quartile 2: 22–25, quartile 3: 26–29, quartile 4: > 29.

3.3.2.2 Peer Friendship

This construct includes items about being a friend and having friends. Items assess trust, loyalty, affect, companionship, and support and encouragement. Parents report on four items that describe being a friend and seven items about having friends, for a total of 11 items. Adolescents report on five and eight items, respectively, for a total of 13 items in the adolescent scale. The “Exactly like me” response scale was used.

Both the parent-reported and the adolescent-reported scales have excellent reliability and psychometrics. Specifically, the parent-reported scale on peer friendship has an alpha of 0.86, and the adolescent-reported alpha is 0.91.

For the subgroups, psychometric analyses indicate problems for adolescent reports. In fact, the scale met our criteria only for adolescents in higher-income families. For parents, the criteria were met for males, higher-income families, and parents with younger teens.

Surprisingly, the adolescent-reported scale is not related to any of the dependent variables. Additional analyses (not shown) indicate that the five items that assess being a friend are related to the outcomes, while the subscale on having friends is not related to any of the outcomes. While one could argue that having and being a friend are both intrinsically important and don't need to be correlated with other behaviors, it would be useful to assess the validity of this scale with other behaviors. On the other hand, one might note that most adolescents have friends of one sort or another, suggesting that simply having friends may not be as important as is being a good friend.

Overall, we consider the four parent-reported items and the five adolescent-reported items that assess being a friend to be ready for surveys, while the items on having a friend are less useful.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- My child finds it hard to make friends.
- My child finds it hard to keep friends.
- My child would stand up for his/her friend.
- My child takes advantage of his/her friends.

Please indicate how much you agree or disagree with the following statements. My child has a friend who … (Strongly agree … Strongly disagree)

- helps him/her when he/she is down.
- will give him/her good advice.
- helps him/her to do the things he/she needs to do.
- makes him/her feel good about himself/herself.
- does things to show he/she cares about him/her.
- he/she can do fun things with.
- he/she can count on to be there for him/her (Fig. 3.10).

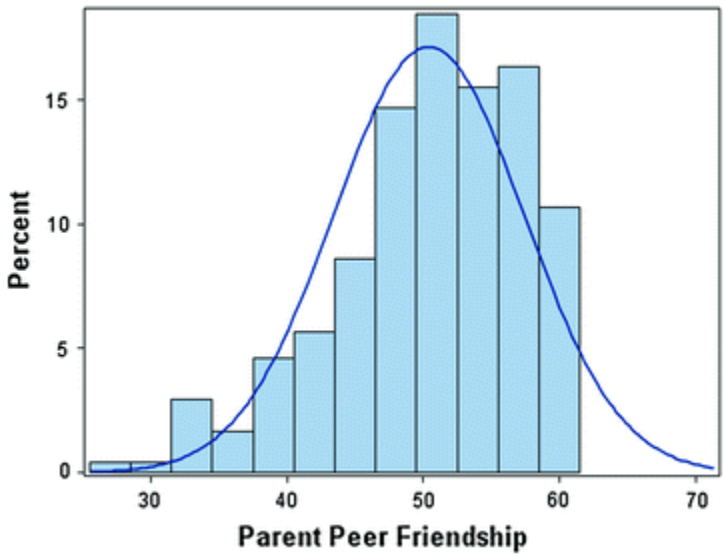

Fig. 3.10 Parent peer friendship distribution. Alpha = 0.86, CFI = 0.995, TLI = 0.993, RMSEA = 0.061

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I support my friends when they do the right thing.
- I encourage my friends to be the best they can be.
- I help close friends feel good about themselves.
- I am there when my friends need me.
- I would stand up for my friend if another kid was causing them trouble.

Please indicate how much you agree or disagree with the following statements. I have a friend who … (Strongly agree … Strongly disagree)

- helps me when I am down.
- will give me good advice.
- does things to show he/she cares about me.
- I can do fun things with.
- I can count on to be there for me.
- I can talk to about a problem about school or home.
- helps me to do the things I need to do.

- makes me feel good about myself (Fig. 3.11).

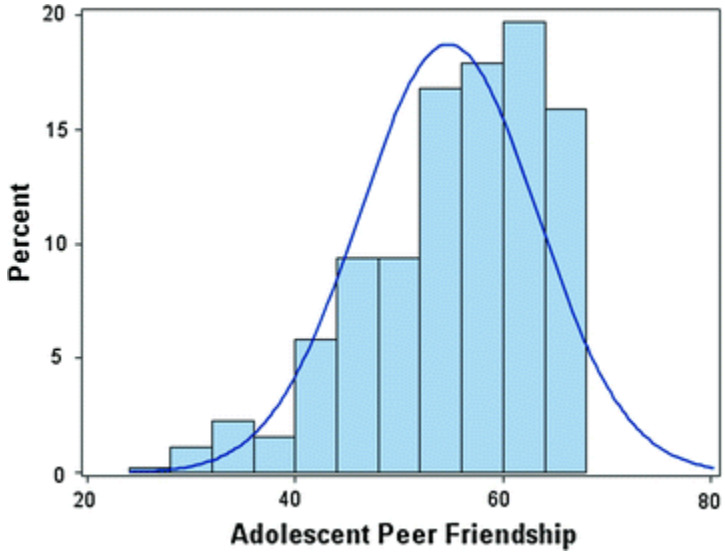

Fig. 3.11 Adolescent peer relationship distribution. Alpha = 0.91, CFI = 0.995, TLI = 0.993, RMSEA = 0.066

Scale psychometrics for subgroups were assessed in Table 3.8.

Table 3.8 Peer friendship subgroup results

	Adolescent gender		**Household income**		**Adolescent age**	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	–	–	N/A	✓	–	–
Parent scale	✓	–	–	✓	✓	–

✓ The model fit for this subgroup – The model did not fit for this subgroup N/A We were not able to fit a model for this subgroup due to data limitations

Concurrent validity is shown in Table 3.9.

Table 3.9 Peer friendship concurrent validity

Fighting	**Smoking**	**Depression**	**Grades**
−0.01	−0.04	−0.02	0.01

* Significant at 0.10
** Significant at 0.05

*** Significant at 0.01

Quartiles

The parent peer friendship scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 47, quartile 2: 48–52, quartile 3: 53–56, quartile 4: > 56.

The adolescent peer friendship scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 49, quartile 2: 50–57, quartile 3: 58–62, quartile 4: > 62.

It is also possible to create a subscale out of the first set of items on being a friend.

The weighted distribution for the parent version of the being a friend subscale is: quartile 1: ≤ 20, quartile 2: 21–22, quartile 3: 23, quartile 4: > 23. The weighted distribution for the adolescent version of the being a friend subscale is: quartile 1: ≤ 19, quartile 2: 20–21, quartile 3: 22–24, quartile 4: > 24.

3.3.3 Flourishing in School and Work

3.3.3.1 Diligence and Reliability

This construct assesses the extent to which an adolescent performs tasks thoroughly and completely, works hard, and can be counted on to follow through with responsibilities and commitments. It is assessed with seven items that are similar for parents and adolescents on a frequency scale (“None of the time” to “All of the time”).

Scale reliability is very good, at 0.89 for parents and 0.79 for adolescents. In addition, all of the psychometric fit statistics are strong, and the scale distribution is very good. Higher scores on the diligence and reliability scale for adolescents are associated with less fighting, smoking, and depression and with better grades.

The subgroup analyses suggest that the adolescent-reported scale works well for teens, except for higher-income teens. The parent-reported scale meets the criteria for males, but not for the remaining subgroups, with the exception of younger adolescents, who could not be analyzed. This suggests that the adolescent-reported scale may be the preferred choice; however, we note that the parent-reported scale works well in terms of reliability and

distribution for the whole sample, with the important caveat that it did not work for most of the subgroups examined here.

Parent-Reported Items

How often … (None of the time … All of the time)

- does your child work harder than others his/her age?
- does your child do as little work as he/she can get away with?
- does your child finish the tasks he/she starts?
- does your child feel that it is hard for him/her to finish the tasks he/she starts?
- does your child give up when things get difficult?
- can people count on your child to get tasks done?
- does your child do what he/she says he/she is going to do? (Fig. 3.12).

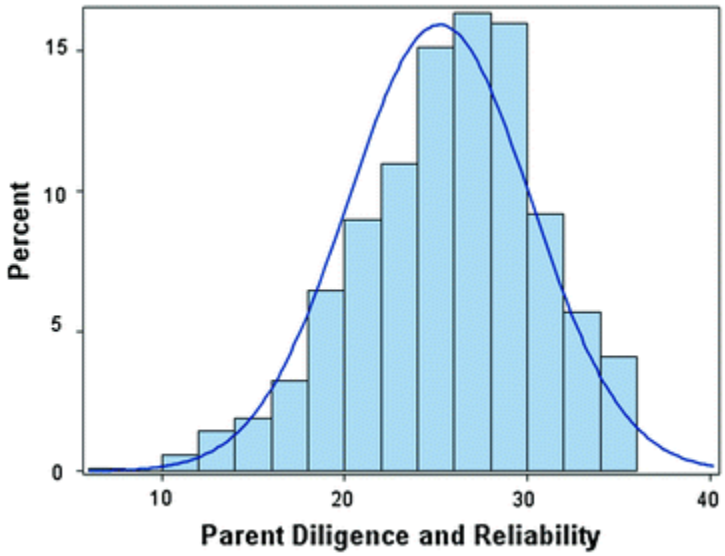

Fig. 3.12 Parent diligence and reliability distribution. Alpha = 0.89; CFI = 0.995; TLI = 0.986; RMSEA = 0.086

Adolescent-Reported Items

How often… (None of the time … All of the time)

- do you work harder than others your age?
- do you do as little work as you can get away with?
- do you finish the tasks you start?

- is it hard for you to finish the tasks you start?
- do you give up when things get difficult?
- can people count on you to get tasks done?
- do you do the things that you say you are going to do? (Fig. 3.13).

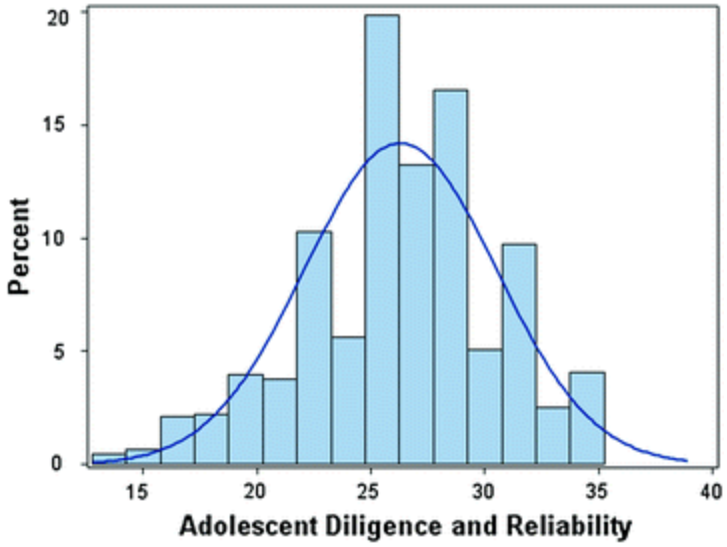

Fig. 3.13 Adolescent diligence and reliability distribution. Alpha = 0.79, CFI = 0.994, TLI = 0.983, RMSEA = 0.069

Scale psychometrics for subgroups were assessed in Table 3.10.

Table 3.10 Diligence and reliability subgroup results

	Adolescent gender		**Household income**		**Adolescent age**	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	✓	✓	✓	–	✓	✓
Parent scale	✓	–	–	–	N/A	–

✓ The model fit for this subgroup – The model did not fit for this subgroup N/A We were not able to fit a model for this subgroup due to data limitations

Concurrent validity is shown in Table 3.11 and Fig. 3.14.

Table 3.11 Diligence and reliability concurrent validity

Fighting	**Smoking**	**Depression**	**Grades**

Fighting	Smoking	Depression	Grades
−0.13***	−0.17***	−0.13***	0.18***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

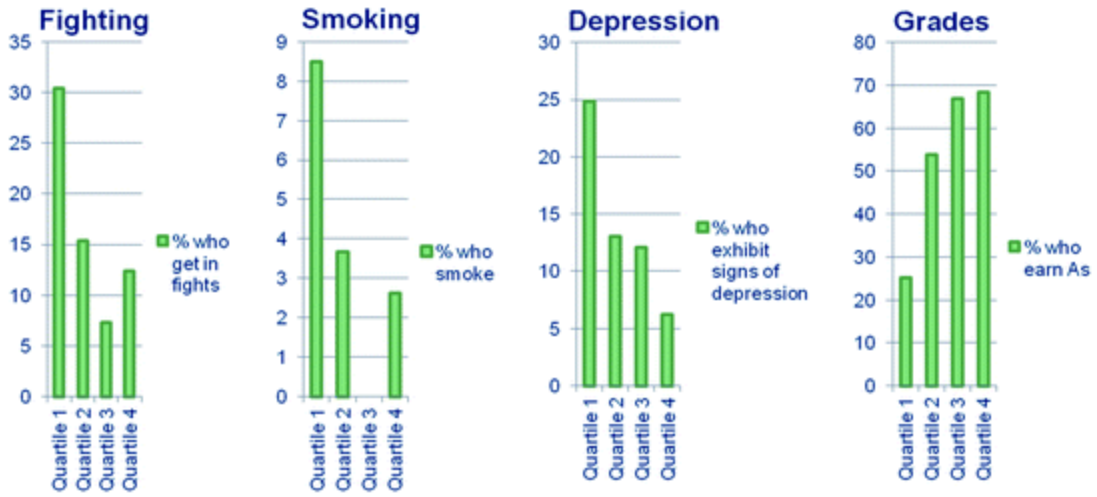

Fig. 3.14 Diligence and reliability concurrent validity. Quartiles of diligence and reliability by social, health, emotional, and academic outcomes

Quartiles

The parent diligence and reliability scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 22, quartile 2: 23–26, quartile 3: 27–29, quartile 4: > 29.

The adolescent diligence and reliability scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 24, quartile 2: 25–27, quartile 3: 28–29, quartile 4: > 29.

3.3.3.2 Educational Engagement

The concept of engagement in education covers three types of engagement. Cognitive engagement involves curiosity and a willingness to go beyond the basics, as well as investing time and energy in learning. Emotional engagement reflects feeling energized by the subject matter, caring about doing well, and seeing one's identity as a student as central. Behavioral engagement implies positive involvement in academic work, an absence of school conduct problems, and participation in school-related activities.

Parents and adolescents reported on six similar items, using frequency response categories. Each scale has a good distribution, a good alpha, and excellent fit statistics. In addition, students who are more educationally engaged are significantly less likely to fight, smoke, or describe themselves as depressed. Also, as one would anticipate, adolescents who are educationally engaged are substantially more likely to earn As in school. Specifically, highly engaged adolescents are more likely by 40 percentage points to receive As than students who are not engaged in school. We note, of course, that these are cross-sectional analyses, so causality can not be inferred with confidence.

Psychometric analyses for subgroups indicate that the scale has good fit statistics for younger teens and teens from lower-income families. The analyses could not be conducted for the other groups because of a lack of distribution within the cells. For parents, though, the scale met the fit statistics in all of the subgroups, suggesting that parents may be good reporters of their adolescent's educational engagement.

In sum, this scale works well by most but not all criteria. Specifically, analyses of fit statistics were not successful for most of the adolescent subgroups. Having said that, adolescent reports are strongly related to all four outcome measures. Assessing this measure in larger samples of adolescents may be warranted. In the interim, the scale can be recommended for parent report and, with modest reservations, for adolescent report.

Parent-Reported Items

How often does your child … (None of the time … All of the time)

- care about doing well in school?
- pay attention in class?
- go to class unprepared?

Please indicate how much you agree or disagree (Strongly agree … Strongly disagree)

- If something interests my child, he/she tries to learn more about it.
- My child thinks the things he/she learns at school are useful.
- My child believes that being a student is one of the most important parts of who he/she is (Fig. 3.15).

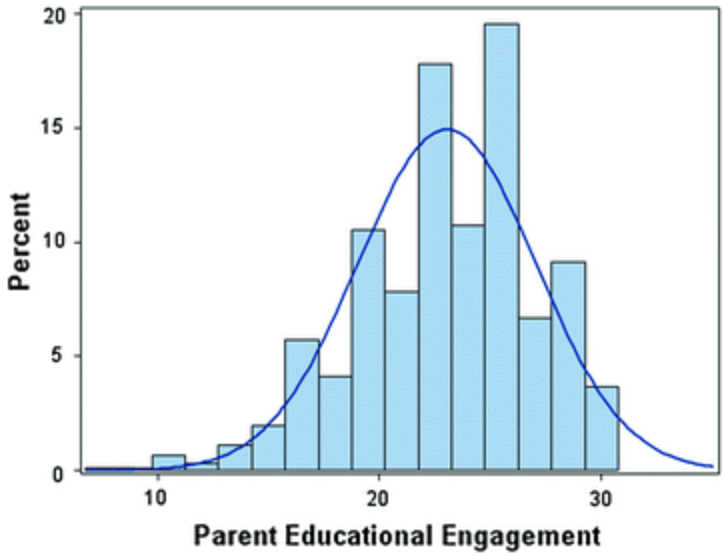

Fig. 3.15 Parent educational engagement distribution. Alpha = 0.80, CFI = 0.999, TLI = 0.998, RMSEA = 0.026

Adolescent-Reported Items

Please indicate how often this has happened this school year. How often do you … (None of the time … All of the time)

- care about doing well in school?
- pay attention in class?
- go to class unprepared?

Please indicate how much you agree or disagree (Strongly Agree … Strongly Disagree)

- If something interests me, I try to learn more about it.
- I think the things I learn at school are useful.
- Being a student is one of the most important parts of who I am (Fig. 3.16).

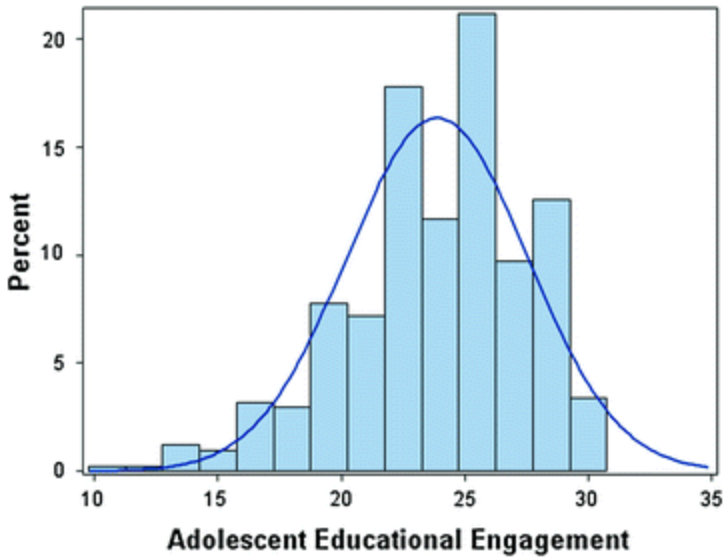

Fig. 3.16 Adolescent educational engagement distribution. Alpha = 0.72, CFI = 0.996, TLI = 0.990, RMSEA = 0.043

Scale psychometrics for subgroups were assessed in Table 3.12.

Table 3.12 Educational engagement subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	N/A	N/A	✓	N/A	✓	N/A
Parent scale	✓	✓	✓	✓	✓	✓

✓ The model fit for this subgroup N/A We were not able to fit a model for this subgroup due to data limitations

Concurrent validity is shown in Table 3.13 and Fig. 3.17.

Table 3.13 Educational engagement concurrent validity

Fighting	Smoking	Depression	Grades
−0.15***	−0.21***	−0.14***	0.19***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

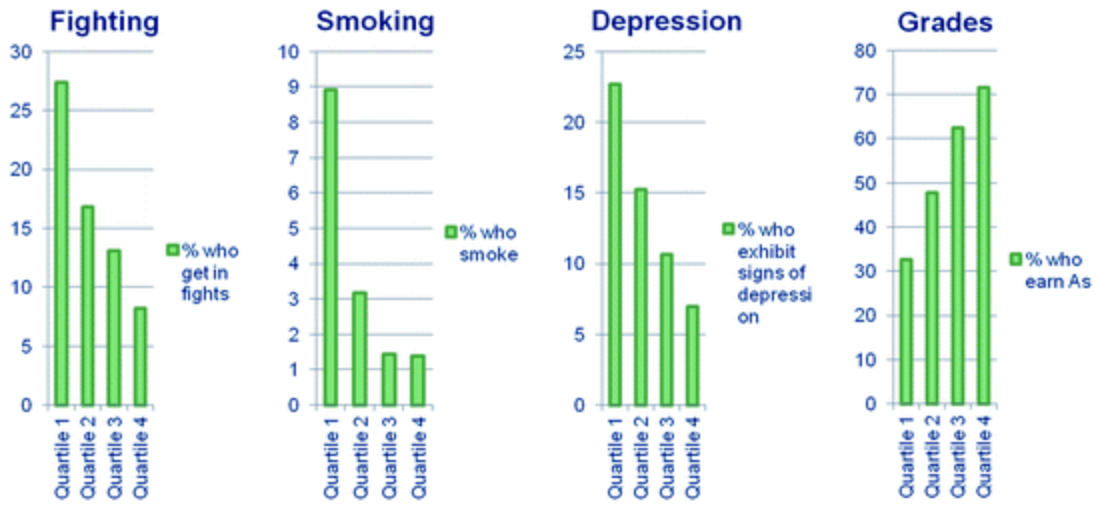

Fig. 3.17 Educational engagement concurrent validity. Quartiles of educational engagement by social, health, emotional, and academic outcomes

Quartiles

The parent educational engagement scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 21, quartile 2: 22–24, quartile 3: 25–26, quartile 4: > 26.

The adolescent educational engagement scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 22, quartile 2: 23–24, quartile 3: 25–27, quartile 4: ≥ 27.

3.3.3.3 Initiative Taking

Adolescents who take initiative are those who demonstrate a drive for achievement, innovativeness, and an openness to new experiences. They are willing to be leaders and take reasonable risks, and they tend to have an entrepreneurial spirit. Four items were asked of parents and of adolescents, using the “Exactly like me” to “Not at all like me” response categories.

These short scales achieved good alphas—0.73 for parents and 0.70 for adolescents—and excellent fit statistics. In addition, fit statistics are excellent for 10 of the 12 subgroups. (The exceptions are parent reports for boys and younger teens.) While initiative taking is not associated with fighting, it is associated with the other three measures used to assess concurrent validity. Specifically, adolescents higher on initiative are marginally less likely to report smoking, significantly less likely to report

feeling sad and hopeful, and significantly more likely to receive As in school.

In sum, these brief scales work well on all criteria, with the caveat that the subgroup analyses fell short for one adolescent and one parent subgroup.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- My child is willing to risk failure to reach his/her goals.
- When my child works at something, he/she cares about doing his/her best.
- My child likes coming up with new ways to solve problems.
- My child is a leader, not a follower (Fig. 3.18).

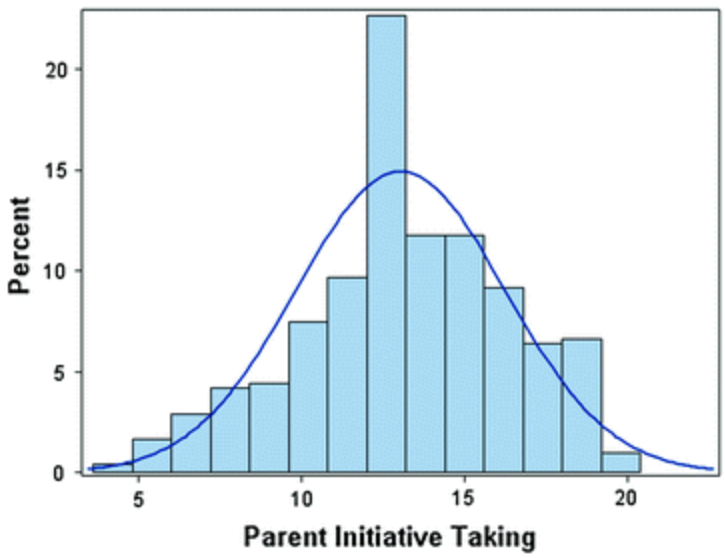

Fig. 3.18 Parent initiative-taking distribution. Alpha = 0.73, CFI = 1.000, TLI = 0.998, RMSEA = 0.024

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I am willing to risk failure to reach my goals.
- When I work at something, I care about doing my best.
- I like coming up with new ways to solve problems.

- I am a leader, not a follower (Fig. 3.19).

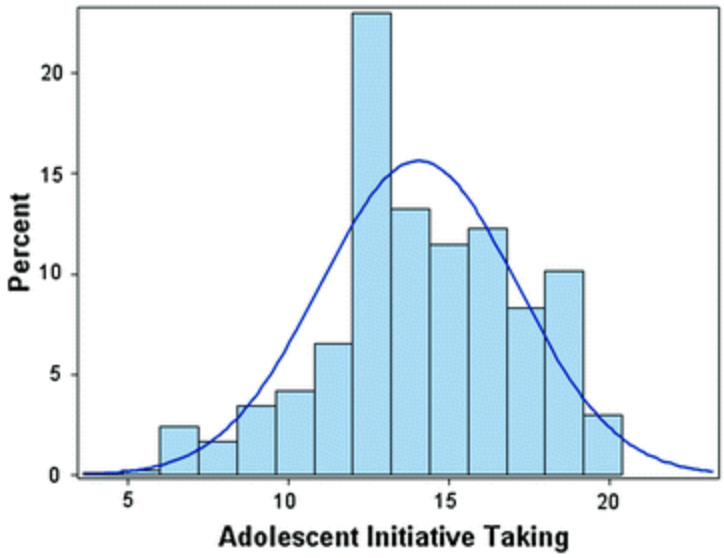

Fig. 3.19 Adolescent initiative-taking distribution. Alpha = 0.70, CFI = 0.982, TLI = 0.975, RMSEA = 0.064

Scale psychometrics for subgroups were assessed in Table 3.14.

Table 3.14 Initiative-taking subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	✓	✓	✓	✓	–	✓
Parent scale	–	✓	✓	✓	✓	✓

✓ The model fit for this subgroup – The model did not fit for this subgroup

Concurrent validity is shown in Table 3.15 and Fig. 3.20.

Table 3.15 Initiative-taking concurrent validity

Fighting	Smoking	Depression	Grades
−0.04	−0.10*	−0.09**	0.20***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

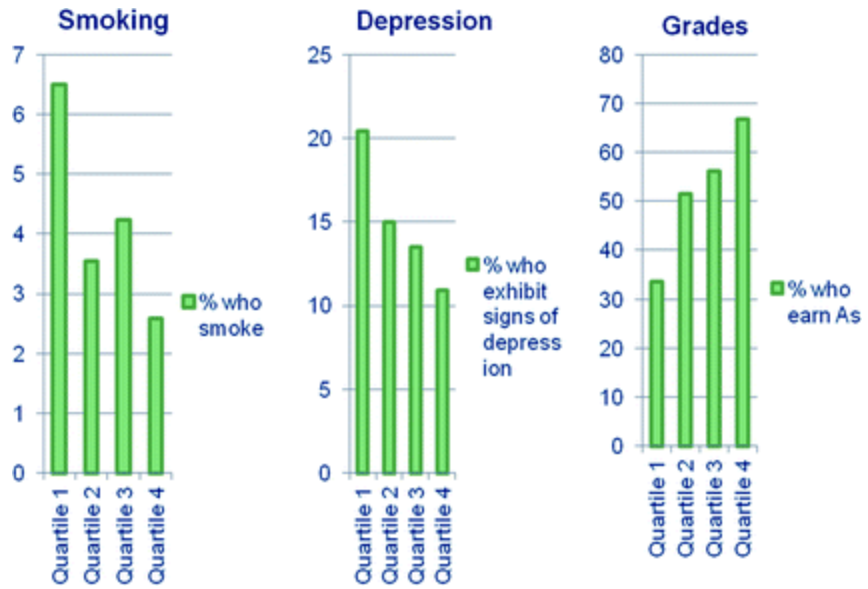

Fig. 3.20 Initiative-taking concurrent validity. Quartiles of initiative taking by health, emotional, and academic outcomes

Quartiles

The parent initiative-taking scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 11, quartile 2: 12–13, quartile 3: 14–15, quartile 4: > 15.

The adolescent initiative-taking scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 12, quartile 2: 13–14, quartile 3: 15–16, quartile 4: > 16.

3.3.3.4 Thrift

Thrift reflects both the ability and the tendency to use time and money efficiently and to employ restraint in order to reach a short-term or a longer-term goal. This construct was measured with four similar items answered by parents and by adolescents on the “Exactly like me … Not at all like me” response scale.

The alphas (0.76 for parents and 0.72 for adolescents) suggest good internal reliability, and the psychometric fit statistics are all excellent. Importantly, the distribution of scores is very good, as depicted in the bar graphs (Figs. 3.21 and 3.22). In addition, the thrift scale is very significantly related to all four outcome measures—smoking, fighting, feelings of depression, and earning A grades.

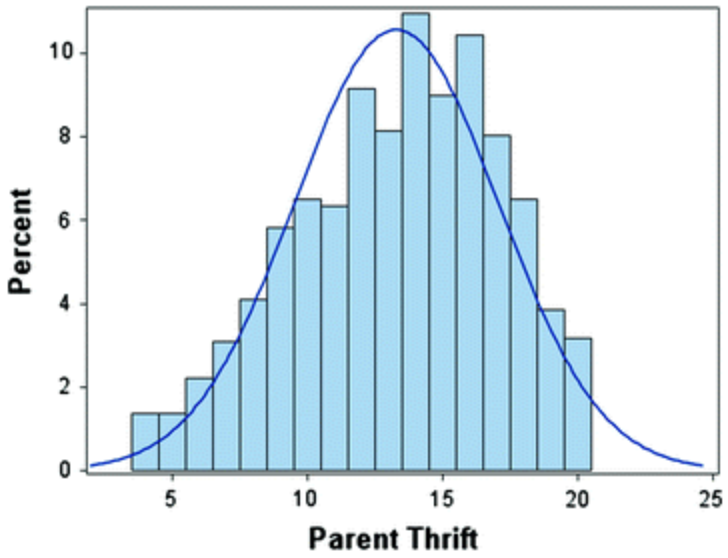

Fig. 3.21 Parent thrift distribution. Alpha = 0.76, CFI = 1.000, TLI = 1.001, RMSEA = 0.000

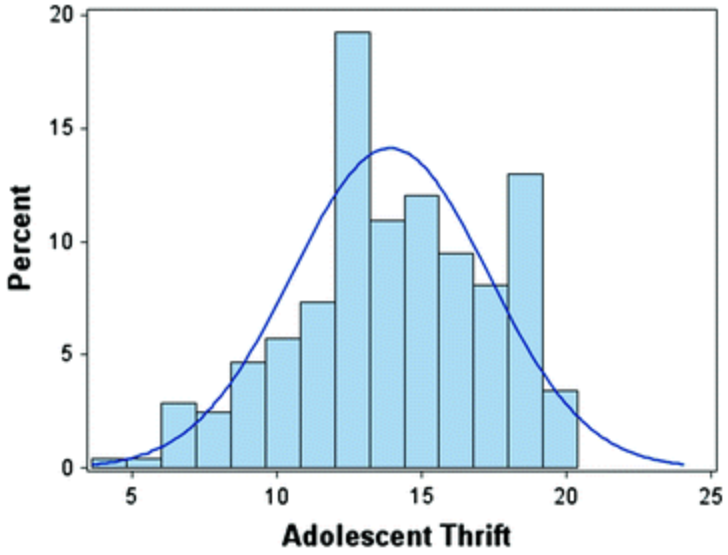

Fig. 3.22 Adolescent thrift distribution. Alpha = 0.72, CFI = 0.999, TLI = 0.998, RMSEA = 0.037

Psychometric analyses for varied subgroups indicate that the thrift scale works for all adolescent subgroups. For parents, fit statistics could not be calculated for parents in lower-income families and those with younger teens; but fit was good for the other four groups.

In sum, all things considered, the thrift scale seems ready for use with parents and especially with adolescents.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- My child knows how to manage his/her time.
- My child buys things even though he/she knows they are too expensive for him/her.
- There are things my child puts off buying today so he/she can save for tomorrow.
- My child is careful about how he/she spends his/her money.

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I know how to manage my time.
- I buy things even though I know they are too expensive for me.
- There are things I don’t buy today so I can save for tomorrow.
- I am careful about how I spend my money.

Scale psychometrics for subgroups were assessed in Table 3.16.

Table 3.16 Thrift subgroup results

	Adolescent gender		**Household income**		**Adolescent age**	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	✓	✓	✓	✓	✓	✓
Parent scale	✓	✓	N/A	✓	N/A	✓

✓ The model fit for this subgroup N/A We were not able to fit a model for this subgroup due to data limitations

Concurrent validity is shown in Table 3.17 and Fig. 3.23.

Table 3.17 Thrift concurrent validity

Fighting	**Smoking**	**Depression**	**Grades**
−0.12***	−0.27***	−0.07***	0.14***

* Significant at 0.10

** Significant at 0.05

*** Significant at 0.01

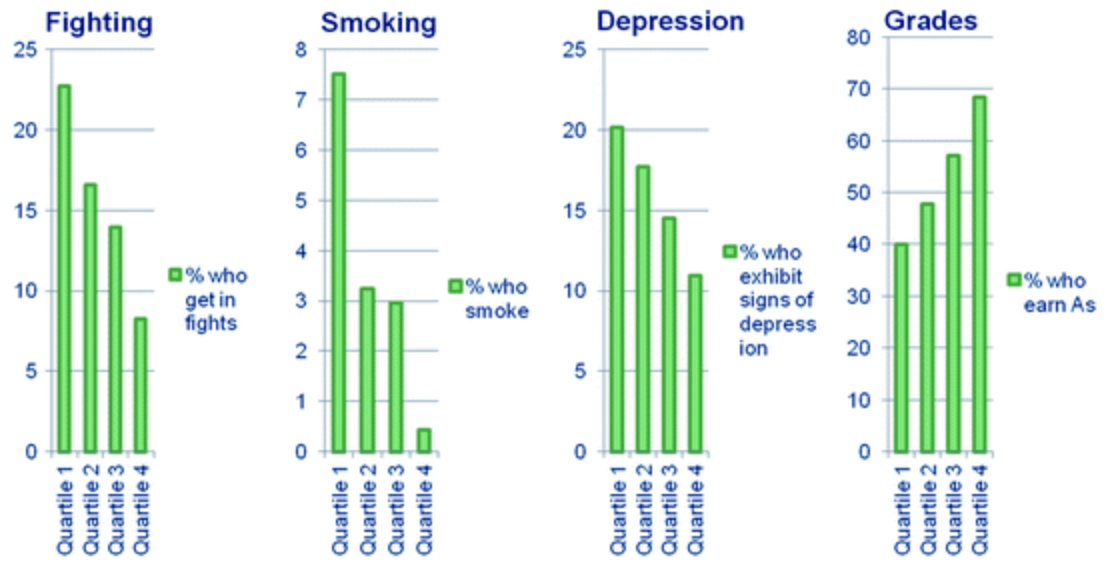

Fig. 3.23 Thrift concurrent validity. Quartiles of thrift by social, health, emotional, and academic outcomes

Quartiles

The parent thrift scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 11, quartile 2: 12–14, quartile, 3: 15–16, quartile 4: > 16.

The adolescent thrift scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 11, quartile 2: 12–14, quartile 3: 15–17, quartile 4: > 17.

3.3.3.5 Trustworthiness and Integrity

This construct assesses whether an adolescent can be counted on to be truthful, hold to his/her principles, and to meet commitments consistently over time. This also implies being ethical and behaving with integrity, including showing respect for the property and privacy of other people. Five items that are similar for parent and adolescent reports assess trustworthiness and integrity, using a frequency response scale.

The alpha is 0.89 for parents and 0.79 for adolescents, which represents very good internal reliability. The fit statistics are also very good; however, the distribution is positively skewed, with relatively few adolescents being described as low in trustworthiness or integrity. Those adolescents who

score low, though, particularly those in the bottom quartile, are high on fighting, smoking, and feelings of depression, and they are the least likely to earn A grades. In addition, the fit statistics meet our criteria for all of the subgroups.

With the caveat that relatively few adolescents score low, all other indicators suggest that these five-item scales work well.

Parent-Reported Items

Please indicate how often this happens. How often … (None of the time … All of the time)

- can others trust your child?
- does your child keep the promises he/she makes?
- does your child stick to his/her values even when it's hard?
- can your child be counted on to tell the truth?
- does your child have a strong sense of right and wrong? (Fig. 3.24).

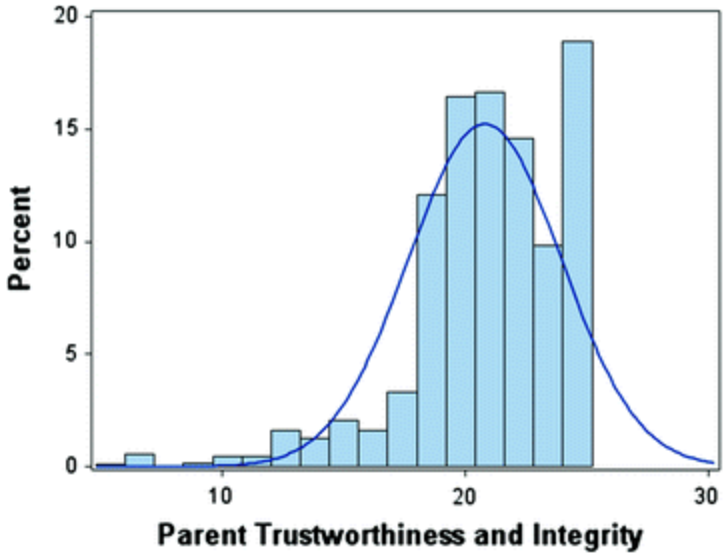

Fig. 3.24 Parent trustworthiness and integrity distribution. Alpha = 0.89, CFI = 0.998, TLI = 0.994, RMSEA = 0.072

Adolescent-Reported Items

Please indicate how often this happens. How often … (None of the time … All of the time)

- can others trust you?

- do you keep the promises you make?
- do you stick to your values even when it's hard?
- can you be counted on to tell the truth?
- do you have a strong sense of right and wrong? (Fig. 3.25).

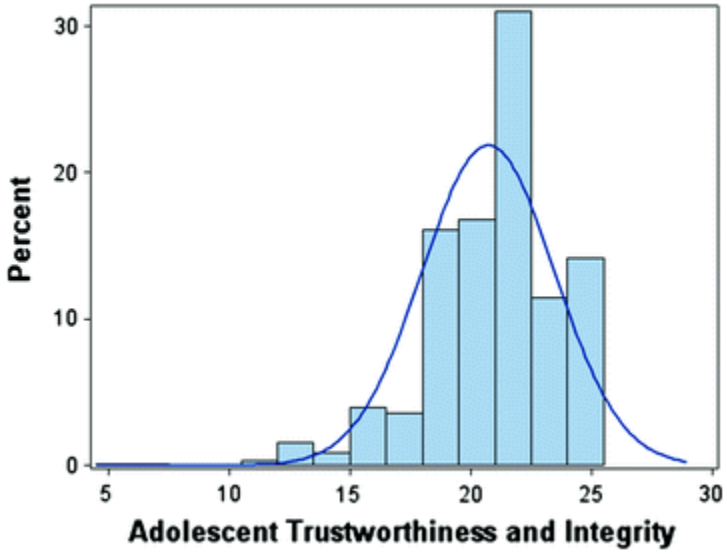

Fig. 3.25 Adolescent trustworthiness and integrity distribution. Alpha = 0.79, CFI = 1.000, TLI = 1.001, RMSEA = 0.000

Scale psychometrics for subgroups were assessed in Table 3.18.

Table 3.18 Trustworthiness and integrity subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	✓	✓	✓	✓	✓	✓
Parent scale	✓	✓	✓	✓	✓	✓

✓ The model fit for this subgroup

Concurrent validity is shown is Table 3.19 and Fig. 3.26.

Table 3.19 Trustworthiness and integrity concurrent validity

Fighting	Smoking	Depression	Grades
−0.18***	−0.28***	−0.18***	0.20***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

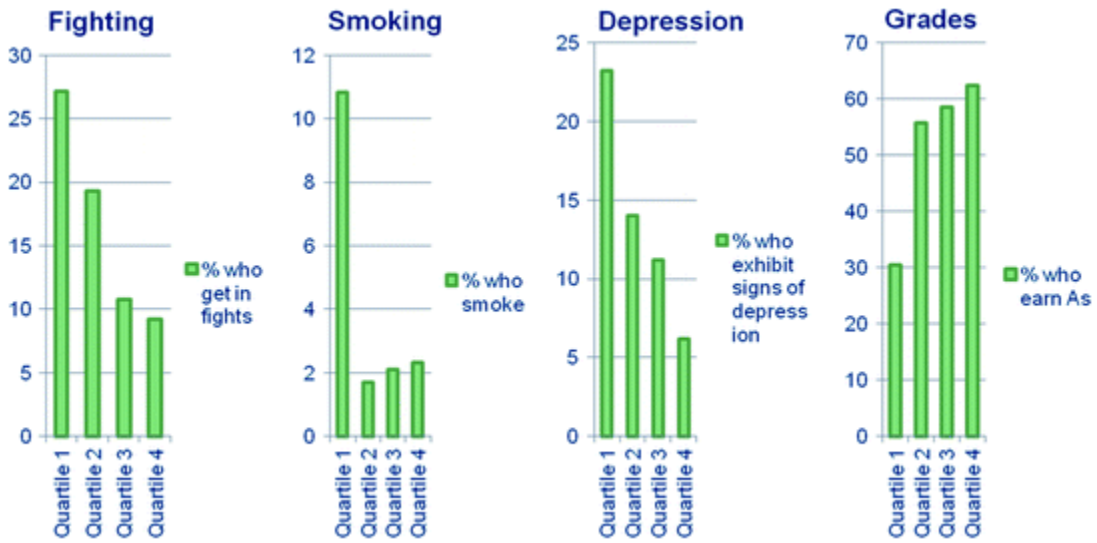

Fig. 3.26 Trustworthiness and integrity concurrent validity. Quartiles of trustworthiness and integrity by social, health, emotional, and academic outcomes

Quartiles

The parent trustworthiness and integrity scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 20, quartile 2: 21, quartile 3: 22–23, quartile 4: > 23.

The adolescent trustworthiness and integrity scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 19, quartile 2: 20–21, quartile 3: 22–23, quartile 4: > 23.

3.3.4 Helping Others to Flourish

3.3.4.1 Altruism

Altruism is defined here as placing the well-being of others above, or similar to, one's own well-being, or lacking concern about one's own well-being, either in thought or in action.

The four items developed to measure this construct are measured on the "Exactly like me … Not at all like me" scale. The scales have strong internal reliability, with an alpha of 0.85 for the parent-reported scale and 0.80 for the adolescent-reported scale. The distribution is excellent, and the

fit statistics all exceed our criteria for the sample as a whole. The subgroup analyses indicate that the fit statistics meet our criteria for all of the adolescent subgroups, but fall short for one of the parent subgroups—parents of older teens.

Interestingly, altruism is only related to one of the four adolescent outcomes—symptoms of depression. The well-being outcomes assessed here may not be the kind of outcomes with which altruism is related, though, as they assess individual well-being more than actions to enhance the well-being of others. Again, while the scale works for both adolescents and parents, the subgroup analyses suggest that the construct may be somewhat better measured with adolescent report than with parent report, at least for older adolescents.

With one caveat around parent report and a need for additional analyses of concurrent validity, the scale seems to work well based on all other criteria.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- My child goes out of his/her way to help others.
- My child helps others even if it requires a lot of his/her time.
- My child helps others even if the person is a total stranger.
- My child helps others even if it's hard for him/her (Fig. 3.27).

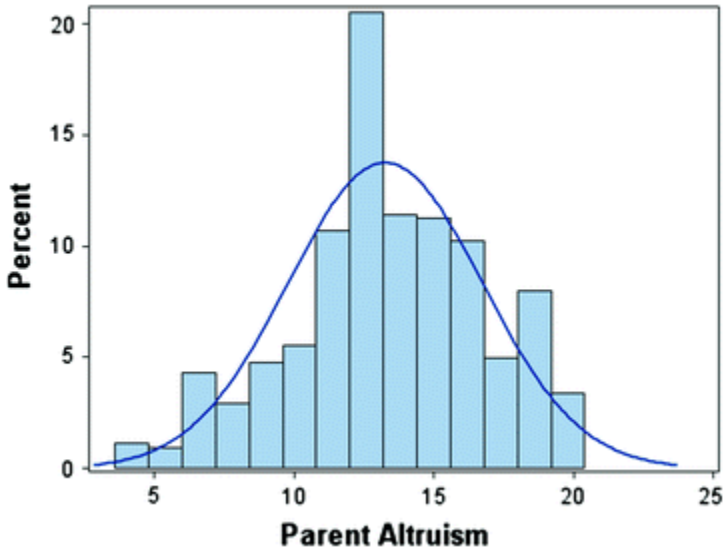

Fig. 3.27 Parent altruism distribution. Alpha = 0.85, CFI = 1.000, TLI = 0.999, RMSEA = 0.050

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I go out of my way to help others.
- I help others even if it requires a lot of my time.
- I help others even if the person is a total stranger.
- I help others even if it is hard for me (Fig. 3.28).

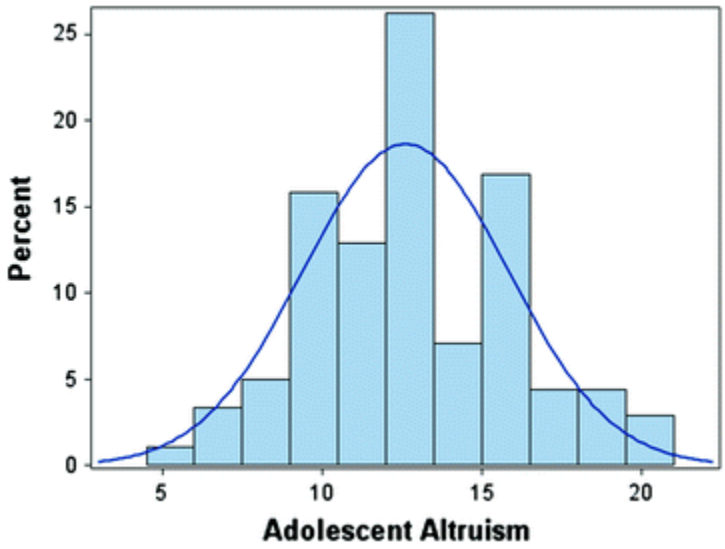

Fig. 3.28 Adolescent altruism distribution. Alpha = 0.80, CFI = 0.998, TLI = 0.995, RMSEA = 0.047

It is interesting to report on a related analysis of the generosity items, discussed in greater detail in the generosity/helping family and friends summary. When we assessed the extent to which constructs are independent of one another, we found that two generosity items loaded better on altruism. These items are: “My child enjoys sharing his/her things with others” and “My child does nice things for others without being asked.” Users may choose to add these items to their surveys. But as the analyses described here indicate, it is not necessary to do so.

Scale psychometrics for subgroups were assessed in Table 3.20.

Table 3.20 Altruism subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	Female	Low	High	12–14	15–17
Adolescent scale	✓	✓	✓	✓	✓	✓
Parent scale	✓	✓	✓	✓	✓	–

✓ The model fit for this subgroup – The model did not fit for this subgroup

Concurrent validity is shown in Table 3.21 and Fig. 3.29.

Table 3.21 Altruism concurrent validity

Fighting	Smoking	Depression	Grades
−0.06	−0.02	−0.08*	0.03

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

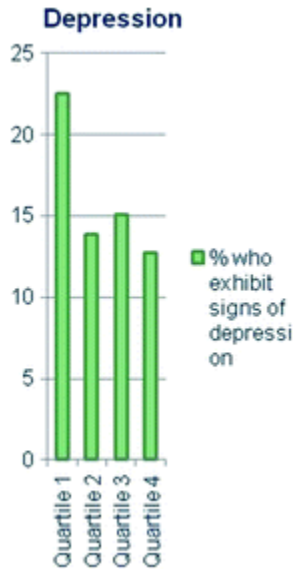

Fig. 3.29 Altruism concurrent validity. Quartiles of altruism by an emotional outcome

Quartiles

The parent altruism scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 11, quartile 2: 12–14, quartile 3: 15–16, quartile 4: > 16.

The adolescent altruism scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 10, quartile 2:

11–12, quartile 3: 13–15, quartile 4: > 15.

3.3.4.2 Generosity/Helping Family and Friends

Generosity can involve giving time, attention, and/or material goods; but these actions need to be voluntary, without strings or conditions attached, and based on an internal motivation, with the individual having positive or at least neutral feelings about the action. To assess generosity, parents and adolescents responded to six similar questions with the "Exactly like me … Not at all like me" response categories.

When we analyzed whether this scale was independent or overlapping with another scale, findings indicated that two of the items load better on the altruism scale than on the generosity scale. These items are: "My child enjoys sharing his/her things with others" and "My child does nice things for others without being asked." Without these two items, the scale is skewed toward three items that assess the adolescent's willingness to do things that help friends and the family. A scale weighted toward these items doesn't comport with the full definition of generosity but defines a scale on helping family and friends.

These findings suggest that the six-item scale intended to measure generosity does not work as intended, since two of the items actually measure altruism. Accordingly, we conclude that generosity is the one construct for which we cannot recommend a final scale.

It is worth noting, though, that a four-item scale measuring "Helping family and friends" can be created with four more specific items. The fit statistics for this scale are adequate.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- When my child helps out a friend, he/she expects something in return.
- If needed, my child is willing to help our family by buying fewer things for himself/herself.
- If needed, my child is willing to help our family by giving up activities and trips that cost money.

- If needed, my child is willing to help our family by giving up his/her free time to help around the house (Fig. 3.30).

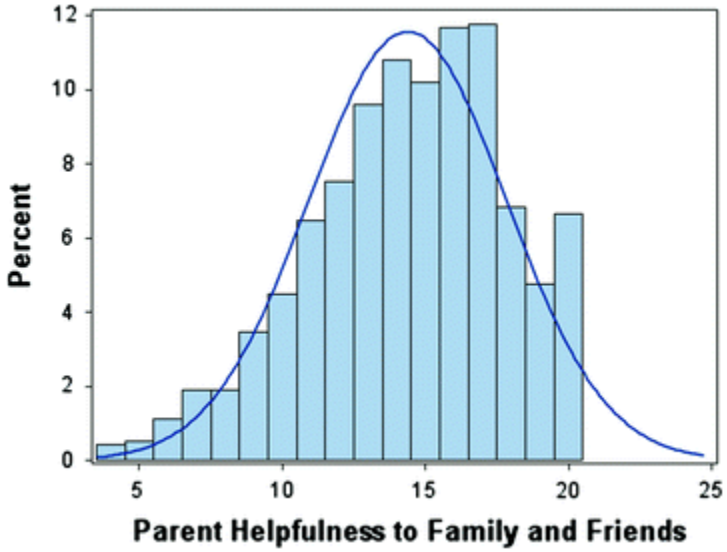

Fig. 3.30 Parent helping family and friends distribution. Alpha = 0.77, CFI = 1.000, TLI = 1.000, RMSEA = 0.025

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- When I help out a friend, I expect something in return.
- If needed, I am willing to help my family by buying fewer things for myself.
- If needed, I am willing to help my family by giving up activities and trips that cost money.
- If needed, I am willing to help my family by giving up my free time to help around the house (Fig. 3.31).

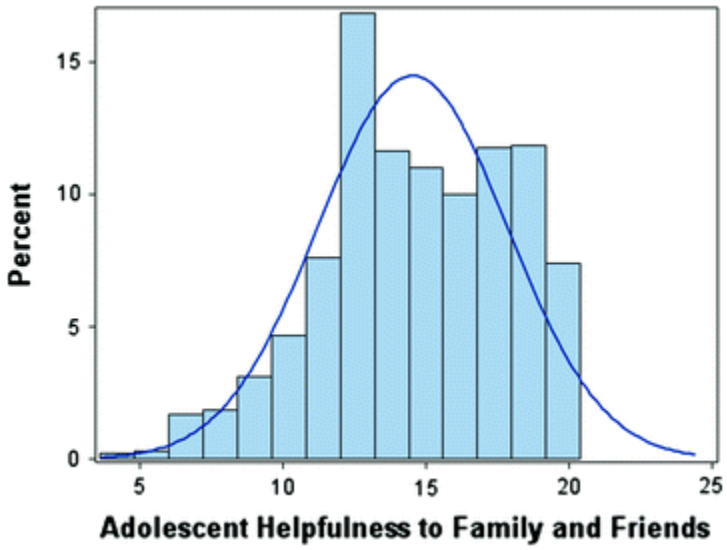

Fig. 3.31 Adolescent helping family and friends distribution. Alpha = 0.71, CFI = 0.999, TLI = 0.998, RMSEA = 0.042

Quartiles

The parent helping friends and family scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 12, quartile 2: 13–15, quartile 3: 16–17, quartile 4: > 17.

The adolescent helping friends and family scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 12, quartile 2: 13–15, quartile 3: 16–17, quartile 4: > 17.

3.3.5 Environmental Stewardship

3.3.5.1 Environmental Stewardship

Environmental stewardship reflects being informed about environmental issues, taking or recognizing personal responsibility, and also taking action to care for or improve the earth's environment. To address these three components of environmental stewardship, adolescents were asked two questions on the "Not at all like me … exactly like me" scale, one agree/disagree question, and six questions on a frequency scale. Parents were asked a total of six questions, as parents noted in the cognitive interviews that they did not feel able to report on whether their adolescent seeks information about the environment and whether their adolescent said something to a friend or used reusable bags for shopping.

Both the adolescent and the parent scales achieved a good alpha (0.76 for each) and had excellent fit statistics. The distribution for each scale is excellent, indicating that the items tap the views and behaviors of adolescents who do and do not engage in stewardship of the environment. Concurrent validity analyses indicate that adolescents in the lowest quartile in terms of environmental stewardship are significantly more likely to smoke and much less likely to earn As in school, net of other confounding factors.

Importantly, subgroup analyses indicate that the psychometric properties of both the parent and the adolescent scales meet our criteria in every subgroup.

These analyses therefore indicate that these scales can be used for studies with both adolescents and parents.

Parent-Reported Items

Please indicate how much these statements describe your child.

- My child feels that there is no need to change how he/she lives to protect the earth's environment. (Strongly agree … Strongly disagree)
- My child does his/her part to take care of the environment. (Not at all like my child … Exactly like my child)

How often, during the last month, has your child done any of the following? (Never … Almost every day)

- Turned off and unplugged his/her electronics when he/she is not using them.
- Recycled cans or bottles.
- Recycled paper.
- Volunteered on a project to help the environment (Fig. 3.32).

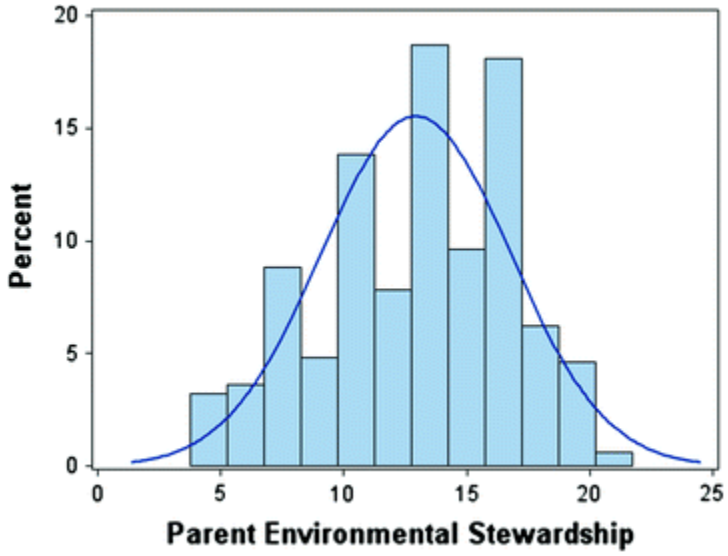

Fig. 3.32 Parent environmental stewardship distribution. Alpha = 0.76, CFI = 0.996, TLI = 0.992, RMSEA = 0.036

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I believe there is no need to change how I live to protect the earth's environment. (Strongly agree … Strongly disagree)
- I look for information about how my actions affect the environment.
- I do my part to take care of the environment.

How often, during the last month, have you done any of the following? (Never … Almost every day)

- Turned off and unplugged your electronics when you are not using them.
- Recycled cans or bottles.
- Recycled paper.
- Volunteered on a project to help the environment.
- Said something to a friend when they did something harmful to the environment.
- Used reusable bags when shopping (Fig. 3.33).

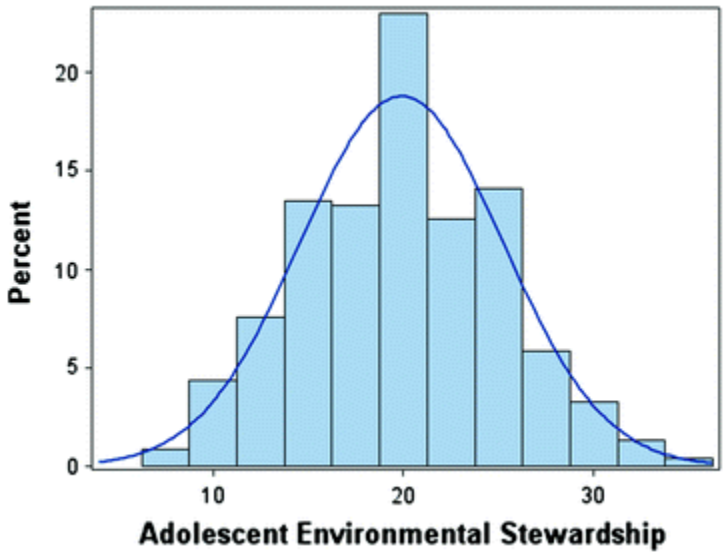

Fig. 3.33 Adolescent environmental stewardship distribution. Alpha = 0.76, CFI = 0.986, TLI = 0.988, RMSEA = 0.059

Scale psychometrics for subgroups were assessed in Table 3.22.

Table 3.22 Environmental stewardship subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	✓	✓	✓	✓	✓	✓
Parent scale	✓	✓	✓	✓	✓	✓

✓ The model fit for this subgroup

Concurrent validity is show in Table 3.23 and Fig. 3.34.

Table 3.23 Environmental stewardship concurrent validity

Fighting	Smoking	Depression	Grades
−0.03	−0.13*	−0.03	0.05**

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

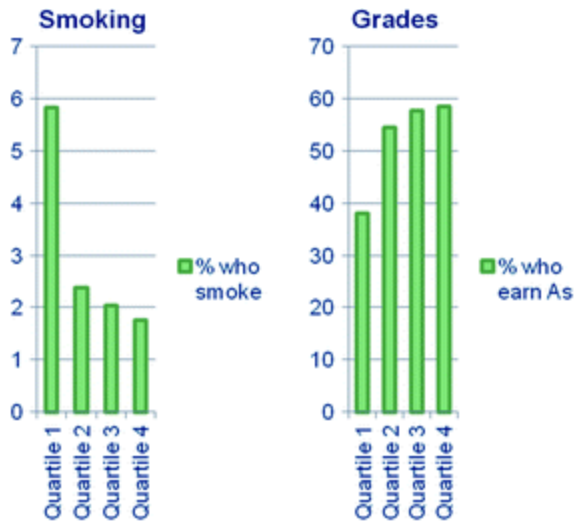

Fig. 3.34 Environmental stewardship concurrent validity. Quartiles of environmental stewardship by health and academic outcomes

Quartiles

The parent environmental stewardship scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 10, quartile 2: 11–13, quartile 3: 14–16, quartile 4: > 16.

The adolescent environmental stewardship scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 16, quartile 2: 17–19, quartile 3: 20–23, quartile 4: > 23.

3.3.6 Personal Flourishing

3.3.6.1 Forgiveness

Forgiveness involves overcoming negative feelings that have arisen from being harmed or feeling harmed by another person or persons. It extends beyond forgiveness of others to include forgiveness of oneself.

Both of the parent and adolescent scales contain just three items, but the items are different. Specifically, the parent-report items refer to the parent-adolescent relationship, while the adolescent items focus on forgiveness of a friend who lied to the adolescent. Accordingly, this final scale does not encompass forgiveness of oneself, which did not load with the other items.

Given the brevity of these scales, their alphas are a little low (0.56 for adolescents and 0.64 for parents). However, the fit statistics for each are excellent and each achieves a very good distribution, with some adolescents

being very forgiving and others not being forgiving. Subgroup analyses were conducted for a joint model across parents and adolescents, and the scale was found to achieve acceptable psychometric fit statistics for all groups except adolescent girls. In addition, being more forgiving was found to be significantly associated with less fighting, less smoking, and fewer symptoms of sadness and hopelessness.

Overall, these scales both work, but potential users should note that the focus of each scale is different.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- When I get angry at my child, my child can still move forward and have a good relationship with me.
- When I get angry at my child, my child gives up the hurt and resentment towards me.
- My child can forgive pretty easily (Fig. 3.35).

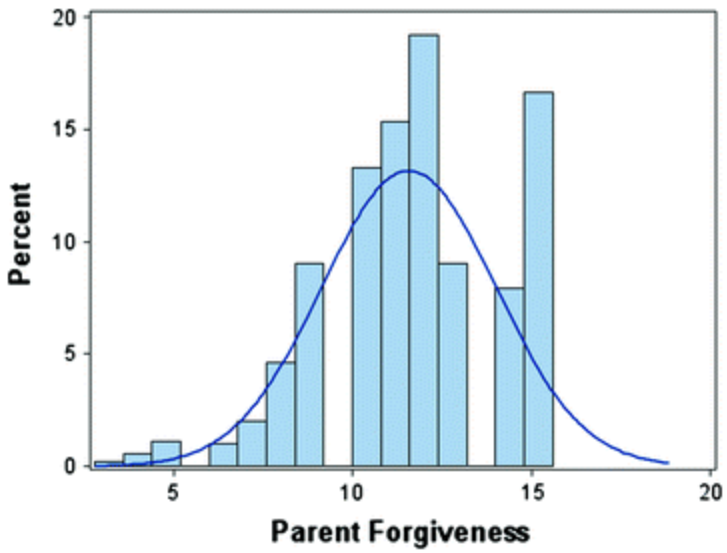

Fig. 3.35 Parent forgiveness distribution. Alpha = 0.64, CFI = 1.000, TLI = 1.003, RMSEA = 0.000

Adolescent-Reported Items

Please indicate how much these statements might describe how you would feel or act if a friend lied to you about something important. (Not at all like me … Exactly like me)

- I would forgive them if they showed they are sorry.
- It would be easy for me to forgive him/her.
- It would be hard for me to let go of my anger (Fig. 3.36).

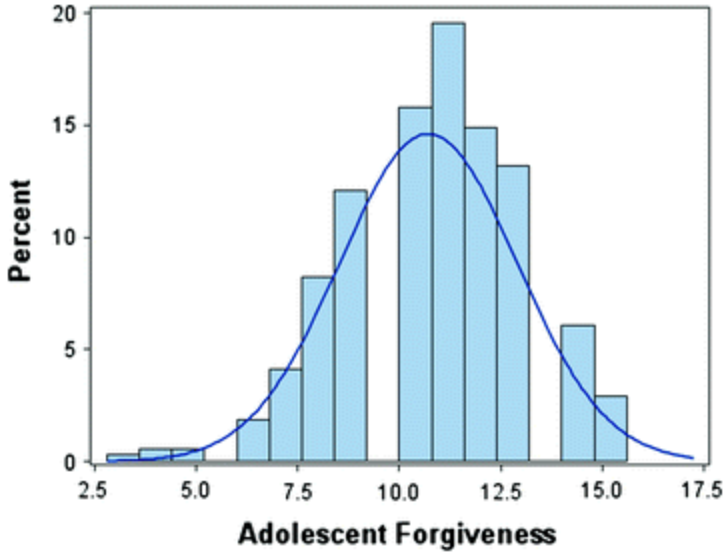

Fig. 3.36 Adolescent forgiveness distribution. Alpha = 0.56, CFI = 1.000, TLI = 1.003, RMSEA = 0.000

Scale psychometrics for subgroups were assessed in Table 3.24.

Table 3.24 Forgiveness subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Parent and adolescent scale	✓	–	✓	✓	✓	✓

✓ The model fit for this subgroup – The model did not fit for this subgroup

Concurrent validity is shown in Table 3.25 and Fig. 3.37.

Table 3.25 Forgiveness concurrent validity

Fighting	Smoking	Depression	Grades
−0.20***	−0.33***	−0.21***	0.08

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

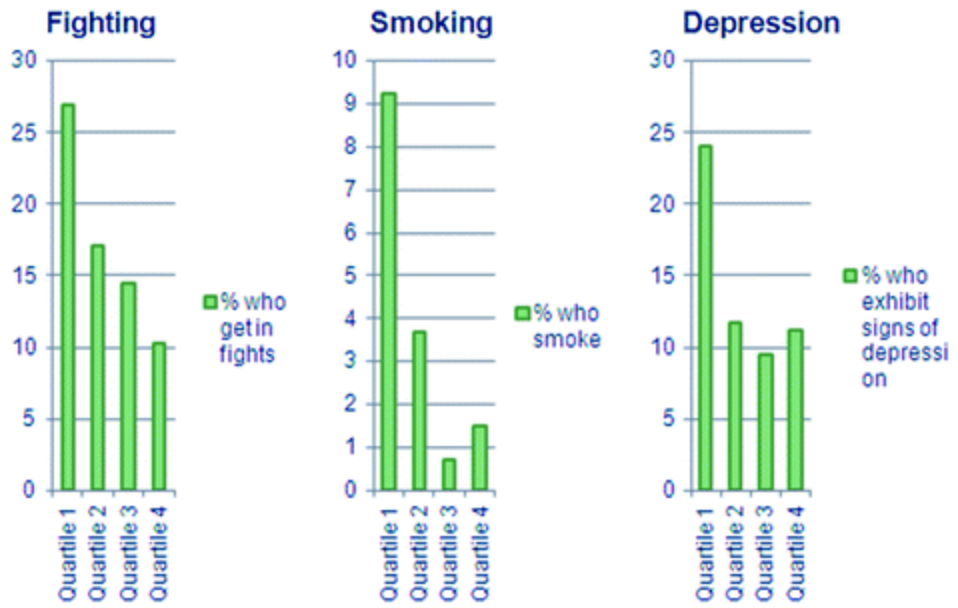

Fig. 3.37 Forgiveness concurrent validity: quartiles of forgiveness by social, health, and emotional outcomes

Quartiles

The parent forgiveness scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 10, quartile 2: 11–12, quartile 3: 13, quartile 4: > 13.

The adolescent forgiveness scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 9, quartile 2: 10–11, quartile 3: 12, quartile 4: > 12.

3.3.6.2 Goal Orientation

An adolescent who is motivated and able to make workable plans and take action to achieve his/her goals is described as being goal-oriented. This construct was measured with seven similar items for parents and adolescents. Five items are measured using the “Exactly like me … Not at all like me” response categories, and the other two items are assessed on a frequency response scale from “None of the time” to “All of the time.”

Both scales achieve high alphas—0.93 for parents and 0.88 for adolescents. In addition, both scales meet our criteria for psychometric fit, and they both have very good distributions. The adolescent’s goal orientation is strongly and significantly associated with all four well-being measures, net of controls. For example, more than 90 % of adolescents high

on goal orientation achieve As, compared with less than 40 % of those in the lowest quartile on goal orientation.

A note of caution is introduced, though, by the finding that the scale did not meet our criteria for gender subgroups or for adolescent reports among older teens, parent reports among younger teens, or adolescent reports among teens from higher-income families. This may reflect a lack of variation within subgroups, but further analyses are clearly warranted.

Overall, the goal orientation scale works very well, but further work is needed to explore the subgroup findings.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- My child develops step-by-step plans to reach his/her goals.
- My child has goals in his/her life.
- If my child sets goals, he/she takes action to reach them.
- It is important to my child that he/she reaches his/her goals.
- My child knows how to make his/her plans happen.

Please indicate how often this happens. (None of the time … All of the time)

- How often does your child make plans to achieve his/her goals?
- How often does your child have trouble figuring out how to make his/her goals happen? (Fig. 3.38)

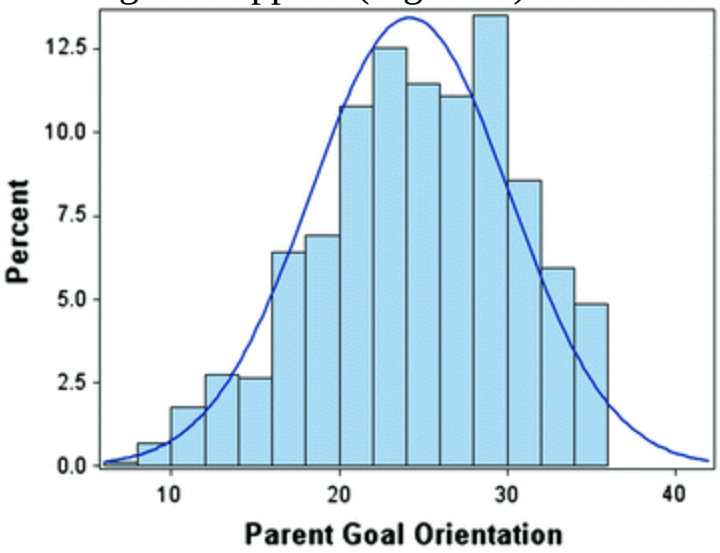

Fig. 3.38 Parent goal orientation distribution. Alpha = 0.93, CFI = 0.996, TLI = 0.996, RMSEA = 0.081

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I develop step-by-step plans to reach my goals.
- I have goals in my life.
- If I set goals, I take action to reach them.
- It is important to me that I reach my goals.
- I know how to make my plans happen.

Please indicate how often this happens. (None of the time … All of the time)

- How often do you make plans to achieve your goals?
- How often do you have trouble figuring out how to make your goals happen? (Fig. 3.39).

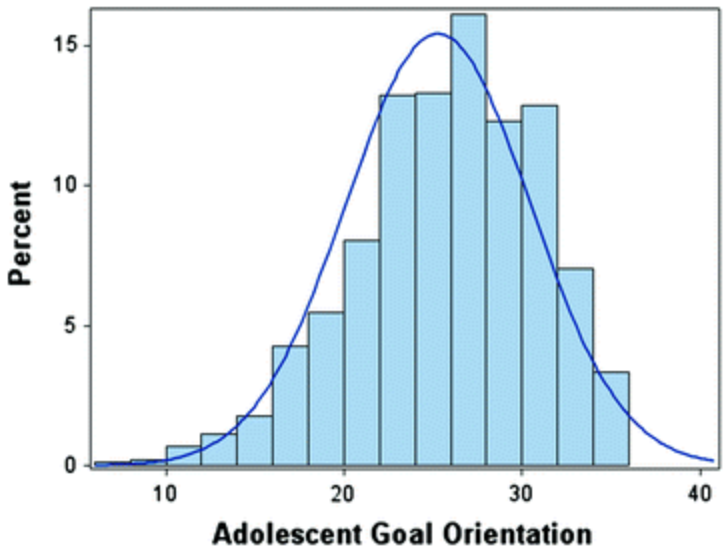

Fig. 3.39 Adolescent goal orientation distribution. Alpha = 0.88, CFI = 0.994, TLI = 0.990, RMSEA = 0.072

Scale psychometrics for subgroups were assessed in Table 3.26.

Table 3.26 Goal orientation subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	Female	Low	High	12–14	15–17
Adolescent scale	–	–	✓	–	✓	–
Parent scale	–	–	✓	✓	–	✓

✓ The model fit for this subgroup – The model did not fit for this subgroup

Concurrent validity is shown in Table 3.27 and Fig. 3.40.

Table 3.27 Goal orientation concurrent validity

Fighting	Smoking	Depression	Grades
−0.07***	−0.13***	−0.10***	0.13***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

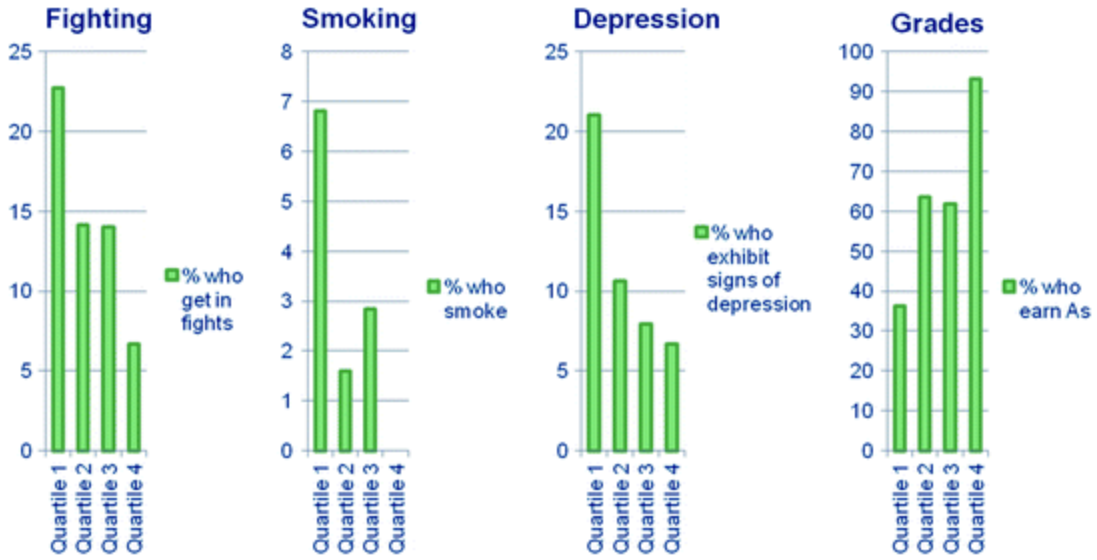

Fig. 3.40 Goal orientation concurrent validity. Quartiles of goal orientation by social, health, emotional, and academic outcomes

Quartiles

The parent goal orientation scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 20, quartile 2: 21–25, quartile 3: 26–29, quartile 4: > 29.

The adolescent goal orientation scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 22, quartile 2: 23–26, quartile 3: 27–30, quartile 4: > 30.

3.3.6.3 Gratitude

Gratitude encompasses an appreciation of the good things in the adolescent's life, including recognition of positive things in his/her life and both feeling and expressing thanks for these positive aspects of his/her life. Parents are asked five items, while adolescents are asked four items, of which only one overlaps ("child finds it easy to thank people"). All items are on the "Exactly like me … Not at all like me" response scale.

The parent scale achieves a very high alpha (0.91), while the adolescent scale achieves a good alpha (0.80). Both scales are positively skewed, yet both have adolescents who score at the low end. The fit statistics are excellent for both groups and for all of the adolescent subgroups, except adolescents from higher-income families. The fit statistics fall short for parent-reported scales for two of the six parent subgroups; specifically, girls and younger adolescents.

Analyses assessing concurrent validity find strong associations. Greater gratitude is significantly related to less fighting, smoking, and symptoms of depression and to a higher frequency of receiving A grades in school.

In sum, both measures of gratitude appear to work well, though the subgroup analyses suggest that further assessment of subgroups would be worthwhile.

Parent-Reported Items

Please indicate how much these statements describe you. (Not at all like my child … Exactly like my child)

- My child feels thankful for the things he/she has.
- My child thanks me for the things I do for him/her.
- My child finds it easy to thank people.
- My child expresses gratitude for his/her family.
- My child shows appreciation for those who do nice things for him/her (Fig. 3.41).

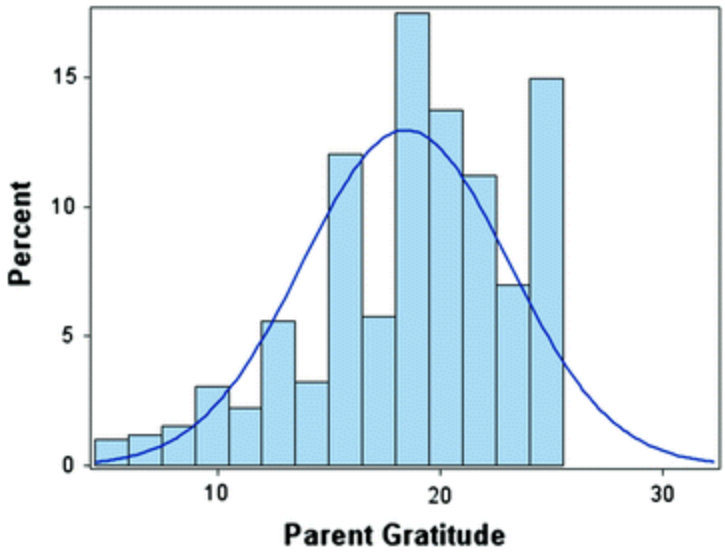

Fig. 3.41 Parent gratitude distribution. Alpha = 0.91, CFI = 1.000, TLI = 0.999, RMSEA = 0.032

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- If I had to list everything I felt thankful for, it would be a very long list.
- I feel thankful for everyday things.
- When good things happen to me, I think about the people who helped me.
- I find it easy to thank people (Fig. 3.42).

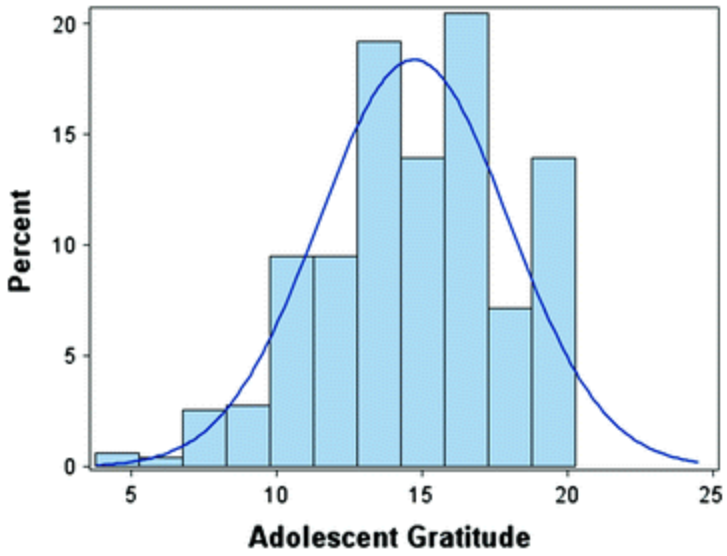

Fig. 3.42 Adolescent gratitude distribution. Alpha = 0.80, CFI = 0.999, TLI = 0.991, RMSEA = 0.072

Scale psychometrics for subgroups were assessed in Table 3.28.

Table 3.28 Gratitude subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Adolescent scale	✓	✓	✓	–	✓	✓
Parent scale	✓	–	✓	✓	–	✓

✓ The model fit for this subgroup – The model did not fit for this subgroup

Concurrent validity is shown in Table 3.29 and Fig. 3.43.

Table 3.29 Gratitude concurrent validity

Fighting	Smoking	Depression	Grades
−0.10**	−0.23***	−0.10**	0.08**

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

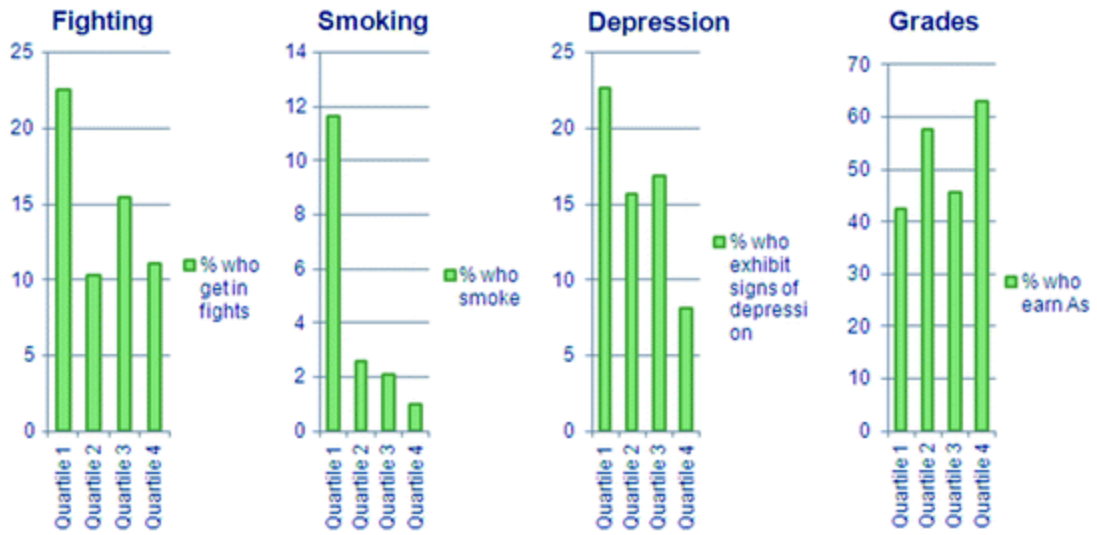

Fig. 3.43 Gratitude concurrent validity. Quartiles of gratitude by social, health, emotional, and academic outcomes

Quartiles

The parent gratitude scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 16, quartile 2: 17–19, quartile 3: 20–22, quartile 4: > 22.

The adolescent gratitude scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 13, quartile 2: 14–15, quartile 3: 16–18, quartile 4: > 18.

3.3.6.4 Hope

Hope reflects a broad expectation or trust that the future will go well, both for one's own life and more generally. These brief three-item scales tap the same questions, using the "Exactly like me … Not at all like me" response categories.

Both scales attain good alphas—0.73 for parents and 0.80 for adolescents—and meet our psychometric criteria for the overall sample. Joint models were estimated for the subgroup analyses and indicate that this scale works well for older and younger adolescents and higher- and lower-income households. Unfortunately, analyses could not be performed across gender groups.

Although the data were positively skewed, adolescents are found across the distribution. Moreover, adolescents scoring high on hope are less likely to fight, smoke, and report feeling symptoms of depression than are

adolescents in the bottom quartile on hope. Hopeful adolescents are also more likely to report earning As.

In sum, analyses of this brief scale indicate that it works very well, though the extent to which it performs well for boys and girls cannot be verified with these data.

Parent-Reported Items

Please indicate how much these statements describe your child. (Not at all like my child … Exactly like my child)

- My child expects good things to happen to him/her.
- My child feels excited about his/her future.
- My child trusts his/her future will turn out well (Fig. 3.44).

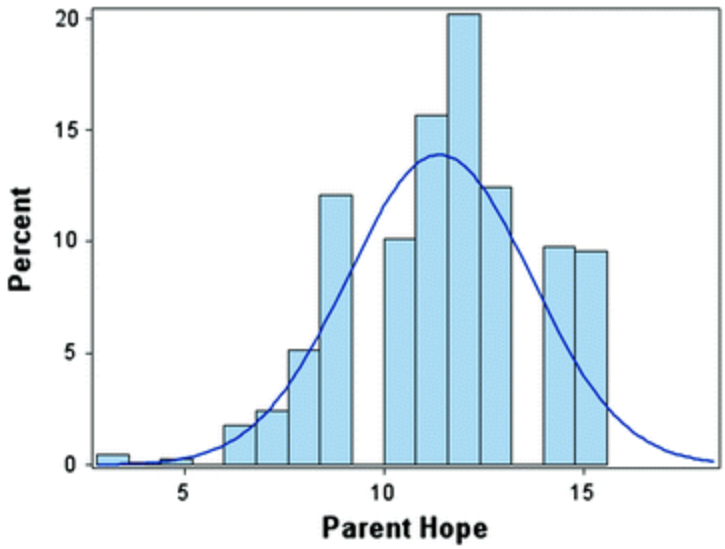

Fig. 3.44 Parent hope distribution. Alpha = 0.73, CFI = 0.998, TLI = 0.987, RMSEA = 0.068

Adolescent-Reported Items

Please indicate how much these statements describe you. (Not at all like me … Exactly like me)

- I expect good things to happen to me.
- I am excited about my future.
- I trust my future will turn out well (Fig. 3.45).

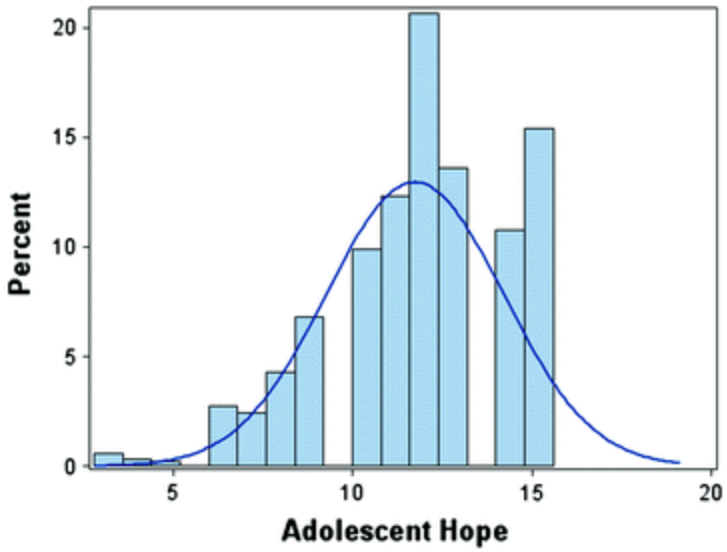

Fig. 3.45 Adolescent hope distribution. Alpha = 0.82, CFI = 0.998, TLI = 0.987, RMSEA = 0.068

Scale psychometrics for subgroups were assessed in a joint model in Table 3.30.

Table 3.30 Hope subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	**Female**	**Low**	**High**	**12–14**	**15–17**
Parent and adolescent scale	N/A	N/A	✓	✓	✓	✓

✓ The model fit for this subgroup N/A We were not able to fit a model for this subgroup due to data limitations

Concurrent validity is shown in Table 3.31 and Fig. 3.46.

Table 3.31 Hope concurrent validity

Fighting	Smoking	Depression	Grades
−0.15***	−0.21***	−0.23***	0.20***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

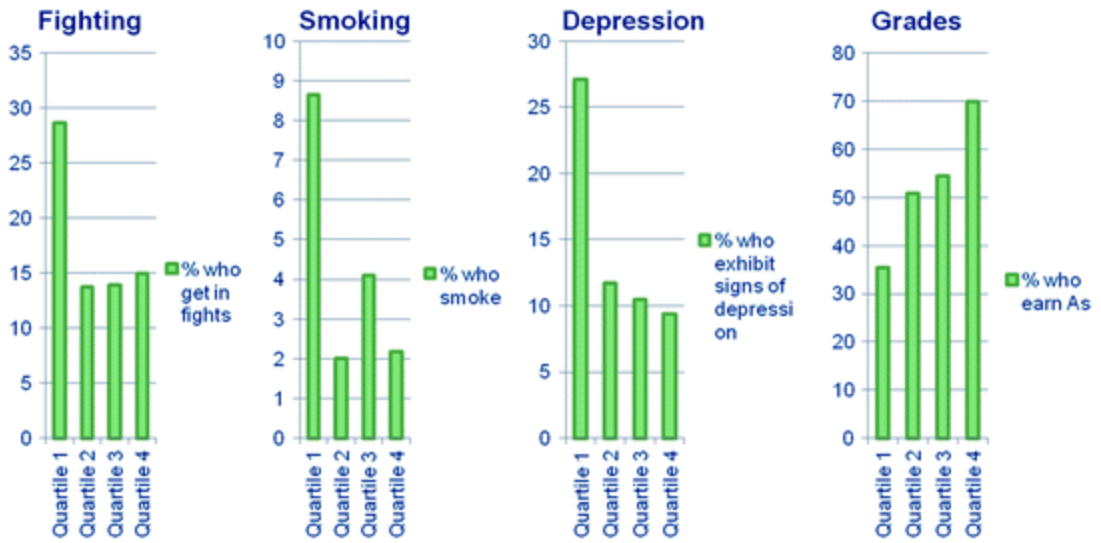

Fig. 3.46 Hope concurrent validity. Quartiles of hope by social, health, emotional, and academic outcomes

Quartiles

The parent hope scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 10, quartile 2: 11–12, quartile 3: 13, quartile 4: > 13.

The adolescent hope scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 10, quartile 2: 11–12, quartile 3: 13–14, quartile 4: > 14.

3.3.6.5 Life Satisfaction

Life satisfaction is defined here as children's self-perception that they are happy with their life and that their life is on the right track. It is measured with a short set of three similar items asked of parents and adolescents, using an agree/disagree response format.

Although brief, both scales have good internal reliability, with an alpha of 0.72 for parents and 0.80 for adolescents. In addition, fit statistics are excellent for both scales; and, although the data are positively skewed, each scale has a good distribution. Moreover, life satisfaction is positively associated with each of the four measures of adolescent well-being.

Joint models were estimated for subgroups across parents and adolescents, revealing that the scale works well for lower- and higher-income households. The model fit well for females but not males. The

model did not fit for younger adolescents, and analyses could not be performed on older adolescents. In sum, this brief measure of life satisfaction appears to work quite well. The caveats pertain to the subgroup analysis, given a lack of fit for males and younger adolescents and the fact that the fit models could not be conducted among older adolescents.

Parent-Reported Items

Please indicate how much you agree or disagree. (Strongly agree … Strongly disagree)

- My child wishes he/she had a different kind of life.
- My child is happy with his/her life.
- So far, my child feels that his/her life is working out as well as he/she could hope (Fig. 3.47).

Fig. 3.47 Parent life satisfaction distribution. Alpha = 0.72, CFI = 1.000, TLI = 0.996, RMSEA = 0.036

Adolescent-Reported Items

Please indicate how much you agree or disagree with the following statements. (Strongly agree … Strongly disagree)

- I wish I had a different kind of life.
- I am happy with my life.
- So far, my life is working out as well as I could hope (Fig. 3.48).

Fig. 3.48 Adolescent life satisfaction distribution. Alpha = 0.80, CFI = 1.000, TLI = 0.996, RMSEA = 0.036

Scale psychometrics for subgroups were assessed in a joint model in Table 3.32.

Table 3.32 Life satisfaction subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	Female	Low	High	12–14	15–17
Parent and adolescent scale	–	✓	✓	✓	–	N/A

✓ The model fit for this subgroup – The model did not fit for this subgroup N/A We were not able to fit a model for this subgroup due to data limitations

Concurrent validity is shown in Table 3.33 and Fig. 3.49.

Table 3.33 Life satisfaction concurrent validity

Fighting	Smoking	Depression	Grades
−0.14**	−0.36***	−0.44***	0.14***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

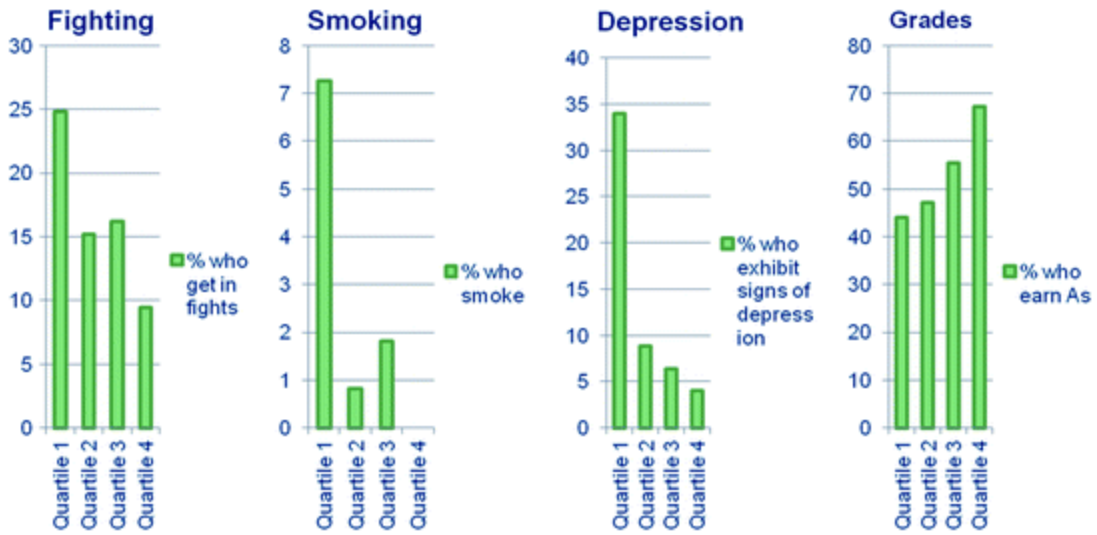

Fig. 3.49 Life satisfaction concurrent validity. Quartiles of life satisfaction by social, health, emotional, and academic outcomes

Quartiles

The parent life satisfaction scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 10, quartile 2: 11, quartile 3: 12–13, quartile 4: > 13.

The adolescent life satisfaction scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 10, quartile 2: 11–12, quartile 3: 13–14, quartile 4: > 14.

3.3.6.6 Purpose

An adolescent with a sense of purpose has a directedness that stimulates goals, manages behavior, guides decisions, and nourishes an intention to achieve something that is meaningful to the adolescent but which may also have meaning and consequences beyond the self. Purpose is measured with three items for adolescents using an agree/disagree response format (Purpose is not measured for parents, who reported in the cognitive interviews that they would not assess this construct).

Reflecting the brevity of the scale, the alpha is on the low side—0.54. However, the fit statistics are strong, and the subgroup fit statistics meet our criteria for all six of the adolescent subgroups. The distribution is positively skewed, but adolescents are found at every level of purpose. In addition, adolescents low on purpose are more likely to fight, smoke, and feel depressed and less likely to achieve As; however, those adolescents in the

highest quartile are slightly more likely to fight and smoke and somewhat less likely to achieve As than those in the second highest quartile. These findings suggest the interesting possibility that a very strong sense of purpose is less desirable than a quite strong sense of purpose; however, the differences are modest and would need to be confirmed by other analyses.

Joint models estimated for subgroups met fit criteria for all of the subgroups.

Based on these analyses, it appears that the three-item measure of purpose for adolescents works well and is ready for use in other studies.

Adolescent-Reported Items

Please indicate how much you agree or disagree with the following statements. (Strongly agree … Strongly disagree)

- My life has no meaning.
- My life will make a difference in the world.
- I am doing things now that will help me to achieve my purpose in life (Fig. 3.50).

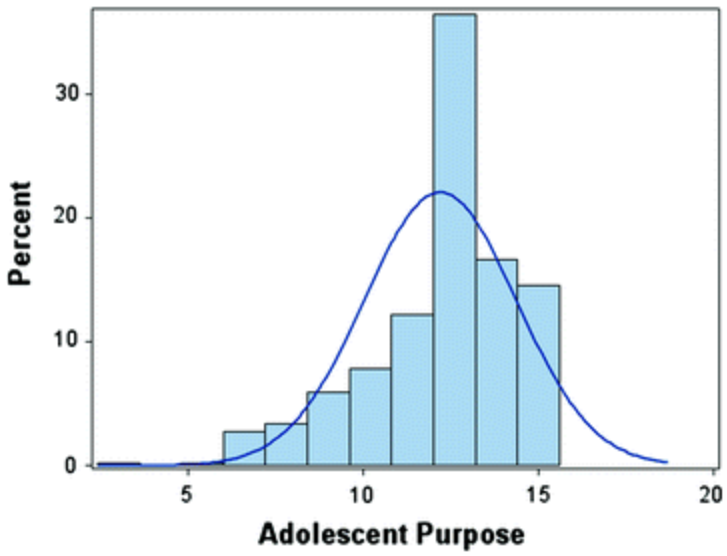

Fig. 3.50 Adolescent purpose distribution. Alpha = 0.54, CFI = 0.997, TLI = 0.995, RMSEA = 0.033

Scale psychometrics for subgroups were assessed in a joint model in Table 3.34.

Table 3.34 Purpose subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	Female	Low	High	12–14	15–17
Adolescent scale	✓	✓	✓	✓	✓	✓

✓ The model fit for this subgroup

Concurrent validity is shown in Table 3.35 and Fig. 3.51.

Table 3.35 Purpose concurrent validity

Fighting	Smoking	Depression	Grades
−0.12**	−0.54***	−0.30***	0.17***

* Significant at 0.10
** Significant at 0.05
*** Significant at 0.01

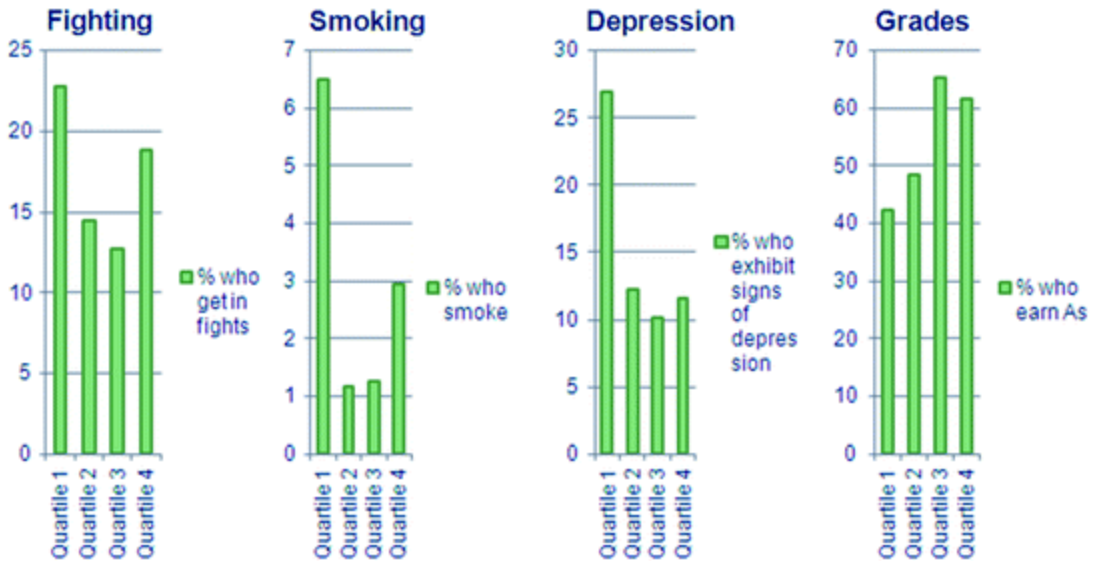

Fig. 3.51 Purpose concurrent validity. Quartiles of purpose by social, health, emotional, and academic outcomes

Quartiles

The adolescent purpose scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 11, quartile 2: 12, quartile 3: 13–14, quartile 4: > 14.

3.3.6.7 Spirituality

Spirituality includes experiencing or seeking an awareness of universal unity and sacredness and cultivating an identity, meaning, purpose, and relationships based on this awareness. Spirituality differs from, but can overlap with, religiosity and religious attendance, which are more frequently measured in surveys. Numerous iterations resulted in a set of eight belief items and seven behavioral items. All 15 items used response categories ranging from “Completely” to “Not at all.” Items were only asked of adolescents, as parents indicated they could not respond about their adolescent’s spirituality.

The alpha for this scale is very high (0.97), and the fit statistics are also excellent. Although the distribution is positively skewed, there are adolescents at every level of the scale. More-spiritual adolescents are less likely to report smoking and more likely to achieve As. It would be valuable to assess the association between spirituality and other outcomes, including other character strengths. Unfortunately, fit statistics for subgroups did not meet our criteria for any of the subgroups.

Overall, this scale works well by some criteria but not all. Given how challenging it has been to develop a measure of spirituality in adolescents, we are heartened by the positive results; but we suggest further work to test the scale in subgroups and with additional dependent variables.

Adolescent-Reported Items

Please indicate how much you believe the following. (Not at all … Completely)

- There is a God.
- There is a higher power.
- There are angels.
- There is a sacredness to all life.
- That all life is connected.
- That I am connected to a higher power.
- That I have a soul
- There is a single source of all life.

How much does your belief that something exists beyond the everyday world … (Not at all … Completely)

- give you the strength to make it through the hard times.

- protect you from harm.
- affect how you treat others.
- provide you joy in your life.
- bring you peace in your life.
- guide how you think and act in everyday life.
- an important part of who you are? (Fig. 3.52)

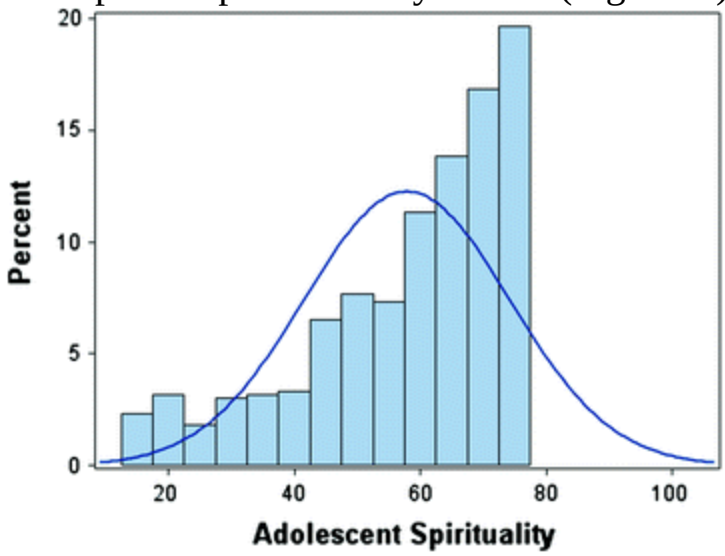

Fig. 3.52 Adolescent spirituality distribution. Alpha = 0.97, CFI = 0.995, TLI = 0.994, RMSEA = 0.075

Scale psychometrics for subgroups were assessed in Table 3.36.

Table 3.36 Spirituality subgroup results

	Adolescent gender		Household income		Adolescent age	
	Male	Female	Low	High	12–14	15–17
Adolescent scale	–	–	–	–	–	–

– The model did not fit for this subgroup

Concurrent validity is shown in Table 3.37 and Fig. 3.53.

Table 3.37 Spirituality concurrent validity

Fighting	Smoking	Depression	Grades
−0.01	−0.06***	−0.02	0.02**

* Significant at 0.10

** Significant at 0.05
*** Significant at 0.01

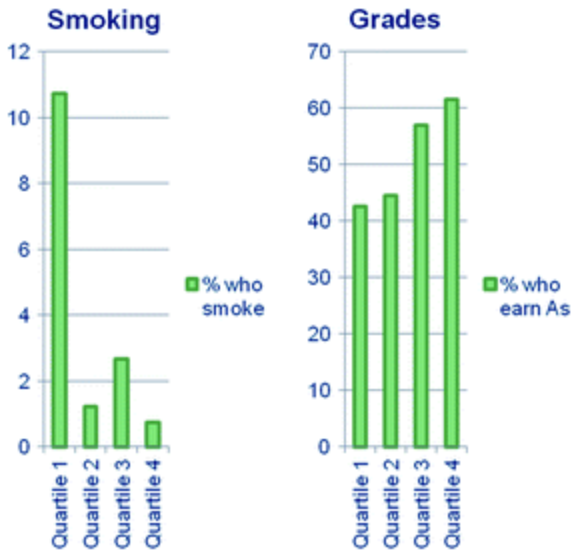

Fig. 3.53 Spirituality concurrent validity. Quartiles of spirituality by health and academic outcomes

Quartiles

The adolescent spirituality scale has the following distribution (based on weighted data from the national pilot survey): quartile 1: ≤ 51, quartile 2: 52–64, quartile 3: 65–71, quartile 4: > 71.

3.4 Discussion

These scales were developed in the course of several years of careful and sequenced work by a research team with varied and complementary skills. Existing items used in previous studies were examined but were generally revised, or new items were written. These items were then tested, and they were generally revised again in view of comments and questions expressed by adolescents and parents over the course of three rounds of cognitive testing and on the basis of input from our advisory group. Overall, we are pleased that most of these scales are ready for use in surveys, although we have expressed caveats and made suggestions for further analyses where they are particularly warranted.

It is important to share an additional analysis that cross-cuts the specific constructs. We estimated a single-factor model to assess whether the

individual constructs are independent or whether varied constructs are measuring the same underlying positive construct. This possibility was not supported, with one exception. Specifically, two items for generosity cross-loaded with altruism. With this exception, the items for each scale only fit on their individual constructs. This suggests that these separate constructs are all measuring individual constructs and not an underlying personality factor, affect, or attitude. This finding is important to the field addressing concerns that there may be an underlying construct for positive qualities.

One general finding is that adolescents appear to be somewhat better reporters about themselves than their parents are. This is not surprising; in fact, it may be more notable that the parent-reported items generally do rather well. Because parents indicated reluctance to report on several constructs about their children—specifically, spirituality and purpose—we did not obtain parent data on all constructs. This seems like an important message for the field. In the same way that we cannot ask parents about all negative behaviors (such as drug use and sex), we also cannot ask parents about all positive behaviors and characteristics.

Given concern to test these constructs in disadvantaged as well as advantaged populations, our cognitive interviews were conducted in very diverse samples, and the pilot study was also conducted in a diverse sample. Unfortunately, our actual pilot sample did not include enough African Americans and Hispanics to estimate fit statistics separately for racial/ethnic subgroups. However, we were able to test the models in lower- and higher-income groups, as well as adolescent gender and age subgroups. We found that the good fit statistics for the overall sample were generally, but not always, confirmed in the subgroup analyses.

There is, of course, room for additional work. For example, tests of additional subgroups, particularly race/ethnicity subgroups, are needed. In addition, we will be conducting more psychometric analyses to identify, where possible, the single best item to measure a construct, in order to meet the demand for very short measures to be used in large-scale indicator surveys. Also, experimental tests of varied methods and response options were included in the pilot survey, and the findings of these analyses will be reported separately. The purpose of the experimental analyses is to explore the effects of the agree/disagree response scale versus response scales specific to individual constructs on reliability and other measurement properties. To test whether scale reliability is affected by the response scale

that items are presented on (agree/disagree or “construct specific”) Cronbach’s alphas will be/have been computed and compared for each scale. Other outcomes related to data quality that will be/have been examined include descriptive analyses of differences in distributions, use of categories (including acquiescence bias and positive valence), and administration time. Associations with developmental age may also be examined.[1]

3.5 Conclusions

Measuring positive constructs with brief scales that can be answered by diverse populations is a challenging task. Items need to be developed that can be responded to by boys as well as girls, disadvantaged as well as more advantaged adolescents, and by younger as well as older adolescents. Many measures are handicapped by extremely skewed distributions.

Given these challenges, it is gratifying that these hopeful, diligent, goal-oriented efforts have resulted in a set of measures that are generally ready for use in diverse populations. They have withstood the tests of numerous rounds of cognitive interviews, they have been successfully tested on a national sample, they have excellent psychometric properties, and they have been found to have concurrent validity with important social, health, emotional, and academic outcomes.

With the caveats noted, we feel that the following scales can be used, or not, as shown below: Relationship Skills

- Empathy—meets all criteria overall but falls short for several subgroups
- Social competence—ready for use, especially with adolescents

Flourishing in Relationships

- Parent-adolescent relationship—ready for use, but adolescent reporting is preferred
- Peer friendship—good psychometrics but needs to be tested on additional well-being measures and falls short for several subgroups

Flourishing in School and Work

- Diligence and reliability—ready for use, especially with adolescents

- Educational engagement—ready for use with parents and also for teens, with modest reservations
- Initiative taking—ready for use
- Thrift—ready for use
- Trustworthiness—skewed but ready for use

Helping Others to Flourish

- Altruism—ready for use; needs testing with additional well-being measures
- Generosity/Helping family and friends—Generosity is not ready for use, although a working scale of helping family and friends can be created from available items

Environmental Stewardship

- Environmental stewardship—ready for use

Personal Flourishing

- Forgiveness—ready for use
- Goal orientation—ready for use, but further subgroup testing is warranted
- Gratitude—ready for use, especially for adolescents
- Hope—ready for use with the caveat that fit for gender subgroups could not be examined
- Life satisfaction—ready for use
- Purpose (asked only of adolescents)—ready for use
- Spirituality (asked only of adolescents)—strong psychometrics but needs to be tested on additional well-being measures; criteria were not met for subgroups

Additional information related to our work on developing positive indicators and to our future progress can be found at http://www.childtrends.org/positiveindicators.

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Footnotes

1 The data from the Flourishing Children Project are publicly available at http://www.childtrends.org/positiveindicators. We welcome any request to use the data for additional analyses.