Examining Character Structure and Function across Childhood and Adolescence

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Abstract

Character strengths are an integral component of positive youth development that can promote flourishing. Developmental principles posit constructs become increasingly complex with age, yet this process has not been examined with character. Using a socioeconomically and ethnically diverse sample of 2,467 youth ages 9-19, bifactor models were estimated across elementary, middle, and high school-age groups to examine age differences in character structure and function. With successive age, a greater number of specific character strength factors were identified, suggesting character structure becomes more differentiated across adolescence. Results linking character bifactor models to indicators of positive functioning also supported differentiation in character function across ages. Findings point to the need for theoretical and empirical considerations of character structure and function across development.

Examining Character Structure and Function across Childhood and Adolescence

Character can be broadly defined as a composition of multiple strengths that motivate individuals to act in accordance with virtues (Berkowitz, 2012; Peterson & Seligman, 2004). As such, character is theorized to be a precursor to well-being and community contributions (Lerner, 2004; Peterson & Seligman, 2004). A fundamental obstacle in character research is the lack of understanding of how character develops and how to best account for its multidimensional nature (McGrath & Walker, 2016). Research that is grounded in developmental theory and examines age differences in character across developmental periods is urgently needed to inform theory and practice related to character development. Our study draws on relational developmental systems (RDS) theory and the orthogenetic principle, which posits that constructs proceed from a global state to become increasingly differentiated with age (Werner, 1957). Using a large cross-sectional sample, we tested the hypothesis that character structure and functions become more complex and differentiated with age by (a) examining age differences in character structures across elementary, middle, and high school-age groups, and (b) testing whether character functions, i.e., links from character strengths to indicators of positive functioning, become more differentiated with age. Bifactor models offer a unique and rigorous way to capture the multidimensional nature of character and its relations with positive functioning across ages.

Conceptualizing Character

Articulating specific strengths that comprise the meta-construct of character is an issue that produces some agreement and considerable variability in existing scholarship (Lickona & Davidson, 2005; Peterson & Seligman, 2004; Seider, 2012). There is considerable heterogeneity in the number of dimensions and the specific strengths indicative of character. Although debates are ongoing regarding the conceptual distinctions among various dimensions of character

strengths, existing taxonomies articulate a mature structure of character strengths. Previous work has given little consideration to when and how specific dimensions of character develop. To the extent that character development is a dynamic process evidencing change in structure and function over time, specific conceptualizations may not capture character structure across childhood and adolescence. An exploratory approach to character structure may be especially useful for examining character structure developmentally.

One useful heuristic involves conceptualizing different types of character strengths along interpersonal and intrapersonal dimensions (e.g. McGrath & Walker, 2016; Park, Tsukayama, Goodwin, Patrick, & Duckworth, 2016). Interpersonal strengths represent a broad range of capacities that enable youth to positively interact with other individuals, groups, and communities (Baehr, 2017; Peterson & Seligman, 2004) whereas intrapersonal strengths have been theorized to reflect accountability and performance aspects of character and emphasize youth's own potential in the future (Baehr, 2017; Lickona & Davidson, 2005). Interpersonal and intrapersonal dimensions of character capturing meaningful differences in character strengths while still being broad enough to allow an exploratory approach to character structure, which is important for capturing age differences. In selecting character strengths for this study, we drew from a diverse set of frameworks to reflect a balance of interpersonal and intrapersonal strengths relevant to civic engagement and positive youth development (Baehr, 2017; Peterson & Seligman, 2004; Seider, 2012), given the study's broader focus on these topics.

Interpersonal strengths of leadership, teamwork, respect, and gratitude were included in the study as these strengths promote prosocial behaviors (Froh, Bono, & Emmons, 2010), volunteering (Scales, Benson, Leffert, & Blyth, 2000), and political behaviors (Christens & Dolan, 2011) and are commonly associated with a number of indicators of positive development

including self-efficacy (Weber, Ruch, Littman-Ovadia, Lavy, & Gai, 2013), well-being (Park & Peterson, 2006a), and academic achievement (Froh et al., 2010). Five intrapersonal strengths– future orientation, optimism, perseverance, thrift, and responsibility – were also included in the current study. These intrapersonal strengths are positively associated with indicators of positive youth development including academic performance (Park et al., 2016), self-efficacy (Ruch et al., 2013), and self-regulation (Schmid, Phelps, & Lerner, 2011). Intrapersonal strengths may also enable youth to positively contribute to their contexts, as these strengths allow youth to understand and strategically plan civic actions that benefit society (Metzger et al., 2016).

Given theory and some empirical work on each of these strengths at various ages, the strengths included in the current study are believed to be qualities youth are capable of understanding and displaying (e.g. Park & Peterson, 2006a; Weber et al., 2013). Leadership, teamwork, gratitude, perseverance, future orientation, and optimism have been reliably assessed in youth as young as ten (Park & Peterson, 2006a; Weber et al., 2013), and Q-sort methodology has suggested that youth are capable of understanding these strengths (Metzger et al., 2016). Although there are fewer established measures or empirical studies of respect, thrift, and responsibility, these strengths are commonly included in character education programs designed for elementary through high school ages (e.g., Boy Scouts of America, 2017). As a final word on the selection of character strengths, it is implausible, if not impossible, to comprehensively assess the development of all character strengths within any single study. Although intrapersonal and interpersonal dimensions are commonly found in the literature and guided our choices about specific character strengths, we acknowledge that not all strengths fit squarely into intrapersonal and interpersonal dimensions, and some scholars prefer other models such as moral and performance dimensions (e.g. Baehr, 2017; Seider, 2012).

Character Development

Relational developmental systems (RDS) theory provides a useful lens through which to study character development (Lerner & Callina, 2014). RDS theory posits that development results from interactive, relational processes between individuals and their contexts that unfold over time, and individuals are seen as "inherently active, self-creating, self-organizing, and self-regulating, relatively plastic, nonlinear complex adaptive systems" (Overton, 2015, p. 39). Given the adaptive and plastic nature of individual development, constructs may change in complex ways across development. Indeed, in articulating expectations for developmental differences in character, RDS emphasizes the structure and function of a construct is capable of developmental change (Overton, 2015). Moreover, according to the orthogenetic principle, which is consistent with RDS, differentiation and hierarchic integration are assumed to characterize development (Werner, 1957). In this study, we tested one aspect of the orthogenetic principle stating that development proceeds from a state of globality and lack of differentiation to become increasingly specific and differentiated over time (Werner, 1957).

Applied to character, structure refers to the organization of individual character strengths into a higher-order pattern, i.e., how items factor together into latent factors or dimensions of character. A plausible hypothesis is that the structure of character begins as a global "g" factor defined generally by positive character strengths and becomes more refined into a specific multidimensional set of character strengths with age (Lerner & Callina, 2014; Wang et al., 2015). Function refers to the ways that character strengths affect other domains of life, such as enabling positive contributions to oneself, others, and one's contexts. Functions of character are assumed to be dynamic from a RDS perspective; meaning that the way character strengths are associated with indicators of positive development may change with age (Lerner & Callina, 2014).

Character strengths may be more uniformly and globally associated with positive outcomes early in development, but particular strengths may become more strongly associated with distinct outcomes during adolescence. Similar to expectations with structure, we tested the idea that character functions may become increasingly specific with age. Examining age differences in the structure and function of character has valuable implications for developmental theory and for the ways in which character is conceptualized, modeled, and measured in future research (Lerner & Callina, 2014). Although longitudinal analyses of intraindividual change are necessary for firm conclusions, studying cross-sectional age differences in character structure and function is a useful step for the nascent field.

Age Differences in Character Structure

The differentiation hypothesis suggests that character structure begins as a global construct, and the theoretical assumption of a global character factor is that character is best defined as a combination of individuals' various strengths into a measureable whole. Theoretical perspectives support the view that character structure includes global and specific aspects (Blasi, 2005). A global aspect of character involves a general orientation towards positive behavior to oneself and others. In this way, character begins as a general tendency or motivation towards personal and moral excellence and over time, specific character strengths that constitute particular ways of acting likely develop. Thus, we expected that a global character factor will be particularly evident among elementary school-aged youth, when self-representations tend to be global in nature and before youth begin to see their strengths and abilities in more nuanced and specific ways (Harter, 2015).

Although little developmental research has examined global aspects of character, some empirical evidence suggests that a global dimension of character is plausible. For example, in a

study of multiple character strengths among adolescents ages 13 to 17, van Eden and colleagues (2014) found that all 24 VIA strengths loaded highly onto a single factor, suggesting a generalized dimension common across strengths. Notably, however, van Eden et al. did not test for other measurement structures, so it is unclear whether a one-factor model was better fitting than other alternatives. Wang et al. (2015) tested various character structures in a sample of children and early adolescents and ultimately excluded a one-factor model, yet their one-factor model showed high factor loadings across the majority of character items, supporting the idea of an underlying dimension of character. Furthermore, while correlation tables are strikingly absent from nearly all measurement research on character, available evidence demonstrates correlations as high as .98 among character strengths (e.g. Corral-Verdugo, Tapia-Fonllem, & Ortiz-Valdez, 2015). In general, however, studies examining character structure in youth and adult samples have rarely tested for a global factor, and have found that the number and nature of character strengths vary considerably across studies (e.g. Gillham et al., 2011; Park & Peterson, 2006a). Given high correlations, factor loadings, and variability across dimensions, the possibility of a global character factor warrants testing, especially from a developmental perspective.

In line with the differentiation hypothesis, the structure of character should become increasingly complex in adolescence; that is, global character should develop into multiple character strengths with age. Although few studies systematically address developmental questions related to differentiation (Lerner & Callina, 2014), existing work provides some insight. For example, Park and Peterson (2006b) consider some strengths to be lower-order, meaning they draw on a simpler set of abilities that develop early in life. Teamwork and responsibility have been offered as examples of early developing strengths because they have been empirically demonstrated as early as toddlerhood (e.g., Over & Carpenter, 2009).

Conversely, parents rarely describe young children in terms of future orientation or leadership; these character strengths are thought to be higher-order and unlikely to develop until adolescence or later (e.g., Park & Peterson, 2006b). Thus, lower-order strengths such as teamwork and responsibility should be present empirically across age groups whereas higher-order strengths may be present in older ages. Identifying systematic age differences in the structure of character may shed new light on character development.

Bifactor models are one method for testing the notion that character structure progresses from a global to specific structure with age as these models simultaneously estimate general and specific aspects of the construct. Bifactor modeling partitions variance into a general latent variable that accounts for commonality among items (e.g., global character factor) and a set of specific latent variables (e.g., future orientation, responsibility, leadership) comprised of unique variance over and above the general factor (Chen, Hayes, Carver, Laurenceau, & Zhang, 2012). Empirically, bifactor models are advantageous in reducing correlations among factors by accounting for shared variance across items (Biderman, Nguyen, Cunningham, & Ghorbani, 2011). The underlying assumptions are that character has a holistic component that comes from integration across dimensions, and also specific character strengths can be separated out and uniquely understood. Bifactor techniques have successfully been used to model constructs such as intelligence (Gignac, 2008), personality (Biderman, et al., 2011), and civic engagement (Wray-Lake, Metzger, & Syvertsen, 2016), although bifactor models have not, to our knowledge, been employed to examine the structure of character strengths.

Exploratory models are necessary for assessing potential differentiation in character because it is imperative from a theoretical perspective to be open to different factor structures among different age groups (Lerner & Callina, 2014). Thus, to address whether character

structure progresses from globality to specificity with age, we estimated separate exploratory bifactor models of character strengths among three age groups: elementary, middle, and high school. Conceptual rationale guided our use of exploratory models to examine age differences in character structure, yet we also examined evidence that bifactor models fit our data well compared to alternative models (Wray-Lake et al., 2016).

Age Differences in Character Function

Another central premise of the RDS framework is that positive developmental regulations (i.e. positive individual-context relations) between individuals and their contexts promote positive adaptation. Thus, character should involve mutual benefits to the individual, others, and society (Lerner & Callina, 2014). As changes within the individual and in individual-context relations become increasingly complex over time, character functions – associations between character and indicators of positive functioning – likely become more specific, as well. Character strengths have been broadly linked to indicators of positive functioning across multiple domains, including academic performance, self-efficacy, prosocial behavior, and civic engagement (Corral-Verdugo et al., 2015; Duckworth & Quinn, 2009; Ruch et al., 2014). Yet, much of this work has lacked a developmental perspective. To the extent that character functions follow the orthogenetic principle, a global character factor may predict positive functioning in younger age groups, whereas more specific character factors may have distinct associations with certain positive functioning indicators in older age groups.

We tested this idea by linking bifactor models to multiple indictors of positive functioning that represented contributions to the self as assessed by academic achievement; contributions to other individuals assessed by prosocial behaviors; and contributions to supporting contexts assessed by organized activity involvement. Some general expectations

between character strengths and positive functioning are informed by prior research. Given previous work documenting associations with academic achievement (e.g., Duckworth & Quinn, 2009), we expected intrapersonal strengths to be positively associated with self-reported grades. Strengths including collaboration, gratitude, and positive exchanges have been linked to greater prosocial behaviors (Froh et al., 2010; Seider, 2012) and as such, we expected interpersonal strengths to relate to prosocial behavior. Involvement in organized activities such as school government, clubs, and community service is considered a marker of community involvement across childhood and adolescence because through these activities, youth are taking on roles and responsibilities as members of a community (Youniss & Yates, 1999). In addition, organized activities are spaces where youth can exercise developing intrapersonal character strengths such as future orientation, perseverance, and optimism (Mahoney, Vandell, Simkins, & Zarrett, 2009). Thus, specific interpersonal and intrapersonal strengths may relate to organized activity involvement. Finally, age differences in associations between specific character strengths and other positive indicators have not been examined, and thus we examine these associations with no *a priori* hypotheses.

The Current Study

Using a geographically, socioeconomically, and ethnically diverse sample of 4^{th} – 12^{th} graders, this study first aimed to determine whether character structures differed across age groups. Separate exploratory bifactor models were conducted for elementary, middle, and high school students to test the hypothesis that character becomes more differentiated at each successive age, with the fewest number of specific character factors (and thus the most globalized structure) in elementary school-aged youth and a greater number of specific factors for older youth. Specifically, we expected lower-order strengths such as teamwork and

responsibility to be empirically present in all age groups whereas higher-order strengths such as future orientation and leadership would be identified only in older age groups. As a more stringent test of bifactor modeling to assess differentiation, we examined evidence that bifactor models provided a reasonable fit to the data compared to alternative models.

The second aim of the study examined differentiation in character functions with age. Separate analyses were conducted across age groups linking character models to self-reported grades, prosocial behaviors, and organized activity involvement. We expected global character to predict positive functioning in younger age groups whereas specific factors would have distinct associations to positive functioning indicators in older age groups. Based on extant literature, we expected intrapersonal strengths to be positively associated with self-reported grades whereas interpersonal strengths would relate to prosocial behavior. Both intrapersonal and interpersonal strengths were expected to positively relate to organized activity involvement.

Method

Data came from a large cross-sectional, school-based survey study of children and adolescents designed to examine the developmental roots of civic engagement. A total of 2,467 children and adolescents in 4th through 12th grades between the ages of 9 to 19 (M_{age}= 13.35, *SD* =2.66; 55.6% female) participated in 17 schools across three U.S. regions: metropolitan (areas that include a high-density urban city and its surrounding areas; U.S. Census Bureau, 2016) southern California (CA), urban (areas of high-population density) Minnesota (MN), and rural (areas not part of an urban area) West Virginia (WV). In each area, we recruited school districts with high economic vulnerability. School administrators assisted in recruitment efforts to attain a sample representative of the school. We surveyed youth in elementary school (4th-5th grades, *n* = 514), middle school (6th-8th grades, *n* = 815), and high school (9th-12th grades, *n* = 1138). Youth

completed paper and pencil surveys in classrooms during the 2013-2014 school year. A detailed protocol was followed across sites to ensure data collection was administered uniformly.

Self-reported race-ethnicity for youth was White (50.4%), Hispanic or Latinx (30.2%), Black or African American (9.5%), and Other (9.8%). As shown in Table 2, race-ethnicity varied across sites: CA had more Hispanic youth, MN had more Black or Other youth, and WV had more White youth. CA and MN also had more Asian youth than WV. Gender was equally distributed across sites. CA participants (M_{age}= 13.68) were older than MN (M_{age}= 12.76) and WV (M_{age}= 13.38) participants, and WV participants were older than MN participants. CA had the highest number of 1st or 2nd generation immigrant students (76.7%), followed by MN (43.3%), then WV (7.1%). For CA youth, 19.3% of parents had a college degree or higher, compared to 46.5% for MN youth and 27.8% for WV youth.

Planned Missing Data

A three-form planned missing data design was used in order to include a larger number of items and constructs without overburdening participants (Little, 2013). Using this approach, cognitive demands placed on participants are lessened because the survey length can be reduced without reducing the number of constructs of interest, and less desirable forms of missing data are minimized by increasing the likelihood of survey completion. The full list of survey items was divided into a core set (X) and three additional item sets (A, B, C). The core set included demographic items, key dependent variables (civic engagement), and the most central independent variables. The A, B, and C sets included a balance of scales assessing character strengths, developmental competencies, and contextual variables. Three survey forms were created and each form included the core items (X) and two of the three item sets. Age-appropriate versions of the three survey forms were also created for elementary, middle, and high

school age groups, resulting in 9 survey versions, a design element that is not directly relevant to the current analyses, given that the measures used here had the same items and same number of items for each age group. Survey versions were evenly distributed across participants, age, site, gender, race-ethnicity, and parent education, as indicated by non-significant chi square tests.

Measures

Character strengths. Character strengths were assessed using three items for each of the following strengths: future orientation, optimism, perseverance, responsibility, thrift, leadership, teamwork, gratitude, and respect (see Table 1). All items utilized a 5-point Likert scale with response options ranging from 1=*Not at all like me* to 5=*Very much like me*. All items can be seen in Table 1. Items were derived from an iterative process. First, we selected a set of character strengths that youth were capable of understanding and that represented a range of strengths. Second, we conducted one-on-one interviews and character Q-sorts with children and adolescents (n = 90) to gauge how youth understood each strength. Third, we compiled a list of targeted character strengths based on the interviews, taking items from existing literature and writing original items as needed to obtain short measures of each strength. Fourth, we conducted cognitive interviews (n = 16) to ensure that items were interpreted in the intended way across children and adolescents. From the interviews, we identified problematic items that were construed as double-barreled (e.g., I take responsibility for my actions, even if it gets me in trouble), overly abstract or complex for younger ages (e.g., “The group can trust that I will make sure our project is as good as possible”), or that youth had difficulty interpreting (e.g., “I am able to help my group to get along when they disagree or fight,” elementary youth had difficulty distinguishing ability from choosing to act). Next, we adapted items based on feedback from cognitive interviews and pilot tested items to determine reliability in a sample of CA youth (n =

213), dropping items with low reliability to arrive at the measures listed in Table 1.

Character Functioning Measures

Self-reported grades were assessed using a single item asking youth, "What grades do you usually earn in school?" rated on a scale from 7=*mostly As* to 1=*mostly Ds and below.* Prosocial behavior was measured using four items heavily adapted from existing sources (Flanagan, Syvertsen, & Stout, 2007) or written based on extant work (see Wray-Lake et al., 2016). A sample item includes, "I have stood up for a classmate who was being picked on;" items were rated on a scale of 1=*Never* to 5=*Very often.* Organized activity involvement was assessed by summing the number of hours per week youth spent in five activities: school or community sports; school clubs/organizations; community club/organizations; art, music, or drama; and, religious or spiritual programs.

Analytic Plan

To address the first aim of the study - that character structure becomes increasingly differentiated across age - we first conducted bifactor exploratory factor analysis (EFA). Separate models were estimated for each age group: elementary, middle, and high school-aged youth. Categorizing youth into these groups is a useful heuristic for examining age differences in this cross-sectional study, given the school-based nature of our study design. All models accounted for the nested nature of the data, as individuals were clustered within school (n = 17). Maximum likelihood estimation with robust standard errors (MLR) was used due to clustering.

Bifactor exploratory factor analyses (EFAs) were estimated separately for each age group in M*plus* version 7.2 using a bifactor geomin oblique rotation method (Jennrich & Bentler, 2012), to iteratively compare solutions with a general factor and 1 to 9 specific factors. For each solution, all items were allowed to load on all dimensions to allow for different factor structures

to be identified for different age groups. Because chi-square values are highly sensitive to sample size, the number of factors to retain was determined by: a) the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) where values closer to 0 indicate a better fit; b) comparative fit index (CFI) where values greater than .90 indicate a better fit, c) the root mean square error of approximation (RMSEA) where values less than .05 indicate acceptable fit and d) change in CFI, where values of .01 or greater indicate better fitting models (Cheung & Rensvold, 2002). CFI change was preferred over chi-square differences, as chi-square tests have been found to be too liberal for large samples (Cheung & Rensvold, 2002; Little, 2013). For solutions with similar fit across indices, models with clearer substantive meaning were retained. Statistical significance of factor loadings, not the size, was used to identify specific items to be retained on each factor.

After establishing a bifactor structure through exploratory analysis, we conducted a series of supplemental analyses to provide a more stringent test of differentiation and evidence that bifactor models were a reasonable fit to the data. First, we estimated separate bifactor EFAs using a random subsample of middle and high school cases that approximated the elementary sample size to ensure differentiation was not due to differences in sample sizes across groups. Next, we examined the additive value of accounting for shared variance via a general factor by comparing bifactor EFA results to traditional EFA models without a general factor. In a third set of analyses, we compared the bifactor model to three additional models – unidimensional single latent variable, correlated first-order factor, and second-order factor models – in order to provide evidence that bifactor models were a reasonable fit to the data. Again, significant differences between models were evaluated based on a CFI change of .01 or greater (Little, 2013).

Finally, to address the second study aim, we used structural equation modeling to

examine associations between character factors and three aspects of positive functioning: self-reported grades, prosocial behaviors, and organized activity involvement. Separate models were conducted for each age group to test whether character functions became more differentiated with age. Age and geographic site were used as controls to account for design characteristics. Because of the number of associations examined as well as the large sample sizes in the two older groups, significance levels were adjusted to *p*-values of .01 to control for Type I error.

Results

Age Differences in Character Structure

In elementary school-aged youth, a four-factor exploratory bifactor solution provided the best fit to the data (see Table 3). Standardized factor loadings for the global character factor ranged from .36 to .71 (see Table 4). The first factor, Optimistic Future Orientation, was defined by considering the impact of decisions on the future, being hopeful about the future, and seeing the positive side of things (λs = .17 to .80). The second specific factor, Thrift, was comprised of being careful with money and saving money for the future (i.e., two of the three original thrift items; λs = .54 to .54). The final specific factor was comprised of six items: suggests activities to peers, peers consider me a leader, good at leading, good at working together, doing my part to help my team, and thinking about what is best for my team (λs = .29 to .47); this factor aligned conceptually with theorizing on civic character (Seider, 2012) and was labeled Civic Strengths. One item from the Optimistic Future Orientation factor - seeing the positive side of things - significantly cross-loaded onto Civic Strengths, yet loaded more strongly and fit better conceptually with the Optimistic Future Orientation factor, and so was retained there. The remaining 16 items loaded solely on the Global Character factor for elementary youth. The accepted bifactor EFA was estimated as a confirmatory factor model, and model fit was

acceptable, *MLR* χ^2 (313) 570.27, p <.001, RMSEA= .04, CFI= .91.

For middle school-aged youth, a Global Character factor and five specific factors provided the best fit (see Table 3). On all the specific factors, items remained grouped as we originally expected. Standardized loadings for Global Character ranged from .46 to .77 (see Table 5). Perseverance (λs = .35 to .45) and Respect (λs = .31 to .72), which loaded only on the Global Character factor in the elementary group, were identified as specific factors in the middle school group. Although leadership and some teamwork items loaded together for elementary youth, they factored separately as Leadership (λs =.46 to .57) and Teamwork (λs = .41 to .54) for middle school youth. Optimism was also identified as a distinct factor (λs = .32 to .47). Thrift and future orientation, which had some items on a specific factor for elementary youth, loaded only on Global Character for middle school youth. Similar to the structure found in elementary grades, responsibility and gratitude items loaded only on the Global Character factor for youth in middle school grades. The final bifactor CFA model provided a good fit to the data, *MLR*χ^2 (309) = 683.96, p <.001, RMSEA = .04, CFI= .94.

For high school-aged youth, a Global Character factor (λs = .40 to 67) and seven specific factors provided the best fit (see Table 3). As with the middle school model, Leadership (λs =.25 to .68; see Table 6), Optimism (λs = .39 to .60), Teamwork (λs = .41 to .48) and Respect (λs = .26 to .66) loaded onto specific factors. Responsibility items, which loaded onto a specific factor for middle school youth, loaded with perseverance items for the high school youth (λs = .21 to .52) and this factor was labeled Integrity. Future Orientation (λs = .24 to .53) and Thrift (λs = .40 to .75), which were present in elementary but not middle school models, loaded onto distinct specific factors for high school youth. As in elementary and middle school youth, gratitude items loaded only on the Global Character factor. The final bifactor CFA model fit acceptably well,

$MLR\chi^2$ (301) = 1029.55, p <.001, RMSEA = .05, CFI= .92.

Supplemental Analyses

A series of supplemental analyses were conducted to provide a more stringent test of differentiation. First, to ensure differentiation was not strictly due to different sample sizes across groups, bifactor EFAs were estimated using a random subsample of cases in middle and high school groups that approximated the elementary sample size. Analyses with smaller samples for middle school and high school groups showed that the best fitting models had the same number of factors and very similar structures (details available upon request). Thus, analyses with equivalent sample sizes supported the differentiation hypotheses and ruled out the alternative view that results were due to differences in sample sizes. Given that larger sample sizes have smaller sampling variability, reduce the influence of Heywood cases, and produce solutions closer to population values, the literature recommends using the largest sample size available in exploratory analyses (e.g. Costello & Osborne, 2005). Thus, the final models utilized the full sample size across groups.

A second set of analyses was conducted to evaluate the additive value of the general factor in an EFA framework. For each age group, results from the bifactor EFA with n factors were statistically compared to a traditional EFA model without a general factor (i.e. with n – 1 factors). Although not commonly done in empirical research, some work has suggested that chi-square difference testing is most appropriate for these comparisons (Biderman, 2013). In elementary ages, the 3-factor EFA resulted in identification of a thrift factor and a civic factor, while all other strengths loaded on a single factor. The 3-factor EFA fit more poorly than the 4-factor bifactor model ($\Delta\chi^2$ = 441.06, df = 24, p <.001). In middle school, a 5-factor EFA identified perseverance, respect, and teamwork as individual factors. Future orientation, personal

responsibility, and leadership loaded together on a single factor, as did thrift, gratitude, and optimism. The 5-factor EFA was a poorer fit than the 6-factor bifactor model ($\Delta\chi^2 = 47.86$, $df = 22$, $p < .001$). Moreover, the correlations between factors were relatively high, especially between the last two factors that contained multiple strengths. In fact, the highest correlation was between those factors ($r = .48$), again suggesting there may be additional underlying common variance.

In high school, the 7-factor EFA identified future orientation, respect, leadership, teamwork, and optimism as individual factors; perseverance and personal responsibility loaded together on a factor, as did gratitude and thrift. Across factors, there were a significant number of items that cross-loaded as well as relatively high correlations between factors, again supporting the idea of additional common variance among items. Similar to above, the 7-factor EFA fit the data significantly worse than the 8-factor bifactor model ($\Delta\chi^2 = 99.91$, $df = 20$, $p = .001$).

Across all three age groups, the bifactor EFA provided a significantly better fit than a comparable EFA with no general factor. Notably, the specific factors identified through traditional EFA coincided with the factors identified through bifactor EFAs, however, there were a large number of items that cross-loaded and relatively high correlations between factors, further supporting the need to account for common variance among strengths (details available upon request). Overall, these EFA model comparisons combined with conceptual rationale suggest a bifactor EFA provides a better fit to the data than an EFA with one fewer factor.

To add further evidence for the viability of selecting a bifactor model to represent character across ages, a third set of models tested whether a bifactor model was a good fit to the data compared to alternative models in a CFA framework. These analyses were conducted separately for each age group, and results from the final bifactor EFA were retained for this set of measurement model comparisons.

Elementary school. The unidimensional model estimated a single latent variable comprised of all 27 character items; this model fit significantly worse than the bifactor model (Δ CFI = -.06; see Table 7). The correlated first-order factor model was estimated using four latent variables; Optimistic Future Orientation, Thrift, Civic factor, and a fourth latent variable with items that loaded only on Global Character. The model provided an acceptable fit, but did not fit better than the bifactor model (Δ CFI =-.01). Large latent correlations were found between the Civic Strengths and Global factors (r = .81) and between Civic Strengths and Optimistic Future Orientation (r=.74). A second-order CFA included the 4 latent variables specified above loading onto a second-order character factor and fit more poorly than the bifactor model (Δ CFI = -.01).

Middle school. The unidimensional model fit significantly worse than the bifactor (Δ CFI = -.09; see Table 7). The correlated first-order factor model was estimated using latent variables for Perseverance, Respect, Leader, Optimism, and Teamwork, and a sixth latent variable of items that loaded only on Global Character. The model fit acceptably, but not significantly better than the bifactor model (Δ CFI =.004), and inter-factor correlations were large, especially between the Optimism and Global Character (r = .90) and between Respect and Global Character (r = .79). A second-order CFA included the 6 factors above and a second-order character factor. Model fit was acceptable but not better than the bifactor model (Δ CFI = -.002).

High school. The unidimensional model fit worse than the bifactor (Δ CFI = -.17; see Table 7). The correlated first-order factor model was estimated using latent variables of Future Orientation, Thrift, Integrity, Respect, Leader, Optimism, Teamwork, and a latent variable with four items (three gratitude and one perseverance item) that loaded only on Global Character. The model did not fit better than the bifactor model (Δ CFI =.004), and correlations among factors ranged from .34 to .80, with the largest between Respect and Future Orientation (r = .80) and

Teamwork and Integrity (r=.76). A second-order CFA included the 9 latent variables from above and a second-order character factor. Model fit was worse than the bifactor model (Δ CFI = -.01).

In sum, for elementary, the bifactor model fit significantly better than other models. For middle and high school, the bifactor fit similarly to the correlated first-order factor but high correlations among factors are a concern that is eliminated with the use of the bifactor model.

Age Differences in Character Functions

Finally, to examine study aim 2 assessing age differences in character functions, each age group's bifactor model was used to predict three indicators of positive functioning: academic grades, organized activity involvement, and prosocial behaviors.

Elementary school. In the bifactor model, Global Character was positively related to all three indicators (Table 8). Civic Strengths and Optimistic Future Orientation were positively related to organized activity involvement, whereas only Civic Strengths were positively associated with prosocial behaviors. No other significant associations were present.

Middle school. Similar to elementary school youth, Global Character in the bifactor model was significantly related to all three positive functioning indicators for middle school youth (Table 8). Perseverance and Teamwork factors were positively associated with academic grades, whereas Optimism was negatively associated with academic grades and organized activity involvement. Teamwork positively predicted prosocial behaviors.

High school. The Global Character factor was positively associated with all three positive functioning indicators (see Table 8). Future Orientation was positively related to academic grades and organized activity involvement, but negatively related to prosocial behaviors. Integrity was positively associated with academic grades, while Respect was related to greater prosocial behaviors. Teamwork and Leadership positively predicted prosocial

behaviors and organized activity involvement.

Discussion

This study tested the hypothesis that character structure and functions follow a developmental progression from being relatively global and diffuse in late childhood to becoming more complex and differentiated across adolescence. Results showed a greater number of specific factors at each successive age, offering some evidence for increased differentiation in character structure with age. In addition, we found more associations between specific character strengths and positive functioning at each successive age, adding evidence to support the idea of differentiation in character functions. Thus, findings for both structure and function support the differentiation hypothesis in Werner's (1957) orthogenetic principle. Comparisons with alternative models provided evidence of the robustness of bifactor approaches, and results suggest there may be utility in conceptualizing character as having both general and specific aspects, especially among younger youth. Through our cross-sectional design, results inform theory by highlighting the growing complexity of character strengths across adolescence and the increasing specificity with which character strengths map onto positive functioning.

Age Differences in Character Structure

Our study suggested that the structure of character is global and diffuse in younger ages and becomes more differentiated at older ages, a pattern of findings consistent with Werner's (1957) orthogenetic principle. Fewer specific factors combined with higher numbers of strengths that load only on the global character factor suggests that the structure of character among 4th and 5th graders may be relatively more global and less differentiated. At each successive age, fewer strengths loaded only on the global character factor, suggesting that character structure showed increased differentiation at older ages. Increased differentiation with age has been

established in other constructs such as personality development (e.g., Soto, John, Gosling, & Potter, 2008), self-regulation (Gestsdóttir, Bowers, von Eye, Napolitano, & Lerner, 2010), and self-concept (Harter, 2015); character may develop in tandem with these related processes.

In the elementary school years (i.e., late childhood), youth often have overly positive views of their competencies and are just beginning to develop a coherent sense of self (Harter, 2015). Likewise, two of the three specific strengths identified for elementary-aged youth were themselves relatively undifferentiated, as optimistic future orientation and civic strengths factors were composed of items typically representative of distinct character strengths in the literature (Park & Peterson, 2006a). By early adolescence when youth enter middle school, youth are exploring a multitude of possible selves and characteristics (Harter, 2015), which may make them more cognizant of their potential strengths compared to younger age groups. Three specific factors were identified for middle school youth that were not present at younger ages: Optimism, respect, and teamwork. During the middle school years, an increased focus on the desire to be respected by others may increase the salience of individual strengths of respect, and heightened attention to peer groups along with greater participation in sports and other team-based activities may increase the salience of teamwork. Middle school youth are often acutely focused on consolidating their current self-concepts (Harter, 2015), which may lead to de-emphasizing future-oriented thinking. Indeed, future orientation was not identified as a distinct construct for middle school-aged youth. Later in adolescence during the high school years, as youth are envisioning possible future selves, future-oriented thinking becomes salient once more. Alternatively, perhaps the items are not fully representative of how middle school youth think about their futures. Qualitative research has identified multiple facets of future orientation in middle school youth (McCabe & Barnett, 2000) and previous work has demonstrated some

declines during early adolescence in certain aspects of future orientation including ability to plan ahead (e.g. Steinberg et al., 2009) and hopeful future expectations (e.g. Callina, et al., 2017). Although supplementary analyses did find measurement invariance in future orientation across middle and high school, allaying concerns of measurement differences, future work should further examine reasons underlying the decreased salience of future orientation in middle school.

Cognitive gains in higher-order abstractions may allow youth to better coordinate behaviors such as saving money and resources with attitudes towards conservation, which may explain the broader conception of thrift for high school youth than was present in the two-item thrift construct for elementary school-aged youth. Increased differentiation in character structure may be better understood by examining differentiation patterns in the context of related developmental processes. For example, future research that links character strength differentiation explicitly to developmental changes in self-concept could be very informative.

Examining the strength of leadership offers another illustrative example of increased differentiation in character structure with age. In elementary ages, the leadership factor included items tapping into teamwork, suggesting younger youth may not distinguish between leadership and teamwork, but instead see both as interpersonal strengths necessary for working within a group. Older youth often have more opportunities to interact in team and leadership roles, either in school or community activities, and these experiences may allow them to better differentiate between being a team member and a leader (e.g.. Dworkin, Larson, & Hansen, 2003).

Perhaps character has been so difficult to define and measure scientifically thus far because past research has not embraced a developmental perspective and recognized that character structure is age sensitive (Lerner & Callina, 2014). Our study informs theory of character development by clarifying that character structure has both global and specific

components across childhood and adolescence and demonstrating that the meaning and make-up of these global and specific components likely exhibit developmental change. Findings also have implications for the way developmental change is conceptualized and studied in longitudinal research. Although it is overwhelmingly common to operationalize developmental change as level differences in a construct over time, longitudinal research should also empirically test for changes in the structure of multidimensional constructs such as character.

Age Differences in Character Functions

Understanding developmental differences in character structure is also important because with increasing differentiation in structure comes some differentiation in the functional utility of character for other domains of youth's lives. Across ages, global character was associated with indicators of positive functioning, yet at each successive age, a greater number of associations between specific character strengths and functioning were identified. Thus, our findings point to global character having a consistent function across ages and to evidence of age differences in links from specific character strengths to specific indicators.

Starting with the general factor, we found that global character was consistently related to higher academic performance, prosocial behaviors, and organized activity involvement across childhood and adolescence. Thus, there is potential value in viewing character holistically as a combination of multiple strengths, as this global character component may play a meaningful role in fostering thriving across contexts. Global character may reflect youth's coordination or consolidation of various strengths into a meaningful whole, which is a process to be further investigated but may be relevant across ages. Global character may also operate as a large toolkit of interconnected strengths that youth can bring to academic pursuits, helping behaviors, or organized activities. Only a few studies have modeled character as a global factor (e.g., van Eden

et al., 2014), but theories often discuss character in holistic terms (Lerner & Callina, 2014). Interestingly, across ages, the largest effect sizes for associations with global character were with prosocial behaviors; these associations were nearly twice the size of associations with academic grades or organized activity involvement. This pattern of findings aligns with the positive youth development model and research that emphasizes the link between character and prosocial contributions (Lerner, 2004; Seider, 2012), and supports the long-standing notion that character is related to moral behavior (Berkowitz, 2012).

Associations between specific character strengths and positive indicators show evidence for increased differentiation in character function with age, offering further support for the differentiation hypothesis in Werner's (1957) orthogenetic principle. High school-aged youth had a greater array of specific strengths that explained variance in prosocial behaviors and organized activities compared to the younger age groups. Likewise, middle and high school-aged youth had more character strengths that uniquely predicted academic grades than did elementary-aged youth, and the specific strengths that predicted grades differed in middle and high school samples. Perhaps different strengths have unique relevance to thriving depending on the developmental context (Lerner & Callina, 2014). Furthermore, as youth gain better clarity in the distinctions among character strengths (i.e., a more differentiated character structure), the functions of specific strengths seem to also expand and strengthen. Indeed, the bifactor models explained more variance in the three positive indicators with successive age. Thus, the differentiation of character structure may have valuable implications for positive functioning over time; the more differentiated character becomes for youth, the more potential youth have to harness multiple strengths for positive contributions to self and society.

Interestingly, in the context of organized activity involvement, character strengths seemed to have less relevance for middle school youth compared to the other two ages. For elementary and high school-aged youth, global character, aspects of future orientation, teamwork, and leadership were associated with activity involvement. However, only global character positively predicted activity involvement for middle school youth. Declines in a number of behavioral and motivational domains during the middle school years have been extensively documented and are often attributed to the mismatch between early adolescents' developmental needs and their environment (Eccles et al., 1993). Although research has suggested a dynamic co-occurring process between character strengths and organized activity involvement (Mahoney et al., 2009), it could be that in middle school, opportunities or motivation for organized activities change and character strengths become more decoupled from activity involvement. Alternatively, it may be the nature of organized activities that changes, with involvement perhaps becoming more driven by peer dynamics or by specific skills in the activity domain rather than by character strengths. More investigation is needed into these processes during middle school, given that our data suggest weaker associations between character strengths and participation in organized activities.

Our results also add to theory by raising the possibility that some strengths may relate to *less* positive functioning at certain ages. Future orientation was negatively related to prosocial behaviors for high school youth, a finding that contrasts with previous work (e.g., Schmid, et al., 2011). It may be that after partitioning out variance in future orientation that contributes to a global character factor, the function of future orientation is achievement based, as evidenced by its positive association with academic grades. In middle school, optimism was related to lower participation in organized activities and lower academic grades. It may be that after accounting

for global character, the optimism factor represents a form of unrealistic or naïve optimism, which have been shown to relate to interpersonal difficulties in adolescence (Gillham & Reivich, 2004). Future research might add clarity to this unexpected finding by explicitly testing the idea that optimism in the absence of other character strengths, relates to lower positive functioning for middle school youth. Although these findings certainly require replication and further exploration, the patterns showcase the importance of precision and specificity in research on character and its functions, and the need to move beyond blanket assumptions that all character strengths benefit all outcomes.

Implications for Theory and Practice

One overarching take-away from our study is that the nature of character development is increasingly complex and dynamic across adolescence. These findings have implications for conceptualizing character structure. In the increasing number of studies attempting to articulate a specific structure of character, factor analyses rarely bear out the conceptually derived dimensions of character strengths. Similarly, our exploratory bifactor models did not break into the interpersonal and intrapersonal dimensions that we used to guide the initial selection of strengths nor did the models perfectly map onto character dimensions that others have theorized. Our results suggest that character structure may be age-specific, and broader theorizing posits that character structure is both age and context-dependent (Lerner & Callina, 2014). More theory-building research is needed to test dimensional models of character in ways that are developmentally and contextually informed.

However, our findings regarding character functions did have some overlap with the increasingly popular performance, moral, and civic character models (e.g., Lickona & Davidson, 2005; Seider, 2012). Consistent with conceptualizations of performance character (e.g., Seider,

2012), future orientation was associated with academic achievement for older youth, as was perseverance, although it factored with personal responsibility. Likewise, for elementary and high school youth, teamwork and leadership, which conceptually align with civic character (Seider, 2012), were related to greater community involvement through organized activities. Interestingly, teamwork was consistently associated with prosocial behaviors - which are often measured as an indicator of moral functioning - supporting theories that cooperation and social exchanges involved in teamwork contribute to moral behaviors (Eisenberg & Fabes, 1998). For older youth, respect and leadership predicted greater prosocial behaviors, demonstrating a further link between civic strengths and moral functioning. This work maps onto scholarship noting conceptual and empirical overlap between civic and moral domains (Youniss & Yates, 1999). Consideration of character functions as moral, performance, and civic domains recognizes that individuals may enact character strengths in different, meaningful ways. As research begins delineating similarities and differences between character strengths and related functions, this tripartite model may be a promising theory to consider. #

Our work also offers implications applied research on character development. Character education programs might consider re-conceptualizing or streamlining logic models to include a global character component. For example, character education programs that employ a strength of the month approach (Smith, 2013) may benefit from infusing these specific lessons with broader and more holistic messages about the importance of global character by emphasizing positive behavior towards oneself and others and using one's strengths in ways that promote personal and moral excellence. In addition, applied research and evaluation of character programs may benefit from taking age into account in developing and testing character models; preliminary pilot testing of character structure in combination with careful developmental

theorizing about character functions could add precision to examinations of effective character education programs.

Limitations and Future Directions

The merits of this study should be considered in light of some limitations. First, character strengths in this study represent only a subset of strengths generally considered to be indicative of character. Factors are not intended to be a definitive structure of youth character. Rather, the goal was to begin examining the developmental processes underlying character by elucidating age differences in the structure and function of character. Future research should include additional strengths from other character frameworks to enrich theory of character development. Additionally, the present study is limited by use of cross-sectional data. Although findings suggest developmental differences in character structure, longitudinal research is needed to better understand how the structure and functions of character change over time. On a related note, age differences in this study are confounded with school level; although we made assumptions about development, considering the age groups in light of differing school contexts may raise valid alternative explanations for findings. Further, although we ruled out sample size as a determinant of differentiation in structure, the smaller sample size of the elementary group may in part explain why fewer significant associations between character factors and functioning were identified; replication in other samples would be informative.

Bifactor models offered one method for testing developmental hypotheses about differentiation while also having the advantage of eliminating the issue of highly inter-correlated factors. While we argue that bifactor models offer a fruitful avenue for modeling character strengths as an integrated whole, that is not to say that character has a definitive bifactor structure. Moreover, it is noteworthy that other measurement models we tested also fit the data

acceptably well; choice of measurement models should be guided by conceptual rationale along with empirical comparisons (Wray-Lake et al., 2016). General factors in bifactor modeling may capture tendencies towards positive bias (Biderman, et al., 2011). Thus, findings may suggest the global character factor captures a tendency towards positive responding whereas specific factors capture unique variance in character strengths. In this way, the consistent association between global character and positive functioning across age groups may reflect an instantiation of the "good leads to good" hypothesis (Heider, 1958), underscoring the need for controlling for positive bias in character measurement. Alternatively, the general factor may in part reflect shared method variance from use of self-report methods, suggesting the need for future work to include other reporters. Although we cannot rule out these alternative explanations, the theoretical consistency of our results helps to allay this concern. Relatedly, the age differences in character structure may reflect changes in youth's self-reflective awareness of their strengths. Perhaps developmental advances with age allow youth to become more self-aware and better able to evaluate one's strengths and define oneself in relation to strengths and abilities (Harter, 2015). Future research using multiple informants and methods to measure character strengths would allow for testing whether age differences in character structure were related to presence of strengths or greater awareness of strength that have been present across ages. It is also possible that linguistic development allows older youth to more clearly differentiate the meaning of measurement items, and measurement invariance testing of specific constructs across ages is important to further investigate this issue.

The current study provided a test of only one aspect of the orthogenetic principle. Future theoretical and empirical work would benefit from assessing the extent to which character structure and function become more hierarchically integrated with age. Integration may occur as

youth begin to connect their own character strengths to their sense of self and identity. For children and early adolescents, the integration of character strengths, as well as other individual and life experiences, may contribute to the formation of self-concept. As youth use their strengths, they may begin to view their strengths as a central aspect of their identity. Thus, assessing integration may require augmenting current measures by drawing from outside work that focuses on the centrality of psychological constructs within one's identity.

Answering recent calls to address developmental questions of structure and function of character across ages (Lerner & Callina, 2014), this study shed light on a developmental progression of character from global to more differentiated strengths and from global to more specific functions for positive adaptation. It is our hope that this study sparks theoretically grounded, developmentally informed, and more precise research that continues to identify the developmental progression and functions of character.

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Table 1. *Character Strength Items, Operationalization, and Sources*

Scale	Operationalization	Items	Source
Future Orientation	Thinking about the future and the impact of your decisions	1. When I make a decision, I consider the impact it will have on my future.	Adapted from Betts et al. (2010)
		2. I am hopeful about my future.	Original
		3. I think about who I will be when I'm older.	Original
Optimism	Expecting the best in the future	1. I usually see the positive side of things.	Original
		2. I know how to find something good in every situation.	
		3. I believe things will turn out well.	
Perseverance	Steady persistence in a course of action; especially in spite of difficulties, obstacles, or discouragement	1. When I get stuck on something I'm working on, I keep trying until I figure it out.	Original
		2. I almost always finish things that I start.	Adapted from Duckworth & Quinn (2009)
		3. I am a hard worker	Original
Responsibility	Doing what you're supposed to do. Not blaming others for your actions	1. If I do something wrong, I take responsibility for my actions.	Original
		2. When I say I'm going to do something, I do it.	Original
		3. I am responsible.	Original
Thrift	Using money and other resources carefully. Not being wasteful.	1. I am careful about how I spend my money.	Adapted from Lippman et al. (2012)
		2. There are things I don't buy today so I can save my money for the future.	
		3. Reusing an item you already have is better than buying something new.	Adapted from Lastovicka et al. (1999)
Leadership	Encouraging others to get things done while also maintaining good relationships; organizing group activities	1. I am usually the one who suggests activities to my friends.	Adapted from Rydell et al. (1997)
		2. My peers consider me to be a leader.	Original
		3. I am good at leading others to reach a goal.	Original
Respect	Showing regard for the feelings, rights, or traditions of others	1. I treat others with respect.	Original
		2. I mostly use good manners.	
		3. I treat others the way I want to be treated.	
Teamwork	Being loyal to the group; doing one's share of the work of a group	1. I am good at working together with other group members.	Original
		2. When working on a team, I do my part to help my team meet its goals.	
		3. When I work with others, I think about what is best for my team.	
Gratitude	Appreciation of positive things in one's life; through: Recognition Experience of gratitude; Expression of thanks	1. I feel thankful for everyday things.	Adapted from Lippman et al. (2012)
		2. When good things happen to me, I think about people who helped me.	
		3. I find it easy to thank people.	

Note. Original refers to items created by the authors. Citations for references can be found in the Online Supplement.

Table 2. *Sociodemographic Information by Site*

	California (*n*=1038)	Minnesota (*n*=610)	West Virginia (*n*=819)	Chi-Square Test
American Indian	3.18%	4.10%	3.91%	1.16
Asian	10.02%	9.51%	0.24%	81.93***
Black	8.57%	21.48%	1.34%	170.38***
Hispanic	65.41%	8.36%	0.61%	1104.35***
Pacific Islander	2.79%	0.98%	0.85%	12.85**
White	12.04%	54.43%	94.99%	1265.41***
Other	9.34%	11.64%	2.56%	48.69***
Male	43.35%	43.44%	42.49%	.08
M Age	13.68	12.76	13.38	*F*=23.83***
School District Characteristics				
		Minnesota		
	California	District 1	District 2	West Virginia
School enrollment	24,673	2,401	4,737	4,583
Free and reduced-price meals	82.9%	75.8%	36.1%	69.1%
English learner	17.5%	16.8%	9.9%	-
Race-ethnicity				
African American	4.5%	41.2%	23.7%	0.8%
American Indian/Alaska	0.2%	1.4%	1.2%	-
Asian	4.7%	15.8%	5.8%	-
Hispanic	85.6%	21.0%	11.1%	97.9%
Other	1.3%	-	-	-

Note. All statistics reported in the far right column are chi-square tests, except for the last one. Given that age is a continuous variable, an F-test is reported. **$p < .01$, ***$p < .001$.

Table 3. *Fit Indices for Character Bifactor EFA Models by Age Group*

Factors		AIC	BIC	RMSEA	CFI	Δ CFI
Elementary School						
	2.00	23560.62	24011.37	0.04	0.90	-
	3.00	23517.48	24073.54	0.04	0.90	0.00
	4.00	**23470.65**	**24127.81**	**0.03**	**0.94**	**0.04**
	5.00	23452.71	24206.76	0.04	0.94	0.00
	6.00	23441.89	24288.63	0.05	0.91	-0.03
	7.00	-	-	-	-	-
Middle School						
	2.00	36113.34	36616.84	0.05	0.89	**-**
	3.00	35936.39	36557.54	0.04	0.92	0.03
	4.00	-	-	-	-	-
	5.00	35773.25	36615.56	0.03	0.96	0.03
	6.00	**35729.39**	**36675.22**	**0.03**	**0.96**	**0.01**
	7.00	-	-	-	-	-
High School						
	2.00	52945.67	53481.77	0.06	0.81	-
	3.00	52462.04	53123.40	0.05	0.87	0.06
	4.00	52148.64	52930.25	0.05	0.91	0.04
	5.00	51887.09	52783.94	0.04	0.94	0.03
	6.00	51706.24	52713.31	0.03	0.97	0.03
	7.00	51624.46	52736.75	0.03	0.98	0.01
	8.00	**51580.08**	**52792.57**	**0.02**	**0.99**	**0.02**
	9.00	51561.20	52868.89	0.02	0.99	0.00

Note. Bold indicates selected model. Lowest AIC, BIC, and RMSEA indicate better fit. Highest CFI indicates better fit. Change in CFI > .01 indicate better fit. AIC = Akaike Information Criteria, BIC = Bayesian information criterion; RMSEA = Root Mean Square Error of Approximation, CFI = Comparative Fit Index.

Table 4. *Factor Loadings for Elementary School-Aged Youth*

Character Items	General	Optimistic Future Orientation	Thrift	Civic Strengths
Future1-consider impact of decisions	0.55***	0.80*		
Future2-hopeful about future	0.59***	0.24**		
Future3-who I will be	0.51***			
Persev1-keep trying	0.65***			
Persev2-finish things	0.60***			
Persev3-hard worker	0.61***			
Resp1-take responsibility	0.53***			
Resp2-do what I say	0.60***			
Resp3-responsible	0.63***			
Thrift1-careful with money	0.46***		0.55***	
Thrift2-save for future	0.44***		0.56***	
Thrift3-reuse items	0.56***			
Lead1-suggests activities	0.65***			0.47***
Lead2-peers consider me leader	0.53***			0.44***
Lead3-good at leading	0.36***			0.44***
Respect1-treat others with respect	0.68***			
Respect2-good manners	0.61***			
Respect3-treat others as I want to be treated	0.60***			
Team1-good at working together	0.62***			0.32***
Team2-do my part to help team	0.68***			0.29***
Team3-think about what is best for my team	0.65***			0.45***
Grat1-thankful	0.65***			
Grat2-think about people who helped me	0.70***			
Grat3-easy to thank people	0.60***			
Opt1-see positive side	0.62***	0.17*		
Opt2-find good in every situation	0.71***			
Opt3-things will turn out well	0.66***			

Note. Factor loadings represent standardized parameter estimates. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 5. *Factor Loadings for Middle School-Aged Youth*

Character Items	General	Perseverance	Respect	Leadership	Optimism	Teamwork
Future1-consider impact of decisions	0.65***					
Future2-hopeful about future	0.64***					
Future3-who I will be	0.59***					
Persev1-keep trying	0.50***	0.36***				
Persev2-finish things	0.46***	0.45***				
Persev3-hard worker	0.52***	0.35***				
Resp1-take responsibility	0.72***					
Resp2-do what I say	0.61***					
Resp3-responsible	0.68***					
Thrift1-careful with money	0.52***					
Thrift2-save for future	0.55***					
Thrift3-reuse items	0.53***					
Lead1-suggests activities	0.69***			0.46***		
Lead2-peers consider me leader	0.56***			0.57***		
Lead3-good at leading	0.52***			0.46***		
Respect1-treat others with respect	0.64***		0.72***			
Respect2-good manners	0.63***		0.32***			
Respect3-treat others as I want to be treated	0.59***		0.31***			
Team1-good at working together	0.53***					0.54***
Team2-do my part to help team	0.62***					0.41***
Team3-think about what is best for my team	0.62***					0.44***
Grat1-thankful	0.68***					
Grat2-think about people who helped me	0.68***					
Grat3-easy to thank people	0.68***					
Opt1-see positive side	0.66***				0.47***	
Opt2-find good in every situation	0.77***				0.37***	
Opt3-things will turn out well	0.65***				0.32***	

Note. Factor loadings represent standardized parameter estimates. ***$p < .001$.

Table 6. *Factor Loadings for High School-Aged Youth*

Character Items	General	Future orientation	Thrift	Integrity	Respect	Leadership	Optimism	Teamwork
Future1-consider impact of decisions	0.62***	0.24***						
Future2-hopeful about future	0.57***	0.28***						
Future3-who I will be	0.54***	0.53***						
Persev1-keep trying	0.44***			0.35***				
Persev2-finish things	0.46***			0.47***				
Persev3-hard worker	0.49***			0.52***				
Resp1-take responsibility	0.65***			0.33***				
Resp2-do what I say	0.65***			0.21***				
Resp3-responsible	0.67***							
Thrift1-careful with money	0.33***		0.58***					
Thrift2-save for future	0.46***		0.75***					
Thrift3-reuse items	0.40***		0.40***					
Lead1-suggests activities	0.65***					0.34***		
Lead2-peers consider me leader	0.62***					0.68***		
Lead3-good at leading	0.54***					0.25***		
Respect1-treat others with respect	0.62***				0.66***			
Respect2-good manners	0.65***				0.26***			
Respect3-treat others as I want to be treated	0.63***				0.45***			
Team1-good at working together	0.52***							0.48***
Team2-do my part to help team	0.62***							0.41***
Team3-think about what is best for my team	0.61***							0.41***
Grat1-thankful	0.63***							
Grat2-think about people who helped me	0.67***							
Grat3-easy to thank people	0.63***							
Opt1-see positive side	0.61***						0.60***	
Opt2-find good in every situation	0.57***						0.56***	
Opt3-things will turn out well	0.60***						0.39***	

Note. Factor loadings represent standardized parameter estimates. ***$p < .001$.

Table 7. *Final Model Fit Indices and Model Comparisons*

	MLR $\chi 2$	CFI	Δ CFI	TLI	RMSEA	SRMR	AIC	BIC
Elementary School								
Model 0: Bifactor	570.27(313)	0.908		0.897	0.041	0.060	23510.61	23898.17
Model 1: Unidimensional	755.29(324)	0.845	-0.063	0.833	0.052	0.067	23680.22	24021.44
Model 2: Correlated first-order factor	606.55(318)	0.897	-0.011	0.886	0.043	0.062	23533.22	23899.72
Model 3:Second-Order	605.07(320)	0.898	-0.010	0.888	0.042	0.062	23531.42	23889.49
Middle School								
Model 0: Bifactor	683.96(309)	0.937		0.928	0.039	0.056	35889.20	36340.94
Model 1: Unidimensional	1243.98(324)	0.844	-0.093	0.831	0.059	0.067	36477.71	36858.87
Model 2: Correlated first-order factor	658.07(309)	0.941	0.004	0.933	0.037	0.055	35872.16	36323.91
Model 3:Second-Order	702.41(318)	0.935	-0.002	0.928	0.038	0.057	35899.79	36309.18
High School								
Model 0: Bifactor	1029.55(301)	0.916		0.902	0.047	0.051	52098.41	52619.48
Model 1: Unidimensional	2538.20(324)	0.744	-0.172	0.723	0.079	0.072	53533.77	53939.61
Model 2: Correlated first-order factor	987.19(296)	0.920	0.004	0.905	0.046	0.051	52040.65	52586.78
Model 3:Second-Order	1152.61(316)	0.903	-0.013	0.893	0.049	0.057	52163.97	52609.89

Note. MLR = Maximum Likelihood Robust. CFI = Comparative fit index. TLI = Tucker-Lewis index. RMSEA = Root mean square error of approximation. SRMR = Standardized root mean square residual. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion.

Table 8. *Bifactor Models Linking Character Models to Positive Functioning*

	Prosocial Behaviors	Organized Activities	Academic Grades
Elementary School			
General	.48(.05)***	.27(.08)***	.21(.02)***
Optimistic Future orientation	.10(.09)	.28(.05)***	-.02(.04)
Thrift	-.05(.06)	-.01(.05)	.15(.10)
Civic	.25(.10)**	.28(.07)***	-.02(.09)
Middle School			
General	.62(.04)***	.24(.03)***	.33(.03)***
Perseverance	-.03(.04)	.00(.07)	.35(.08)***
Respect	-.05(.04)	-.05(.06)	.00(.04)
Leadership	.05(.05)	-.07(.1)	.12(.07)
Optimism	-.03(.05)	-.23(.09)**	-.22(.08)***
Teamwork	.18(.04)***	.05(.06)	.09(.04)**
High School			
General	.58(.03)***	.31(.03)***	.29(.03)***
Future orientation	-.08(.03)**	.15(.07)	.19(.06)***
Thrift	.06(.04)	-.06(.03)	.07(.08)
Integrity	.01(.04)	.05(.03)	.29(.03)***
Respect	.10(.03)***	-.04(.03)	.09(.04)
Leadership	.18(.07)**	.35(.11)***	.00(.07)
Optimism	.01(.04)	.03(.08)	.00(.05)
Teamwork	.18(.01)***	.17(.05)***	.05(.07)

Note. Standardized coefficients are reported. Standard errors in parentheses. **p <.01. ***p <.001