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Final Evaluation Report

Investigation of the Integration of Supports for Youth Thriving into a Community-Based Mentoring Program*

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David DuBois chairs the Research Advisory Committee of Big Brothers Big Sisters of America (BBBSA) and Thomas Keller is a member of this committee. The content of this report, however, is solely the responsibility of the authors and does not necessarily represent the views or positions of BBBSA. BBBSA, furthermore, did not exercise any control or decision-making influence over the report's contents or conclusions.

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Executive Summary

This project investigated the feasibility and impact of introducing youth-centered match support practices into the Big Brothers Big Sisters of America (BBBSA) community-based mentoring program. The conceptual framework for the youth-centered match support practices and related activities and resource materials was Step-It-Up-2-Thrive, a resource developed by the Thrive Foundation for Youth. In this framework, a supportive adult, such as a mentor, guides a young person through a roadmap of activities designed to cultivate personal attributes identified through research as important for thriving. The first aim is to help the youth identify a "spark," defined as a talent or interest that excites the youth and motivates focused effort and attention (Benson, 2008). The next step is for the mentor to encourage the youth's development of a "growth mindset" (Dweck, 2006). The third step involves a mutual assessment by the mentor and youth of the youth's personal strengths and areas for growth. This conversation is framed by the six C's of positive youth development: Competence, Connection, Character, Caring, Confidence, and Contribution (Lerner, Almerigi, Theokas, & Lerner, 2005). The final step focuses on learning and practicing the skills needed to set and working effectively toward person goals. This part of the framework is based on the Selection, Optimization, and Compensation (SOC) framework for intentional self-regulation of performance and achievement (Lerner, Freund, DeStefanis, & Habermas, 2001).

For the present project, the Thrive Foundation's Step-It-Up-2-Thrive activities and accompanying resource materials were adapted for use in the BBBSA community-based mentoring program. The resulting activities included: initial training for mentors on the Step-It-Up-2-Thrive model; a brief orientation to the model for all parties (mentor, youth, parent) during the match introduction meeting; two staff-facilitated group activities for mentors and youths, one

to learn about sparks and growth mindset and another focused on thriving indicators and GPS skills; guided discussions and activities for the mentor and youth focused on different aspects of the thriving model (e.g., sparks identification and exploration); staff briefings of parents on different aspects of the thriving model during support contacts with them; and a 12-month anniversary meeting for all parties (youth, mentor, parent, and MSS) to reflect on the match's engagement with the different activities and resources as well as the youth's progress in each of the targeted areas (e.g., identifying and exploring sparks). Activities were supported by a variety of resource materials (e.g., briefs for mentors on topics such as growth mindset) and were designed to be completed over a one-year period in a sequence consistent with the Step-It-Up-2-Thrive theory of change. Prior to initiation of the study, Match Support Specialists (described below) and any other staff at the participating BBBSA affiliates who were to be involved with implementing any of the activities or supporting their integration into mentoring relationships were provided with training on the Step-It-Up-2-Thrive model as well as procedures for integrating the adapted Step-It-Up-2-Thrive activities and resources into the BBBSA service delivery model. Training was provided by Thrive Foundation and BBBSA national staff.

Ten BBBSA affiliates participated in the research. These agencies served primarily urban areas in nine U.S. states representing multiple regions of the country. All youth going through the agency screening process during a 15 month period were assessed for study eligibility criteria: 10-16 years in age and elevated risk for delinquency based on any of the following—family low-income status, single parent family, or parent incarcerated. Across the 10 sites, 1,700 out of a total of 2,634 youth screened met eligibility criteria (64.5%), the primary reason for exclusion being age (82% of excluded youth). Of those eligible, parent/guardian consent and youth assent were obtained for 1,470 youth (86%). The final study sample consisted of 806 of

these youth who were ultimately matched with a volunteer (mentor) who also had consented to study participation (mean youth age = 12.19 years; 61.9% female; race/ethnicity: Black/African-American -- 50.5%; Latino/Hispanic -- 27.9%; White -- 9.7%; other -- 11.9%). Out of a total of 3,091 volunteer mentors invited to participate in the study, 2,075 (67%) consented to participate. When a match was proposed for a youth and study-consented volunteer, the youth was randomly assigned by the researchers either to have thriving promotion supports (as described above) integrated into the services they received or to receive standard mentoring services (i.e., BBBSA community-based mentoring), with 400 assigned to the thriving promotion condition and the remaining 406 assigned to the standard services condition. In the BBBSA program, each mentoring relationship is supported by an assigned staff person, referred to as a Match Support Specialist (MSS). To safeguard against exposure to the thriving promotion among youth in the standard services condition (and their mentors), separate groups of MSS provided support to matches in the thriving promotion and standard services conditions. As a further methodological safeguard, the study condition of the matches that MSS supported was assigned randomly by researchers within pairs of MSS who were similar to one another (e.g., number of years of experience) as determined by agency program directors.

Measures were administered to participating youth as well as their parents (specifically, the consenting parent or caregiver for the youth) both at study baseline (prior to random assignment) and 15 months after the initiation of the youth's match. Follow-up data (youth and, in most instances, parent survey data as well) were able to be collected from three-quarters of youth in the total sample (75.2%; N=606). The response rate at follow-up for mentors was approximately 78%. Response rates for all surveys were similar across the thriving promotion and standard services conditions. Agency MSS staff involved in supporting study matches in

either condition, or supervising those staff, also completed a study survey as did any other staff involved with implementation for the thriving promotion condition of the study. Finally, the MSS responsible for each study match tracked the level of contact that occurred between the mentor and youth on a monthly basis (number of outings and total amount of time); to inform assessments of implementation fidelity, MSS in the thriving promotion condition also tracked whether or not the youth in that match (or, as appropriate, the youth's mentor) was exposed to and/or participated in each of the primary Step-It-Up-2-Thrive activities.

The present report addresses the following questions: 1) Do youth randomly assigned to the thriving promotion condition demonstrate improved outcomes relative to those assigned to receive standard mentoring services? Outcomes assessed included support from adults for thriving, personal resources for thriving in the areas that are the focus of the Step-It-Up-2-Thrive model, and youth misconduct and delinquent behavior; 2) To what extent are youth in the thriving promotion condition exposed to and report positive engagement with the Step-It-Up-2-Thrive activities and supports? And, related to this question, what factors predict differential levels of positive engagement with these activities and supports? and 3) Do youth with relatively high levels of positive engagement with the Step-It-Up-2-Thrive activities and resources report increased support from adults for thriving and is such support associated, in turn, with improved thriving and reduced problem behavior?

With respect to the first of these questions, intent-to-treat analyses revealed no differences in outcomes based on assignment to thriving promotion or standard services. With respect to the second question, implementation data revealed substantial variability in youth exposure to thriving promotion activities and in rates of youth-reported positive engagement with these activities. One-hundred and fifty youth in the thriving promotion condition (37.5%)

reported favorable engagement in 3 or more of six core areas of the thriving condition activities. Premature ending of the youth's mentoring relationship was a particularly strong predictor of the youth not meeting this threshold of positive exposure. The third question was addressed using structural equation modeling, with the sample restricted to those youth with high levels of positive exposure in the thriving promotion condition and a comparable "matched" subset of youth in the standard services condition. In these analyses, positive engagement with the thriving promotion activities predicted enhanced support for thriving from adults and, via this support, was also linked indirectly to increased personal resources for thriving and reduced problem behavior.

The report discusses a number of factors that may have contributed to the absence of any overall differences between the thriving promotion and standard services groups on the outcomes assessed, ranging from less than ideal levels of implementation and uptake of the intended activities and supports to features of the study design. Equally noteworthy is the greater improvement that youth in the thriving promotion condition who did have positive and substantial levels of engagement exhibited in their reported levels of support from adults for thriving, when compared to their matched counterparts in the standard mentoring group. This finding supports the idea that intentional thriving promotion strategies have potential to be consequential for young persons' development. In accordance with the theoretical importance of relational support from caring, competent adults as a primary means for helping youth to thrive (Scales, Benson, & Roehlkepartain, 2011), gains in reported levels of adult support were predictive of youth reporting improved levels of personal resources for thriving. Increased resources for thriving, furthermore, were linked to a lessening of negative behaviors in form of conduct problems and delinquency. Taken as a whole, the present findings are thus consistent

with the potential for a positive developmental cascade (Masten & Cicchetti, 2010) when an intervention based on developmental science is integrated into an existing youth-serving program.

Introduction

Mentoring programs are widely utilized as a form of developmental support for youth, particularly those contending with socioeconomic disadvantage (e.g., family poverty). When subjected to controlled evaluations, such programs demonstrate a potential for helping young people attain positive outcomes in areas such as their social relationships and emotional well-being (DuBois, Portillo, Rhodes, Silverthorn, & Valentine, 2011) and for reducing their risk for negative outcomes such as delinquency (Tolan, Henry, Schoeny, & Bass, 2008). This evidence is tempered by some important caveats, including the typically modest magnitude of observed benefits for youth (DuBois et al., 2011), inconsistency of impacts both within and across programs (DuBois, Holloway, Valentine, & Cooper, 2002), and limited durability of effects following program participation (e.g., Herrera et al., 2007).

The typical mentoring program recruits, screens, and trains adult volunteers, matches each volunteer with a youth referred to the program, and then provides ongoing staff support as the adult and youth spend 1-to-1 time together on a regular basis in community settings over some minimum period of time (e.g., one year). Rhodes (2002) posited that mentoring relationships can facilitate gains in a youth's social-emotional, cognitive, and identity development through a variety of mechanisms, including improved working models of self and others, skill acquisition via modeling and scaffolding, and expanded conceptions of possible future selves. Mentoring's potential to broaden youths' social networks in ways that build social capital also has been emphasized (e.g., Keller, 2007). Research examining programmatic efforts to foster these types of processes is limited. In meta-analyses, programs that support mentors with assuming a teaching role and provide structured activities for mentors and mentees have achieved stronger effects on youth outcomes (DuBois et al, 2002, 2011). At the same time, in

research examining interactions within mentoring relationships, a balance between fun, relationally oriented activities and goal-oriented, instrumental activities has been associated with more favorable youth outcomes, particularly when the choice of activities is collaborative and youth-focused (Keller & Pryce, 2012; Nakkula & Harris, 2010). Available findings thus suggest that programs may be most effective when they are able to facilitate mentor-mentee activities that are engaging and responsive to the interests of the mentee while also incorporating the types of structure and adult guidance that are necessary to scaffold the youth's growth and development (Karcher & Nakkula, 2010; Keller & Pryce, 2010). Recent theory and research in developmental science, which builds on the importance of caring relationships with non-parental adults established in earlier research on resilience (Werner, 1995), has much to offer mentoring programs as they confront this challenge.

The growing body of theory and research on youth thriving offers one particularly promising avenue in this regard (Scales, Benson, & Roehlkepartain, 2011). A concept with origins in the positive youth development paradigm and applied developmental systems models of person-context interaction, thriving has been defined as both a developmental process and outcome. Benson and Scales (2009), for example, conceptualized thriving as “a dynamic and bi-directional interplay over time of a young person intrinsically animated and energized by discovering his/her specialness, and the developmental contexts (people, places) that know, affirm, celebrate, encourage, and guide its expression” and as encompassing “both where a young person is currently in their journey to idealized personhood, and whether they are on the kind of path to get there that could rightly be called one of exemplary adaptive development regulations” (p. 90). Within their framework, collaborative adult-youth relationships are viewed as essential contexts for providing opportunities, supports, boundaries, and expectations to

encourage and facilitate youth thriving. Lerner and colleagues (2010) similarly conceptualized supportive adults as ecological developmental assets that in positive and sustained relationship with the strengths of adolescents (e.g., intentional self-regulation) will facilitate their positive development in key areas (i.e., competence, confidence, character, caring, and connection) that, in turn, reduce risk for problem behaviors (e.g., delinquency).

Drawing upon this developmental science perspective and associated research, the Thrive Foundation for Youth formulated strategies and materials intended to have practical utility for promoting youth thriving. The organizing framework for these resources is a theory of change, referred to as Step-It-Up-2-Thrive, in which a supportive adult, such as a mentor, guides a young person through a roadmap of activities designed to promote thriving (Heck, Subramaniam, & Carlos, 2010). An overview of the theory of change is shown in the top portion of Figure 1.

Further details and associated resource materials can be found at <http://www.stepitup2thrive.org/>.

In the Step-It-Up-2 Thrive theory of change, the first aim is to help the youth identify a "spark," defined as a talent or interest that excites the youth and motivates focused effort and attention (Benson, 2008). This concept builds on the importance of engagement in an activity or pursuit that fosters initiative (Larson, 2000), and it is consistent with the idea that adult-youth relationships can be strengthened through their joint participation in a thematic activity (Karcher & Nakkula, 2010). The next aim is for the mentor to encourage the development of a "growth mindset" (Dweck, 2006). Research suggests people hold beliefs that individual abilities are either inherent, "fixed" qualities or can be changed. These beliefs affect attributions for success or failure that in turn influence choice of activities, level of effort, and degree of perseverance. For example, with a "growth" mindset, one would appreciate new and challenging activities as opportunities to learn and would attribute failure to a lack of effort or preparation, therefore

being more likely to persist until achieving success (Dweck, 1999). The third phase of the model involves a mutual assessment by the adult guide and youth of the youth's personal strengths and areas for growth. This conversation is framed by a set of indicators of positive development and thriving in multiple domains organized according to six C's of positive youth development: Competence, Connection, Character, Caring, Confidence, and Contribution (Lerner, Almerigi, Theokas, & Lerner, 2005). The final phase of the model addresses goal attainment. Based on the assessment with thriving indicators, the adult guide and youth jointly determine one or two areas in which the youth wants to pursue growth with the support of the adult. This effort is guided by a goal management system referred to as GPS for Goal selection, Pursuit of strategies, and Shifting of gears to overcome obstacles. The elements of GPS are based on the Selection, Optimization, and Compensation (SOC) framework for intentional self-regulation of performance and achievement (Lerner, Freund, DeStefanis, & Habermas, 2001).

With collaboration and support from the Thrive Foundation for Youth, Big Brothers Big Sisters of America (BBBSA) engaged in a design process to adapt the Step-It-Up-2-Thrive resource materials for use within its service delivery model for community-based mentoring. The current study reports on a randomized evaluation of the adapted Step-It-Up-2-Thrive activities and resource materials when integrated into the normal program operations of ten BBBSA affiliates. The findings reported here address the following questions: 1) Do youth randomly assigned to the thriving promotion condition demonstrate improved outcomes relative to those assigned to receive standard mentoring services? Outcomes assessed included support from adults for thriving, personal resources for thriving that are the focus of the Step-It-Up-2-Thrive model, and youth misconduct and delinquent behavior, the latter based on prior research that links personal resources for thriving (e.g., skills for intentional self-regulation) to reduced levels

of youth problem behavior (e.g., Gestsdottir, Lewin-Bizan, von Eye, Lerner, & Lerner, 2009). 2) To what extent do youth in the thriving promotion condition report positive engagement with Step-It-Up-2-Thrive activities and supports and what factors predict differential levels of engagement?; and 3) Do youth with relatively high levels of positive engagement with the Step-It-Up-2-Thrive activities and resources report increased support from adults for thriving and is such support associated, in turn, with improved thriving and reduced problem behavior?

Method

Study Design and Procedures

The 10 participating BBBSA affiliates served primarily urban areas in nine U.S. states representing multiple regions of the country. Site selection was informed by affiliate performance data and consultation from BBBSA field staff. Priority was given to affiliates assessed as having readiness and capacity to implement the Step-It-Up-2-Thrive enhancement and assist with research activities. Each affiliate received a stipend to help offset costs associated with implementing the Step-It-Up-2-Thrive activities and assisting with research activities.

All study procedures were approved by university Institutional Review Boards. Briefly, as adult volunteers completed the screening process to become mentors, they were recruited into the study using an active consent process. Likewise, youth referred to each affiliate were assessed for study eligibility criteria: 10-16 years in age and elevated risk for delinquency based on any of the following—family low-income status (participation in free or reduced lunch program or family receipt of public assistance), single parent family, or parent incarcerated. Eligible youth were recruited into the study using an active consent and assent process. When a match was proposed for a youth and volunteer who had both consented into the study, the youth was randomly assigned by the researchers to either the thriving promotion or standard services

condition of the study. In the BBBSA program, each mentoring relationship is supported by an assigned staff person, referred to as a Match Support Specialist (MSS). The study was designed to ensure that differences in the MSS assigned to matches in the thriving promotion and standard services conditions did not bias estimates of intervention effects on outcomes. Specifically, MSS were first sorted by their supervisors into matched pairs according to similarity in work experience and anticipated motivation to support implementation of Step-It-Up-2-Thrive. One MSS from each pair then was randomly assigned by the researchers to provide support only to matches in the thriving promotion condition, with the other MSS providing support only to matches in the standard services condition. The number of study matches supported by each MSS varied but typically was between 5 and 10 ($M = 7.12$, $SD = 4.19$).

Measures were administered to participating youth both at study baseline (prior to random assignment; Time 1) and 15 months after the initiation of the youth's match (Time 2). Follow-up data were able to be collected from three-quarters of youth in the total sample (75.2%; $N=606$). The response rate at follow-up was nearly identical across the thriving promotion and standard services conditions (75.5% and 74.9%, respectively). The response rate at follow-up for mentors was approximately 78% and also did not differ significantly across the two conditions.

Participants

Across the sites, 1,700 out of a total of 2,634 youth screened met eligibility criteria (64.5%). Primary reasons for exclusion were age (82%) or lack of a designated risk factor (8%). Of those eligible, parent or guardian consent and youth assent were obtained for 1,470 youth (86%). Out of a total of 3,091 volunteer mentors invited to participate in the study, 2,075 (67%) consented to participate. Ultimately, 806 of the consented youth were matched with consented mentors and thus constituted the primary sample for the study (mean age = 12.19 years; 61.9%

female; race or ethnicity: Black or African-American -- 50.5%; Latino or Hispanic -- 27.9%; White -- 9.7%; other -- 11.9%; 85.4% low-income household), with 400 assigned to the thriving promotion condition and the remaining 406 assigned to the standard services condition. Youth, and their assigned mentors, in the two conditions were comparable to one another on demographic characteristics and on baseline scores for all measures used in the current study (see Tables S1 and S2 in the Detailed Overview of Analyses section of this report for details).

Duration of Mentoring Relationships

In BBBSA's community mentoring program, volunteers are required to make at least a one year commitment; however, for a wide range of reasons, mentoring relationships often last less than this amount of time. Slightly more than 1 in 3 youths in the current study (35.3%; $n = 284$) had their relationships with their assigned mentors end prior to one year, with a substantial proportion (40.5%; $n = 115$) of these terminations occurring within the first six months of the relationship. However, the rate of early termination did not differ notably by study condition (rates of closure prior to one year were 36% and 34.6% for standard services and thriving promotion conditions, respectively, and the proportions of these premature closures that occurred during the first six months were 38.3% and 42.8%). All youth whose mentoring relationships end in the BBBSA program are considered for potential re-matching with a new mentor. By the end of the study, however, only a minority of the youth had been matched with second mentors in either the standard services ($n = 29$) or thriving promotion ($n = 20$) conditions.

Intervention

As adapted for use in the BBBS program, Step-It-Up-2-Thrive included: initial training for mentors on the Step-It-Up-2-Thrive model; a brief orientation to the model for all parties (mentor, youth, parent) during the match introduction meeting; two staff-facilitated group

activities for mentors and youths, one to learn about sparks and growth mindset and another focused on thriving indicators and GPS skills; guided discussions and activities for the mentor and youth focused on different aspects of the thriving model (e.g., sparks identification and exploration); staff briefings of parents on different aspects of the thriving model during support contacts with them; and a 12-month anniversary meeting for all parties (youth, mentor, parent, and MSS) to reflect on the match's engagement with the different activities and resources as well as the youth's progress in each of the targeted areas (e.g., identifying and exploring sparks). Activities were supported by a variety of resource materials (e.g., briefs for mentors on topics such as growth mindset) and were designed to be completed over a one-year period in a sequence consistent with the Step-It-Up-2-Thrive theory of change. Prior to initiation of the study, program staff involved with implementing any of the activities or with supporting their integration into mentoring relationships (i.e., MSS, their supervisors, staff delivering mentor training and facilitating group activity sessions, and a designated implementation liaison within each affiliate) were provided with training on the Step-It-Up-2-Thrive theory of change as well as procedures for integrating the adapted Step-It-Up-2-Thrive activities and resources into the BBBSA service delivery model. Training was provided by Thrive Foundation and BBBSA staff.

Measures

All of the measures used in the study were completed by youth and were administered both at the study baseline and 15 month follow-up assessments. Baseline assessments were conducted from January of 2012 through March of 2013. Follow-up assessments were completed as close as possible to 15 months after the date of each youth's baseline assessment.

Youth experience with Step-It-Up-2-Thrive. Youth in the thriving promotion condition responded to items asking whether they had been exposed to each of 6 different aspects of the

Step-It-Up-2-Thrive activities in their mentoring relationships (sparks exploration and development, learning about growth mindset, thriving indicators and risk factors, GPS skills, group Step-It-Up-2-Thrive activities with other matches, and Step-It-Up-2-Thrive activities with mentor only) and, if so, how fun and helpful they found those activities (separate ratings of fun and helpfulness were made on the following 5-point scale: NO!, no, maybe, yes, YES!; α s = .94 and .95 for ratings of fun and helpfulness, respectively).

Adult support for thriving. A measure created for this study asked youth to report the extent to which they received support from adults for thriving. Items began with the general prompt “How often do adults in your life do the following...” with separate subscales assessing adult support to: identify and explore personal interests or talents (3 items, e.g., “Help you find or discover your talents, interests, or hobbies”; α s = .79 and .84, for Time 1 and Time 2, respectively), develop a growth mindset (4 items, “Encourage YOU to believe you can become smart at anything you want with practice and effort”; α s = .77 and .85), attain the 6 Cs of positive development (9 items, “Help you understand and manage your feelings”; α s = .87 and .91), and work effectively toward personal goals (4 items, “Help you make plans to reach your goals”; α s = .81 and .88). Care was taken in all items to avoid terminology from the Step-It-Up-2-Thrive framework itself (e.g. sparks, growth mindset).

Youth thriving. Measures also assessed separately each of the four domains targeted by the thriving promotion condition. Sparks was assessed using a 8-item scale adapted from Benson and Scales (2009) that asked about the extent to which the youth felt strongly about a talent, interest, or hobby and devoted time and effort to it (α s = .79 and .82). Growth mindset was assessed using scales developed by Dweck (1999) focusing on beliefs of “fixed” intelligence (3 items; α s = .77 and .84) and “fixed” personality traits (4 items; α s = .78 and .84), respectively, as

recommended for longitudinal research by that author. A modified version of the 17-item Very Short Form of the 5 C's of Positive Youth Development scale (Geldhof et al, 2014), with the addition of one item to assess the sixth "C" of Contribution, was used to assess the youth's status on these indicators of thriving (α s = .83 and .85). Finally, skills for goal setting and pursuit were assessed with a modified version of the 9-item Selection, Optimization, and Compensation Measure of Intentional Self-Regulation (Gestsdottir & Lerner, 2007; α s = .57 and .71).

Youth problem behavior. Youth problem behaviors were assessed with the 5-item child self-report version of the Conduct Problems subscale of the Strengths and Difficulties Questionnaire for ages 11-17 (Goodman, 2001; α s = .59 and .65) as well as the number of behaviors the youth endorsed having engaged in during the past year on an expanded, 22-item version of the Self-reported Delinquency Scale (Piquero et al., 2002; α s = .83). Scores on the measure of delinquent behavior had substantial positive skew at both time points owing to small numbers of youth reporting high levels of delinquent behavior. Scores on the measure thus were transformed (via square root) to avoid having extreme values exert undue influence on findings.

Analysis

Prior to conducting analyses, missing data on study measures were imputed using the multiple imputation procedure module of IBM SPSS software, Version 23. Imputation was used to create 5 different data sets, with results aggregated across the data sets according to procedures recommended by Rubin (1987).

To address overall effects of the Step-It-Up-2-Thrive activities on youth outcomes, intent-to-treat analyses were conducted (i.e., comparing all youth assigned to standard services condition with all youth assigned to thriving promotion condition, regardless of their level of actual exposure to the Step-It-Up-2-Thrive activities in this condition). Briefly, for each outcome

measure, a multiple regression analysis was conducted to examine study condition (thriving promotion vs. standard services) as a predictor of the outcome, controlling for baseline scores on all outcome measures and affiliate, youth, and mentor background variables (youth gender, family low-income status, single- vs. two-parent household, status as child of an incarcerated parent, level of involvement in organized out-of-school activities, youth and mentor age and race or ethnicity, and a measure of the mentor's reported prior experience supporting youth with thriving in each area targeted by the Step-It-Up-2-Thrive activities). A sensitivity analysis estimated effects of the thriving promotion condition without control variables.

Next, responses from youth in the thriving promotion condition regarding their experiences with each of the six core facets of the Step-It-Up-2-Thrive activities were examined. Youth who reported participation in at least three of the six facets with accompanying reports of having found the activities involved enjoyable or helpful were designated as having a relatively high level of positive engagement in the thriving promotion activities. Logistic regression analyses examined affiliate, youth, and mentor demographic and background characteristics, duration of the youth's initial mentoring relationship, and baseline scores on outcome measures as potential predictors of relatively high positive engagement in the thriving promotion activities.

Finally, structural equation modeling (SEM) was used to evaluate a path model informed by the Step-It-Up-2-Thrive theory of change (see Figure 1). These analyses examined whether the thriving promotion activities, when incorporated substantially into the mentoring relationship with a favorable response from the youth, were predictive of reports of increased support for thriving from adults. The model further examined whether gains in adult support for thriving were associated with improvements in both intrapersonal resources for thriving (e.g., sparks) and, in turn, reduced problem behaviors. Procedures employed previously in intervention

research in developmental psychology (Hill, Brooks-Gunn, & Waldfogel, 2003) were followed to identify the matched comparison group. The first step in this process was to apply the results of the logistic regression analysis described previously to youth in the standard services condition, thereby in effect yielding estimates of the likelihood that each youth would have been a youth to report high positive engagement with the Step-It-Up-2-Thrive activities had he or she been assigned to that study condition. Next, these estimated likelihoods were used to identify a well-matched youth in the standard services condition for each youth in the high engagement subgroup. Matching was carried out using the Case Control Matching module of SPSS, with a match requiring a difference of .1 or less between the estimated likelihood of high engagement for a standard service youth and the corresponding estimate for a youth in the high engagement subgroup. Matching was performed without replacement (i.e., each youth in the standard services condition was eligible to serve as a match for only one youth in the high engagement subgroup). Suitable matches were able to be identified for all 150 youth in the high engagement subgroup, with the youth in the high engagement subgroup and their matched counterparts in the standard services condition comparable to one another on study measures at baseline ($ps > .20$ for independent groups t -tests; see Table S3 in the Detailed Overview of Analyses section of this report). The two groups also did not differ on match duration (represented by the three categories described below), $\chi^2(2) = 1.06, p = .58$. A further feature of the SEM modeling analyses involved controlling for baseline scores on all outcome measures, thereby allowing findings to better capture change over time on the outcomes. Supplementary SEM analyses also were conducted to explore variation in findings when using either lower or higher thresholds for positive engagement with Step-It-Up-2-Thrive activities (i.e., participation in and favorable ratings of 1, 2, 4, 5, or all 6 activities) as well as when allowing positive engagement to require

only that the youth had a favorable experience with a particular type of activity (e.g., sparks exploration). For each of these analyses, the process described above was used to establish a suitable matched comparison group of youth in the standard services condition. Further details regarding study analyses are included in the Detailed Overview of Analyses section of this report.

Results

The intent-to-treat analyses revealed no evidence of effects of the thriving promotion condition on youth outcomes (all $ps > .25$), with effect sizes uniformly small in magnitude and inconsistent in direction both with and without control variables (see Table 1).

Of the youth in the thriving promotion condition who were surveyed at follow-up, the percentages reporting any involvement and, of those, the percentages reporting positive involvement (yes or YES! on rating of fun or helpfulness), respectively, in each of the six areas of the Step-It-Up-2-Thrive activities were as follows: sparks exploration (62.8%, 84.5%); growth mindset (55.9%, 76.3%); thriving and risk assessment (55.9%, 76.9%); GPS skills for goal pursuit (50.5%, 77.9%); group activities (54.0%, 76.6%); and activities with mentor only (58.7%, 79.2%). The percentages of youth who reported favorable engagement in differing numbers of the six areas (i.e., a report of involvement in the relevant activities and an accompanying rating of yes or YES! for either their fun or helpfulness) were as follows: 0 (38.8%), 1 (6.8%); 2 (5.7%); 3 (7.5%); 4 (7.8%); 5 (11.0%); and 6 (22.4%). For subsequent analyses, youth reporting positive engagement in 3 or more areas were considered to have a relatively high level of positive engagement in the Step-It-Up-2-Thrive activities.

Overall, predictors were able to account for slightly over one third of the variation in whether or not youth in the thriving promotion condition had a relatively high level of positive

engagement with the Step-It-Up-2-Thrive activities (Nagelkerke pseudo- $R^2 = .344$). The strongest predictive factor was the duration of the youth's mentoring relationship (Nagelkerke pseudo- $R^2 = .091$), with a relationship lasting six months or less or one ending after six months, but before the one year mark, each predicting less likelihood of high positive engagement. However, independent of match length, both BBBS affiliate and baseline scores on certain measures were significant or nearly significant ($p < .10$) predictors. Of note, higher initial youth reported levels of support from adults with respect to both sparks exploration and the 6 C's of positive youth development predicted greater likelihood of positive engagement. Complete results of these analyses are included in Table S4 of the Detailed Overview of Analyses section of this report.

As shown in Figure 1, in SEM analyses all paths were statistically significant and in expected directions. The positive path from engagement with the Step-It-Up-2-Thrive activities to thriving support from adults indicates that those in the thriving promotion condition with a relatively high level of positive engagement in the activities showed improvement in their reported levels of support for thriving from adults over the 15 month study period relative to those in the standard services condition who were similar to these youth on baseline study measures. It can also be seen that positive engagement with the Step-It-Up-2-Thrive activities was linked, via improved reports of support from adults for thriving, with increased youth reports of intrapersonal resources for thriving and, in turn, reduced reports of conduct problems. Indirect model pathways linking positive engagement with Step-It-Up-2-Thrive to both types of youth outcomes were statistically significant, albeit small in magnitude.

In the exploratory SEM analyses that varied the number of required activities for positive engagement, the standardized path estimates from this variable to increased adult support for

thriving were as follows: $\beta=.09$, *n.s.*; $\beta=.10$, $p < .10$; $\beta=.18$, $p < .01$; $\beta=.16$, $p < .05$; and $\beta=.26$, $p < .01$, for 1, 2, 4, 5, or all 6 activities, respectively. Path estimates corresponding to specific activities analyzed separately were as follows: sparks exploration ($\beta=.06$, *n.s.*); growth mindset ($\beta=.22$, $p < .01$); thriving and risk assessment ($\beta=.10$, *n.s.*); GPS skills for goal pursuit ($\beta=.18$, $p < .05$); activities with mentor only ($\beta=.16$, $p < .05$); and group activities ($\beta=.15$, $p < .05$).

Discussion

The current study provides insights from a rigorous, multi-site evaluation of the integration of thriving promotion activities derived from developmental science into the BBBSA community-based mentoring program. Intent-to-treat analyses yielded no evidence that youth randomly assigned to the thriving promotion condition had incrementally better outcomes relative to youth assigned to receive standard mentoring. The absence of any overall differences between the two groups has many potential explanations, ranging from the implementation and uptake of the intended activities to certain study design parameters noted below.

As would be expected, implementation of prevention and promotion programs has an important bearing on overall program effects as well as benefits for individual participants (Durlak & DuPre, 2008). Likewise, for mentoring programs, monitoring of implementation is associated with greater effects (DuBois et al, 2002). Overall, only about half of the youth in the thriving promotion condition reported exposure to three or more of the six primary concepts and activities derived from the Step-It-Up-2-Thrive model that were intended for integration into their mentoring relationships. In two other studies exploring enhancements to the BBBS program, only 56% of mentors participated in additional post-match training (Courser et al., 2014) and only 24% of mentors participated in three or more of six training sessions (Peaselee & Teye, 2015). The level of uptake in the current study, while thus not necessarily atypical for

research involving this particular program, or community-based interventions more generally (Durlak & DuPre, 2008), does underscore the difficulty that can be encountered in bringing developmental science to real-world program settings.

BBBSA was selected as a collaborating partner for the study given the consistent application of its national service delivery model across affiliates and its demonstrated effectiveness in a randomized trial with an unserved waitlist control group (Grossman & Tierney, 1998). Care was taken to identify high-capacity, high-performing BBBSA affiliates as sites for the research. Three of these affiliates participated in adapting the Step-It-Up-2-Thrive model for use in mentoring. However, the timeline imposed on a grant-funded project provided only limited opportunity for piloting and refinement of the thriving promotion activities as adapted for use in BBBSA. Nor did it allow for in-depth training of the program staff responsible for implementation of key activities (e.g., mentor training). Efforts to support implementation of Step-It-Up-2-Thrive with fidelity included: a) designation of a liaison within each affiliate to oversee implementation and provide coaching to the staff involved; b) a full-time intervention specialist with BBBSA who supported the implementation liaisons; c) a scorecard for monthly tracking of implementation rates for different activities both within and across the participating affiliates; and d) where feasible, providing alternatives to primary intended delivery formats (e.g., individual training for those mentors who were unable to attend a group training session).

These efforts notwithstanding, there may be inherent challenges to delivering a multi-faceted intervention such as Step-It-Up-2-Thrive in the context of any youth-serving program that relies on volunteers as the main providers of the intended activities or supports. Although affiliate staff were tasked with training and supporting volunteers to use thriving promotion strategies in their interactions with their mentees, this may not always have been sufficient to

motivate or prepare mentors to do so effectively. Staff, moreover, lacked authority to compel adherence in the manner that would be typical in a paid employment arrangement.

The premature ending of a substantial proportion of the mentoring relationships in the study also clearly impeded youth exposure to the thriving promotion activities. Early relationship endings, furthermore, curtailed opportunities for practice and reinforcement of the strategies being introduced and, depending on the circumstances involved, may have diminished a youth's enthusiasm for embracing those strategies. Of additional note is that matches in the thriving promotion condition were slightly more likely than those in the standard services condition to close within the first six months (43% vs. 38%). Although this difference was not statistically significant, it could signify that the activities somehow detracted from the early stages of relationship development for at least some matches. Future research could investigate the potential advantages of introducing structured thriving promotion activities after the mentor-mentee relationship has had time to become established.

Controlling for match length, the analyses revealed significant between-affiliate variability in youth engagement with the thriving promotion activities. Organizational factors are likely responsible for some of this variation given that all affiliates used the same Step-It-Up-2-Thrive materials and the analysis controlled for a variety of youth and mentor characteristics. Informal observations during the course of the study suggest that one distinguishing feature among affiliates may have been the manner in which the thriving promotion activities were viewed by staff. Some affiliates, for example, seemed to present the activities to mentors as something that could enhance their interactions with youth and add value to their volunteer experience; in contrast, others tended to view the activities as an added burden for volunteers.

The analysis also showed that relatively high engagement in the Step-It-Up-2-Thrive

activities was more common among youth who at the outset reported relatively greater support from adults for thriving. This finding suggests the possibility that challenges to implementation may have hindered the engagement of youth with relatively few pre-existing supports for at least two important aspects of thriving (sparks identification and exploration and cultivation of the 6 C's of positive youth development). Youth with less favorable environmental circumstances are among those indicated to benefit most from mentoring (DuBois et al., 2002, 2011), so any barriers to the engagement of such youth in Step-It-Up-2-Thrive activities could have had a disproportionate impact on estimated effects.

With respect to study design parameters, the youth in the thriving promotion condition were compared to those who received standard mentoring within the same program, thereby setting a high bar for demonstrating effects of the thriving promotion activities. Another study design feature, the within-affiliate division of staff into thriving promotion or standard services conditions meant that affiliates could not fully embrace the new activities throughout their program operations. In addition, the random assignment of staff to the thriving promotion condition precluded intentional use of the most capable and experienced staff to deliver the enhancement. Finally, assigning matches to condition within affiliates increased the potential for cross-group contamination as a source of reduced effects of the thriving promotion activities.

In contrast to the lack of effects in the intent-to-treat analyses, a more encouraging pattern of results emerged when focusing on the subgroup of youth who reported a relatively high level of positive engagement with the targeted Step-It-Up-2-Thrive activities and concepts. The greater improvement that such youth exhibited in their reported levels of support for thriving from adults, compared to their matched counterparts in the standard mentoring group, supports the idea that intentional thriving promotion strategies have potential to be consequential for

young persons' development. Consistent with the theoretical importance of relational support from caring, competent adults for helping youth to thrive (Scales, Benson, & Roehlkepartain, 2011), gains in reported levels of adult support were predictive of youth reporting improved levels of personal resources for thriving. Increased resources for thriving, in turn, were linked to a lessening of negative behaviors in form of conduct problems and delinquency. This aspect of the study's findings supports basic tenets of Lerner and colleagues' (2010) theoretical model in which adult supports can foster thriving in adolescence and, in turn, reduce problem behaviors. The mediational model tested was relatively complex and interpretation should take into account that using data from only two time points means it is not possible to draw strong causal conclusions. However, taken as a whole, the present findings are consistent with the potential to initiate a positive developmental cascade (Masten & Cicchetti, 2010) when an intervention based on developmental science is integrated into an existing youth-serving program.

The finding in our exploratory analyses that positive engagement in the full complement of intended activities exhibited a substantially stronger association with improved adult supports for thriving (and thus, indirectly, increased thriving and reduced problem behavior) is also noteworthy. This finding aligns with the underlying theory of change in which gains in different facets of thriving are expected to be interdependent. Results of these analyses also suggest that activities focused on two particular aspects of thriving, growth mindset and skills for effectively pursuing goals, may have been particularly beneficial and, as such, offer useful clues as to the potentially most potent ingredients of the Step-It-Up-2-Thrive model within a mentoring context.

Formal youth mentoring programs exist to intentionally replicate the types of naturally-occurring supportive adult relationships that developmental research has demonstrated to be so important for healthy youth outcomes (Rhodes, 2002). Such programs are natural candidates for

incorporating specific principles and strategies that developmental science suggests as pivotal mechanisms in these relationships, and much can be learned through this application of science to practice when rigorous research attends to both the process and outcome.

References

- Benson, P. L. (2008). *Sparks: How parents can help ignite the hidden strengths of teenagers*. San Francisco: Jossey-Bass.
- Benson, P. L. & Scales, P. C. (2009). The definition and preliminary measurement of thriving in adolescence. *The Journal of Positive Psychology*, 4, 85-104.
doi:10.1080/17439760802399240
- Bollen, K. A., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 100, 305-314.
<http://dx.doi.org/10.1037/0033-2909.110.2.305>
- Courser, M., Shamblen, S., Thompson, K. T., Young, L., Hamilton-Nance, S., Hutchins, M., & Wilbon, M. (2014). *Improving relationship outcomes using additional training and enhanced match support for mentors, final report*. Rockville, MD: U.S. Department of Justice.
- Davide, G., Daniele, P., & Mario, G. (2013, June). *Construct identification strategies of composite variables in structural equation modelling: A Monte Carlo simulation study*. Paper presented at the 2013 Meetings of the Italian Statistical Society, Brescia, Italy.
- DuBois, D. L., Holloway, B. E., Valentine, J. C., & Cooper, H. (2002). Effectiveness of mentoring programs for youth: A meta-analytic review. *American Journal of Community Psychology*, 30, 157-197. doi:10.1023/A:1014628810714
- DuBois, D. L., Keller, T., LaFleur, S. L., Romens, K., Wheeler, M., Chegade, S., . . . Felner, J. (2014, March). *Investigating support for different facets of youth thriving: Does specificity matter?* In D. L. DuBois (Chair), *Increasing our understanding of the role of adult supports in promoting youth thriving during adolescence*. Paper symposium at the Biennial

Meeting of the Society for Research on Adolescence, Austin, TX.

- DuBois, D. L., Portillo, N., Rhodes, J. E., Silverthorn, N., & Valentine, J. C. (2011). How effective are mentoring programs for youth? A systematic assessment of the evidence. *Psychological Science in the Public Interest*, 12, 57-91. doi:10.1177/1529100611414806
- Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, 41, 327-350. doi:10.1007/s10464-008-9165-0
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Psychology Press.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York: Ballantine Books.
- Geldhof, G. J., Bowers, E. P., Boyd, M. J., Mueller, M. K., Napolitano, C. M., Schmid, K. L., . . . Lerner, R. M. (2014). Creation of short and very short measures of the 5 Cs of positive youth development. *Journal of Research on Adolescence*, 24, 163-176. doi:10.1111/jora.12039
- Gestsdottir, S., & Lerner, R. M. (2007). Intentional self-regulation and positive youth development in early adolescence: findings from the 4-H study of positive youth development. *Developmental Psychology*, 43, 508-521. doi:10.1037/0012-1649.43.2.508
- Gestsdottir, S., Lewin-Bizan, S., von Eye, A., Lerner, J. V., & Lerner, R. M. (2009). The structure and function of selection, optimization, and compensation in middle adolescence: Theoretical and applied implications. *Journal of Applied Developmental Psychology*, 30, 585-600. <http://dx.doi.org/10.1016/j.appdev.2009.07.001>
- Goodman, R. (2001). Psychometric properties of the Strength and Difficulties Questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 11, 1337-1345.

<http://dx.doi.org/10.1097/00004583-200111000-00015>

- Grossman, J. B., & Tierney, J. P. (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters program. *Evaluation Review*, 22, 3, 403-426.
doi:10.1177/0193841X9802200304
- Heck, K. E., Subramaniam, A., & Carlos, R. (2010). *The Step-It-Up-2-Thrive theory of change*. 4-H Center for Youth Development Monograph, University of California, Davis.
- Herrera, C., Grossman, J. B., Kauth, T. J., Feldman, A. F., McMaken, J., & Jucovy, L. Z. (2007). *Making a difference in schools: The Big Brothers Big Sisters school-based mentoring impact study*. Philadelphia: Public/Private Ventures.
- Hill, J. L., Brooks-Gunn, J., & Waldfogel, J. (2003) Sustained effects of high participation in an early intervention for low-birth-weight premature infants. *Developmental Psychology*, 39, 730-44. doi:10.1037/0012-1649.39.4.730
- Karcher, M. J., & Nakkula, M. J. (2010). Youth mentoring with a balanced focus, shared purpose, and collaborative interactions. In M. J. Karcher & M. J. Nakkula (Eds.), *Play, talk, learn: Promising practices in youth mentoring* (pp. 13-32). San Francisco, CA: Jossey-Bass.
- Keller, T. E. (2007). Youth mentoring: Theoretical and methodological issues. In T. Allen, L. Eby (Eds.) *Blackwell Handbook of Mentoring: A multiple perspectives approach* (pp. 23-47). Malden, MA: Blackwell Publishing.
- Keller, T. E., & Pryce, J. M. (2010). Mutual but unequal: Mentoring as a hybrid of familiar relationship roles. In M. J. Karcher & M. J. Nakkula (Eds.), *Play, talk, learn: Promising practices in youth mentoring* (pp. 33-50). San Francisco, CA: Jossey-Bass.
- Keller, T. E., & Pryce, J. M. (2012). Different roles and different results: How activity orientations correspond to relationship quality and student outcomes in school-based

- mentoring. *Journal of Primary Prevention*, 33, 1, 47-64. doi:10.1007/s10935-012-0264-1
- Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychologist*, 55, 170-183. <http://dx.doi.org/10.1037/0003-066X.55.1.170>
- Lerner, R. M., Almerigi, J. B., Theokas, C., & Lerner, J. V. (2005). Positive youth development: A view of the issues. *Journal of Early Adolescence*, 25, 10-16.
- Lerner, R. M., Freund, A. M., De Stefanis, I., & Habermas, T. (2001). Understanding developmental regulation in adolescence: The use of the Selection, Optimization, and Compensation Model. *Human Development*, 44, 29-50. doi:10.1159/000057039
- Lerner, R. M., Napolitano, C. M., Boyd, M. J., Mueller, M. K., & Callina, K. S. (2014). Mentoring and positive youth development. In D. L. DuBois & M. J. Karcher (Eds.), *Handbook of youth mentoring* (pp. 17-27). Thousand Oaks, CA: SAGE.
- Lerner, R. M., von Eye, A., Lerner, J. V., Lewin-Bizan, S., Bowers, E. P. (2010). The meaning and measurement of thriving: A view of the issues. *Journal of Youth & Adolescence*, 39, 707-719. doi:10.1007/s10964-010-9531-8
- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: SAGE.
- Masten, A. S., & Cicchetti, D. (2010). Developmental cascades. *Development & Psychopathology*, 22, 491-495. doi:10.1017/S0954579410000222
- Nakkula, M. J., & Harris, J. (2010). Beyond the dichotomy of work and fun: Measuring the thorough interrelatedness of structure and quality in youth mentoring relationships. In M. J. Karcher & M. J. Nakkula (Eds.), *Play, talk, learn: Promising practices in youth mentoring* (pp. 71-87). San Francisco, CA: Jossey-Bass.

- Peaselee, L., & Teye, A. C. (2015). *Testing the impact of mentor training and peer support on the quality of mentor-mentee relationships and outcomes for at-risk youth, final report*. Rockville, MD: U.S. Department of Justice.
- Piquero, A., Macintosh, R., & Hickman, M. (2002). The validity of a self-reported delinquency scale. *Sociological Methods & Research*, 30, 492-529. doi:10.1177/0049124102030004002
- Rhodes, J. E. (2002). *Stand by me: The risks and rewards of mentoring today's youth*. Cambridge, MA: Harvard University Press.
- Rubin, D. B. (1987) *Multiple imputation for nonresponse in surveys*. New York: Wiley & Sons.
- Scales, P. C., Benson, P. L., & Roehlkepartain, E. C. (2011). Adolescent thriving: The role of sparks, relationships, and empowerment. *Journal of Youth and Adolescence*, 40, 263-277. doi:10.1007/s10964-010-9578-6
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422– 445. doi:10.1037//1082-989X.7.4.422
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Needham Heights, MA: Pearson Education.
- Tolan, P., Henry, D., Schoeny, M., & Bass, A. (2008). Mentoring interventions to affect juvenile delinquency and associated problems. *Campbell Systematic Reviews* 16: 1-112. doi:10.4073/csr.2008.16
- Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science*, 4, 3, 81-85. <http://www.jstor.org/stable/20182335>

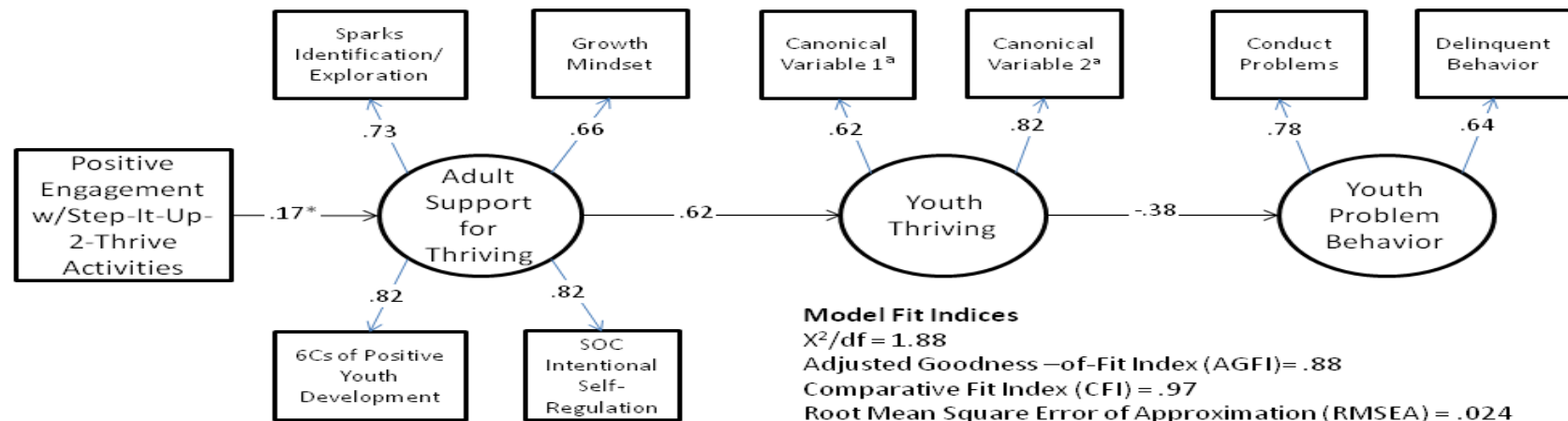
Table 1

Unstandardized Regression Coefficients and Effect Sizes for Intent-To-Treat Analyses, With and Without Control Variables

Outcome	Regressions without control variables		Regressions with control variables	
	B (SE)	Effect size	B (SE)	Effect size
Adult support for thriving				
Spark identification and exploration	-.069 (.066)	-0.105	-.051 (.065)	-0.052
Growth mindset	.019 (.054)	0.063	.020 (.050)	0.075
6Cs of positive youth development	-.064 (.052)	-0.113	-.054 (.051)	-0.096
SOC intentional self-regulation	-.073 (.053)	-0.133	-.075 (.053)	-0.135
Youth thriving				
Spark identification/exploration	-.038 (.047)	-0.063	-.037 (.048)	-0.061
Growth mindset: Intelligence ^a	-.104 (.106)	0.074	-.078 (.101)	0.057
Growth mindset: Personality ^a	.039 (.096)	-0.022	.030 (.111)	-0.019
6Cs of positive youth development	-.028 (.039)	-0.056	-.030 (.036)	-0.057
SOC intentional self-regulation	.001 (.018)	0.005	.002 (.020)	0.010
Youth problem behavior				
Conduct problems	.013 (.028)	-0.035	.018 (.027)	-0.049
Delinquent behavior	.064 (.066)	-0.071	.045 (.065)	-0.050

Note. N=806. Regression coefficients are for a binary variable representing study condition with Thriving Promotion = 1 and Standard Services = 0. The standard errors for coefficients are in parentheses. Effect sizes (Cohen's *d*) were computed by dividing the regression coefficient (which represented the difference between mean scores on the outcome for Thriving Promotion and Standard Services conditions, with or without adjustment for control variables) by the pooled standard deviation for the outcome (Lipsey & Wilson, 2001) and are in the direction of more favorable scores for youth in the Thriving Promotion Condition (e.g., more growth mindset, less conduct problems).

^aHigher scores on this measure indicate greater fixed beliefs (i.e., lower growth mindset).



* $p < .05$

Bootstrapped Bias-Corrected 95% Confidence Intervals for Indirect Effects

Positive Engagement w/Step-It-Up-2 Thrive Activities → Youth Thriving: .039 - .178

Positive Engagement w/Step-It-Up-2 Thrive Activities → Youth Problem Behavior: -.016 - -.078

*Canonical Variable 1 is a composite of measures of sparks exploration/identification and SOC intentional self-regulation; Canonical Variable 2 is a composite of measures of the 6Cs of positive youth development and growth mindset; see Detailed Overview of Analyses for additional details.

Figure 1. The top portion of the figure shows the theory of change for Step-It-Up-2-Thrive from the Thrive Foundation for Youth (<http://www.stepitup2thrive.org/>); the bottom portion shows the results of a structural equation modelling analysis of a model that was derived from the theory of change and associated research (see Detailed Overview of Analyses for a complete description of the model). All path coefficients, factor loadings, and confidence interval limits shown are standardized. All path estimates are significant at $p < .001$, unless otherwise noted. Measures of outcomes at baseline, their covariances with Positive Engagement w/Step-It-Up-2-Thrive Activities, and their paths to latent variables in the model, error terms for observed measure indicators of latent variables, and disturbance terms for latent variables are not shown.

Detailed Overview of Analyses

Preparation of Data for Analysis

In preparation for undertaking analyses, missing data on study measures were imputed using the multiple imputation procedure module of Version 23 of the IBM SPSS Statistics software. Missing data occurred primarily due to lack of collection of 15-month follow-up data from youth (24.8% of the total), although small numbers of youth did have missing data as well on one or more specific outcome measures either at baseline (4.2% of the total sample) or the 15-month follow-up (3.2%). Imputation was used to create 5 different data sets. Imputation was applied to all study outcome measures at both time points as well as control measures (see description of intent-to-treat analyses below for a list of these measures), with available data on these measures as well as BBBSA agency (i.e., site) used as predictors. Study analyses were then conducted on these data sets, with results aggregated across the data sets according to procedures recommended by Rubin (1987). Multiple imputation was not carried out on the reports of youth in the thriving promotion condition regarding their participation in and response to the different aspects of the Step-It-Up-2-Thrive activities. The results reporting level of engagement are thus based on the observed responses of the approximately 75% of youth in the thriving promotion condition for whom data were able to be collected at follow-up. However, as described below, a separate multiple imputation analysis was conducted for purposes of identifying those in the thriving promotion condition who lacked follow-up data, but who could be expected to have reported a high level of positive engagement with Step-It-Up-2-Thrive activities.

Inspection of the distribution of study outcome measures revealed that scores on the measure of delinquent behavior had substantial positive skew at both baseline and follow-up owing to small numbers of youth who reported high levels of delinquent behavior. Prior to use in study

analyses, scores on this measure were transformed (via square root) to avoid having these extreme values exert undue influence on findings (Tabachnick, & Fidell, 2007).

Table S1 provides data on the demographic characteristics for participating youth and their mentors, both for the sample as a whole and broken down by study condition. Table S2 provides descriptive statistics for outcome measures at pre- and post-test for youth in each study condition.

Analyses

As described in the Method section of this report, data analyses were organized according to the guiding questions for the research.

Intent-to-treat analyses. To address overall effects of the Step-It-Up-2-Thrive activities on youth outcomes, intent-to-treat analyses were conducted (i.e., all youth assigned to the standard services condition and all youth assigned to the thriving promotion condition, regardless of their level of exposure to the Step-It-Up-2-Thrive activities associated with this condition). For each outcome measure, a multiple regression analysis was conducted to examine study condition (thriving promotion vs. standard services) as a predictor of the outcome, controlling for baseline score on all outcome measures, mentoring agency (using 9 dummy variables to represent the 10 agencies), and the following youth and mentor background variables: youth gender, family low-income status (0 or 1), single-parent household (0 or 1), status as a child of an incarcerated parent (0 or 1), the youth's reported level of involvement in organized out-of-school activities at baseline, youth and mentor age and race or ethnicity, and a baseline measure of the mentor's reported prior experience supporting youth with thriving in each of the areas targeted by the Step-It-Up-2-Thrive activities. Note that mentor gender was not included because youth are, with rare exceptions, matched to mentors of the same gender in BBBSA's community-based mentoring program, making mentor gender nearly perfectly confounded with youth gender. As a sensitivity check, the

regressions were also conducted without including the foregoing control measures. The findings of both sets of analyses are reported in Table 1 of this report.

Descriptive analyses of youth engagement with Step-It-Up-2-Thrive activities. Next, descriptive reports from youth in the thriving promotion condition regarding their experiences with each of the six core facets of the Step-It-Up-2-Thrive activities were examined. Youth who reported participation in at least three of the six facets with accompanying reports of having found the activities involved enjoyable or helpful were designated as having a relatively high level of positive engagement in the thriving promotion activities.

Prediction of positive engagement with the Step-It-Up-2-Thrive activities. Logistic regression analyses were then used to examine predictors of positive engagement with the thriving promotion activities (as defined above) among youth in the thriving promotion condition. The predictors in these analyses were as follows: mentoring agency, the same youth and mentor demographic and background characteristics, duration of the youth's initial mentoring relationship (dummy variables were used to provide for comparisons of youth with relationships lasting six months or less and those with relationships lasting six or more months, but less than one year, to those whose relationships lasted at least one year), and baseline scores on outcome measures. An initial analysis included only the dummy variables representing length of the youth's mentoring relationship as predictors; a second analysis included the full set of predictors. The results of these analyses are reported in Table S4 within the Detailed Overview of Analyses section of this report.

Structural equation modeling analyses. In the final stage of analyses, structural equation modeling (SEM) was used to evaluate a path model informed by the Step-It-Up-2-Thrive theory of change (an overview of this theory of change is provided in the Introduction section of this report). As described below, the sample for these analyses consisted of the subgroup of youth in the

thriving promotion condition identified as having a positive engagement with the Step-It-Up-2-Thrive activities and an equal-sized matched comparison group of youth from the standard services condition. In preparation, a multiple imputation analysis was carried out to identify those in the thriving promotion condition who lacked follow-up data, but who could be expected to have reported a high level of positive engagement with Step-It-Up-2-Thrive activities. To enhance the accuracy of this type of inference, the set of predictors used in the multiple imputation procedure conducted to handle missing data on other study measures was expanded to include records that BBBSA agency staff maintained of whether the primary targeted Step-It-Up-2-Thrive activities were delivered to or experienced by youth in their relationships with their mentors (or, as appropriate, by the youth's mentor or parent, such as in the case of initial training provided to mentors). As a conservative approach, a youth without follow-up data was placed in the high engagement group only when the value imputed for the relevant categorical variable supported the youth's membership in this group in all 5 of the imputed data sets. This criterion was met for 13 youth, which expanded the number of youth in the high engagement subgroup to 150. The relatively small number of youth inferred through the foregoing process to have a high level of positive engagement is likely a reflection of the conservative criteria as well as the association of lack of follow-up data with premature closure of the mentoring relationship, which was a strong predictor of less likelihood of youth reporting positive engagement.

Procedures employed previously in intervention research in developmental psychology (Hill, Brooks-Gunn, & Waldfogel, 2003) were followed to identify the matched comparison group within the standard services condition. The first step in this process was to apply the results of the logistic regression analysis described previously to youth in the standard services condition, thereby in effect yielding estimates of the likelihood that each youth would have been a youth to

report high positive engagement with the Step-It-Up-2-Thrive activities had he or she been assigned to that study condition. Next, these estimated likelihoods were used to identify a well-matched youth in the standard services condition for each youth in the high engagement subgroup. Matching was carried out using the Case Control Matching module of SPSS, with a match requiring a difference of .1 or less between the estimated likelihood of high engagement for a standard service youth and the corresponding estimate for a youth in the high engagement subgroup. Matching was performed without replacement; thus, each youth in the standard services condition was eligible to serve as a match for only one youth in the high engagement subgroup. Suitable matches were able to be identified for all 150 youth in the high engagement subgroup. As can be seen in Table S3, the youth in the high engagement subgroup and their matched counterparts in the standard services condition were comparable to one another on study outcome measures at baseline (all $ps > .20$ for independent t -tests of group differences). Importantly, the two groups also did not differ on the primary predictor of high engagement, match duration (represented by the three categories described above), $\chi^2(2) = 1.06, p = .58$.

The primary features of the SEM model tested are depicted in Figure 1 in this report. Within this model, “Positive Engagement with Step-It-Up-2-Thrive Activities” is categorical (0 or 1) and used to represent whether the youth is a member of the high engagement subgroup or the matched comparison group. The remaining constructs are all represented as latent constructs. The observed measure indicators for Adult Support for Thriving are the 4 measures of adult support for thriving in relation to Spark identification and exploration, growth mindset, the 6Cs of positive youth development, and SOC intentional self-regulation. Representing the Youth Thriving construct was a somewhat more involved process owing to the expectation, based on theory and prior research (e.g., DuBois et al., 2014), suggesting that the measures of different intrapersonal

resources for thriving may be most appropriately conceptualized as causal rather than formative indicators of thriving (Bollen & Lennox, 1991). That is, rather than emanating from a common source (e.g., an underlying core attribute of thriving), it may be a better approximation of reality to model thriving as a composite of the different facets of thriving assessed. Practically, causal indicator formulations of constructs can present significant challenges to model identification in SEM analyses and various approaches have been developed to addressing these. In the present study, we used a canonical correlation analysis approach, which was found in a simulation study to generally perform better than two available alternatives (Davide, Daniele, & Mario, 2013). Briefly, this approach necessitated first conducting a canonical correlation on the available 5 measures of youth thriving (with measures arbitrarily divided into two sets) and then utilizing the two canonical variables associated with the first canonical function produced by the analysis as formative indicators of the Youth Thriving within the SEM analyses. One of these canonical variables was a composite of scores on the measures of the sparks identification and exploration and SOC intentional self-regulation (each weighted positively), while the other was a composite of the measure of the 6Cs of positive youth development (weighted positively) and the two measures of growth mindset for intelligence and personality (each weighted negatively and thus in the direction of a growth mindset since higher scores on these measures correspond to more of a fixed mindset). The two variables had a substantial correlation ($r = .53$), thus indicating their viability for use as formative indicators of Youth Thriving latent variable. It is noteworthy, however, that the growth mindset measures had weak loadings on the canonical variable to which they contributed. This is likely a reflection of these measures demonstrating only weak bivariate correlations with the other measures of personal resources for thriving (all r s .14 or less in magnitude). A lack of strong association among measures of a construct of interest is not

unexpected in circumstances where a causal indicators approach is applicable (Bollen & Lennox, 1991). Nevertheless, the results of the SEM analyses should be interpreted with the preceding information in mind.

The SEM analyses were conducted using version 23 of the Amos software in SPSS. In addition to the hypothesized paths (i.e., Positive Engagement with Step-It-Up-2-Thrive Activities → Adult Support for Youth Thriving, Adult Support for Youth Thriving → Youth Thriving, Youth Thriving → Problem Behavior), paths were specified from the baseline measures of adult support for thriving to the Adult Support for Thriving latent variable, from the baseline measures of youth thriving to the Youth Thriving latent variable, and from the baseline measures of problem behavior to the Problem Behavior latent variable. In doing so, the aim was for the primary paths of interest in the model to better capture change over time on the outcomes. In specifying the model, all covariances among the baseline measures of outcomes as well as their covariances with the variable representing positive engagement with the Step-It-Up-2-Thrive activities were estimated. All error terms for observed measures used as indicators of the latent variables in the model were left uncorrelated. To test indirect paths in the model, specifically those that linked Positive Engagement with Step-It-Up-2-Thrive Activities, via Adult Support for Thriving, to Youth Thriving and Problem Behavior, we used bootstrapped bias-corrected 95% confidence intervals constructed over 1,000 samples (Shrout & Bolger, 2002).

Finally, as described in the Method section of this report, supplementary SEM analyses also were conducted to explore variation in findings when using either lower or higher thresholds for positive engagement with Step-It-Up-2-Thrive activities (i.e., participation in and favorable ratings of 1, 2, 4, 5, or all 6 activities) as well as when allowing positive engagement to require only that the youth had a favorable experience with a particular type of activity (e.g., sparks

exploration). For each of these analyses, the process described above was used to establish a suitable matched comparison group of youth in the standard services condition.

Table S1

Demographic Characteristics of Youth in Study Sample and their Mentors

	Full sample (<i>n</i> =806)	Thriving promotion condition (<i>n</i> =400)	Standard services condition (<i>n</i> =406)	Comparison <i>t</i> statistic or χ^2 (two-tailed)	<i>p</i> -value
Youth					
Age (years)	12.19 (1.94)	12.14 (1.85)	12.25 (2.04)	0.74	.46
Gender				0.93	.35
Female	61.9%	60.3%	63.5%		
Race or ethnicity				3.86	.28
African American or Black	50.5%	51.5%	49.5%		
Latino or Hispanic	27.9%	25.3%	30.5%		
White	9.7%	9.8%	9.6%		
Other	11.9%	13.5%	10.3%		
Risk factors					
Low income household	85.4%	84.3%	86.5%	0.78	.43
Single parent family	83.1%	84.5%	81.8%	1.07	.35
Incarcerated parent	21.6%	23.8%	19.5%	2.19	.15
Out-of-school activities ^a	1.97 (0.75)	1.96 (0.73)	1.98 (0.77)	0.30	.77
Mentors					
Age (years)	30.62 (9.48)	30.07 (9.37)	31.16 (9.56)	1.63	.11
Gender				0.93	.35
Female	61.9%	60.3%	63.5%		
(table continues)					
Race				2.45	.48

	Full sample (<i>n</i> =806)	Thriving promotion condition (<i>n</i> =400)	Standard services condition (<i>n</i> =406)	Comparison <i>t</i> statistic or χ^2 (two-tailed)	<i>p</i> -value
African American or Black	16.8%	15.2%	18.3%		
Latino or Hispanic	12.8%	11.9%	13.6%		
White	59.8%	62.4%	57.3%		
Other	10.6%	10.4%	10.9%		
Prior experience supporting youth thriving ^b	2.82 (0.83)	2.82 (0.85)	2.82 (0.82)	-0.001	.99

Note. Standard deviations are provided in parentheses.

^a4-item measure adapted from Gallup Poll for America's Promise Study (personal communication, Jonathan Zaff). ^b7-item scale developed for the current study and completed by the youth's mentor at the baseline assessment. A copy of this measure is included later in this document.

Table S2

Descriptive Statistics for Outcome Measures by Study Condition

		Thriving promotion (n=400)		Standard services (n=406)	
		Pre	Post	Pre	Post
Adult support for thriving					
Spark identification and exploration	<i>M</i>	3.13	3.07	3.19	3.10
	<i>SD</i>	0.77	0.79	0.78	0.77
Growth mindset	<i>M</i>	3.48	3.41	3.50	3.39
	<i>SD</i>	0.61	0.66	0.59	0.62
6Cs of positive youth development	<i>M</i>	3.32	3.22	3.41	3.27
	<i>SD</i>	0.59	0.65	0.54	0.59
SOC intentional self-regulation	<i>M</i>	3.35	3.25	3.43	3.31
	<i>SD</i>	0.58	0.74	0.52	0.67
Youth thriving					
Spark identification and exploration	<i>M</i>	3.10	3.10	3.13	3.13
	<i>SD</i>	0.62	0.62	0.59	0.56
Growth mindset: Intelligence ^a	<i>M</i>	3.65	3.28	3.81	3.38
	<i>SD</i>	1.39	1.40	1.42	1.36
Growth mindset: Personality ^a	<i>M</i>	4.35	4.06	4.44	4.01
	<i>SD</i>	1.20	1.28	1.24	1.31
6Cs of positive youth development	<i>M</i>	3.97	3.80	3.96	3.83
	<i>SD</i>	0.51	0.53	0.50	0.52
SOC intentional self-regulation	<i>M</i>	1.73	1.69	1.73	1.70
	<i>SD</i>	0.21	0.24	0.21	0.24
Youth problem behavior					
Conduct problems	<i>M</i>	1.50	1.51	1.50	1.50
	<i>SD</i>	0.35	0.37	0.39	0.37
Delinquent behavior	<i>M</i>	1.33	1.72	1.39	1.68
	<i>SD</i>	2.23	2.42	2.55	2.28

Note. The means and standard deviations reported in this table are the averages of these statistics obtained over the 5 data sets that resulted from the use of a multiple imputation procedure to estimate missing values.

^aHigher scores on this measure indicate greater fixed beliefs (i.e., lower growth mindset).

Table S3

Descriptive Statistics for Outcome Measures for High Positive Engagement Group and Matched Comparison Group

		High positive engagement group (n=150)		Matched comparison group (n=150)	
		Pre	Post	Pre	Post
Adult support for thriving					
Spark identification and exploration	<i>M</i>	3.22	3.27	3.34	3.09
	<i>SD</i>	0.75	0.70	0.69	0.76
Growth mindset	<i>M</i>	3.49	3.61	3.51	3.41
	<i>SD</i>	0.56	0.54	0.59	0.62
6Cs of positive youth development	<i>M</i>	3.32	3.40	3.42	3.28
	<i>SD</i>	0.58	0.57	0.51	0.56
SOC intentional self-regulation	<i>M</i>	3.34	3.46	3.43	3.31
	<i>SD</i>	0.57	0.65	0.48	0.65
Youth thriving					
Spark identification and exploration	<i>M</i>	3.14	3.23	3.15	3.18
	<i>SD</i>	0.56	0.53	0.61	0.51
Growth mindset: Intelligence ^a	<i>M</i>	3.65	3.32	3.80	3.45
	<i>SD</i>	1.38	1.54	1.40	1.35
Growth mindset: Personality ^a	<i>M</i>	4.31	4.10	4.39	4.04
	<i>SD</i>	1.21	1.34	1.33	1.28
6Cs of positive youth development	<i>M</i>	4.02	3.95	4.02	3.87
	<i>SD</i>	0.49	0.48	0.48	0.51
SOC intentional self-regulation	<i>M</i>	1.72	1.75	1.72	1.68
	<i>SD</i>	0.21	0.21	0.19	0.24
Youth problem behavior					
Conduct problems	<i>M</i>	1.51	1.49	1.50	1.47
	<i>SD</i>	0.38	0.39	0.37	0.33
Delinquent behavior	<i>M</i>	1.11	1.44	1.13	1.52
	<i>SD</i>	1.99	2.34	1.99	2.23

Note. The means and standard deviations reported in this table are the averages of these statistics obtained over the 5 data sets that resulted from the use of a multiple imputation procedure to estimate missing values.

^aHigher scores on this measure indicate greater fixed beliefs (i.e., lower growth mindset).

Table S4

Logistic Regressions Predicting High Positive Engagement in Thriving Promotion Activities

	Model Coefficients B (SE)	Model Coefficients B (SE)
Duration of initial mentoring relationship ^a		
Termination in 6 months or less	-1.358 (.436)	-1.298 (.554)
Termination in 7 – 11 months	-0.981 (.272)	-0.841 (.329)
Mentoring agency		
Dummy Variable 1		-0.923 (.805)
Dummy Variable 2		0.070 (1.01)
Dummy Variable 3		-1.554 (.796)
Dummy Variable 4		-0.176 (.593)
Dummy Variable 5		0.049 (.588)
Dummy Variable 6		0.484 (.650)
Dummy Variable 7		0.948 (.771)
Dummy Variable 8		-0.240 (.638)
Dummy Variable 9		0.039 (.689)
Youth demographic and background characteristics		
Age (years)		-0.086 (.095)
Gender (Female)		-0.386 (.289)
Race or ethnicity ^b		
African American or Black		1.643 (.590)
Latino or Hispanic		1.172 (.596)
Other racial or ethnic minority		0.670 (.646)
Risk factors		
Low income household		0.091 (.472)
Single parent family		-0.055 (.369)
Incarcerated parent		0.111 (.326)
Out-of-school activities		0.289 (.196)
Mentor demographic and background characteristics		
Age (years)		-0.004 (.016)

(table continues)

	Model Coefficients B (SE)	Model Coefficients B (SE)
Mentor demographic and background characteristics (cont'd)		
Race or ethnicity ^b		
African American or Black		-0.036 (.447)
Latino or Hispanic		0.016 (.507)
Other racial or ethnic minority		0.434 (.456)
Prior experience supporting youth thriving		-0.051 (.182)
Baseline outcome measures		
Adult support for thriving		
Spark identification and exploration		0.541 (.261)
Growth mindset		0.403 (.366)
6Cs of positive youth development		1.900 (1.05)
SOC intentional self-regulation		-3.232 (1.200)
Youth thriving		
Spark identification and exploration		-0.125 (.295)
Growth mindset: Intelligence ^c		0.036 (.117)
Growth mindset: Personality ^c		-0.130 (.162)
6Cs of positive youth development		0.346 (.384)
SOC intentional self-regulation		-0.723 (.789)
Youth problem behavior		
Conduct problems		0.119 (.427)
Delinquent behavior		-0.329 (.203)
Nagelkerke pseudo-R ²	.091	.344

Note. $n = 281$ (all youth assigned to the thriving promotion condition for whom Time 2 data is available to gauge engagement in the thriving promotion activities).

^aReference group is youth whose initial mentoring relationship lasted one year or more.

^bReference group is White.

^cHigher scores on this measure indicate greater fixed beliefs (i.e., lower growth mindset).