

# Validating a Mentoring Relationship Quality Scale: Does Match Strength Predict Match Length?

Youth & Society  
2017, Vol. 49(4) 415–437  
© The Author(s) 2014  
Reprints and permissions:  
sagepub.com/journalsPermissions.nav  
DOI: 10.1177/0044118X14531604  
journals.sagepub.com/home/yas



Jean E. Rhodes<sup>1</sup>, Sarah E. O. Schwartz<sup>1</sup>,  
Margaret M. Willis<sup>2</sup>, and Max B. Wu<sup>1</sup>

## Abstract

Youth mentoring relationships have significant potential for promoting positive youth development. Nonetheless, the benefits derived from such relationships depend considerably on the length and quality of the bonds that are created between mentors and youth. Although some attention has been paid to youth's experience of relationship quality, few studies have focused on mentors' experience of relationship quality. In the context of a national sample of mentor and youth dyads in Big Brothers Big Sisters community-based mentoring programs ( $N = 5,222$ ), the current study validated a new mentor-reported measure of relationship quality, explored associations between mentor and youth assessments of relationship quality, and investigated the capacity of early assessments of relationship quality to predict mentoring relationship duration. Implications for research and practice are discussed.

## Keywords

mentoring, relationship quality, scale development

---

<sup>1</sup>University of Massachusetts, Boston, MA, USA

<sup>2</sup>Boston College, Chestnut Hill, MA, USA

## Corresponding Author:

Jean E. Rhodes, University of Massachusetts, 100 Morrissey Blvd., Boston, MA 02125, USA.  
Email: jean.rhodes@umb.edu

## Introduction

Youth mentoring programs hold significant promise for promoting positive youth outcomes (Rhodes & Lowe, 2009). The benefits of such programs, however, depend in large part on the quality and length of the relationships that are forged between mentors and youth (Goldner & Maysseless, 2009; Grossman, Chan, Schwartz, & Rhodes, 2012; Grossman & Rhodes, 2002; Parra, DuBois, Neville, Pugh-Lilly, & Povinelli, 2002). Although some attention has been paid to assessing youth's experience of relationship quality, few studies have focused on instruments to assess mentors' experience of relationship quality. The current study was designed to validate a mentor-reported measure of relationship quality, to explore associations between mentor and youth assessments of quality, and to investigate the measure's capacity to predict mentoring relationship length.

## Background

Youth mentoring programs involve pairing youth with volunteers who are trained to provide support and guidance. Although such programs are widespread, research on their effectiveness has revealed considerable room for improvement (DuBois, Holloway, Valentine, & Cooper, 2002; Eby, Allen, Evans, Ng, & DuBois, 2008). A meta-analysis of 73 evaluations of youth mentoring programs demonstrated relatively modest overall effects (.21) for participating youth on measures of emotional, behavioral, and educational functioning (DuBois, Portillo, Rhodes, Silverthorn, & Valentine, 2011). Importantly, however, effect-size estimates increased systematically in conjunction with individual, match, and program-related factors. The most salient moderator was adult–youth shared interest, underscoring the importance of taking match affinity and closeness into consideration.

Several investigations also have highlighted a range of factors associated with better outcomes, including match quality and match length (DuBois, Neville, Parra, & Pugh-Lilly, 2002; Grossman et al., 2012; Grossman & Rhodes, 2002). Indeed, the quality of mentoring relationships appears to be a particularly important determinant of both match length and outcomes, as it can influence whether and how long mentors and youth choose to continue to engage in the relationship (Goldner & Maysseless, 2009; Parra et al., 2002). Match length has been demonstrated to be an important factor accounting for variability in outcomes in both community-based mentoring (CBM) and school-based mentoring (SBM) program effects. In fact, because duration tends to imply close relationships and strong programs, match length is considered one of the best benchmarks of overall program effectiveness

(Grossman & Johnson, 1999). In re-analyses of data from random assignment studies of the Big Brothers Big Sisters (BBBS) mentoring programs, Grossman and colleagues (Grossman et al., 2012; Grossman & Rhodes, 2002) found that the effects of mentoring on youth outcomes become progressively stronger with match length. Other investigations have also highlighted the importance of match length and consistency, as well as the negative consequences of early terminations (DuBois et al., 2002; Karcher, 2005; Spencer, 2006).

Unfortunately, many programs are characterized by relatively short matches. Indeed, nearly half of volunteer mentoring relationships terminate prematurely, often at the initiation of the volunteer (Herrera, Grossman, Kauh, Feldman, & McMaken, 2007). Adults who volunteer to serve as mentors generally enter the relationships with a strong desire to make a positive difference in the lives of young people. Unfortunately, volunteers can become easily discouraged if the experience does not match their expectations (Spencer, 2007). Some volunteers may be disappointed by what they perceive as lack of improvement or appreciation on the part of their mentees. Others may become frustrated with logistical challenges, or discover that the investment required exceeds their expectations, particularly if their mentoring responsibilities are interfering with work and family obligations (Freedman, 1993; Omoto & Snyder, 1995). In other instances, adolescents may terminate relationships in response to what they perceive as unsupportive, disappointing, or overly demanding mentors (Morrow & Styles, 1995). Still other dyads may lack chemistry and the relationships may gradually give way to other demands. Research suggests that some baseline mentor and youth characteristics are predictive of match length, including mentor age and mentee risk status characteristics (Grossman et al., 2012; Grossman & Rhodes, 2002).

By contrast, stronger, more enduring ties are fostered when mentors adopt a flexible, youth-centered style, in which the young person's interests and preferences are emphasized (Deutsch & Spencer, 2009; Keller & Pryce, 2010; Morrow & Styles, 1995; Spencer & Rhodes, 2005; Thomson & Zand, 2010). This is in line with research on the importance of emotional attunement in youth's relationships with parents, teachers, and other adults (Allen et al., 2003; Pianta, 1999; Poulsen & Fouts, 2001). A close connection, however, frequently may be the by-product, not the focus, of effective youth mentoring relationships (S. F. Hamilton & Hamilton, 2010). Youth, for example, may come to trust and appreciate their mentors in the context of working with them on goal-oriented tasks. Some evidence, in fact, suggests that it may be of limited value or even counterproductive for mentors to regard cultivating an emotional connection with a youth as the primary goal

(M. A. Hamilton & Hamilton, 2005) or, similarly, to foster relationships that are unconditionally supportive and lacking in structure (Langhout, Rhodes, & Osborne, 2004).

Once established, close relationships with mentors are thought to generalize, enabling youth to interact with others more effectively. In particular, by providing caring support, mentors can both challenge negative views that some youth may hold of themselves and demonstrate that positive relationships with adults are possible. In this way, a mentoring relationship may become a “corrective experience” for youth who have experienced unsatisfactory relationships with parents or other caregivers (Bowlby, 1988). Goldner and Maysseless (2009), for example, found that youth assessments of closeness in CBM programs were associated with improvements in both academic and social functioning after 8 months of a mentoring intervention. Likewise, youth’s assessments of quality predicted relationship-based outcomes (improved friendship, increased disclosure to adults) at 8- and 16-month follow-ups (Thomson & Zand, 2010). Mentoring relationships in both community and school contexts have been linked to significant improvements in youths’ perceptions of their parental relationships as well as their relationships with peers and other adults in their social networks (Chan et al., 2013; Rhodes, Grossman, & Resch 2000).

Taken together, these studies underscore the importance of investigating the quality of the relationships that are formed between mentors and youth. With this in mind, several questionnaires have been developed to measure mentor–youth relationships (Rhodes, Reddy, Roffman, & Grossman, 2005; Zand et al., 2009). Although researchers have tended to focus on mentees’ perspectives, studies using scales that were originally designed for other caring adults (e.g., for teachers or psychotherapists) have highlighted the importance of assessing mentors’ perspectives as well. For example, using the Student–Teacher Relationship Scale (Pianta & Steinberg, 1992), Goldner and Maysseless (2009) found that mentors’ ratings of relationship closeness were significantly associated with mentees’ improved academic functioning. Likewise, using a short version of the therapeutic Working Alliance Inventory (S-WAI; Tracey & Kokotovic, 1989) to measure voluntary mentoring relationships, Larose, Chaloux, Monaghan, and Tarabulsky (2010) found that youth showed greater improvement in a number of academic and school-related outcome variables when both mentors and youth rated their working alliance more highly. Although these latter findings highlight the importance of convergence, research on working alliances in psychotherapy relationships indicates that client and therapists’ ratings of the alliance tend to be only moderately correlated ( $r = .36$ ; Tryon, Blackwell, & Hammel, 2007). Moreover, research is mixed as to whose report is more predictive of outcomes. In a meta-analysis of working alliance among adult clients, Horvath

and Symonds (1991) found that clients' reports of the working alliance appeared to be more predictive of psychotherapy outcome than were therapists' judgments. Yet, in a meta-analysis of the working alliance in studies involving child clients, Elvins and Green (2008) found that therapists' reports were the best predictors of outcome.

This research on working alliances sheds light onto the role of the adult-youth relationship in mentoring. Greenson (1967) first used the term *working alliance* to represent a positive collaboration between client and therapist. Bordin (1979) and others have proposed that the strength of the working alliance was the major factor of change in therapy. Empirical findings suggest that relationship factors, such as empathy, warmth, and acceptance, account for 30% of the variance in client improvement (Asay & Lambert, 1999). The median correlation between working alliances and therapeutic outcomes among adults has been found to be .21, a modest but very consistent association (Horvath & Bedi, 2002). The alliance is particularly predictive of outcome when it is measured earlier in treatment, as poor early alliance predicts early termination (Castonguay, Constantino, & Holtforth, 2006). Although psychotherapy relationships differ in some ways from voluntary mentoring relationships, they are both relationship-based intervention and thus share similar dynamics (Spencer & Rhodes, 2005).

### **Current Study**

Drawing on longitudinal data from BBBS CBM programs nationwide, the current study aimed to investigate the psychometric properties of the mentor version of the Strength of Relationship (SoR) scales. The SoR includes the Mentor Strength of Relationship scale (MSoR), which assesses relationship quality from the mentor's perspective, as well as the Youth Strength of Relationship scale (YSoR), which is a revised version of the youth-reported Relationship Quality Scale (Rhodes et al., 2005). In addition, the study explored the convergence between mentor and youth reports of relationship quality, as well as the pathways through which youth and mentor perceptions of relationship quality predict relationship duration. Analytic models examined the relative contribution of each report in predicting relationship duration, along with other mentor, youth, and match variables that research or theory suggest may influence relationship duration, including youth and mentor age, same gender and same race status, mentor education, and who chooses the agenda for match activities (e.g., Bogat & Liang, 2005; Grossman & Rhodes, 2002; Herrera, Sipe, & McClanahan, 2000; Lymburner, 2006; Morrow & Styles, 1995).

## Method

### Participants

As part of a pilot of a web-based management information system, data were drawn from a network of 85 of the BBBS agencies running CBM programs across the United States. To permit the measurement of duration, eligible dyads were restricted to those matches that had been arranged at least 12 months prior to the end of data collection (i.e., start dates between August 1, 2009, and November 30, 2009) and had completed the 3-month round of data collection when the first SoR questionnaires were administered. Of the 7,757 mentor and youth dyads that formed during this time, a total of 5,222 dyads completed 3-month SoR surveys.

Among the 5,222 dyads, the average age of youth was 11.5 years ( $SD = 2.4$ , ranging from 5 to 21), and 57% of youth were female. Overall, 37.4% were African American, 30.4% were White, 17.9% were Hispanic, and 14.3% identified with other racial or ethnic groups. The majority of youth (66.2%) received free or reduced lunch. The average age of mentors was 32.2 years ( $SD = 12$ , ranging from 17 to 83). More than half of the mentors were female (60.5%). Compared with the youth, a substantially larger proportion of mentors were White (67.0%), with 15.0% African American, 9.2% Hispanic, and 8.9% from another racial or ethnic background. Most dyads (96.4%) were of same gender, and in almost half (48.5%) of matches, the mentor and mentee shared the same race or ethnicity. Almost 16% of mentors had graduate degrees, 39.6% had bachelor's degrees, 4.9% had associate's degrees or some college education, and 39.8% had high school degrees or less.

A subsample of 1,294 dyads completed both the 3-month and 12-month SoR surveys. Dyads only completed the 12-month survey if the match was still active, and agencies varied in the extent to which they tracked dyads over time. Nonetheless, this follow-up subsample did not differ from the larger sample in the proportion of matches of the same gender or the same race/ethnicity. Youth's age, gender, race, and free or reduced lunch status also were not significantly different for the subsample. Mentors in this subsample were significantly older ( $M = 33.4$ ,  $SD = 12.6$ ),  $t(1,293) = 3.47$ ,  $p < .001$ , and more highly educated (only 32.3% with high school or less, 49.4% with some or all college, and 18.3% with graduate degrees),  $\chi^2(4) = 22.2$ ,  $p < .001$ . Mentors in this subsample did not differ from the overall sample in their racial or gender composition.

### Procedure and Intervention

This study drew on data collected through a network of 85 BBBS CBM agencies across the United States. Youth participants completed baseline surveys

**Table 1.** Match Length and Closure Rate for Dyads That Completed 3-Month SoRs and the Subsample of Dyads That Also Completed 12-Month SoRs.

	3-Month SoR	3- and 12-month SoR
	<i>n</i> = 5,222	<i>n</i> = 1,294
Average match length (months)	12.3 ( <i>SD</i> = 3.0)	14.4 ( <i>SD</i> = 1.0)
Match length range	2.6 to 16.1 <sup>a</sup>	5.6 to 16.1 <sup>a</sup>
Percent of dyads reaching		
3 months	99.9	100
6 months	94.6	99.9
9 months	83.6	99.6
12 months	72.0	99.2
Percent active at Dec. 2010	63.2	92.9

Note. SoR = Strength of Relationship.

<sup>a</sup>The 3- and 12-month surveys were administered at approximately 3 and 12 months into the mentoring relationships. Some dyads completed the survey before or after their 3- and 12-month anniversaries.

administered within 30 days of the initiation of their match, either in-person or over the phone, by trained Match Support Specialists at BBBS. Follow-up surveys were administered at two time points: (a) 3 months after match initiation and (b) 12 months after match initiation. Youth completed Youth Strength of Relationship (YSOR) scales over the phone, and most mentors completed MSOR scales over the phone, although some agencies allowed mentors to complete the surveys online.

At the close of the study, when match length data were collected (December 2010) within the full sample ( $N = 5,222$ ), mentor–youth dyads had met for an average of 12.3 months ( $SD = 3.0$ , ranging from 2.6 to 16.1 months), and 63.1% were still meeting regularly (see Table 1). The average match length in the subsample of youth who were still in active matches and completed the 12-month SoR surveys ( $N = 1,294$ ) was significantly longer than in the full sample ( $M = 14.42$  months,  $SD = 1.04$ ),  $t(1,293) = 73.02$ ,  $p < .001$ ). Moreover, nearly all matches (93%) in the subsample who completed the 12-month SoR surveys were still active as of the close of the BBBS study in December 2010.

In BBBS CBM programs, mentors generally commit to meeting for a minimum of 12 months, although relationships can endure longer. Mentors and youth tend to meet on a weekly basis at a time and place of their own choosing and engage in a wide range of leisure-, school-, and work-oriented activities, with the goal of promoting the youth's positive development. Based on mentors' reports, the majority of dyads (71.2%) jointly decided

how to spend their time together. Of the remaining dyads, 24.6% usually followed the mentor's guidance for agenda setting and 3.9% allowed the child to decide how time would be spent.

## Measures

**Strength of Relationship scales.** The MSoR scale consists of 14 mentor-reported items. Items on the scale were created primarily by the lead author, based on theory, research, and consultation with volunteers, program staff, and researchers (see Appendix for full scale). The MSoR was created at the request of Big Brothers Big Sisters of America. The organization was concerned about volunteer mentor attrition and wanted to better understand, from the mentors' perspective, the specific factors that contributed to satisfaction and frustration in the relationship. In addition to drawing on extensive qualitative and quantitative studies on quality of mentoring relationships and therapeutic alliances (e.g., Horvath & Bedi, 2002; Larose et al., 2010; Spencer, 2007; Zand et al., 2009), several steps were taken to ascertain the nature and content of the relationships, and the most common factors that might affect mentors' feelings of closeness and connection to their mentees. First, as part of a year-long sabbatical placement, the lead author worked as a match support specialist at two different mentoring agencies. In this capacity, she maintained ongoing contact with the volunteer mentors, youth, and parents in her caseload, provided ongoing supervision to a wide range of adult–youth dyads, and attended match support meetings where common match issues and their resolution were discussed among agency staff. From this activity, as well as discussions with additional practitioners and researchers, a list of 75 items that captured the experiences and frustrations of mentors in relation to their mentees was created. From this item pool, 14 items that best captured mentors' common positive and negative perceptions and experiences in relationships were chosen rationally by a panel of three mentoring researchers and three mentoring practitioners for inclusion in the scale. The mentoring researchers were doctoral-level professionals, and the practitioners included two match support specialists and an agency director, all of whom had multiple years of experience.

On the scale, mentors were prompted to rate the extent to which they agreed with the 14 items in the final pool, such as “My Little and I are interested in the same things” and “I feel close to my Little” (see Table 2 for a full list of the items). Answers were scored on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Eight of the items, such as “Being a Big is more of a time commitment than I anticipated” and “I get the sense that my Little would rather be doing something



**Table 2.** Factor Loadings for Mentor and Youth SoR.

Items	Factor loading
<b>Mentor SoR</b>	
Factor 1: Affective	
1. I am enjoying the experience of being a Big.	.653
2. <i>I expected that being a mentor would be more fun than actually it is.</i>	.543
3. My Little and I are interested in the same things.	.656
4. I feel confident handling the challenges of being a mentor.	.419
6. <i>I feel overwhelmed by my Little's family difficulties.</i>	.361
7. My Little has made improvements since we started meeting.	.484
8. <i>I sometimes feel frustrated with how few things have changed with my Little.</i>	.608
9. <i>My Little and I are sometimes at a loss for things to talk about.</i>	.558
11. I think my Little and I are well-matched.	.766
12. <i>I get the sense that my Little would rather be doing something else.</i>	.650
13. <i>My Little has trouble sticking with one activity for very long.</i>	.341
14. I feel close to my Little.	.733
Factor 2: Logistic	
5. <i>Being a Big is more of a time commitment than I anticipated.</i>	.802
10. <i>It is hard for me to find the time to be with my Little.</i>	.541
<b>Youth SoR</b>	
Factor 1: Positive	
1. My Big has lots of good ideas about how to solve a problem.	.623
2. My Big helps me take my mind off things by doing something with me.	.578
5. When I am with my Big, I feel safe.	.267
7. My relationship with my big is very important to me.	.655
9. When something is bugging me, my Big listens while I talk about it.	.642
10. I feel close to my Big.	.720
Factor 2: Negative	
3. <i>When I'm with my Big, I feel ignored.</i>	.498
4. <i>When I'm with my Big, I feel mad.</i>	.590
6. <i>When I'm with my Big, I feel disappointed.</i>	.605
8. <i>When I'm with my Big, I feel bored.</i>	.402

Note. N = 5,222 dyads. Reverse-coded items are italicized. SoR = Strength of Relationship.

else,” were reverse scored, so that higher numerical scores are indicative of more positive relationship assessments. Internal consistency for the 14 items was strong,  $\alpha = .85$ .

The YSoR scale consisted of 10 youth-reported items. The items were scored on a 5-point Likert scale, ranging from 1 (*not at all true*) to 5 (*always true*) and a mean score was calculated, with higher scores indicating higher levels of emotional engagement ( $\alpha_2 = .84$ ). The scale is a version of the original Relationship Quality Scale (Rhodes et al., 2005), which was slightly revised to include a more balanced set of positive and negative relationship experiences. Youth were prompted to “decide how true each statement is for you” for items such as “My relationship with my Big is very important to me” and “I feel close to my Big” (see Table 2 for a list of all items). As with the MSoR, four negatively worded items, such as “When I’m with my Big, I feel ignored,” were reverse scored. The 10 YSoR items had reasonably good internal consistency,  $\alpha = .79$ .

*Mentor, youth, and dyad characteristics.* Characteristics of mentors, youth, and dyads were measured with single items, self-reported by youth and mentors. Demographic information included age, gender, and racial or ethnic background of mentors and youth, as well as mentor’s educational level. Some youth and mentor data were used to construct information about the dyad. The variable “same gender” was coded 1 when mentors and youth reported the same gender. Similarly, “same race” was coded 1 when the mentor and youth were of the same racial or ethnic background.

*Agenda setting.* Based on research and theory suggesting the benefits of mentors adopting a flexible, youth-centered style (see Deutsch & Spencer, 2009; Keller & Pryce, 2010; Thomson & Zand, 2010), one additional item (about agenda setting) was included at the end of the MSoR survey. Mentors were asked whether decisions about how to spend time were usually made by the mentor, by the youth, or by the mentor and youth together.

*Match length.* This was calculated based on agency records of the date matches were initiated and the date matches closed. If matches were still open at the close of the study, match length was calculated based on the date matches were initiated until the close of the study.

*Statistical methods.* The structure and internal consistency of the SoR survey were first tested with exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA was conducted on the SoR administered at 3 months, and CFA was conducted on the SoR administered at 12 months.

Then, a series of hierarchical ordinary least square (OLS) regression models were used to investigate the potential of the 3-month administration to predict mentoring relationship length. In all models, a numerical indicator of the date that the mentoring relationship began was included to account for the fact that relationships that were initiated earlier in the August 1 to November 30 enrollment window had the opportunity to meet for up to four additional months. All data analysis was completed using Stata 12 SE.

## Results

### *Missing Data*

Most dyads ( $n = 4,151$ , 79.5% of the sample) had no missing SoR values, and 62% of dyads with missing SoR data had only one missing value. Missingness was related to answers on the YSoR and the MSoR, however, with more negative assessments of the mentoring relationship associated with missing data. Therefore, Multiple Imputation by Chained Equations (MICE) was used to generate five imputed data sets (Allison, 2002).

### *EFA of the SoR at 3 Months*

EFA was conducted on the 14 items of the MSoR administered at 3 months and on the 10 items of the YSoR administered at 3 months. Factor loadings were estimated using maximum likelihood, for consistency with CFA, and oblimin rotation, to allow for some correlation between the factors. Following Costello and Osborne (2005), decisions to retain factors were based on screeplots, the Kaiser criterion (eigenvalues above 1), and conceptual considerations.

For the MSoR, two factors emerged (see Table 2). The first factor, “affective” dimensions of the relationship, accounted for 42.5% of the total variance. Twelve items related to the affective quality of the mentor–youth relationship loaded onto the factor, and the items had high internal consistency ( $\alpha = .85$ ,  $M = 4.09$ ,  $SD = 0.51$ ). The items with the largest factor loadings were “I think my Little and I are well-matched” and “I feel close to my Little.” The remaining two items loaded onto the second factor “logistical,” accounting for an additional 15% of the variance. These two items had a good internal consistency ( $\alpha = .69$ ,  $M = 3.77$ ,  $SD = 0.85$ ), and related to logistical dimensions of the relationship (“Being a Big is more of a time commitment than I anticipated” and “It is hard for me to find the time to be with my Little”). While this second factor contained fewer items than is ideal (Costello & Osborne, 2005), the conceptual distinction between affective and logistical dimensions highlighted by the factors appears to be meaningful.

**Table 3.** Pairwise Correlations for Mentor and Youth Mean SoR Scores at 3 and 12 Months.

	Mentor 3 months	Youth 3 months	Mentor 12 months	Youth 12 months
Mentor 3 months	1			
Youth 3 months	.1998***	1		
Mentor 12 months	.4555***	.0132	1	
Youth 12 months	.1456***	.2584***	.2332***	1

Note.  $N = 1,294$  dyads. SoR = Strength of Relationship.

\*\*\* $p < .001$ .

Two factors emerged for the YSoR as well (see Table 2). The first factor contained all positive dimensions of the mentor–youth relationship, such as “I feel close to my Big.” The internal consistency of these items was good ( $\alpha = .76$ ,  $M = 4.69$ ,  $SD = 0.46$ ), and the factor accounted for 48.7% of total variance. One loading was particularly low (.267 for “When I am with my Big, I feel safe”), and the decision to retain the item was further assessed in the CFA. All of the negatively worded items loaded onto the second factor, which accounted for 25.9% of the variance. These items, such as “When I’m with my Big, I feel disappointed,” had good internal consistency ( $\alpha = .68$ ,  $M = 4.89$ ,  $SD = 0.33$ ).

### CFA of the SoR at 12 Months

To assess the fit of the factor structures found in EFA, CFA was conducted using a different administration of the scale (at 12 months). As described above, the SoR surveys were administered to dyads approximately 3 and 12 months after the beginning of the relationships, but only a subsample of 1,294 of the original dyads completed the latter survey.

Table 3 presents the pairwise correlations for the MSoR and YSoR scores (the average of all SoR items) at 3 and 12 months. Mentors’ 3-month and 12-month SoR scores were significantly correlated ( $r = .46$ ,  $p < .001$ ), as were youth’s 3-month and 12-month SoR scores ( $r = .26$ ,  $p < .001$ ).

The 12-month MSoR items maintained high internal consistency for all items ( $\alpha = .85$ ) and within subscales (.85 and .65). Final CFA models confirmed the two-factor structure found in EFA (root mean square error of approximation [RMSEA] = .057, 90% confidence interval [CI] = [.052, .063]; comparative fit index [CFI] = .952; standardized root mean square residual [SRMR] = .034). The YSoR administered at 12 months also had

good internal consistency for the full scale (.76) and reasonably good internal consistency for the two subscales (.73 and .64). The two-factor structure was found to produce a good fit in the CFA model (RMSEA = .064, 90% CI = [.055, .073]; CFI = .934; SRMR = .040). When the path for the low-loading item “When I’m with my Big, I feel safe” was removed, goodness of fit worsened. For both scales, therefore, the factor structures initially developed in EFA appeared to be robust.

### *The SoR Scales and Length of Relationship*

Model 1 revealed that the start date of the relationship together with the youth, mentor, and dyad characteristics accounted for 14.4% of the variance in the length of the relationships (see Table 4).

In Model 2, the full 3-month MSoR and YSoR scales were entered. These scores were the average of all 10 items for youth and all 14 items for mentors. Both were significantly and positively related to length of relationship after holding all other independent variables constant, together accounting for an additional 5% of the variance in relationship length.

In Model 3, the factors developed through EFA were entered instead of the full SoR scores. These scores were averages of all answers for the subscale items. Both the “Positive” and (reverse coded) “Negative” subscales for the YSoR were significantly associated with length of relationship, though the association of the positive relationship dimensions and longevity was greater in magnitude. Although mentors’ positive assessments of the “Affective” dimension of mentoring relationships were significantly related to longer relationships, their ratings of “Logistical” challenges and time constraints were not significantly associated with relationship length.

Model 4 explored whether the number of times mentors or youth rated their relationship negatively in the SoR survey would serve as a predictor of length of relationship. For mentors, the total number of instances (out of 14) that the mentors answered “1” or “2” on the 5-point Likert scale was summed. Youth tended to avoid rating the items very negatively, so the neutral “3” was also counted with the negative “1” and “2” answer selections. With each additional negative answer for mentors, or each additional negative or neutral answer for youth, the length of the relationship significantly decreased. These variables accounted for approximately the same amount of additional variance in relationship length, beyond the predictors added in Step 1, as was accounted for by the full SoR scores in Model 2.

Across all models, the age of the youth and the age of the mentor remained significant predictors of length of relationship. Older mentors tended to have longer relationships, and older youth tended to have shorter relationships.

**Table 4.** Standardized Regression Coefficients for Length of Relationship in Months (Squared).

	Length of relationship			
	Model 1	Model 2	Model 3	Model 4
Youth age	-.057***	-.040**	-.041**	-.045***
Mentor age	.062***	.061***	.062***	.060***
Same gender	.027*	.028*	.028*	.029*
Same race	-.003	-.002	-.001	.000
Mentor education				
College/some college	.055***	.053***	.053***	.050***
Graduate degree	.033**	.031*	.031*	.029*
Agenda setting				
Youth	.003	.002	.001	.002
Mentor and youth	.064***	.014	.014	.021
Match start date	-.360***	-.351***	-.351***	-.349***
Mentor SoR—full scale		.125***		
Youth SoR—full scale		.160***		
Mentor SoR—subscales				
Affective			.123***	
Logistic			-.004	
Youth SoR—subscales				
Positive			.129***	
Negative			.055***	
Mentor: Count of “1-2” answers				-.136***
Youth: Count of “1-3” answers				-.157***
R <sup>2</sup> change from Model 1	.145	.050	.050	.051
F change from Model 1	98.25***	161.1***	80.82***	163.4***
Total adjusted R <sup>2</sup>	.144	.193	.193	.194

Note.  $N = 5,222$  dyads. “Mentor Education” reference group is “high school degree or less.” “Agenda Setting” reference group is “Mentor or other adult sets the meeting’s agenda.” SoR = Strength of Relationship.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ ; significance tests are based on five imputations and robust standard errors.

Whether the mentor and youth were the same race was not a significant predictor of length in any model, and the relatively small effect of whether the dyad was matched by gender disappeared when listwise deletion was used. Matches tended to be longer in dyads where the mentor had at least some college education, compared with dyads in which the mentor had a high school degree or less. Who set the agenda for the dyads did not have a significant impact on length once strength of relationship was controlled.

## Discussion

This study aimed to investigate the psychometric properties of a new instrument assessing mentor perceptions of relationship quality (MSoR), as well as to examine the potential of the MSoR to predict duration of mentoring relationship. Two factors emerged for the MSoR, with the first factor including affective dimensions of the relationship and the second factor (consisting of only two items) including logistic dimensions of the relationship. CFA confirmed the two-factor structure found in EFA and demonstrated the scale to maintain good internal consistency both for the full scale and within subscales. Notably, the MSoR represents the first mentor-report relationship quality scale with established psychometric properties.

The study also explored the convergence between MSoR and YSoR scores assessed at 3 and 12 months. Results indicated a large, significant correlation between mentors' scores across the two time points and moderate, significant correlation between youth's scores. In addition, there was a small to moderate, significant correlation between mentor and youth reports of relationship quality, both at the 3-month and the 12-month surveys ( $r = .20$  and  $r = .23$ , respectively). This is similar, although slightly lower than the convergence between therapist and client assessments of working alliance ( $r = .36$ ; Tryon et al., 2007).

Analyses demonstrated that both the MSoR and the YSoR were significantly associated with relationship duration. These results suggest that early assessment of mentor and youth perceptions of their relationship quality can be used to identify mentor–youth dyads that are at greater risk for early termination. This is particularly important in the context of previous research indicating that early terminating relationships may result in negative impacts (Grossman et al., 2012; Grossman & Rhodes, 2002). Early identification of more vulnerable mentoring relationships could allow programs to provide extra support that could strengthen relationships and possibly avoid early termination. Moreover, as relationship duration is a well-established benchmark of program effectiveness, which predicts youth impacts in both CBM and SBM programs, these results suggest that the SoR may also predict the benefits that youth will derive from mentoring relationships (Grossman et al., 2012; Grossman & Johnson, 1999; Grossman & Rhodes, 2002). Although significant, the SoR accounted for a relatively small percentage of the variance in relationship duration, raising questions about what other factors, besides strength of relationship, may contribute to how long mentoring relationships last.

When investigated separately as predictors of relationship duration, the only subscale that was not significantly associated with duration was the Mentor Logistic subscale. This is surprising, as one might expect

that concerns about finding the time to be with one's mentee would be particularly predictive of relationship longevity. Interestingly, however, the affective scale was more predictive, perhaps suggesting that mentors who feel a strong connection with their mentees may be more motivated to overcome logistical challenges. Of the four subscales, the Youth Positive subscale was most predictive of relationship longevity. This contrasts with findings from Rhodes and colleagues' (2005) previous Relationship Quality Scale, in which negative items were more predictive of outcomes, but is consistent with critiques that the scale did not include sufficient assessment of positive aspects of the relationship, as well as subsequent research indicating that positive dimensions of the mentor–youth bond are predictive of relationship-based outcomes (Thomson & Zand, 2010; Zand et al., 2009).

We also explored whether the number of times mentors or youth rate the relationship negatively would be particularly important in predicting relationship length. Results indicated that negative responses from mentors and negative or neutral responses from youth were indeed significantly associated with a decrease in relationship length. Nevertheless, these results suggest that negative responses might be used as a screening tool to identify relationships that are at risk for early termination and target them for additional support. Particularly in the context of large caseloads, the items on the MSOR scale might provide an efficient framework for eliciting mentors' reports of more specific early problems than typically emerge from the more general, "how are things going?," prompt.

By assessing perceptions of relationship quality for both mentors and youth, this study also provides useful information about the relative capacity of each reporter's perceptions to predict duration of the relationship. Across all of the models examined, the YSoR emerged as slightly more predictive of relationship duration than the MSOR. Beyond the youth, mentor, and match characteristics, the YSoR alone accounted for an additional 3.34% of the variance in match length, whereas the MSOR alone accounted for an additional 2.71%. This supports previous research indicating that youth ratings of closeness show more consistent associations with outcomes than mentor ratings (Goldner & Mayseless, 2009). Nevertheless, the mentor's assessment of relationship quality was a significant predictor of longevity of relationship and, particularly as mentors often initiate relationship terminations, early attention to their experiences is vital.

Although not the focus of this study, results also provided information about other predictors of mentoring relationship duration. Specifically, child age, mentor age, and mentor education were significantly associated with length of relationship, beyond the variance accounted for by the SoR. These findings are generally consistent with previous research, which indicates that



mentoring relationships with younger mentees tend to last longer than those with older mentees (Grossman & Rhodes, 2002; Herrera et al., 2000), and that higher mentor education, income level, and age are predictive of longer-lasting relationships (Grossman & Rhodes, 2002; Herrera, Grossman, Kauh, & McMaken, 2011; Lymburner, 2006).

Although this study has several strengths, including a large, diverse, national sample and data collected at two time points from both youth and mentors, there are also several limitations that should be noted. First, although duration is an important benchmark of effectiveness for mentoring programs, future studies should include data on youth outcomes to investigate whether the SoR can directly predict youth impacts. In addition, as 66% of dyads were still intact at the close of the study, it would have been helpful to follow the relationships for a longer period of time to see if the SoR is predictive not only of relationships that terminate within the first year but also of those that last longer. Moreover, while it is of note that the SoR is significantly predictive of relationship duration, the scale only accounts for a small amount of variance. This may be in part due to the fact that, particularly for youth, assessments of relationship quality were relatively high, and, to account for this, neutral youth ratings were considered to be negative in our analyses.

Although a strength of the approach to scale development used in the development of the MSoR is that it includes items that are particularly relevant to program and case managers' concerns, it also means that some items lack face validity in the context of a measure of relationship quality, and, at times, carry lower factor loadings on the scale (e.g., "My Little has trouble sticking with one activity for very long."). Nevertheless, all factor loadings in the MSoR scale are higher than Tabachnick and Fidell's (2001) guidelines for minimum loading of an item in factor analysis. The inclusion of items that capture more subtle distinctions in relationship quality, however, would likely improve scale's face validity and the percentage of the variance accounted for in relationship duration. In addition, despite correlations in quality ratings, there was a general lack of alignment between items in the mentor and youth SoR scales. Although this study was constrained by the national organization's decision to use an adaptation of the extant youth scale, further refinements to the items on the YSoR are recommended, particularly due to low factor loadings for some of the items. Greater specificity of mentor behaviors and interactions that contribute to and detract from youth's satisfaction would better align it with the mentor scale and provide the basis for more precise and actionable feedback to volunteers, as well as possibly resulting in greater variance in responses.

It is also notable that, including all baseline characteristics, our models only accounted for, at most, a total of approximately 20% of the variance of relationship duration. More information on youth, mentor, and match

characteristics, including data on the communities in which those matches took place, may provide a more complete picture of factors contributing to relationship duration. In addition, while the inclusion of the perspective of mentors is a strength of the study, it could be helpful to include the perspectives of case managers who supervise the relationships as well. Finally, this study was limited to BBBS CBM programs. It will be important for future studies to validate the measure in other mentoring contexts.

Despite these limitations, this study provides an important contribution to the mentoring field. Although future research is needed for the continued validation and refinement of the scale, this study demonstrates the SoR to be a psychometrically sound instrument that can be used to measure relationship quality from the perspective of both youth and mentors, and is the first validated instrument to include the mentor's perspective. It also indicates that quality of relationship, as measured by the SoR at 3 months, can predict relationship duration, suggesting that it may be a useful tool for identifying matches that may be at risk for premature termination.

## Appendix

### *Mentor Strength of Relationship Scale*

To what extent do you agree with the following statements?	(Circle one)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I am enjoying the experience of being a Big.	1	2	3	4	5
2. I expected that being a mentor would be more fun than actually it is.	1	2	3	4	5
3. My Little and I are interested in the same things.	1	2	3	4	5
4. I feel confident handling the challenges of being a mentor.	1	2	3	4	5
5. Being a Big is more of a time commitment than I anticipated.	1	2	3	4	5
6. I feel overwhelmed by my Little's family difficulties.	1	2	3	4	5
7. My Little has made improvements since we started meeting.	1	2	3	4	5

(continued)

**Appendix (continued)**

To what extent do you agree with the following statements?	(Circle one)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8. I sometimes feel frustrated with how few things have changed with my Little.	1	2	3	4	5
9. My Little and I are sometimes at a loss for things to talk about.	1	2	3	4	5
10. It is hard for me to find the time to be with my Little.	1	2	3	4	5
11. I think my Little and I are well-matched.	1	2	3	4	5
12. I get the sense that my Little would rather be doing something else.	1	2	3	4	5
13. My Little has trouble sticking with one activity for very long.	1	2	3	4	5
14. I feel close to my Little.	1	2	3	4	5

**Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

**References**

Allen, J. P., McElhane, K. B., Land, D. J., Kuperminc, G. P., Moore, C. W., O’Beirne-Kelly, H., & Kilmer, S. L. (2003). A secure base in adolescence: Markers of attachment security in mother-adolescent relationship. *Child Development, 74*, 292-307. doi:10.1111/1467-8624.t01-1-00536

Allison, P. D. (2002). *Missing data*. Thousand Oaks, CA: Sage.

Asay, T. P., & Lambert, M. J. (1999). The empirical case for the common factors in therapy: Quantitative findings. In M. A. Hubble, B. L. Duncan, & S. D. Miller (Eds.), *The heart and soul of change: What works in therapy* (pp. 23-55). Washington, DC: American Psychological Association.

- Bogat, G. A., & Liang, B. (2005). Gender in mentoring relationships. In D. L. DuBois & M. J. Karcher (Eds.), *Handbook of youth mentoring* (pp. 205-217). Thousand Oaks, CA: Sage.
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research & Practice*, 16, 252-260. doi:10.1037/h0085885
- Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York, NY: Basic Books.
- Castonguay, L. G., Constantino, M. J., & Holtforth, M. G. (2006). The working alliance: Where are we and where should we go? *Psychotherapy: Theory, Research, Practice, Training*, 43, 271-279. doi:10.1037/0033-3204.43.3.271
- Chan, C., Rhodes, J. E., Howard, W., Lowe, S., Schwartz, S. E. O., & Herrera, C. (2013). *Pathways of influence in school-based mentoring: The mediating role of parent and teacher relationships*. *Journal of School Psychology*, 51, 129-142.
- Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis. *Practical Assessment Research & Evaluation*, 10, 1-9.
- Deutsch, N., & Spencer, R. (2009). Capturing the magic: Assessing the quality of youth mentoring relationships. *New Directions in Youth Development: Theory, Practice and Research*, 121, 47-70. doi:10.1177/1529100611414806
- 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.
- 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
- DuBois, D. L., Neville, H. A., Parra, G. R., & Pugh-Lilly, A. O. (2002). Testing a new model of mentoring. *New Directions for Youth Development*, 93, 21-57.
- Eby, L. T., Allen, T. D., Evans, S. C., Ng, T., & DuBois, D. (2008). Does mentoring matter? A multidisciplinary meta-analysis comparing mentored and non-mentored individuals. *Journal of Vocational Behavior*, 72, 254-267.
- Elvins, R., & Green, J. (2008). The conceptualization and measurement of therapeutic alliance: An empirical review. *Clinical Psychology Review*, 28, 1167-1187. doi:10.1016/j.cpr.2008.04.002
- Freedman, M. (1993). *The kindness of strangers: Adult mentors, urban youth, and the new volunteerism*. San Francisco, CA: Jossey-Bass.
- Goldner, L., & Maysel, O. (2009). The quality of mentoring relationships and mentoring success. *Journal of Youth and Adolescence*, 38, 1339-1350. doi:10.1007/s10964-008-9345-0
- Greenson, R. R. (1967). *Technique and practice of psychoanalysis*. New York, NY: International Universities Press.
- Grossman, J. B., Chan, C., Schwartz, S. E. O., & Rhodes, J. E. (2012). The test of time in school-based mentoring: The role of relationship duration and re-matching on academic outcomes. *American Journal of Community Psychology*, 49, 43-54.

- Grossman, J. B., & Johnson, A. (1999). Assessing the effectiveness of mentoring programs. In J. B. Grossman (Ed.), *Contemporary issues in mentoring* (pp. 24-47). Philadelphia, PA: Public/Private Ventures.
- Grossman, J. B., & Rhodes, J. E. (2002). The test of time: Predictors and effects of duration in youth mentoring programs. *American Journal of Community Psychology, 30*, 199-206.
- Hamilton, M. A., & Hamilton, S. F. (2005). Work and service learning. In D. L. Dubois & M. L. Karcher (Eds.), *Handbook of youth mentoring* (pp. 143-159). Thousand Oaks, CA: Sage.
- Hamilton, S. F., & Hamilton, M. A. (2010). Building mentoring relationships. *New Directions for Youth Development, 126*, 141-144.
- Herrera, C., Grossman, J. B., Kauh, T. J., Feldman, A. F., & McMaken, J. (with Jucovy, L. Z.). (2007). *Making a difference in schools: The Big Brothers Big Sisters school-based mentoring impact study*. Philadelphia, PA: Public/Private Ventures.
- Herrera, C., Grossman, J. B., Kauh, T. J., & McMaken, J. (2011). Mentoring in schools: An impact study of Big Brothers Big Sisters school-based mentoring. *Child Development, 82*, 346-361. doi:10.1111/j.1467-8624.2010.01559.x
- Herrera, C., Sipe, C. L., & McClanahan, W. S. (2000). *Mentoring school-age children: Relationship development in community-based and school-based programs*. Philadelphia, PA: Public/Private Ventures.
- Horvath, A. O., & Bedi, R. P. (2002). The alliance. In J. C. Norcross (Ed.), *Psychotherapy relationships that work* (pp. 37-69). New York, NY: Oxford University Press.
- Horvath, A. O., & Symonds, B. (1991). Relation between working alliance and outcome in psychotherapy: A meta-analysis. *Journal of Counseling Psychology, 38*, 139-149. doi:10.1037/0022-0167.38.2.139
- Karcher, M. (2005). The effects of developmental mentoring and high school mentors' attendance on their younger mentees' self-esteem, social skills, and connectedness. *Psychology in Schools, 42*, 65-77. doi:10.1002/pits20025
- Keller, T. E., & Pryce, J. M. (2010). Mutual but unequal: Mentoring as a hybrid of familiar relationship types. *New Directions in Youth Development, 126*, 33-50.
- Langhout, R. D., Rhodes, J. E., & Osborne, L. N. (2004). An exploratory study of youth mentoring in an urban context: Adolescents' perceptions of relationship styles. *Journal of Youth and Adolescence, 33*, 293-306.
- Larose, S., Chaloux, N., Monaghan, D., & Tarabulsky, G. M. (2010). Working alliance as a moderator of the impact of mentoring relationships among academically at-risk students. *Journal of Applied Social Psychology, 40*, 2656-2686. doi:10.1111/j.1559-1816.2010.00675.x
- Lymburner, J. A. (2006). *Predictors of match duration in a Big Sisters mentoring program* (Unpublished dissertation). Retrieved from summit.sfu.ca/system/files/iritem1/6640/etd2622.pdf
- Morrow, K. V., & Styles, M. B. (1995). *Building relationships with youth in program settings: A study of Big Brother Big Sisters*. Philadelphia, PA: Public/Private Ventures.

- Omoto, A. M., & Snyder, M. (1995). Sustained helping without obligation: Motivation, longevity of service, and perceived attitude change among AIDS volunteers. *Journal of Personality and Social Psychology, 68*, 671-686. doi:10.1037/0022-3514.68.4.671
- Parra, G. R., DuBois, D. L., Neville, H. A., Pugh-Lilly, A. O., & Povinelli, N. (2002). Mentoring relationships for youth: Investigation of a process-oriented model. *Journal of Community Psychology, 30*, 367-388. doi:10.1002/jcop.10016
- Pianta, R. C. (1999). *Enhancing relationships between children and teachers*. Washington, DC: American Psychological Association.
- Pianta, R. C., & Steinberg, M. (1992). Teacher-child relationships and the process of adjusting to school. In R. C. Pianta (Ed.), *Beyond the parent: The role of other adults in children's lives: New directions for child development* (pp. 61-80). San Francisco, CA: Jossey-Bass.
- Poulsen, J., & Fouts, G. (2001). Facilitating academic achievement through affect attunement in the classroom. *The Journal of Educational Research, 94*, 185-190.
- Rhodes, J. E., Grossman, J. B., & Resch, N. R. (2000). Agents of change: Pathways through which mentoring relationships influence adolescents' academic adjustment. *Child Development, 71*, 1662-1671.
- Rhodes, J. E., & Lowe, S. R. (2009). Mentoring in adolescence. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 152-190). Hoboken, NJ: Wiley.
- Rhodes, J. E., Reddy, R., Roffman, J., & Grossman, J. (2005). Promoting successful youth mentoring relationships: A preliminary screening questionnaire. *Journal of Primary Prevention, 26*, 147-168.
- Spencer, R. (2006). Understanding the mentoring process between adolescents and adults. *Youth & Society, 37*, 287-315. doi:10.1177/0743558405278263
- Spencer, R. (2007). "It's not what I expected": A qualitative study of youth mentoring relationship failures. *Journal of Adolescent Research, 22*, 331-354. doi:10.1177/0743558407301915
- Spencer, R., & Rhodes, J. E. (2005). A counseling and psychotherapy perspective on youth mentoring. In D. L. DuBois & M. A. Karcher (Eds.), *Handbook of youth mentoring* (pp. 118-132). Thousand Oaks, CA: Sage.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. Boston, MA: Allyn & Bacon.
- Thomson, N., & Zand, D. H. (2010). Mentees' perceptions of their interpersonal relationships: The role of the mentor—Youth bond. *Youth & Society, 41*, 434-445. doi:10.1177/0044118X09334806
- Tracey, T., & Kokotovic, A. (1989). Factor structure of the Working Alliance Inventory. *Psychological Assessment, 1*, 207-210.
- Tryon, G. S., Blackwell, S. C., & Hammel, E. F. (2007). A meta-analytic examination of client-therapist perspectives of the working alliance. *Psychotherapy Research, 17*, 629-642. doi:10.1080/10503300701320611
- Zand, D. H., Thomson, N., Cervantes, R., Espiritu, R., Klagholz, D., LaBlanc, L., & Taylor, A. (2009). The mentor-youth alliance: The role of mentoring relationships in promoting youth competence. *Journal of Adolescence, 32*, 1-17. doi:10.1016/j.adolescence.2007.12.006

**Author Biographies**

**Jean E. Rhodes** is a professor of Psychology at the University of Massachusetts, Boston. A clinical-community psychologist, she completed her doctorate from DePaul University and her internship at the University of Chicago Medical School. Rhodes has devoted her career to understanding the role of intergenerational relationships in the lives of disadvantaged youth.

**Sarah E. O. Schwartz** received her doctorate in Clinical Psychology from the University of Massachusetts Boston and is currently a Postdoctoral Fellow in the MacArthur Foundation Connected Learning Research Network. Her research focuses on school- and community-based prevention programs for vulnerable youth.

**Margaret M. Willis** is a doctoral candidate in Sociology at Boston College. Her research interests include quantitative methodology, sociology of knowledge, and science, technology and society.

**Max B. Wu** is a Clinical Psychology graduate student at the University of Massachusetts-Boston, where he currently teaches Personality Psychology. His research is focused on mentor characteristics and motivations.