

# Agents of Change: Pathways through Which Mentoring Relationships Influence Adolescents' Academic Adjustment

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A conceptual model was tested in which the effects of mentoring relationships on adolescents' academic outcomes were hypothesized to be mediated partially through improvements in parental relationships. The parameters of the model were compared with those of an alternative, in which improved parental relationships were treated as an outcome variable rather than a mediator. The study included 959 young adolescents ( $M$  age = 12.25 years), all of whom applied to Big Brothers Big Sisters programs. The adolescents were randomly assigned to either the treatment or control group and administered questions at baseline and 18 months later. The hypothesized model provided a significantly better explanation of the data than the alternative. In addition to improvements in parental relationships, mentoring led to reductions in unexcused absences and improvements in perceived scholastic competence. Direct effects of mentoring on global self-worth, school value, and grades were not detected but were instead mediated through improved parental relationships and scholastic competence. Implications of the findings for theory and research are discussed.

## INTRODUCTION

Volunteer mentoring programs have been advocated increasingly as a means of promoting the academic achievement of adolescents who may be at risk for school failure (Campbell-Whatley, Algozzine, & Obiakor, 1997; Dondero, 1997; Levine & Nidiffer, 1996; Reglin, 1998; Rogers & Taylor, 1997). Indeed, approximately 5 million youth are involved in school- and community-based volunteer mentoring programs nationwide (McLearn, Colasanto, Schoen, & Shapiro, 1999), including more than 100,000 participants in Big Brothers Big Sisters of America programs (McKenna, 1998). Despite the growing popularity of this approach, very little is known about the underlying processes by which mentor relationships affect academic outcomes. In this study, a conceptual model of mentoring was proposed and tested.

## BACKGROUND

Evaluations of volunteer mentoring programs provide evidence of positive influences on adolescent developmental outcomes, including improvements in academic achievement (McPartland & Nettles, 1991), self-concept, lower recidivism rates among juvenile delinquents (Davidson & Redner, 1988), and reductions in substance abuse (LoSciuto, Rajala, Townsend, & Taylor, 1996). A national evaluation of Big Brothers Big Sisters programs found that in addition to positive changes in grades, perceived scholastic competence, truancy rates, and substance use, mentored youth were more likely than nonmentored youth

to report improved parent and peer relationships (Grossman & Tierney, 1998).

Although these findings are promising, basic questions remain regarding the underlying factors that may mediate mentors' influence over time. One possibility is that mentors indirectly affect outcomes through their positive influence on the more proximal relationships in adolescents' lives. In particular, mentors may bolster the protective effects of parental relationships, which are often strained among youth who are referred to relationship-based interventions (Freedman, 1995; Styles & Morrow, 1995; Tierney, Grossman, & Resch, 1995). Because the central component of mentoring programs is the formation of close alliances between adults and adolescents, mentor relationships can offer a model to adolescents of care and support. In doing so, mentors may challenge negative views that adolescents hold of themselves or of relationships with adults and demonstrate that positive, caring relationships with adults are possible. The helping relationship can thus become a "corrective experience" for those adolescents who may have experienced unsatisfactory relationships with their parents (Olds, Kitzman, Cole, & Robinson, 1997). This experience can then generalize, thereby enabling adolescents to perceive their proximal relationships as more forthcoming and helpful (Coble, Gantt, & Mallinckrodt, 1996; Fairbairn, 1952; Main, Kaplan, & Cassidy, 1985).

Support for the potential of positive relationships to modify adolescents' perceptions of other relationships is derived largely from attachment theory

(Bowlby, 1982). According to attachment theorists, children construct cognitive representations of relationships through their early experiences with primary caregivers (Bretherton, 1985). These experience-based expectations, or working models, are believed to be incorporated into the personality structure and to influence behavior in interpersonal relationships throughout and beyond childhood (Ainsworth, 1989; Bowlby, 1988). Although considered to be relatively stable over time, working models are flexible to modification in response to changing life circumstances, such as engagement in unconditionally supportive relationships (Belsky & Cassidy, 1994; Sroufe, 1995). Indeed, with the increases in perspective-taking and interpersonal understanding that often accompany this stage of development, adolescence may lend itself uniquely to the revision of working models (Selman, 1980). As Main et al. (1985, p. 11) have argued, "By adolescence, they [working models] have become quite firm, although new models of thinking here may also provide new opportunities for change."

Analyses of therapeutic alliances (Bowlby, 1978; Goldfried, 1995; Kohut, 1987), home visitors (Olds et al., 1997), and mentoring relationships (Flaxman, 1997) provide additional support for this process. For example, after intensively examining mentoring relationships, Styles and Morrow (1995) concluded that it was the experience of a trusting and consistently supportive mentor relationship, as opposed to a mentor's focus on specific goals, that predicted better outcomes among youth. They provided numerous examples of adolescents who developed emotional bonds with their mentors and then gradually began to experience more positive, trusting interactions with their parents and peers. Along similar lines, researchers have found that, in contrast to adolescents who do not have mentors, adolescents with mentors tend to report more satisfying relationships with their parents and other close providers (Hamilton & Darling, 1996; Rhodes, Contreras, & Mangelsdorf, 1994).

These positive changes in conceptions of relationships may also facilitate adolescents' capacity to use mentors as role models and to derive other cognitive and emotional benefits. By conveying messages regarding the value of school and serving as tangible models of success, mentors may stimulate adolescents' improved attitudes toward school achievement, perceived academic competence, and school performance (Bowman & Howard, 1985; Hamilton & Hamilton, 1990), as well as adolescents' beliefs about the relationship between educational attainment and future occupational opportunities (Klaw & Rhodes, 1995; Mickelson, 1990). To the extent that adolescents begin to place greater value on school as an important

context for attaining future goals, they are expected to achieve academically and behaviorally in that context (Eccles, 1983; Roeser, Midgley, & Urdan, 1996). In addition, through their provision of emotional support and positive feedback, mentors are thought to enhance adolescents' self-concept (Felson, 1993; Ryan, Stiller, & Lynch, 1994), which, in turn, is related to more positive perceptions of scholastic competence (Covington, 1992; Harter, 1993) and to school-related achievement and behavioral outcomes (Eccles, 1983).

Even among youth who generally perceive parental support as available, mentor relationships can alleviate some of the relationship tensions and conflicts that arise throughout adolescence. Alternative sources of adult support can mediate adolescents' paradoxical needs for both autonomy and adult guidance (Cooper, Grotevant, & Condon, 1983; Hill & Holmbeck, 1986). In addition, by helping the adolescent to cope with everyday stressors, providing a model for effective conflict resolution, and indirectly reducing parental stress, mentor relationships can facilitate improvements in parent-child interactions (Minuchin, 1992; Youniss & Smollar, 1985).

Improvements in parental relationships, in turn, can promote improvements in a wide array of outcomes, including the adolescents' self-worth (Garber, Robinson, & Valentiner, 1998), scholastic competence (Craik, 1997; Klebanov & Brooks-Gunn, 1992; Teachman, Paasch, & Carver, 1996), prosocial behavior (Catalano & Hawkins, 1996; Resnick, Bearman, Blum, et al., 1997), and academic outcomes (Eccles, Early, Fraser, Belansky, & McCarthy, 1997). Lau and Leung (1992), for example, found that better parental relationships were associated with higher levels of academic achievement and self-esteem and lower levels of delinquent behavior.

In summary, adolescents' capacity to benefit from the support of parents and other providers is presumed to be facilitated by the sense of support and acceptance that is derived from mentor relationships. Mentor relationships are expected to improve adolescents' more proximal, parental relationships which, in turn, should positively influence adolescents' global self-worth, perceived scholastic competence, school value, grades, and attendance. Additionally, through role modeling and the provision of emotional support and positive reinforcement, mentoring is expected to influence adolescents' perceptions of self-worth and their beliefs about their competence as learners and their valuing of school.

The hypothesized predictive model (Model 1) is illustrated in Figure 1. Although there is some support for the validity of the pathways proposed in this model, empirical tests have been largely limited to

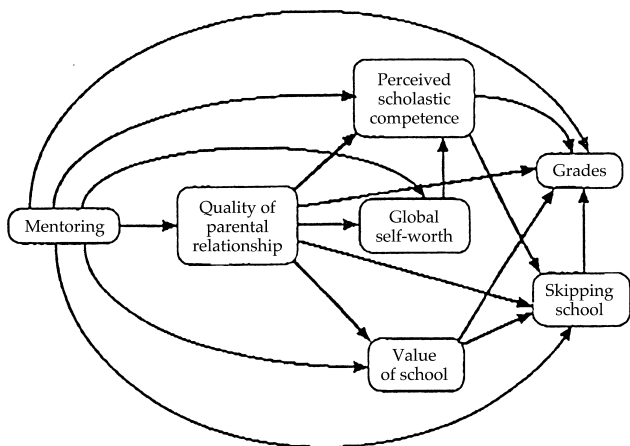


Figure 1 Model 1.

small-scale, cross-sectional studies. This study makes use of longitudinal data from a large sample of urban adolescents that were collected as part of the national evaluation of Big Brothers Big Sisters, the largest and arguably most influential evaluation of mentoring (Grossman & Tierney, 1998).

## METHOD

### Participants

The study included 1,138 youth, all of whom applied to Big Brothers Big Sisters programs in 1992 and 1993. Most agencies give preference to youth who have no more than one parent actively engaged in their lives. Other criteria include age (5 through 18), residence in the catchment area, and an agreement by the parent and child to follow agency rules. Applicants were randomly assigned to either the treatment or control group and administered questions at baseline and 18 months later. Eighty-five percent of the sample ( $N = 959$ , 487 treatments and 472 controls) completed both the baseline and the follow-up interviews. Over half of this analysis sample were boys (62.4%) and approximately half were members of minority groups (57.5%). Seventy-one percent of the minority youth were African Americans, 18% Hispanic, and the remaining were members of a variety of other racial/ethnic groups. Participants ranged in age from 10 to 16 ( $M = 12.25$ ), most (69%) of whom were between the ages of 11 and 13. Ninety percent of youth lived with one parent (94% mothers, 6% fathers), 5% lived with a grandparent, and the remaining participants lived in extended family or nonfamily arrangements. More than 40% of the youth lived in households that were receiving either food stamps or public

assistance or both. The only systematic difference between the treatment and control group youth at baseline was that the treatment youth had the opportunity to be matched with a mentor.

### Design and Procedure

From the network of more than 500 Big Brothers Big Sisters local agencies, eight agencies were selected to participate in the outcome study. The key selection criteria for inclusion in the impact study were a large, active caseload, a waiting list, and geographic diversity. With only a few exceptions, all of the youth who enrolled in the eight selected Big Brothers Big Sisters agencies during the intake period were encouraged to participate in the research. Once a youth was informed about the study, determined to be eligible, and assented to participate (along with a parent's signed, informed consent), he or she was randomly assigned to either the treatment or control group. Only 2.7% of the youth refused to participate in the evaluation. The control group was placed on a waiting list for a poststudy match. All participants were interviewed by telephone before they knew their experimental status. Follow-up interviews were conducted 18 months later by telephone.

Agency staff matched particular adult volunteers with particular youth on the basis of gender (only same-sex dyads) and a variety of factors, including shared interest, reasonable geographic proximity, and same-race match preference. All volunteers underwent an intensive screening process, followed by an agency-based training and ongoing case management. The training covered agency policies, communication, and relationship building, as well as issues of particular relevance to participating youth (e.g., grieving, sexual abuse). Dyads typically engaged in a wide variety of leisure- and career-oriented discussions and activities with the general goal of promoting the youth's positive development.

At the conclusion of the study, 378 (78%) of the treatment youth had been matched. Agency staff reported three major reasons for the failure to match the 109 treatment youth during the study period. Thirty-three of the unmatched treatment youth became ineligible during the study period because the parent remarried, the youth was no longer within the eligible age range, or the youth's place of residence changed. Thirty-one were not matched because the youth no longer wanted a Big Brother or Big Sister. Twenty-one were not matched because a suitable volunteer could not be found during the study period. The 24 remaining treatment youth were not matched for a variety of reasons, most commonly because the parent or youth did not

follow through with the intake process. Sixty percent of the matches were still active, whereas 40% were no longer meeting. The ongoing matches had been meeting for an average of 12.9 months, whereas the closed met for an average of 9 months. Over 70% of the youth met with their mentor at least three times a month and approximately 45% met one or more times per week. An average meeting lasted 3.6 hr.

## Measures

*Parent relationships.* The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) is a 23-item scale containing questions related to a child or adolescent's relationship with his/her primary caregiver (the corresponding peer questions were not administered). Responses are coded on a 4-point scale, ranging from "hardly ever true" (1) to "very often true" (4). The IPPA contains three subscales: communication (e.g., my mother can tell when I am upset about something), trust (e.g., my father respects my feelings), and alienation (e.g., talking over problems with my mother makes me feel ashamed or foolish). At pretest, Cronbach's  $\alpha$  reliability coefficients of the subscales were .77, .83, and .76, respectively. Only the pretest  $\alpha$ s are reported. Posttest  $\alpha$ s equaled or exceeded pretest  $\alpha$ s in all instances.

*Scholastic competence.* This six-item subscale of the Self-Perception Profile for Children (Harter, 1986) contains statements describing confidence in school work that divide children into two groups, for example, "some kids feel that they are very good at their schoolwork/other kids worry about whether they can do the schoolwork assigned to them." Respondents were asked to determine if they were more like the first or second group and whether the statement was "really true" or "sort of true" for them. Scores ranged from 1 to 4, with higher scores reflecting more positive self-evaluations,  $\alpha = .77$ .

*Grades and attendance.* Individual items relating to scholastic behaviors were asked, including number of unexcused absences from school, grades, visits to college campuses, books read, trips to the library, hours spent on homework, and hours spent reading. For purposes of this study, we focused on the number of unexcused absences and grades, ranging from "mostly D's and F's" (1) to "only A's" (8).

*School value.* This 18-item measure (Berndt & Miller, 1986) assesses the extent to which respondents value academic success and the information that they learn in school, for example, "do you care about doing your best at school?" On a 4-point scale, ranging from "hardly ever" (1) to "pretty often" (4), respondents were asked to indicate the fre-

quency with which they felt certain ways about school,  $\alpha = .86$ .

*Self-worth.* This six-item subscale of the Self-Perception Profile for Children (Harter, 1986) contains statements describing the global self-worth of two groups, for example, "some kids are pretty pleased with themselves/other kids are often unhappy with themselves." Respondents were asked to determine whether they were more like the first or second group and whether the statement was "really true" or "sort of true" for them. Scores ranged from 1 to 4, with higher scores reflecting more positive self-evaluations,  $\alpha = .75$ .

*Treatment status.* A youth's exposure to mentoring was captured by their treatment status which was coded dichotomously with 0 = control and 1 = treatment. To avoid biases in the measurement of mentoring effects, both matched and unmatched treatment participants were included in the analyses. If the unmatched treatments were systematically different from their matched counterparts, their exclusion would have biased the impact estimate because the similar control youth were not excluded from the analyses. The only way to obtain an unbiased estimate of mentoring's impact was to compare the entire treatment group (matched and unmatched) with the entire control group (Rossi & Freeman, 1993).

## RESULTS

Table 1 presents the mean and *t* test of the change score difference for each of the six outcomes. Although the two groups were equivalent at baseline, the treatment group youth reported relatively better parental relationships, scholastic competence, and school attendance at follow-up. The other three changes, although not statistically significant, were in the predicted direction.

We hypothesized that mentoring would directly impact the adolescents' perceptions (i.e., global self-

**Table 1** Means and *t* Tests of Change Score Differences

	Treatment Mean	Control Mean	<i>t</i> test of Difference
IPPA	.36 (11.8)	-1.18 (12.5)	-1.96*
Global self-worth	.96 (4.4)	.65 (5.0)	-1.01
Value of school	-.45 (7.8)	-1.41 (8.2)	-1.87+
Scholastic competence	1.17 (4.6)	.22 (4.6)	-3.18**
Days of school skipped	.04 (2.2)	.61 (2.9)	3.45**
Grades (1 = low, 8 = high)	-.10 (1.8)	-.25 (1.8)	-1.26

Note: Standard errors in parentheses.

\* $p < .05$ ; \*\* $p < .01$ ; + $p < .10$ .

worth, perceived scholastic competence, value of school) and indices of academic performance and behavior (i.e., grades and unexcused absences), as well as the quality of adolescents' parental relationships. Parental relationships, in turn, were hypothesized to affect all of the mediators and outcomes, including the adolescents' perceptions (i.e., global self-worth, perceived scholastic competence, value of school), and academic performance and behavior. Grades were hypothesized to depend on the value that adolescents placed on school, their perceived scholastic competence, and school attendance. Unexcused absences were expected to depend on the value that youth placed on school and their perceived scholastic competence. Because we were interested in explaining changes during the 18-month period and not the level of the outcomes, baseline levels of outcome variables were controlled for in the equation.

To test the hypothesis that the impact of mentoring is mediated by its effect on the parental relationship, we compared Model 1 to an alternative, nested model (Model 2) in which the quality of the parental relationship was treated as an outcome variable, like grades and school attendance, rather than a mediator. Perceived scholastic competence, school value, and self-worth were treated as mediators for academic outcomes but not for the quality of the parental relationship (see Figures 1 and 2). Comparing the relative fit of these two alternative models to the data tests whether the quality of the parental relationship is a mediator through which mentoring affects academic outcomes.

Both Models 1 and 2 were analyzed by using Lisrel 8 (Jöreskog & Sörbom, 1993). A modification of the models was indicated by the data and was theoretically justifiable, namely the addition of a path from scholastic competence to the value of school. The addition of this path strengthened the fit of the models

but reduced the direct effect of mentoring on the value of school. To gauge the goodness-of-fit of the two models, we examined several statistics. Although a low, nonsignificant goodness-of-fit  $\chi^2$  statistic corresponds to a better fitting model, it is very sensitive to the sample size and increases as the sample increases. Because our sample is relatively large,  $N = 959$ , we also examined other goodness-of-fit measures that were designed to gauge how good an approximation the models are in large samples. These other measures are the Root Mean Square Error of Approximation (RMSEA, Steiger, 1990), which measures the discrepancy per degree of freedom; Goodness of Fit Indices (GFI and Adjusted GFI); and Comparative Fit Index (CFI). According to these goodness-of-fit measures, the model fit reasonably well. The  $\chi^2$  statistic for Model 1 was significant but relatively low,  $\chi^2(33, N = 959) = 77.2, p < .01$ , and the RMSEA was .038, less than the target .05 level. The GFI was .99, the AGFI was .97, and the CFI was .98, all greater than the target .90. The goodness-of-fit statistics for Model 2 were as follows:  $\chi^2(38, N = 959) = 258.6, p < .001$ , RMSEA = .08; GFI = .96; AGFI = .91; and CFI = .91. To determine if the parental relationship mediated any part of mentoring impact, we tested whether all the hypothesized paths from IPPA to the other outcomes were jointly equal to 0. This hypothesis was strongly rejected,  $\chi^2(5, N = 959) = 181, p < .001$ , which indicates that Model 1 is a significantly better explanation of the data than the alternative Model 2. For this reason, most of the subsequent discussion will center on Model 1.

Tables 2 and 3 present the maximum likelihood parameter estimates of the models. Because the purpose of the paper was to determine whether the effects of mentoring were mediated through improved parental relationships (rather than to compare the relative effects of variables on others), standardized coefficients were not calculated. As indicated on Table 2, the hypothesis of a direct influence of mentoring on the youth's global self-worth, school value, and grades was rejected. On the other hand, the direct effect of mentoring on the youth's parental relationship, perceived scholastic competence, and skipping school was supported. The quality of the youth's parental relationship directly affected most of the outcome variables but did not directly affect grades, once the value of school and perceived scholastic competence (both affected by the parent) were controlled. As hypothesized, skipping school had a negative effect on grades.

Table 4 presents the estimated direct and indirect effects of mentoring on the six outcomes, as predicted by Model 1. When both the direct and the indirect effects were accounted for, mentoring led to statistically significant improvements in five of the six outcomes (see

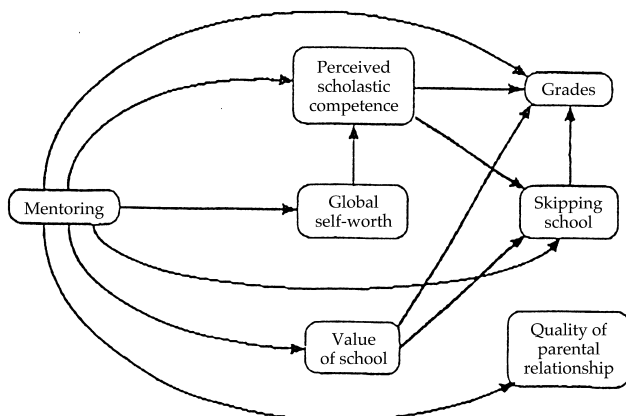


Figure 2 Model 2.

**Table 2** Maximum Likelihood Estimates of Model 1

Independent Variables	Dependent Variables					
	IPPA	Global Self-Worth	Value of School	Scholastic Competence	Day of School Skipped	Grades
Treatment assignment (0 = control, 1 = treatment)	.22**	.12	.04	.26**	-.28***	.08
IPPA		.25***	.26***	.08***	-.09***	.00
Global self-worth				.29***		
Value of school					-.11***	.19***
Perceived scholastic competence			.22**		.02	.25***
Days of school skipped						-.18***

Note: In addition to the variables included in the table, baseline values of the dependent variables were also included in the relevant equation.

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

Figure 3). It led to improvements in the youth's relationships with their parents, school value, scholastic competence, grades, and reductions in school non-attendance. In the case of the parental relationship, scholastic competence and school attendance, the positive total effects derived primarily from the direct impact of the mentoring relationship. In the case of the youth's value of school and their grades, the effect was primarily indirect, through mentoring's impact on the parental relationship and on the youth's perceived scholastic competence. The indirect effect of mentoring on global self-worth was statistically significant but small, and thus when it is added to the statistically imprecise direct-effect estimate, we cannot reject the hypothesis that the total effect is zero.

## DISCUSSION

The results of this study highlight the benefits of mentoring interventions and validate the hypothesis that

improved perceptions of parental relationships, although not the sole determinant, are important mediators of change in adolescents' academic outcomes and behaviors. Mentoring led to improvements in five of the six hypothesized mediator and outcome variables. It directly affected scholastic competence and school attendance, which suggests that, through role modeling, tutoring, and encouragement, mentors can influence both the cognitive and behavioral dimensions of adolescents' approach to school.

A comparison of the two models suggests that the effects of mentoring are mediated partially through improvements in adolescents' perceptions of their parental relationships. Whether this occurs through changes in the attachment processes remains undetermined because it is unclear whether the affectional bond that arises within the mentor relationship actually leads to changes in the adolescents' working model of relationships or simply improves the parental relationship through a reduction in normative de-

**Table 3** Maximum Likelihood Estimates of Model 2

Independent Variables	Dependent Variables					
	IPPA	Global Self-Worth	Value of School	Scholastic Competence	Day of School Skipped	Grades
Treatment assignment	.22**	.17	.10	.27***	-.14***	.08
Global self-worth				.32***		
Value of school					-.13***	.19***
Perceived scholastic competence			.28***		.00	.25***
Days of school skipped						-.18**

Note: In addition to the variables included in the table, baseline values of the dependent variables were also included in the relevant equation to control for Time 1 scores.

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

**Table 4** Total, Direct, and Indirect Effects of Mentoring

Outcome	Total Effect	Direct Effect	Indirect Effect
IPPA	1.51**	1.51	n.a.
Global self-worth	.39	.27	.12**
Value of school	.78*	.23	.55***
Scholastic competence	.79***	.62***	.17*
Days of school skipped	-.49***	-.43***	-.05*
Grades (1 = low, 8 = high)	.22**	.07	.15***

Note: n.a. = not applicable.

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

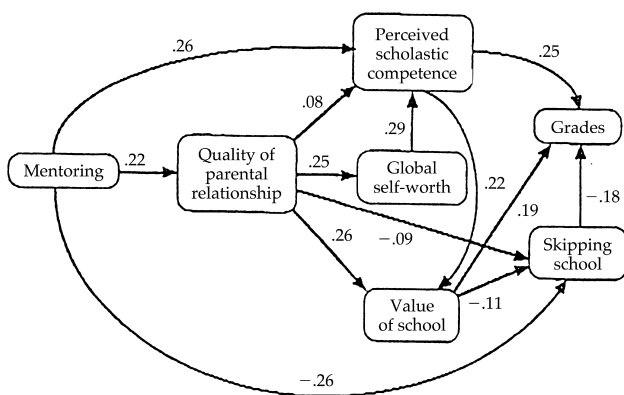
velopmental tensions. Whatever the underlying processes, it appears that guidance and support from an adult outside of the home can lead to improvements in the quality of the parent-child relationship. Although most research on parent socialization has focused largely on the characteristics of the parent or child that increase or decrease the quality of the parent-child relationship, this research underscores the importance of examining factors outside this dyad that may be influential.

As predicted, improvements in perceptions of parental relationships led to improvements in the value that adolescents placed on school. It is possible that, as the parental relationship improved, the adolescent developed more prosocial values. As such, adolescents may have become more compliant with their parents' suggestions regarding homework, studying, and attendance. Also as predicted, this shift in values led to less truancy and improved grades. Consistent with previous research, improvements in adolescents' global self-worth were associated with improved perceptions of scholastic competence (Harter, 1993). Mentoring did not directly affect global self-worth but was mediated instead through improved perceptions of parental rela-

tionships. It may be the case that mentors' influence on self-appraisals is more domain specific (i.e., academics) and not captured through general indices of self-worth (DuBois, Felner, Brand, & George, 1999). The findings presented in this study are consistent with this perspective in that there was a direct effect on perceived scholastic competence. It is also possible that because adolescence constitutes a period of identity formation and change, global self-worth may be influenced over a relatively longer period of time (Demo & Savin-Williams, 1992). This would imply that the impact of mentoring on changes in self-concept might depend on the duration of the relationship. Indeed, mentoring relationships that last 12 months or longer have been found to be associated with significant improvements in adolescents' self-worth, whereas those with earlier terminations tend to have mild or even negative effects on these domains (Grossman & Rhodes, in press). As such, future models of mentoring processes should incorporate measures of relationship duration.

It will also be important to understand how variations in mentor styles and characteristics affect these pathways and whether the pathways of the model change as a function of such variables as an adolescent's previous experiences, presenting problems, gender, race, ethnicity, or age. Future models should also incorporate additional mediating variables (e.g., peer relationships) and dependent variables (e.g., psychological outcomes). Finally, it will be important to incorporate multidimensional indices of self-concept that capture adolescents' self-appraisals across both domains and relational contexts (Bracken, 1996; DuBois et al., 1999; Harter, Waters, Whitesell, & Kastelic, 1998).

The strengths and limitations of the research deserve comment. On the positive side, the use of longitudinal data and structural equation modeling afforded a sensitive test of the hypotheses. Similarly, the large, national sample of adolescents confers confidence in the precision of the parameter estimates and the generalizability of the findings. Nonetheless, the mentor relationships were all situated within the context of a single youth mentoring program. The pattern of findings may thus not apply as well to mentoring interventions that provide volunteers with less training and supervision than is typical of Big Brothers Big Sisters. It is also worth noting that the assessments were based solely on the adolescents' perceptions. The participants may have been limited in their ability to engage in assessments of their parental relationships or inhibited in their willingness to report personal problems or relationship difficulties. Similarly, participants might have exaggerated their academic progress. It is important to note, however, that self-reported grades have been shown to be an accurate gauge of students'



**Figure 3** Maximum likelihood estimates of Model 1.

actual school performance (Johnson, 1975; Sawyer, Laing, & Houston, 1989). Nonetheless, future studies should include additional sources of data.

These findings also have implications for the refinement of mentoring interventions. It appears that mentors can positively influence adolescents' behaviors, school attendance, and sense of competence in school, so the expansion of high-quality mentoring should continue. In light of the crucial role of positive relationships in catalyzing change and the particular vulnerabilities of at-risk adolescents to disappointment and rejection in interpersonal relationships (Downey & Feldman, 1996), such expansion should occur with caution and have sufficient resources to ensure reasonable levels of screening, training, and postmatch mentor support (Sipe, 1996). Additionally, program personnel should remain sensitive to the potential role that parental relationships can play in mediating mentors' effects and develop ways to capitalize on this function. If parents feel involved in, as opposed to supplanted by, the provision of additional adult support in their children's lives, they are likely to reinforce mentors' positive influences. Bowlby (1979, p. 103) has remarked that humans seem "happiest and able to deploy their talents to best advantage when they are confident that, standing behind them, there are one or more trusted persons who will come to their aid should difficulties arise." To the extent that mentors and parents can work together to provide this backdrop, adolescents are likely to show improvements in multiple domains.

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## REFERENCES

Ainsworth, M. (1989). Attachments beyond infancy. *American Psychologist, 44*, 709–716.

- Armsden, G. C., & Greenberg, M. T. (1987). The Inventory of Parent and Peer Attachment (IPPA): Relationship to well being in adolescence. *Journal of Youth and Adolescence, 16*, 427–454.
- Belsky, J., & Cassidy, J. (1994). Attachment and close relationships: An individual-difference perspective. *Psychological Inquiry, 5*, 27–30.
- Berndt, T., & Miller, K. (1986). Expectancies, values, and achievement in junior high school. *Journal of Educational Psychology, 82*, 319–326.
- Bowlby, J. (1978). Attachment theory and its therapeutic implications. *Adolescent Psychiatry, 6*, 5–3.
- Bowlby, J. (1979). *The making and breaking of affectional bonds*. London: Tavistock.
- Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry, 52*, 664–676.
- Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York: Basic.
- Bowman, P. J., & Howard, C. (1985). Race-related socialization, motivation, and academic achievement: A study of Black youths in three-generation families. *Journal of the American Academy of Child Psychiatry, 24*, 134–141.
- Bracken, B. A. (1996). Clinical applications of a context-dependent, multidimensional model of self-concept. In B. A. Bracken (Ed.), *Handbook of self-concept: Developmental, social, and clinical considerations* (pp. 463–503). New York: Wiley.
- Bretherton, I. (1985). Attachment theory: Retrospect and prospect. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research* (pp. 3–35). *Monographs of the Society for Research in Child Development, 50*(1–2, Serial No. 209).
- Campbell-Whately, G. D., Algozzine, B., & Obiakor, F. (1997). Using mentoring to improve academic programming for African American male youths with mild disabilities. *School Counselor, 44*, 362–367.
- Catalano, R. F., & Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior. In J. David Hawkins (Ed.), *Delinquency and crime: Current theories. Cambridge criminology series* (pp. 149–197). New York: Cambridge University Press.
- Coble, H. M., Gantt, D. L., & Mallinckrodt, B. (1996). Attachment, social competency, and the capacity to use social support. In G. R. Pierce, B. R. Sarason, & I. G. Sarason (Eds.), *Handbook of social support and the family*. New York: Plenum.
- Cooper, C. R., Grotevant, H. D., & Condon, S. M. (1983). Individuality and connectedness both foster adolescent identity formation and role taking skills. In H. D. Grotevant & C. R. Cooper (Eds.), *Adolescent development in the family: New directions for child development* (pp. 43–59). San Francisco: Jossey-Bass.
- Covington, M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform*. New York: Cambridge University Press.
- Craik, L. R. (1997, November). Attachment to parents and peers in early adolescence: Relationships to perceived scholastic competence and academic achievement. *Dis-*



- sertation Abstracts International Section A: Humanities & Social Sciences, 58, 1577.
- Davidson, W. S., & Redner, R. (1988). The prevention of juvenile delinquency: Diversion from the juvenile justice system. In R. H. Price, E. L. Cowen, R. P. Lorion, & J. Ramos-McKay (Eds.), *Fourteen ounces of prevention: Theory, research, and prevention* (pp. 123–137). New York: Pergamon.
- Demo, D. H., & Savin-Williams, R. C. (1992). Self-concept stability and change during adolescence. In R. P. Lipka & T. M. Brinthaupt (Eds.), *Self-perspectives across the life span* (pp. 116–150). Albany: State University of New York Press.
- Dondero, G. M. (1997). Mentors: Beacons of hope. *Adolescence*, 32, 881–886.
- Downey, G., & Feldman, S. I. (1996). The implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*, 70, 1327–1343.
- DuBois, D. L., Felner, R. D., Brand, S., & George, G. R. (1999). Profiles of self-esteem in early adolescence: Identification and investigation of adaptive correlates. *American Journal of Community Psychology*, 27, 899–932.
- Eccles, J. S. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *The development of achievement, promotion* (pp. 283–331). Greenwich, CT: JAI Press.
- Eccles, J. S., Early, D., Fraser, K., Belansky, E., & McCarthy, K. (1997). The relation of connection, regulation, and support for autonomy to adolescents' functioning. *Journal of Adolescent Research*, 12, 263–286.
- Fairbairn, W. R. D. (1952). *An object-relation theory of the personality*. New York: Basic.
- Felson, R. B. (1993). The (somewhat) social self: How others affect self-appraisals. In J. Suls (Ed.), *Psychological perspectives on the self* (pp. 1–26). Hillsdale, NJ: Erlbaum.
- Flaxman, E. (1997). *Youth mentoring: Programs and practices*. (ERIC Clearinghouse on Urban Education, No. 97) New York: Columbia University.
- Freedman, M. (1995). *The kindness of strangers: Adult mentors, urban youth, and the new volunteerism*. San Francisco: Jossey-Bass.
- Garber, J., Robinson, N. S., & Valentiner, D. (1998). The relation between parenting and adolescent depression: Self-worth as a mediator. *Journal of Adolescent Research*, 12, 12–33.
- Goldfried, M. R. (1995). *From cognitive-behavior therapy to psychotherapy integration: An evolving view*. New York: Springer Publishing Co., Inc.
- Grossman, J. B., & Rhodes, J. E. (in press). The test of time: Length of mentoring relationship as a predictor of adolescent outcomes. *American Journal of Community Psychology*.
- Grossman, J. B., & Tierney, J. P. (1998). Does mentoring work? An impact study of the Big Brothers/Big Sisters. *Evaluation Review*, 22, 403–426.
- Hamilton, S. F., & Darling, N. (1996). Mentors in adolescents lives. In K. Hurrelmann & S. F. Hamilton (Eds.), *Social problems and social contexts in adolescence: Perspectives across boundaries* (pp. 199–215). New York: Aldine De Gruyter.
- Hamilton, S. F., & Hamilton, M. A. (1990). *Linking up: Final report on a mentoring program for youth*. New York: Cornell University, College of Human Ecology.
- Harter, S. (1986). Cognitive-developmental processes in the integration of concepts about emotions and the self [Special issue: Developmental perspectives on social-cognitive theories]. *Social Cognition*, 4, 119–151.
- Harter, S. (1993). Causes and consequences of low self-esteem in children and adolescents. In R. F. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard*. New York: Plenum.
- Harter, S., Waters, P. L., Whitesell, N., & Kastelic, D. (1998). Level of voice among female and male high school students: Relational context, support, and gender orientation. *Developmental Psychology*, 34, 892–901.
- Hill, J. P., & Holmbeck, G. N. (1986). Attachment and autonomy during adolescence. In G. J. Whitehurst (Ed.), *Annals of child development* (pp. 145–189). Greenwich, CT: JAI.
- Johnson, P. B. (1975). Achievement motivation and self-reported grade point average. *Psychology in the Schools*, 12, 402–404.
- Jöreskog, K. G., & Sörbom, D. (1993). *Lisrel 8: Structural equation modeling with the SIMPLIS command language*. Hillsdale, NJ: Erlbaum.
- Klaw, E. L., & Rhodes, J. E. (1995). Mentor relationships and the career development of pregnant and parenting African American teenagers. *Psychology of Women Quarterly*, 19, 551–562.
- Klebanov, P., & Brooks-Gunn, J. (1992). Impact of maternal attitudes, girls' adjustment, and cognitive skills upon academic performance in middle and high school. *Journal of Research on Adolescence*, 2, 81–102.
- Kohut, H. (1987). Extending empathic understanding, sharing an attitude. In Elson, M. (Ed.), *The Kohut seminars on self psychology and psychotherapy with adolescents and young adults*. New York: Norton.
- Lau, S., & Leung, K. (1992). Relations with parents and school and Chinese adolescents' self-concept, delinquency, and academic performance. *British Journal of Educational Psychology*, 62, 193–202.
- Levine, A., & Nidiffer, J. (1996). *Beating the odds: How the poor get to college*. San Francisco: Jossey-Bass.
- LoSciuto, L., Rajala, A. K., Townsend, T. N., & Taylor, A. S. (1996). An outcome evaluation of Across Ages: An inter-generational mentoring approach to drug prevention. *Journal of Adolescent Research*, 11, 116–129.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research* (pp. 66–104). *Monographs of the Society for Research in Child Development*, 50 (1–2, Serial No. 209).
- McKenna, T. (1998, June). *Big Brothers/Big Sisters of America: A view from the national level*. Papers presented at The State and Future of Mentoring Symposium. Washington, DC.
- McLearn, K. T., Colasanto, D., Schoen, C., & Shapiro, M. Y. (1999). Mentoring matters: A national survey of adults mentoring young people. In J. B. Grossman (Ed.), *Contemporary issues in mentoring* (pp. 66–83). Philadelphia: Public/Private Ventures.

- McPartland, J. M., & Nettles, S. M. (1991). Using community adults as advocates or mentors for at-risk middle school students: A two-year evaluation of project RAISE. *American Journal of Education*, *99*, 568–586.
- Mickelson, R. A. (1990). The attitude-achievement paradox among black adolescents. *Sociology of Education*, *63*, 44–61.
- Minuchin, P. (1992). Conflict and child maltreatment. In C. U. Shantz & W. W. Hartup (Eds.), *Conflict in child and adolescent development. Cambridge studies in social and emotional development* (pp. 380–401). New York: Cambridge University Press.
- Olds, D., Kitzman, H., Cole, R., & Robinson, J. (1997). Theoretical formulations of a program of home visitation for pregnant women and parents of young children. *Journal of Community Psychology*, *25*, 9–26.
- Reglin, G. (1998). *Mentoring students at risk: An underutilized alternative education strategy for K-12 teachers*. Springfield, IL: Charles C. Thomas.
- Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J., Tabor, J., Beuhring, T., Sieving, R. E., Shew, M., Ireland, M., Bearinger, L. H., & Udry, J. R. (1997, September 10). Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association*, *278*, 823–832.
- Rhodes, J. E., Contreras, J. M., & Mangelsdorf, S. C. (1995). Natural mentor relationships among Latina adolescent mothers: Psychological adjustment, moderating processes, and the role of early parental acceptance. *American Journal of Community Psychology*, *22*, 211–228.
- Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology*, *88*, 408–422.
- Rogers, A. M., & Taylor, A. S. (1997). Intergenerational mentoring: A viable strategy for meeting the needs of vulnerable youth. *Journal of Gerontological Social Work*, *28*, 125–140.
- Rossi, P. H., & Freeman, H. (1993). *Evaluation: A systematic approach*. Newbury Park, CA: Sage.
- Ryan, R. M., Stiller, J. D., & Lynch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence*, *14*, 226–249.
- Sawyer, R., Laing, J., & Houston, W. (1989). Accuracy of self-reported high school courses and grades of college-bound students. *College and University*, *26*, 280–299.
- Selman, R. (1980). *The growth of interpersonal understanding*. New York: Academic Press.
- Sipe, C. L. (1996). *Mentoring: A synthesis of P/PV's Research: 1988–1995*. Philadelphia: Public/Private Ventures.
- Sroufe, A. L. (1995). Contribution of attachment theory to developmental psychopathology. In E. A. Carlson & A. L. Sroufe (Eds.), *Developmental psychopathology: Vol. 1. Theory and methods*. New York: Plenum.
- Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, *25*, 173–180.
- Styles, M. B., & Morrow, K. V. (1995). *Understanding how youth and elders form relationships: A study of four linking lifetimes programs*. Philadelphia: Public/Private Ventures.
- Teachman, J. D., Paasch, K., & Carver, K. (1996). Social capital and dropping out of school early. *Journal of Marriage and the Family*, *58*, 773–783.
- Tierney, J. P., Grossman, J. B., & Resch, N. L. (1995). *Making a difference: An impact study of Big Brothers/Big Sisters*. Philadelphia: Public/Private Ventures.
- Youniss, J., & Smollar, J. (1985). *Adolescent relations with mothers, fathers, and friends*. Chicago: University of Chicago Press.