

SOCIOLOGY OF EDUCATION

Volume 82

October 2009

Number 4

High School Classmates and College Success

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Supply- and Demand-side Models of
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*Another Way Out:
The Impact of Juvenile Arrests on
High School Dropout*

PAUL HIRSCHFIELD



A Journal of the American Sociological Association

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SOCIOLOGY OF EDUCATION (ISSN 0038-0407) is published quarterly in January, April, July, and October by the American Sociological Association, 1430 K Street, N.W., Suite 600, Washington, DC 20005-2529, and is printed by Boyd Printing Company, Albany, New York. Periodicals postage is paid at Washington, DC, and additional mailing offices. POSTMASTER: Send address changes to Sociology of Education, 1430 K Street, N.W., Suite 600, Washington, DC 20005-2529.

Address manuscripts and communications for the editors to Barbara Schneider, Editor, SOCIOLOGY OF EDUCATION, Department of Education, Michigan State University, 516B Erickson Hall, East Lansing, MI 48824; e-mail soe@msu.edu.

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The American Sociological Association acknowledges, with appreciation, the facilities and assistance provided by Michigan State University.

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———. 1982*b*. *High School Achievement: Public, Catholic and Other Private Schools Compared*. New York: Basic.

Mare, Robert D. 1979. "Change and Stability in Educational Stratification." Paper presented at the annual meeting of the American Sociological Association, Boston.

Marx, Karl (1867) 1976. *Capital*. Vol. 1. Translated by S. Moore and E. Aveling. New York: International.

U.S. Bureau of the Census. 1979. *1970 Census Population and Housing. Fourth Count Population Summary Tape*. Machine-readable data file. Washington, DC: U.S. Bureau of the Census (producer). Rosslyn, VA: DUALabs (distributor).

Informal Mentors and Education: Complementary or Compensatory Resources?

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Few studies have examined the impact of mentoring (developing a special relationship with a nonparental adult) on educational achievement and attainment in the general population. In addition, prior research has yet to clarify the extent to which mentoring relationships reduce inequality by enabling disadvantaged youths to compensate for the lack of social resources or to promote inequality by serving as a complementary resource for advantaged youths. The results of a nationally representative sample of youths show (1) a powerful net influence of mentors on the educational success of youths and (2) how social background and parental, peer, and personal resources condition the formation and effectiveness of mentoring relationships. The findings uncover an interesting paradox—that informal mentors may simultaneously represent compensatory and complementary resources. Youths with many resources are more likely than are other young people to have mentors, but those with few resources are likely to benefit more from having a mentor—particularly a teacher mentor—in their lives.

Sociological research has long recognized the contributions of significant others in the educational process (Sewell, Haller, and Ohlendorf 1970), but the research has tended to focus on the contributions of parents, peers, and teachers (e.g., Conley 2001; Crosnoe, Johnson, and Elder 2004; Downey and Pribesh 2004) and paid little attention to other individuals in the social networks of youths (but see Cheng and Starks 2002; Hofferth, Boisjoly, and Duncan 1998). However, an emerging line of work has begun to study the role of mentors in the lives

of young people (for reviews, see DuBois et al. 2002; Jacobi 1991). Mentors are nonparental adults who take a special interest in the lives of youths. They step outside their normal social roles as teachers, relatives, youth workers, ministers, and employers by helping to guide young people in the transition to adulthood with advice and emotional support and by serving as role models.

Much of the work on mentoring has examined relationships with *formal* mentors, or adults who volunteer in organized mentoring programs like Big Brothers/Big Sisters that are designed as interventions for youths who are

“at risk” or who experience substantial disadvantage. Fewer studies have investigated *informal* mentoring—or naturally occurring mentoring—even though most young people report a relationship with an informal mentor (Beam, Chen, and Greenberger 2002; McDonald et al. 2007). Scholarship on informal mentoring has been limited because of the almost-exclusive focus on the role of mentoring in the lives of disadvantaged youths. Consequently, little is known about the impact of mentoring on the educational performance and attainment of America’s youths.

Furthermore, most research has failed to examine the interdependence of informal mentors and other social relationships. Studies have typically held constant the resources available to youths by sampling narrowly defined disadvantaged populations. When broader populations have been examined, the effects of mentoring have tended to be assessed independently of other potential resources. These strategies mask issues of selection and the extent to which existing resources condition the effectiveness of mentoring relationships. Without examining mentoring as a component of a larger constellation of social relationships among youths, past studies have been unable to identify whether informal mentors enable youths to compensate for the lack of available social resources or complement the wealth of resources maintained by the advantaged (Hamilton and Hamilton 2004; Rhodes 2002). The focus on mentors of disadvantaged youths implies that mentoring helps at-risk youths “catch up” to their more fortunate contemporaries. Yet, informal mentoring may actually be more prevalent among and more effective for advantaged youths.

In this article, we address these issues through an empirical examination of the National Longitudinal Study of Adolescent Health (Add Health). First, we assess the impact of informal mentoring on the educational success of young people. In doing so, we draw from the Add Health Academic Achievement study (AHAA), which links information on Add Health respondents to data from high school transcripts to examine students’ scholastic performance in high school. We also investigate educational attainment through self-reported survey information in

Wave 3 of Add Health. These outcomes refer to distinct, although related, processes, with achievement referring to the educational performance of students during the high school years and educational attainment generating insights into longer-term educational trajectories and prospects for socioeconomic careers. In combination, these perspectives provide a more nuanced understanding of the specific contexts in which mentors are likely to matter the most. Second, we investigate the specific types of mentors (relatives, friends, teachers, or community members) who have the greatest influence on educational performance and attainment. Third, we situate the relationship between informal mentoring and educational success within the context of a broader set of potential resources (including those that are linked to social background, parents and peers, school, and the individual). In other words, we consider whether the availability of these various social resources conditions the formation and effectiveness of mentoring relationships.

The present study shows that mentors have a strong positive impact on both performance in high school and educational attainment overall, even after other resources on which youths may draw are controlled for. Relatives, friends, teachers, and community-based mentors all contribute to educational success. The findings also show that mentoring can serve as both a compensatory and a complementary resource for young people. Mentoring relationships are more likely to form among youths with an abundance of other resources to draw upon, thereby highlighting the complementary role that mentoring plays for the socially advantaged. The results on the effectiveness of mentoring are more mixed. Mentoring relationships with relatives result in more positive educational attainment for advantaged than disadvantaged youths. Relatives of advantaged adolescents most likely have valuable expertise on education. However, teacher mentors have a substantial impact on the educational attainment of disadvantaged youths. Consequently, this article shows (1) how mentoring relationships can contribute to individual educational success and (2) how mentoring can promote both greater equality and greater inequality in society.

IMPACT OF MENTORING RELATIONSHIPS ON EDUCATION

By focusing on the influence of social relationships on educational success, our study follows a tradition of research on social capital. Much of the initial emphasis on social capital was on the controlling and constraining aspects of relationships (e.g., Coleman 1988). However, our research is more squarely aligned with recent conceptualizations of social capital that have highlighted the importance of resources embedded in social networks (Kim and Schneider 2005; Lin 2001; Maeroff 1998; Stanton-Salazar 2001; Stanton-Salazar and Dornbusch 1995). In this way, we note that mentors serve as vital resources that youths may draw on to achieve academic success.

Mentors are nonparental adults in the lives of young people, typically several years older than their protégés, and may come from different relationships: relatives, older siblings and friends, teachers, coaches, clergy, employers, or coworkers (Rhodes 1994). What distinguishes typical nonparental adult relationships from mentoring relationships—for example, teachers from teacher mentors—is that a mentor steps outside the boundaries of his or her typical role to take a special interest in a young person, offering advice and support to help the young person find his or her way in the social environment (Jacobi 1991). Consequently, mentors represent a potentially important resource for youths during the transition to adulthood and beyond.

Compared to mentoring, other predictors of educational success, such as social background and the resources indexed by parents, peers, schools, and individual attributes, have received far greater attention from researchers. First, a number of social background factors are associated with educational performance, including race (Wiggin 2007) and neighborhood characteristics (Garner and Raudenbush 1991). Second, numerous studies have documented how parents can positively influence their children's education through effective surveillance and sanctioning (Coleman and Hoffer 1987) and by providing information and encouragement about educational opportunities (Kim and Schneider 2005; Stanton-Salazar and

Dornbusch 1995). Third, although many studies have examined the negative influence of peers (e.g., Woodward and Fergusson 2000), peers can also serve as a positive resource for young people. Friendship networks can influence educational achievement by promoting engagement with school, providing social support, and offering a set of behavioral models (Crosnoe, Cavanagh, and Elder 2003; Nora et al. 1996; Robertson and Symons 2003). Fourth, youths also draw from resources that are available in the school environment. Prior research has shown that smaller class sizes (Mosteller 1995) and schools with fewer enrollees (Kuziemko 2006) contribute substantially to students' learning. Furthermore, student-teacher relationships create school environments that can facilitate students' engagement in school and reduce rates of dropout (Lee and Burkam 2003). Last, young people also bring their own personal resources to social interactions and environments that can influence their overall educational trajectories. For example, researchers have long recognized that aspirations and aptitude have a strong impact on educational attainment (e.g., Sewell et al. 1970).

Mentoring is distinct from these other resources, yet few have examined its impact on education. Most research on the mentoring of adolescents has come from the "risk and resilience" tradition in developmental psychology. This work has shown that mentors enable "at-risk" youths to adapt to significant adversity in their lives (e.g., Masten and Coatsworth 1998). Even in the face of serious threats to their developmental well-being (e.g., neighborhood disadvantage, childhood poverty, and abuse), young people are often able to become competent, well-adjusted adults (Luthar, Cicchetti, and Becker 2000). Resilience depends, in large part, on access to and participation in nurturing relationships with nonparental adults (Werner and Smith 1982, 2001).

Most of the empirical research on mentoring has drawn from samples of disadvantaged youths (e.g., Rhodes, Ebert, and Fischer 1992) or has examined formal mentoring programs that match at-risk youths to adult volunteers or mentors (e.g., Rhodes, Grossman, and Resch 2000). The results from these studies have shown that these relationships generally have a positive impact on the lives of disad-

vantaged youths (DuBois et al. 2002). However, little has been said about the role that mentoring plays in the larger population of youths. Mentors may (or may not) play an instrumental role in the lives of youths who do not experience similar adversity. Furthermore, the emphasis on mentoring in formal programs fails to address the effectiveness of mentoring that occurs in natural environments.

The few studies that have examined naturally occurring mentoring relationships have reported that 75 percent to 80 percent of youths have an informal mentor (Beam et al. 2002; McDonald et al. 2007). The results of both quantitative and qualitative research have shown that young people tend to benefit from having informal mentors in their lives (Ianni 1989; Maeroff 1998; Rhodes, Contreras, and Mangelsdorf 1994; Stanton-Salazar 2001; Williams and Kornblum 1985; Zimmerman, Bingenheimer, and Notaro 2002). For example, Stanton-Salazar and Spina (2003) presented numerous examples of how nonparental adults provide advice, emotional support, and role modeling to help Mexican American youths turn their lives around. In particular, they emphasized the emotional support provided by mentors, as expressed by the following quote from a respondent: “[Mentors] make you feel like you’re not the only one that’s going through this, that there are other people like you that’ve succeeded” (p. 248).

Studies of informal mentoring are valuable, but they have been based primarily on small regional samples of at-risk or disadvantaged populations, such as pregnant teenagers, lower-income African Americans, Hispanics, or urban youths (e.g., Klaw and Rhodes 1995; Sanchez and Reyes 1999; Zimmerman et al. 2002). Consequently, much remains unknown about informal mentoring in the lives of youths in the general population. One exception, though, is the research of DuBois and Silverthorn (2005), who analyzed the public-use version of the Add Health data and found that youths who identified informal mentors were more likely to complete high school and to attend college.

We extend DuBois and Silverthorn’s (2005) research in a number of ways. First, we analyze the relationship between mentoring and educational outcomes using the full set of data from

the Add Health study, rather than the more restrictive public-use sample. We also draw from a richer set of information from Add Health. That is, we conducted analyses on multiple waves of survey data, including the youth in-home interviews, in-school surveys, parent interviews, peer network data, school administration data, and high school transcripts. This approach allows us to analyze a more extensive set of control variables and to expand the set of dependent variables to examine educational performance in high school and overall educational attainment. On the basis of evidence from prior studies, we anticipate that informal mentoring relationships have a positive effect on educational performance (grades in high school) and on educational attainment (highest degree received). We also expect this relationship to be independent of the social background and other resources from which youths can draw. With these issues in mind, we propose the following hypothesis:

Hypothesis 1: Mentoring will be positively related to educational performance and attainment.

As we noted earlier, mentors vary in the social roles that they fill for young people. Consequently, we examine variation in the effect of mentoring on educational outcomes across different social roles. We expect that all types of mentors—relatives, friends, teachers, and community members—will have a positive influence on educational performance and attainment. However, teacher mentors should have a greater impact than other mentors in view of their central role in the educational process and the kinds of knowledge, skills, and ethics they impart to young people, which leads to Hypothesis 2:

Hypothesis 2: Relative, friend, teacher, and community mentors will positively influence the educational performance and attainment, but teachers are likely to have the greatest impact.

INFORMAL MENTORING IN CONTEXT

Mentors are merely one resource in a constellation of other potential resources (Higgins and Thomas 2001). While studies have exam-

ined the independent influence of mentoring on various outcomes, few have examined mentoring within the broader context of adolescent relationships and environments (Hamilton and Hamilton 2004). The kinds of resources and environments (e.g., coaches, friends' parents, and religious youth groups) that are available to youths should affect the likelihood of mentoring relationships and condition their effectiveness.

The second part of our analysis therefore explores how mentoring interacts with these other resources to produce unique relationship configurations and educational outcomes. Understanding these patterns of interaction is useful because the patterns help to specify the role that mentoring plays in either promoting equality in society or in perpetuating existing inequities. In the literature on risk and resilience, the focus on at-risk youths implies that mentoring relationships help disadvantaged youths to catch up with their more advantaged peers. This is a plausible expectation, especially in the context of formal mentoring programs that target at-risk youths, but informal mentoring relationships that develop naturally may not follow this pattern. These relationships may only enhance existing inequalities by enabling advantaged youths to achieve even greater success, while leaving disadvantaged youths to fend for themselves. Theories of cumulative advantage or disadvantage imply that social resources tend to accumulate for individuals who start out with many advantages in life (DiPrete and Eirich 2006; O'Rand 2006). Consequently, one of the more pressing questions in research on mentoring is whether mentoring resources compensate for the lack of other social resources or complement the resources of those who are rich in social capital (see Darling, Hamilton, and Shaver 2003; McDonald et al. 2007; Rhodes 1994).

Answering this question requires an understanding of how existing resources both facilitate selection into and condition the effectiveness of mentoring. Selection processes are substantively important because they lead young people either into or away from such relationships, ultimately influencing their chances for educational success or failure (Caspi 2004). Personal resources, for example, should be considered important determinants of selection into mentoring relation-

ships, since they are not formed at random. Competent, intelligent, goal-oriented adolescents are likely to be more able to engage in relationships with nonparental adults (Sewell, Haller, and Portes 1969). At the same time, these skills tend to make youths more attractive as relationship partners to adults who are inclined to mentor young people. Therefore, we anticipate that mentoring relationships are more likely to form among youths who are academically gifted, physically attractive, and/or gregarious and easy to get along with.

Furthermore, access to a variety of social environments (e.g., athletic teams and employment) facilitates the development of mentoring relationships (Barajas and Pierce 2001; Hamilton and Hamilton 2005; Mortimer 2003). Significant others are also more likely to form relationships with young people with whom they share similar cultural values (Stanton-Salazar and Dornbusch 1995). In this way, race/ethnicity and neighborhood disadvantage structure access to informal mentors. Prior research has shown that young blacks in disadvantaged inner cities have relatively few adults in their communities whom they can depend on for guidance and positive role models (Newman 2000; Wilson 1987). Finally, youths with many of the social resources described earlier would seemingly be more likely than disadvantaged youths to develop useful relationships with nonparental adults. These resources facilitate access to environments that are rich in social capital and help to provide young people with the skills that are necessary to engage in these relationships and to identify their usefulness. Some evidence indicates that advantaged youths are more likely to develop informal mentoring relationships (Zimmerman, Bingenheimer, and Behrendt 2005), suggesting that access to mentoring is indeed complementary rather than compensatory, which leads to Hypothesis 3:

Hypothesis 3: Youths with extensive social resources (in terms of social background and parental, peer, school, and personal resources) will be more likely to form mentoring relationships.

The effectiveness of mentoring relationships also depends on existing resources. For example, studies of resilience have consistently shown that intelligent youths are more likely to show resilience when faced with a variety

of personal and environmental risks (Sameroff, Gutman, and Peck 2003). This evidence suggests that personal resources are important factors that condition the effects of the larger environment. The same has been shown for parental, peer, and community resources (Rhodes et al. 1994). Mentoring may unlock benefits that are latent within the existing resources of young people (Anderson 1990). In other words, advantaged youths may be better equipped to benefit from the opportunities afforded by mentoring relationships. However, other research has found the exact opposite: that mentoring may be more beneficial for at-risk youths. For example, evidence from qualitative interviews has revealed that support from teachers, coaches, and other school personnel has a greater impact on the lives of youths from lower- and working-class backgrounds than those from the middle- and upper-class backgrounds (Stanton-Salazar 2001). This evidence is consistent with findings from quantitative analyses that have demonstrated that contact with teachers outside the classroom is negatively and significantly associated with dropping out among at-risk youths, but not among socially advantaged youths (Croninger and Lee 2001). Disadvantaged youths therefore have more to gain from mentoring relationships and more to lose from not having them. Consequently, we expect that while at-risk youths are least likely to develop informal mentoring relationships, they are more likely to benefit from them than are socially advantaged youths (Rhodes 2005), as suggested in Hypothesis 4:

Hypothesis 4: The effectiveness of mentoring on educational performance and attainment will be greatest for youths with few social resources (in terms of social background and parental, peer, school, and personal resources).

METHODOLOGY

Data

Our study was based on data from the National Longitudinal Study of Adolescent Health (Add Health) and the Adolescent Health and Academic Achievement (AHAA) study, which is an extension of Add Health.

Add Health is a nationally representative study of adolescents in Grades 7–12 in the United States in 1994. The data included in-depth interviews with adolescents and their parents, which provided detailed information on child outcomes, family and peer relationships, and school and neighborhood characteristics. Add Health used a multistage, stratified, school-based cluster sampling design. Included in the sample were students from 80 high schools (both public and private) and a corresponding feeder junior high or middle school. While some minority racial/ethnic groups were sampled in proportion to their size within the U.S. population, smaller racial/ethnic groups were oversampled. Additional information on the study can be found in Harris et al. (2003). The Add Health data in our study included the in-school survey (1994), three waves of in-home interviews (1995, 1996, and 2001), the parent survey (1994), and the school administrator survey (1994).

As part of Wave 3 of Add Health, respondents were asked to sign a high school transcript release form authorizing the collection of their official transcripts from the last high school they attended (see www.cpc.unc.edu/projects/addhealth). Approximately 91 percent of the respondents complied, resulting in the collection of more than 12,000 transcripts. The AHAA team subsequently developed a variety of indicators of students' course taking and performance throughout their high school experience (see www.prc.utexas.edu/ahaa).

The nationally representative component of Add Health (with valid sample weights) at Wave 3 included 14,322 participants, for a response rate of 76 percent. This was the baseline sample for this study because mentors were assessed at Wave 3. We removed 170 respondents from the sample who did not have valid data on whether they had a mentor or did not describe the relationship with this person. A small number of variables in our analyses had relatively large amounts of missing data, partly because of the inclusion of data from various sources within the Add Health data archive and the AHAA (ranging from 5 percent to 39 percent of cases). Following previous studies using Add Health and AHAA (e.g., Riegle-Crumb, Farkas, and Muller 2006), we treated these cases using embedded dummy variables (Hardy and

Reynolds 2004). This procedure creates a dichotomous indicator for missing data and recodes the substantive variable to its sample mean. The remaining variables had negligible amounts of missing data and were treated with listwise deletion. This procedure resulted in 9,216 cases with valid data for 12th-grade GPA (from AHAA) and 12,621 cases for the highest degree achieved. To ensure temporal ordering for the analysis of the contexts that condition the formation of mentoring relationships (Hypothesis 3), we restricted analyses of mentors' prevalence (Table 3) to only 6,819 cases; 4,433 respondents reported that their mentor became important before Add Health's initial data collection. In other words, by limiting the analysis predicting mentoring relationships in this way, we attempted to make certain that the analyses represent how the characteristics of adolescents conditioned the formation of mentoring relationships and not the effect of mentoring on the characteristics of adolescents.¹ Those who were excluded here were included in all the other analyses.

Because Add Health is clustered by school and cases had an unequal probability of being selected into the sample, biased coefficients and underestimated standard errors are likely. To correct for this problem, all models were estimated using the SURVEY commands in STATA, which provides correct estimates of coefficients and standard errors (Chantala 2002).

Measures

Dependent Variables Twelfth-grade GPA was taken from the AHAA and represents the average of all courses taken for the entire senior year. Highest degree achieved came from the Wave 3 in-home interviews; it is an ordinal measure with five categories—less than high school degree, high school degree or general equivalency diploma, some college but no degree, a two-year college degree, and a four-year college degree or more.

Mentoring All data on mentoring came from the Wave 3 in-home interviews and were reported by the young person. Informal mentors were identified with the following question: "Some young people know adults, other than their parents, who make an important

positive difference in their lives. Some do not. Has an adult, other than your parents or step-parents, made an important positive difference in your life at any time since you were 14 years old?" If there was more than one influential adult, the respondents were asked to report only on the most important.

The mentor's social role, or relationship to the young person, was identified by the respondent as an adult relative (brother, sister, grandparent, aunt, uncle, spouse, or partner), friend, teacher (teacher or guidance counselor, coach or athletic director), or community member (minister, priest, rabbi, or other religious leader; employer; coworker; neighbor; friend's parent; doctor, therapist, or social worker; or other). It is important to note that most of these roles are formal roles, and some place adults in positions in which they are expected to contribute to the development of young people (e.g., teacher and minister). However, the mentoring behaviors themselves, or the perception that someone in one of these roles is a mentor, occurs informally. We do not consider that any of the roles just listed occur within formal mentoring organizations, which is a requirement for identifying formal mentors.

Social Background *Race-ethnicity* was coded white, black or African American, Hispanic, American Indian or Native American, and Asian or Pacific Islander. In Add Health, Hispanic ethnicity is assessed using a separate question than race. In our variable, those who reported Hispanic ethnicity were coded as Hispanic regardless of their racial classification. The *neighborhood disadvantage* variable was developed to identify the concentrated disadvantage that is associated with racially segregated urban neighborhoods (Sampson, Morenoff, and Earls 1999). The scale used data from the 1990 U.S. census and was measured at the block-group level. Five items were included: percentage below the poverty line, percentage receiving public assistance, percentage unemployed, percentage of female-headed families with children, and percentage black. The items were submitted to a principle-components factor analysis, and only one factor was extracted with factor loadings ranging from .72 to .89. In creating the summed scale, individual items were weighted by their factor scores.

Parental Resources In the parent survey, the responding parent reported the total household before-tax *income*. We also included whether or not the responding parent was a member of the *PTA* as a measure of intergenerational closure. Living in a *two-parent biological family* was coded 1 if the young person lived with both biological parents and 0 for all other family types. *Highest parent's education* was measured using the parent report. The responding parent was asked: "How far did you go in school?" and "How far did your current spouse or partner go in school?" Parental education was the higher of the two reports. If a parent report was not available, we used the Wave 1 child in-home data (when available) or the in-school data. *Relationship with parents* consisted of the mean score of four items concerning the quality of the parent-child relationship. The youths said whether they (1) felt close to their mothers or fathers, (2) felt that their mothers or fathers were warm, (3) felt that they communicated well with their mothers or fathers, and (4) were satisfied with their relationships with mothers or fathers. The responses were rated on a 5-point scale, which ranged from 1 ("not at all" for the first item and "strongly disagree" for the remaining three) to 5 ("all the time" for the first item and "strongly agree" for the remaining three). Mean scores were calculated for these items (a Cronbach's alpha of .86 for fathers and .90 for mothers). The mean of the mothers' and fathers' scores was used.

Peer Resources The respondents were asked to nominate up to 10 friends (5 male and 5 female). *Number of friends* is the sum of the respondents' total nominations. When one of the nominated friends was also a member of the Add Health sample, it was possible to match the nominations with the data from transcripts. *Mean friends' 9th-grade GPA* was the mean of the average grade for the entire school year for all nominated friends who could be matched with valid data from the transcript. This variable was used as a predictor of 12th-grade GPA and educational attainment (see Table 2). For the analysis of the mentoring antecedents (see Table 3 and Appendix Table A1), we used *mean friends' Wave 1 GPA*, which was the mean of the average grade for all nominated friends who had valid Wave 1 data. *Peer network centrality* was

measured using the Bonacich centrality measure (Bonacich 1987), which is an ego-based measure of centrality that is weighted by the centrality of those to whom ego is tied.

School Resources We used two questions from the in-school survey to assess the *student-teacher environment* at school. The respondents reported how often they had trouble getting along with teachers at their school and how much they agreed that teachers at their school treat students fairly. The mean of these two items was calculated for each school. School administrators estimated the *average class size* in their school. They also reported on the overall *school size*. The response categories presented to them were (1) small (1–400), (2) medium (401–1,000), and (3) large (1,001–4,000).

Personal Resources The interviewers were asked to rate each respondent's attractiveness in terms of *physical appearance* and *personality*. Responses ranged from 1 "very unattractive" to 5 "very attractive." The respondents' *college aspirations* were assessed using the following question: "How much do you want to go to college?" Responses ranged from 1 (low) to 5 (high). The Add Health Picture Vocabulary Test (PVT) is an abridged version of the Peabody Picture Vocabulary Test, Revised (Dunn 1981), which was designed to measure hearing vocabulary for Standard American English. Scores were standardized by age to have a mean of 100 and a standard deviation of 15. To account for some of the difficulties with the timing of the formation of mentoring relationships and Add Health's measurement of mentoring, we used two different measures of GPA. The analysis of 12th-grade GPA and highest degree achieved (see Table 2) used *9th-grade GPA*, which was taken from the AHAA and is the average of all courses taken for the entire 9th-grade year. We used the self-report of grades from Wave 1 to create a measure of GPA in the analysis predicting mentoring relationships (see Table 3 and Appendix Table A1).

Additional Variables We controlled for a number of additional variables. *Age* was measured in years at the time of the Wave 3 interview. Gender was indicated with a dummy variable for *female* (male = reference category).

ry). *Private school* was also a dummy variable (private school = 1, public school = 0). *Extracurricular activities* were measured by summing the affirmative responses to a list of activities that the students reported being involved in, including school academic clubs (e.g., math or French), sports teams, and student government. The respondents reported the number of hours they *worked* for pay during a typical nonsummer week. We created categories representing 0 hours, 1 to 20 hours, and 20+ hours. Descriptive statistics for all the variables are presented in Table 1.

Analysis

The analysis proceeds in three stages. First, we model 12th-grade GPA and highest degree achieved using ordinary least-squares (OLS) regression and the ordinal logit model (Long 1997), respectively. This set of analyses controls for resources that are related to education to assess the independent effects of mentoring (Hypothesis 1) and whether a mentor's social role has an impact on the educational process (Hypothesis 2). Second, we investigate whether the prevalence of mentoring relationships for youths depends on their advantaged or disadvantaged status, as indicated by social background and parental, peer, school, and personal resources (Hypothesis 3). To ensure that our measures of advantage/disadvantage condition the formation of mentoring relationships as opposed to being their result, we include only respondents in this portion of the analysis who reported that their mentor became important *after* Wave 1. Third, we test whether the effect of mentoring relationships on educational outcomes depends on resources available to youths (Hypothesis 4). Specifically, we examine interactions between having a mentor (in particular, the mentor's social role) and other resources, such as parents' socioeconomic status, friends' grades, a positive student-teacher environment, and educational aspirations. Positive interactions between youth resources and mentoring would indicate that mentors are more effective for youths with many resources; negative interactions suggest that mentors are more effective for disadvantaged youths who lack resources.

RESULTS

First, we report the impact that informal mentors have on the educational achievement and attainment of young people. Models 1–3 in Table 2 present the slope coefficients from the OLS regression on 12th-grade GPA. It is important to note that because we controlled for 9th-grade GPA, the results for the first three regression models report the relationship between mentoring and a change in a young person's GPA between the 9th and 12th grades. Model 1 estimates the relationships between GPA and various resources and serves as a baseline for testing the independent effect of mentoring on grades.

On average, the young women displayed a greater increase in grades over the course of high school than did the young men. Students who attended private schools had smaller increases in grades than did those in public schools, perhaps because private school students had higher GPAs beginning in the 9th grade (the mean GPA for students in private schools was 2.94 compared to 2.57 in public schools). Black and Asian youths showed less change in GPA relative to whites. Parental resources (living with biological parents, highest parent's education, and quality of the relationship with parents) are all positively related to change in grades. Among peer resources, only friends' average GPA is significantly related to grades—young people have higher grades when their friends are high achievers. Having a positive student-teacher environment in the school is associated with students' higher achievement. Being more physically attractive is also positively related to an increase in grades from the freshman to the senior year. In Model 2, having a mentor is highly significant and positively related to higher grade achievement, even after all the other independent variables are controlled. The control variables changed little with mentoring included in the regression model. The results in Model 3 show that all the social roles of mentors except for friends contribute to significant increases in grades.

Models 4–6 in Table 2 focus on the highest degree achieved and report the odds ratios from ordinal logistic regression on this outcome. Odds ratios represent the factor change in the odds of an event occurring for a unit change in the independent variable.

Table 1. Informal Mentoring and Education: Descriptive Statistics (N = 12,621)

Variable	Mean	SD	Minimum	Maximum
12th-Grade GPA ^a	2.75	.73	0	4
Highest degree achieved	2.71	1.08	1	5
Age	21.72	1.82	18	27
Female	.49	.50	0	1
Private school	.07	.26	0	1
Extracurricular activities	1.64	2.12	0	15
Work				
0 hours	.47	.50	0	1
1 - 20 hours	.41	.49	0	1
21+ hours	.12	.32	0	1
<i>Social Background</i>				
Race-ethnicity				
White	.65	.48	0	1
Black	.16	.36	0	1
Asian	.04	.20	0	1
Hispanic	.12	.32	0	1
Native American	.03	.17	0	1
Neighborhood disadvantage	.55	.43	0	3
Neighborhood disadvantage—Missing	.14	.35	0	1
<i>Parental Resources</i>				
Family income (in \$1,000)	45.82	40.74	0	999
Family income—Missing	.21	.41	0	1
Parent in PTA	.33	.44	0	1
Parent in PTA—Missing	.12	.32	0	1
Two-parent biological family	.57	.49	0	1
Highest parent's education	2.80	1.01	0	4
Relationship with parents	3.26	.66	1	4
<i>Peer Resources</i>				
Number of friends	6.43	3.46	0	10
Friends' mean 9th-grade GPA	2.86	.43	0	4
Friends' mean 9th-grade GPA—Missing	.39	.49	0	1
Friends' mean Wave 1 GPA	2.89	.53	1	4
Peer network centrality	.83	.52	0	4
Peer network centrality—Missing	.32	.47	0	1
<i>School Resources</i>				
Student-teacher environment	3.60	.14	3	4
Student-teacher environment—Missing	.28	.45	0	1
Average class size	25.60	4.94	10	39
School size	2.22	.71	1	3
<i>Personal Resources</i>				
Physical attractiveness	3.57	.86	1	5
Personality attractiveness	3.60	.83	1	5
College aspirations	4.44	1.02	1	5
Picture Vocabulary Test	100.55	14.09	10	137
Picture Vocabulary Test—Missing	.05	.22	0	1

Table 1. Continued

Variable	Mean	SD	Minimum	Maximum
9th-grade GPA	2.60	.89	0	4
Wave 1 GPA	2.89	.75	1	4
<i>Mentoring</i>				
Mentor	.75	.44	0	1
<i>Social role</i>				
Relative	.26	.44	0	1
Teacher	.19	.39	0	1
Friend	.13	.34	0	1
Community	.16	.37	0	1

^aValid $N = 9,216$.

Odds ratios higher than 1 represent an increase, and those lower than 1 indicate a decrease in the odds of the outcome. For example, the odds ratio for age in Model 4 is 1.415, indicating that a year increase in age increases the odds of obtaining more education by a factor of 1.415, or about 42 percent. Alternatively, the odds ratio for working 21 hours or more per week, .892 (though not statistically significant), means that intensive work experience decreases the odds of higher educational achievement by a factor of .892 (or by about 11 percent) relative to not working.

Model 4 reports the baseline results before examining whether having a mentor affects educational attainment. Older youths completed more schooling, but they also had more time to advance through higher education.² Young women achieved higher levels of education, as did students who participated in extracurricular activities and attended private school. Black, Hispanic, and Asian youths tend to rank higher on educational attainment when other resources are controlled, while youths from disadvantaged neighborhoods rank lower. Higher incomes and having a parent in the PTA are both associated with increases in the odds of further educational advancement. Parents' education and living with both biological parents are positively related to attainment, but the quality of the parent relationship is not. Number of friendships, friends' GPA, and being more central in one's peer network are all positively related to attainment. School resources, however, are

not significantly related to the highest degree attained. Being more personally attractive, having higher educational aspirations and higher grades as a freshman, and scoring higher on the PVT are all significantly predictive of advancement in educational attainment. Having a mentor is also beneficial for educational attainment (see Model 5). Youths with a mentor are 53 percent more likely to advance to the next level of education than are youths who do not have a mentor. Teacher mentors are most strongly related to attainment, but relative, friend, and community mentors also have positive and significant effects (see Model 6).

To summarize the analysis thus far, informal mentors have a positive impact on young people's education, lending strong support to Hypothesis 1. These findings are consistent with those in the literature that mentors are significant influences on the education of young people. The effect of mentoring remains strong and statistically significant even after the effects of other resources (including social background and parent, peer, teacher, and personal resources) that are known to influence education are controlled.

We turn next to whether the resources of students facilitate the formation of mentoring relationships. Table 3 reports the predicted probabilities of having a mentor with a particular social role for advantaged and disadvantaged youths. These results are based on the multinomial logistic regression reported in Appendix Table A1.³ We present our findings as predicted probabilities because this

Table 2. Influences on Educational Achievement and Attainment

Variable	12th-Grade GPA ^a			Highest Degree Achieved ^b		
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-.007	-.005	-.004	1.373***	1.381***	1.387***
Female	.204***	.203***	.204***	1.312***	1.298***	1.301***
Private school	-.113*	-.110	-.110	1.842***	1.860***	1.842***
Extracurricular activities	.008	.007	.007	1.058***	1.055***	1.052***
Work						
0 hours	—	—	—	—	—	—
1–20 hours	-.023	-.028	-.026	1.052	1.036	1.044
21+ hours	-.043	-.049	-.046	.891	.879	.889
<i>Social Background</i>						
Race						
White	—	—	—	—	—	—
Black	-.076*	-.078*	-.077*	1.760***	1.755***	1.754***
Asian	-.116*	-.114*	-.115*	1.373	1.387	1.376
Hispanic	-.037	-.035	-.035	1.225	1.247	1.250
Native American	-.031	-.031	-.028	.814	.818	.823
Neighborhood disadvantage	-.028	-.029	-.031	.826	.823*	.824*
Neighborhood disadvantage—Missing	.010	.008	.006	.926	.919	.912
<i>Parental Resources</i>						
Family income (in \$1,000)	.001**	.001**	.001**	1.003***	1.003***	1.003***
Family income—Missing	-.021	-.020	-.019	.970	.973	.973
Parent in PTA	.017	.019	.018	1.217***	1.226***	1.222***
Parent in PTA—Missing	.041	.043	.042	.986	.990	.982
Two-parent biological family	.058**	.058**	.057**	1.579***	1.579***	1.573***
Highest parent's education	.044***	.041***	.041***	1.443***	1.431***	1.435***
Relationship with parents	.035*	.035*	.035*	1.045	1.042	1.042
<i>Peer Resources</i>						
Number of friends	.004	.003	.003	1.020	1.015	1.015
Friends' mean 9th-grade GPA	.102***	.101***	.100***	1.174**	1.167*	1.163*
Friends' mean 9th-grade GPA—Missing	.004	-.001	.000	1.155	1.126	1.125
Peer network centrality	.008	.010	.011	1.152*	1.157*	1.159*
Peer network centrality—Missing	.119	.116	.119	.824	.813	.820
<i>School Resources</i>						
Student-teacher environment	.255*	.250*	.246*	1.381	1.343	1.331
Student-teacher environment—Missing	-.090	-.085	-.089	1.021	1.045	1.029
Average class size	-.002	-.002	-.002	.990	.990	.990
School size	-.084**	-.085**	-.086**	1.283**	1.278**	1.269**
<i>Personal Resources</i>						
Physical attractiveness	.035**	.036**	.037**	1.028	1.035	1.038
Personality attractiveness	.015	.013	.012	1.089*	1.079*	1.079*
College aspirations	.023	.021	.020	1.489***	1.482***	1.477***
Picture Vocabulary Test	.002*	.002	.002	1.026***	1.025***	1.024***
Picture Vocabulary Test—Missing	-.008	-.009	-.010	1.038	1.033	1.028
9th-grade GPA	.556***	.553***	.551***	2.301***	2.290***	2.268***

Table 2. Influences on Educational Achievement and Attainment

Variable	12th-Grade GPA ^a			Highest Degree Achieved ^b		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Mentoring</i>						
Mentor		.103***			1.529***	
Social role						
Relative			.100***			1.501***
Friend			.059			1.400***
Teacher			.151***			1.987***
Community			.088**			1.303***
Constant	-.483	-.514	-.491			
N	[9,216]	[9,216]	[9,216]	[12,621]	[12,621]	[12,621]

^aUnstandardized coefficients from the OLS regression.

^bOdds ratios from the ordered logistic regression.

* $p < .05$, ** $p < .01$, *** $p < .001$; two-tailed tests.

approach allowed us to create hypothetical profiles of youths that have substantive meaning (see Table 3 for a description of the profiles). To avoid extreme and unrealistic estimates, we use the 20th and 80th percentiles to represent youths who are advantaged and disadvantaged in terms of resources. For example, we compare the probabilities of having mentors for youths from advantaged social backgrounds (whites and Asians plus those in the 20th percentile for neighborhood disadvantage) to youths from disadvantaged social backgrounds (blacks, Hispanics, and Native Americans plus those in the 80th percentile for neighborhood disadvantage).⁴

Overall, disadvantaged youths are significantly less likely to report having a mentor than are advantaged youths across each of the categories that we modeled. Youths from advantaged social backgrounds identify a mentor 66 percent of the time compared to 62 percent for youths from disadvantaged backgrounds, but this difference is not statistically significant. Parental resources, however, significantly predict having a mentor. Having advantaged peer resources, such as having more friends, having friends with higher GPAs, and being central in one's peer network, increases the chances of having a mentor—68 percent for advantaged youths versus 61 for disadvantaged youths. School resources are unrelated to identifying a mentor. Personal resources, such as having a more attractive personality and physical appear-

ance, higher educational aspirations, and intelligence, display the largest gap in the probability of having a mentor. Seventy-four percent of these advantaged youths have mentors compared to only 53 percent of the disadvantaged. A young person who faces all these disadvantages has only a 44 percent likelihood of having a mentor, while an advantaged youth has an 82 percent chance. Although no respondents in the sample were disadvantaged or advantaged in all these ways, this difference provides a sense of the power that resources exert on the possibility of having a mentoring relationship.

The overall pattern of advantaged youths being more likely to have a mentor persists, regardless of the mentor's social role, although in some cases there are no differences in the predicted probabilities or the differences were not statistically significant. The level of parental resources significantly predicts the probability of having a teacher mentor: 20 percent of youths with advantaged parental resources identified a teacher mentor, compared to 14 percent of youths with few parental resources. Personal resources contribute significantly to the likelihood of having a teacher mentor or a mentor in the community. The combined advantage versus disadvantage comparison suggests that social resources play an important role in channeling youths into mentoring relationships, especially those with teachers and community members.

Table 3. Predicted Probabilities of Having a Mentor from the Multinomial Logistic Regression for Advantaged^a and Disadvantaged^b Youths

Variable	Mentor's Social Role				
	Mentor	Relative	Friend	Teacher	Community
<i>Social Background</i>					
Advantage	66	11	15	18	22
Disadvantage	62	13	16	15	18
<i>Parental Resources</i>					
Advantage	68	14	14	20	20
Disadvantage	60	10	16	14	20
<i>Peer Resources</i>					
Advantage	68	12	17	17	21
Disadvantage	61	12	14	15	20
<i>School Resources</i>					
Advantage	64	11	19	16	18
Disadvantage	65	12	14	18	21
<i>Personal Resources</i>					
Advantage	73	12	13	23	25
Disadvantage	53	11	17	10	15
<i>Full Model</i>					
Advantage	82	11	15	32	24
Disadvantage	44	9	15	7	13

Note: *N* = 7,840—Includes only respondents whose mentors became important after Wave 1 to ensure temporal ordering. Bolded predicted probabilities represent statistically significant differences (i.e., did not have overlapping 95% confidence intervals) within type of resource and social role. Within a row of the table, the sum of the mentor's social roles may not equal the report of mentor because of rounding.

^aAdvantage: social background—white or Asian, .24 neighborhood disadvantage, parental resources—\$58,000 parental income; participates in the PTA, lives with both biological parents, has a parent with a college degree, 3.75 connection to parents; peer resources—nominated 10 friends, 3.3 mean friends' Wave 1 GPA, 1.16 peer network centrality; school resources—4 teacher-student environment, 20 students per class at school, 2 (401–1,000 students) school size; personal resources—very attractive personality, very attractive physically, high aspirations to attend college, 113 PVT score, 3.5 GPA.

^bDisadvantage: social background—black, Hispanic, or Native American, .78 neighborhood disadvantage; parental resources—\$23k parental income; Does not participate in the PTA, does not live with both biological parents, highest parent education is high school diploma, 2.5 connection to parents; peer resources—nominated 4 friends, 2.5 mean friends' Wave 1 GPA, .34 peer network centrality; school resources—3.5 student-teacher environment, 30 students per class at school, 3 (1,001–4,000 students) school size; personal resources—unattractive personality, physically unattractive, low aspirations for college, 87 PVT score, 2.0 GPA.

Finally, we examined the interactions between mentors' social role and the resources available to young people to determine the extent to which mentoring relationships unlock existing resources or compensate for the lack thereof. We used Model 3 (for

GPA) and Model 6 (for the highest degree achieved) from Table 2 as baselines and estimated a series of models that included a single interaction term between the mentor's social role and a youth resource. In Table 4, we report only the significant interaction

coefficients from these models. To decrease the likelihood of chance results, we present only interactions that were significant at $p < .01$. For the most part, negative interactions indicate that mentors are compensatory, while positive interactions involve complementary resources.

Few of the interactions proved to be statistically significant for the models predicting educational performance in high school. No clear patterns of association emerged, suggesting that mentoring has a similar impact on the educational achievement of those with both few and many social resources. However, the educational attainment interactions reveal two notable patterns. First, mentoring from relatives interacts with several of the personal resource variables in a positive direction, suggesting that relative mentors complement existing personal resources in educational attainment. In other words, relatives in the mentor role are more effective among youths who already have substantial personal resources. Second, teacher mentoring interacts negatively with indicators from each of the resource domains (with the exception of school resources). Note that the only positive interaction for teacher mentors is with neighborhood disadvantage, which is coded in the opposite direction (higher values indicate a greater disadvantage) compared to

the other variables (where higher values refer to a greater advantage).

It is important to keep in mind that these coefficients represent *interaction* effects and cannot be interpreted in isolation from their main effects. For example, the interaction coefficient for teacher and white or Asian is $-.427$ (see Table 4). The negative valence of the coefficient indicates that the change in the odds of having a mentor is smaller for white or Asian youths than for youths from other racial-ethnic backgrounds. Whether or not this finding ultimately means that teacher mentors harm white or Asian youths depends on the magnitude of the interaction *and* main effects. To clarify the interpretation of interaction effects and provide a sense of their substantive importance, we plotted the change in probability of attending college across different levels of resources for youths who reported a relative and teacher mentor in Figures 1 and 2. These figures incorporate both interaction and main effects. The values of resources measured as continuous variables (presented on the category axis) represent the 20th, 40th, 60th, and 80th percentiles.

Figure 1 reveals the complementary role of relatives as mentors. Youths with these mentors are more likely to attend college than are those without, but the gap between the two is greatest among youths with the greatest amount of

Table 4. Interactions Between Mentoring and Other Resources

Variable	Relative	Friend	Teacher	Community
<i>12th Grade GPA</i>				
White or Asian			-.109	
Student-teacher environment				.351
Parent in PTA		.138		
Number of friends	-.020			
<i>Highest Degree Achieved</i>				
White or Asian			-.427	
Neighborhood disadvantage			.409	
Parent in PTA			-.505	
Highest parent's education			-.268	
Friends' average GPA			-.433	
Personality attractiveness	.173			
9th-grade GPA	.187		-.288	
Picture Vocabulary Test	.013		-.019	

Note: To reduce the potential of reporting chance results, we present only coefficients that are significant at $p < .01$, two-tailed tests.

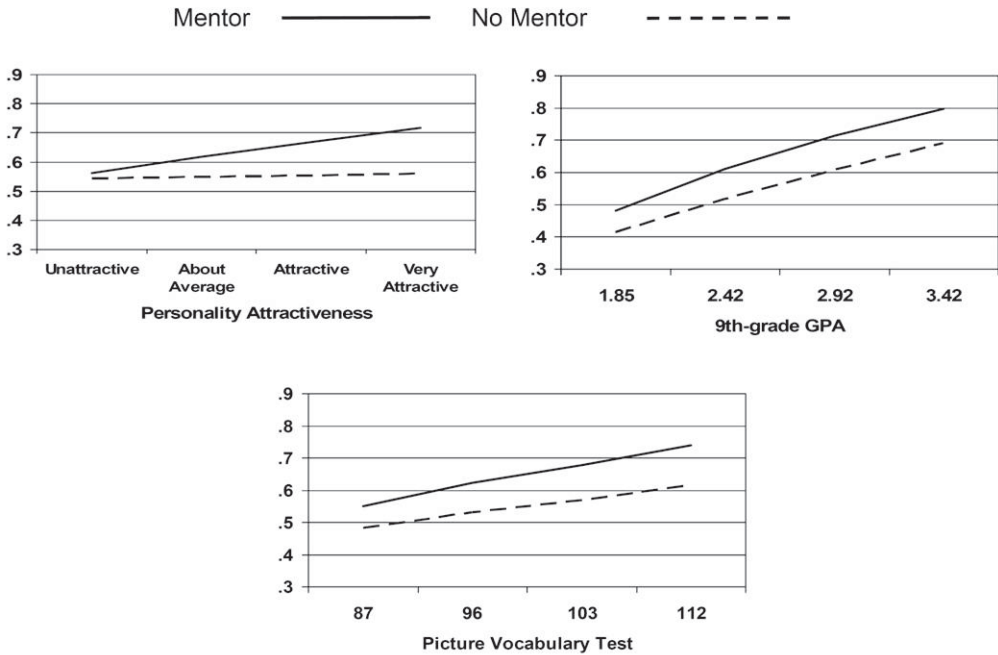


Figure 1. Interaction Between Having a Relative as a Mentor and Youth Resources on the Highest Degree Achieved: Probability of Attending College. Note: The category axis represents the 20th, 40th, 60th, and 80th percentiles.

personal resources. In contrast, the compensatory nature of mentoring relationships is shown in Figure 2 by large differences in the probability of attending college when resources are low and small differences when resources are high. For example, youths with parents whose education is limited have only a 35 percent probability of attending college. But if they have a teacher as a mentor, their chances increase to 65 percent. Children of highly educated parents are very likely to go on to college, regardless of whether they have a teacher as mentor (75%) or not (67%). In other words, the negative interaction indicates that the help of teacher mentors is less consequential for the advantaged than it is for the disadvantaged. Thus, relative mentors serve as complementary resources for educational attainment, whereas teacher mentors have a compensatory impact on educational attainment.

DISCUSSION AND CONCLUSION

Informal mentoring is an important and understudied resource for youths in their edu-

cational careers. In a nationally representative sample of youths, we find that exposure to the mentoring of an adult is associated with greater educational success, in terms of both educational performance in high school and overall educational attainment. The effect of mentoring on education remains strong even after social background and parental, peer, school, and personal resources are controlled. Mentors vary by social role in their effect on youths' educational outcomes. It is not surprising that young people with teachers as mentors tend to have greater educational success, whereas having a friend as a mentor is unrelated to an improvement in grades in high school.

Contrary to usual expectations, much of the evidence shows that mentoring relationships that develop naturally have the potential for contributing to—rather than reducing—social inequality. First, youths have unequal access to the benefits of informal mentoring. Overall, those with an advantaged background are more likely than the disadvantaged to have an informal mentoring relationship. In other words, mentoring is most com-

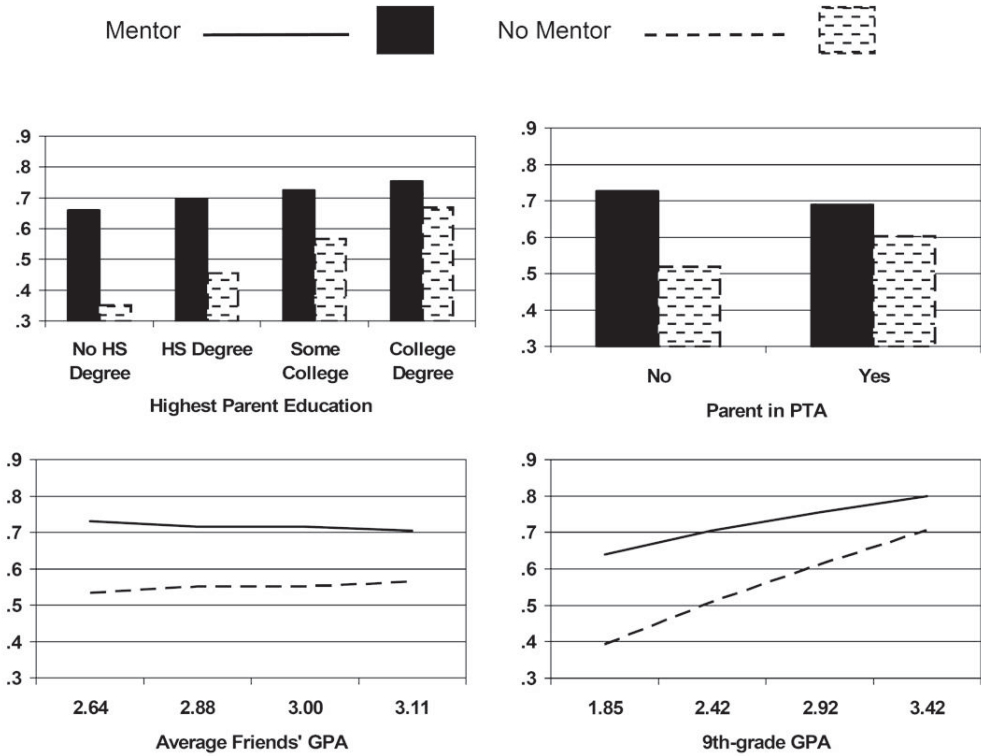


Figure 2. Interaction Between Having a Teacher as a Mentor and Youth Resources on the Highest Degree Achieved: Probability of Attending College. Note: The category axis for continuous variables represents the 20th, 40th, 60th, and 80th percentiles.

mon among youths who already possess a wealth of social resources. Second, relatives appear to be more effective as mentors for the educational attainment of youths who have many personal resources on which to draw. This finding suggests that young people with a great many personal resources are in a better position than are others to take advantage of the guidance, advice, and support provided by relatives in the mentor role. In these ways, mentoring serves primarily as a complementary resource for advantaged young people.

These findings are consistent with prior research, which indicated that middle- and upper-class students develop a broader network of support relationships than do lower- and working-class students (e.g., Ianni 1989). Future research should investigate in greater detail the microprocesses that link youths to informal mentors. For example, recent research suggested that some individuals may possess a "social intelligence" that enables them to establish rapport and manage social

interactions with relative ease (Goleman 2006). Young people with these abilities would be more likely than others to establish and maintain relationships with nonparental adults. At the same time, other researchers have noted that a youth's failure to engage in relationships with adults is often a purposive response to disadvantage. That is, some young people in disadvantaged social environments tend to develop a "defiant individualist character," which involves extreme competitiveness, mistrust, and self-reliance (Sánchez-Jankowski 1991). Such attitudes limit help-seeking efforts, produce social isolation, and are likely to impede both academic and personal development (Stanton-Salazar 2001).⁵

At the same time, disadvantaged youths benefit significantly when they develop relationships with mentors. The presence of mentors is related to substantial improvements in the educational fortunes of disadvantaged youths, even in those instances when mentoring does not provide benefits as profound as

those for more advantaged youths. Furthermore, compelling evidence on the compensatory role of teacher mentoring for educational attainment is encouraging. Consistent with prior research (Stanton-Salazar 2001), we found that the influence of teacher mentors on educational attainment is the greatest among the most disadvantaged youths. This finding highlights an interesting paradox. Teacher mentors simultaneously serve as complementary and compensatory resources for young people. On the one hand, they are complementary in prevalence, with advantaged youths being most likely to identify a teacher as a mentor. On the other hand, they are compensatory in effectiveness, with disadvantaged youths gaining more from having a teacher as a mentor. Disadvantaged youths are the least likely to have teacher mentors, but they are the most likely to benefit from them.

Of course, the mentoring module available in the Add Health data set has a number of limitations.⁶ First, the fact that the mentoring module was measured concurrently with educational attainment leaves open the possibility that the responses may have been influenced by educational attainment. Second, the youths were asked to identify only the "most influential" mentor. Some studies have found that youths identify a variety of individuals in their social networks who provide mentoring functions (e.g., Darling et al., 2002). It is possible that youths who have multiple mentors, either simultaneously or serially, experience even greater gains in their academic careers. Moreover, when the youths had multiple mentors in their lives, the wording of the question may have led them to recall long-lasting mentors more often than mentoring relationships that were more ephemeral in nature. Therefore, when compared to the full population of mentoring relationships, it is reasonable to assume that this measure may be biased toward long-term mentoring relationships, although we cannot be certain on this point, given the available data. However, this potential bias is unlikely to alter the findings in a substantial way. Prior research showed that even temporary assistance from mentors often has long-term consequences for developmental trajectories (Stanton-Salazar and Spina 2003).

Third, we are limited in our ability to assess the influence of the characteristics of mentors

on the educational outcomes of youths. For example, these outcomes are likely to be dependent as much on the quality of mentors as they are on the resources of youths. Youths with higher levels of personal resources could benefit more from having a relative as a mentor because their relatives come from advantaged social backgrounds themselves and consequently have skills that the relatives of disadvantaged youths are less likely to have (Anderson 1999). Similarly, teacher mentors may help disadvantaged youths not just because teachers are key in the educational careers of young people, but because they come from more advantaged backgrounds and thus have more to contribute to adolescents' success. The Add Health data, however, do not contain measures of the social class or status of mentors that would be necessary to test these ideas empirically. Therefore, we regard these issues as problems for further investigation.

Overall, the findings of this study validate the efforts of formal mentoring programs to match disadvantaged youths with nonparental adults. Not only are these youths at risk of countless negative life events and disappointments during the transition to adulthood, they are also (not coincidentally) at risk of failing to develop an important relationship with a nonparental adult. With this point in mind, additional programs are needed to link disadvantaged youths to adults outside the family. Such initiatives would supplement the gaps in informal mentoring relationships and help young people succeed in educational settings. On the basis of the findings presented here, advances in the area of teacher mentoring offer the greatest promise for reducing social inequities. These relationships provide the greatest compensatory benefits for disadvantaged youths, while their relative absence among the disadvantaged highlights a potential target for social intervention programs. Programs that facilitate the development of mentoring relationships between at-risk youths and teachers therefore deserve to be a priority in policy considerations.

The study also contributes to the research literature on educational achievement and attainment. Social and behavioral scientists have long emphasized the constraints, social control mechanisms, and norm-enforcement activities that are designed to keep youths on

the “right track” (Dika and Singh 2002). More recently, scholars have convincingly argued for the importance of supplementing this perspective with one that views social relationships as providing valuable resources for youths to draw upon when making the transition to adulthood (Kim and Schneider 2005). Our research is aligned with the latter strategy. Success in the educational process is often accompanied by help from caring adults in the lives of young people. Mentors play an important role in this process. Research on formal mentoring relationships has identified a variety of mechanisms by which mentors influence the lives of young people (Rhodes et al. 2000; Stanton-Salazar and Dornbusch 1995), yet little is known about the mechanisms that operate in these informal relationships. Future research would profit from in-depth investigations of those mechanisms.

The study also demonstrates the importance of the social context surrounding informal mentoring relationships. More research attention is needed on how the timing of mentoring is related to its character and effectiveness, since the timing of life transitions can have substantial developmental effects (Elder and Shanahan 2006). The establishment of mentoring relationships is a potential life-altering event when experienced at a pivotal time in a person’s life. Thus, we need to gain a better understanding not only of the short-term gains from social relationships, but of how these experiences contribute to longer-term patterns of attainment and resource accumulation across the life course.

NOTES

1. An additional sample weight was created so that the ratio of respondents with mentors

was the same in this reduced sample as in the original sample. A disproportionate number of those who were removed reported having an adult relative as mentor. Analyses (not reported here) suggested that respondents who were excluded for this reason were older and more likely to live with both biological parents and had lower PVT scores. Furthermore, the results in Table 4 do not differ substantially from analyses (not reported here) in which these respondents were included.

2. To examine whether the relationship between age and educational attainment influenced our results, we compared analyses of highest degree achieved in Table 3 for a younger (age 18–21) and an older (age 22–27) cohort (results not shown). We found no substantive differences in the effects across the two groups.

3. To calculate predicted probabilities for a particular social role, that response category must be set as the reference category in the multinomial logistic equation. For instance, Appendix Table A1 reports odds ratios for the analysis that was used to calculate the predicted probabilities of not having a mentor (which we report as having any kind of mentor for a more straightforward interpretation). Thus, the results in Appendix Table A1 are actually the results of only one of five equations that were used to calculate the entire set of predicted probabilities.

4. We conceptualize private school, extracurricular activities, and employment as environments that may be conducive to the formation of mentoring relationships but not resources per se. We therefore included these variables in the logistic regression, but held them constant in the calculation of predicted probabilities.

5. We thank one of the reviewers for directing our attention to this line of research.

6. We thank the anonymous reviewers for pointing out these limitations.

APPENDIX

Table A1. Antecedents of Informal Mentor Relationships: Odds Ratios from the Multinomial Logistic Regression

	Relative	Friend	Teacher	Community
Age	.820***	.852***	.713***	.909**
Female	1.554***	1.240*	1.184	.969
Private school	1.225	.824	1.035	.696
Extracurricular activities	1.015	1.033	1.057*	.995
Work				
0 hours	—	—	—	—
1–20 hours	1.239	1.325*	1.122	1.207
21+ hours	.789	1.479*	.877	1.040
<i>Social Background</i>				
Race-ethnicity				
White	—	—	—	—
Black	1.041	.932	.944	.707*
Asian	.846	1.209	1.041	.906
Hispanic	.934	.901	.699*	.851
Native American	1.120	1.638*	.961	.797
Neighborhood disadvantage	.982	1.003	.754	.952
Neighborhood disadvantage—Missing	1.442*	.887	1.295*	1.042
<i>Parental Resources</i>				
Family income (in \$1,000)	1.001	1.000	.999	1.000
Family income—Missing	.923	.998	.895	.911
Parent in the PTA	.892	.827	.989	.888
Parent in the PTA—Missing	1.171	.920	.901	.729
Two-parent biological family	1.384**	.957	1.260*	1.122
Highest parent’s education	1.067	1.127*	1.221***	1.164**
Relationship with parents	1.142	1.040	.988	.947
<i>Peer Resources</i>				
Number of friends	1.045*	1.068**	1.063**	1.062***
Friends’ mean Wave 1 GPA	.877	1.115	1.096	1.030
Peer network centrality	1.089	.932	.861	.822
Peer network centrality—Missing	1.399	1.408	.989	1.026
<i>School Resources</i>				
Student-teacher environment	.952	1.983	1.230	.821
Student-teacher environment—Missing	.633	.508*	1.104	.793
Average class size	1.000	1.004	1.003	1.001
School size	1.105	.992	1.245*	1.026
<i>Personal Resources</i>				
Physical attractiveness	.961	.870	.911	.985
Personality attractiveness	1.142	1.094	1.073	1.080
College aspirations	1.095	1.038	1.262***	1.164**
Wave 1 GPA	1.235*	.987	1.426***	1.039
Picture Vocabulary Test	.998	1.016***	1.026***	1.025***
Picture Vocabulary Test—Missing	1.447	1.167	1.190	1.132

Note: No mentor is the reference category. *N* = 7,840.
 p* < .05, *p* < .01, ****p* < .001; two-tailed tests.

REFERENCES

- Anderson, Elijah. 1990. *Race, Class, and Change: Streetwise in an Urban Community*. Chicago: University of Chicago Press.
- . 1999. *Code of the Street: Decency, Violence and the Moral Life of the Inner City*. New York: W. W. Norton.
- Barajas, Heidi Lasley, and Jennifer L. Pierce. 2001. "The Significance of Race and Gender in School Success Among Latinas and Latinos in College." *Gender & Society* 15:859–78.
- Beam, Margaret, Chuansheng Chen, and Ellen Greenberger. 2002. "The Nature of Adolescents' Relationships with Their "Very Important" Nonparental Adults." *American Journal of Community Psychology* 30:305–25.
- Bonacich, Phillip. 1987. "Power and Centrality: A Family of Measures." *American Journal of Sociology* 92:1170–82.
- Caspi, Avshalom. 2004. "Life-Course Development: The Interplay of Social Selection and Social Causation Within and Across Generations." Pp. 8–27 in *Human Development Across Lives and Generations: The Potential for Change*, edited by P. Lindsay Chase-Lansdale, Kathleen Kiernan, and Ruth J. Friedman. New York: Cambridge University Press.
- Chantala, Kim. 2002. "Introduction to Analyzing Add Health Data." Paper presented at the *Add Health Users Workshop, National Institutes of Health, Bethesda, MD*.
- Cheng, Simon, and Brian Starks. 2002. "Racial Differences in the Effects of Significant Others on Students' Educational Expectations." *Sociology of Education* 75:306–27.
- Coleman, James S. 1988. "Social Capital in the Creation of Human Capital." *American Journal of Sociology* 94:S95–S120.
- Coleman, James S., and Thomas Hoffer. 1987. *Public and Private High Schools: The Impact of Communities*. New York: Basic Books.
- Conley, Dalton. 2001. "Capital for College: Parental Assets and Postsecondary Schooling." *Sociology of Education* 74:59–72.
- Croninger, Robert G., and Valerie E. Lee. 2001. "Social Capital and Dropping Out of High School: Benefits to At-Risk Students of Teachers' Support and Guidance." *Teachers College Record* 103:548–81.
- Crosnoe, Robert, Shannon Cavanagh, and Glen H. Elder, Jr. 2003. "Adolescent Friendships as Academic Resources: The Intersection of Friendship, Race, and School Disadvantage." *Sociological Perspectives* 46:331–52.
- Crosnoe, Robert, Monica Kirkpatrick Johnson, and Glen H. Elder, Jr. 2004. "Intergenerational Bonding in School: The Behavioral and Contextual Correlates of Student-Teacher Relationships." *Sociology of Education* 77:60–81.
- Darling, Nancy, Stephen F. Hamilton, and Katherine Hames Shaver. 2003. "Relationships Outside the Family: Unrelated Adults." Pp. 349–70 in *Blackwell Handbook of Adolescence*, edited by Gerald R. Adams and Michael D. Berzonsky. Malden, MA: Blackwell.
- Darling, Nancy, Stephen F. Hamilton, Teru Toyokawa, and Sei Matsuda. 2002. "Naturally Occurring Mentoring in Japan and the United States: Social Roles and Correlates." *American Journal of Community Psychology* 30:245–70.
- Dika, Sandra L., and Kusum Singh. 2002. "Applications of Social Capital in Educational Literature: A Critical Synthesis." *Review of Educational Research* 72:31–60.
- DiPrete, Thomas A., and Gregory M. Eirich. 2006. "Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments." *Annual Review of Sociology* 32:271–97.
- Downey, Douglas B., and Shana Pribesh. 2004. "When Race Matters: Teachers' Evaluations of Students' Classroom Behavior." *Sociology of Education* 77:267–82.
- DuBois, David L., Bruce E. Holloway, Jeffrey C. Valentine, and Harris Cooper. 2002. "Effectiveness of Mentoring Programs for Youth: A Meta-Analytic Review." *American Journal of Community Psychology* 30:157–97.
- DuBois, David L., and Naida Silverthorn. 2005. "Natural Mentoring Relationships and Adolescent Health: Evidence from a National Study." *American Journal of Public Health* 95:518–24.
- Dunn, Lloyd M. 1981. *Peabody Picture Vocabulary Test, Revised*. Circle Pines, MN: American Guidance Service.
- Elder, Glen H., Jr., and Michael J. Shanahan. 2006. "The Life Course and Human Development." Pp. 665–715 in *The Handbook of Child Psychology*, Vol. 1, edited by William Damon and Richard M. Lerner. New York: Wiley.
- Garner, Catherine L., and Stephen W. Raudenbush. 1991. "Neighborhood Effects on Educational Attainment—A Multilevel Analysis." *Sociology of Education* 64:251–62.
- Goleman, Daniel. 2006. *Social Intelligence: The New Science of Human Relationships*. New York: Bantam Books.
- Hamilton, Mary Agnes, and Stephen F. Hamilton. 2005. "Work and Service-Learning." Pp. 348–63 in *Handbook of Youth Mentoring*, edited by David L. DuBois and Michael J. Karcher. Thousand Oaks, CA: Sage.
- Hamilton, Stephen F., and Mary Agnes Hamilton. 2004. "Contexts for Mentoring: Adolescent-Adult Relationships in Workplaces and

- Communities." Pp. 395–428 in *Handbook of Adolescent Psychology*, edited by Richard M. Lerner and Laurence Steinberg. New York: Wiley.
- Hardy, Melissa A., and John Reynolds. 2004. "Incorporating Qualitative Information into Regression Models: The Utility of Dummy Variables." Pp. 209–36 in *Handbook of Data Analysis*, edited by Melissa A. Hardy and Alan E. Bryman. Thousand Oaks, CA: Sage.
- Harris, Kathleen Mullan, Francesca Florey, Joyce Tabor, Peter S. Bearman, Jo Jones, and J. Richard Udry. 2003. "The National Longitudinal Study of Adolescent Health: Research Design." Available online: <http://www.cpc.unc.edu/projects/addhealth/design>
- Higgins, Monica C., and David A. Thomas. 2001. "Constellations and Careers: Toward Understanding the Effects of Multiple Developmental Relationships." *Journal of Organizational Behavior* 22:223–47.
- Hofferth, Sandra L., Johanne Boisjoly, and Greg J. Duncan. 1998. "Parents' Extrafamilial Resources and Children's School Attainment." *Sociology of Education* 71:246–68.
- Ianni, Francis A. J. 1989. *The Search for Structure: A Report on American Youth Today*. New York: Free Press.
- Jacobi, Maryann. 1991. "Mentoring and Undergraduate Academic Success: A Literature-Review." *Review of Educational Research* 61:505–32.
- Kim, Doo Hwan, and Barbara Schneider. 2005. "Social Capital in Action: Alignment of Parental Support in Adolescents' Transition to Postsecondary Education." *Social Forces* 84:1181–1206.
- Klaw, Elena L., and Jean E. Rhodes. 1995. "Mentor Relationships and the Career Development of Pregnant and Parenting African-American Teenagers." *Psychology of Women Quarterly* 19:551–62.
- Kuziemko, Ilyana. 2006. "Using Shocks to School Enrollment to Estimate the Effect of School Size on Student Achievement." *Economics of Education Review* 25:63–75.
- Lee, Valerie E., and David T. Burkam. 2003. "Dropping Out of High School: The Role of School Organization and Structure." *American Educational Research Journal* 40:353–93.
- Lin, Nan. 2001. *Social Capital: A Theory of Social Structure and Action*. Cambridge, England: Cambridge University Press.
- Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage.
- Luthar, Suniya S., Dante Cicchetti, and Bronwyn Becker. 2000. "The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work." *Child Development* 71:543–62.
- Maeroff, Gene I. 1998. *Altered Destinies: Making Life Better for Schoolchildren in Need*. New York: St. Martin's Press.
- Masten, Ann S., and J. Douglas Coatsworth. 1998. "The Development of Competence in Favorable and Unfavorable Environments: Lessons Learned from Research on Successful Children." *American Psychologist* 53:205–20.
- McDonald, Steve, Lance D. Erickson, Monica Kirkpatrick Johnson, and Glen H. Elder, Jr. 2007. "Informal Mentoring and Young Adult Employment." *Social Science Research* 36:1328–47.
- Mortimer, Jeylan T. 2003. *Working and Growing Up in America*. Cambridge, MA: Harvard University Press.
- Mosteller, Frederick. 1995. "The Tennessee Study of Class Size in the Early School Grades." *Future of Children* 5:113–27.
- Newman, Katherine. 2000. *No Shame in My Game: The Working Poor in the Inner City*. New York: Vintage Books.
- Nora, Amaury, Alberto Cabrera, Linda Serra Hagedorn, and Ernest Pascarella. 1996. "Differential Impacts of Academic and Social Experiences on College-Related Behavioral Outcomes Across Different Ethnic and Gender Groups at Four-Year Institutions." *Research in Higher Education* 37:427–51.
- O'Rand, Angela M. 2006. "Stratification and the Life Course: Life Course Capital, Risks and Social Inequality." in *Handbook of Aging and the Social Sciences* (6th ed.), edited by Robert H. Binstock, Linda K. George, Stephen J. Cutler, Jon Hendricks, and James H. Schulz. Boston: Academic Press.
- Rhodes, Jean E. 1994. "Older and Wiser: Mentoring Relationships in Childhood and Adolescence." *Journal of Primary Prevention* 14:187–96.
- . 2002. *Stand by Me: The Risks and Rewards of Mentoring Today's Youth*. Cambridge, MA: Harvard University Press.
- . 2005. "A Model of Youth Mentoring." Pp. 30–43 in *Handbook of Youth Mentoring*, edited by David L. DuBois and Michael J. Karcher. Thousand Oaks, CA: Sage.
- Rhodes, Jean E., Josefine M. Contreras, and Sarah C. Mangelsdorf. 1994. "Natural Mentor Relationships Among Latina Adolescent Mothers: Psychological Adjustment, Moderating Processes, and the Role of Early Parental Acceptance." *American Journal of Community Psychology* 22:211–27.
- Rhodes, Jean E., Lori Ebert, and Karla Fischer. 1992. "Natural Mentors: An Overlooked Resources in the Social Networks of Young African American Mothers." *American Journal of Community Psychology* 20:445–61.
- Rhodes, Jean E., Jean B. Grossman, and Nancy L.

- Resch. 2000. "Agents of Change: Pathways Through Which Mentoring Relationships Influence Adolescents' Academic Adjustment." *Child Development* 71:1662–71.
- Riegle-Crumb, Catherine, George Farkas, and Chandra Muller. 2006. "The Role of Gender and Friendship in Advanced Course Taking." *Sociology of Education* 79:206–28.
- Robertson, Donald, and James Symons. 2003. "Do Peer Groups Matter? Peer Group versus Schooling Effects on Academic Attainment." *Economica* 70:31–53.
- Sameroff, Arnold, Leslie Morrison Gutman, and Stephen C. Peck. 2003. "Adaptation Among Youth Facing Multiple Risks: Prospective Research Findings." Pp. 364–91 in *Resilience and Vulnerability: Adaptation in the Context of Childhood Adversities*, edited by Suniya S. Luthar. New York: Cambridge University Press.
- Sampson, Robert J., Jeffrey D. Morenoff, and Felton Earls. 1999. "Beyond Social Capital: Spatial Dynamics of Collective Efficacy for Children." *American Sociological Review* 64:633–60.
- Sánchez-Jankowski, Martín. 1991. *Islands in the Street: Gangs and American Urban Society*. Berkeley: University of California Press.
- Sanchez, Bernadette, and Olga Reyes. 1999. "Descriptive Profile of the Mentorship Relationships of Latino Adolescents." *Journal of Community Psychology* 27:299–302.
- Sewell, William H., Archibald O. Haller, and George W. Ohlendorf. 1970. "The Educational and Early Occupational Status Attainment Process: Replication and Revision." *American Sociological Review* 35:1014–27.
- Sewell, William H., Archibald W. Haller, and Alejandro Portes. 1969. "The Educational and Early Occupational Attainment Process." *American Sociological Review* 34:82–92.
- Stanton-Salazar, Ricardo D. 2001. *Manufacturing Hope and Despair: The School and Kin Support Networks of U.S.-Mexican Youth*. New York: Teachers College Press.
- Stanton-Salazar, Ricardo D., and Sanford M. Dornbusch. 1995. "Social Capital and the Reproduction of Inequality: Information Networks among Mexican-Origin High School Students." *Sociology of Education* 68:116–35.
- Stanton-Salazar, Ricardo D., and Stephanie Urso Spina. 2003. "Informal Mentors and Role Models in the Lives of Urban Mexican-Origin Adolescents." *Anthropology & Education Quarterly* 34:231–54.
- Werner, Emmy E., and Ruth S. Smith. 1982. *Vulnerable but Invincible: A Longitudinal Study of Resilient Children and Youth*. New York: McGraw-Hill.
- . 2001. *Journeys from Childhood to Midlife: Risk, Resilience, and Recovery*. Ithaca, NY: Cornell University Press.
- Wiggan, Greg. 2007. "Race, School Achievement, and Educational Inequality: Toward a Student-Based Inquiry Perspective." *Review of Educational Research* 77:310–33.
- Williams, Terry M., and William Kornblum. 1985. *Growing Up Poor*. Lexington, MA: Lexington Books.
- Wilson, William Julius. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago: University of Chicago Press.
- Woodward, Lianne J., and David M. Fergusson. 2000. "Childhood Peer Relationship Problems and Later Risks of Educational Under-achievement and Unemployment." *Journal of Child Psychology and Psychiatry* 41:191–201.
- Zimmerman, Marc A., Jeffrey B. Bingenheimer, and Diana E. Behrendt. 2005. "Natural Mentoring Relationships." Pp. 143–57 in *Handbook of Youth Mentoring*, edited by David L. DuBois and Michael J. Karcher. Thousand Oaks, CA: Sage.
- Zimmerman, Marc A., Jeffrey B. Bingenheimer, and Paul C. Notaro. 2002. "Natural Mentors and Adolescent Resiliency: A Study with Urban Youth." *American Journal of Community Psychology* 30:221–43.

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The first two authors made equivalent contributions to this research. This research used data from Add Health, a program project designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris and funded by Grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 17 other agencies. Special acknowledgment is due to Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Persons who are interested in obtaining data files from Add Health should contact Add Health, Carolina Population Center, 123 West Franklin Street, Chapel Hill, NC 27516-2524 (addhealth@unc.edu). No direct support was received from grant P01-HD31921 for this analysis. We gratefully acknowledge support from NICHD to Glen H. Elder, Jr., and Michael J. Shanahan through their subproject to the Add Health Wave IV Program Project (Grant 3P01 HD031921). Acknowledgement is also given to NIH/NIA for fellowship support from the Demography of Aging training grant (5 T32 AG00155-14). The Add Health Academic Achievement study was funded by a grant from the National Institute of Child Health and Human Development under Grant 01 HD40428-02 to the Population Research Center, University of Texas at Austin; Chandra Muller (principal investigator) and from the National Science Foundation under Grant REC-0126167 to the Population Research Center, University of Texas at Austin; Chandra Muller and Pedro Reyes (co-principal investigators). Address correspondence to Lance D. Erickson, Department of Sociology, Brigham Young University, 2008 JFSB, Provo UT, 94602; e-mail: lance_erickson@byu.edu.