

**What's In a Relationship?:  
Testing Theories of Social Capital Using Data From Mentoring Relationships**

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**A thesis submitted to the faculty of the University of North Carolina at Chapel Hill  
in partial fulfillment of the requirements for the degree of Master of Arts in the  
Department of Sociology.**

**Chapel Hill  
2009**

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## **ABSTRACT**

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**(Under the direction of Karolyn Tyson)**

Throughout the sociological literature of the last twenty-five years, social capital has appeared as an important, yet often misunderstood concept. Many theorists have attempted to define and measure social capital in a variety of ways. Using data from the Big Brothers/Big Sisters program, I test multiple theories of social capital to determine which aspects of social capital lead to greater educational outcomes in a dyadic relationship. These mentoring relationships are targeted to help at-risk youth who have a multitude of disadvantages blocking their paths to upward mobility. The results indicate that time spent in a relationship has a significant and positive effect on educational outcomes, but this finding is moderated through the racial match of the relationship.

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## **A. INTRODUCTION**

The concept of social capital has been prevalent in academic research, especially education research (Dika and Singh, 2002), since the publication of work by Bourdieu (1986) and Coleman (1988) on the subject. Definitions and measures of social capital have varied widely, due in part to researchers linking social capital theory to different levels of operation and different types of outcomes (see Portes, 1998 for a thorough review). In general, social capital can be considered the benefits that occur from a social relationship. Although social capital can be difficult to define or operationalize, one aspect that researchers mostly agree on is that social capital is different than that of physical, human, or financial capital. Additionally, social capital differs from other types of capital because it is not held by any one individual, but rather is either contained within a relationship or network (Robinson, Schmid, and Siles, 2002) or within processes of social interaction (Bankston and Zhou, 2002).

Not all forms of social capital are created equally. Just as individuals have varying amounts of human and financial capital, so too can relationships and networks hold varying amounts of social capital. Analyzing social capital from the standpoint of a relationship between two individuals, it is easy to see how the different characteristics of the two individuals and the relationship itself influence how much can be gained through social capital. The individuals have their own personal characteristics, such as wealth, power, and knowledge and their own networks, which contribute to the dynamics of their

relationships. Qualities of the relationship, such as how well the individuals know each other, how much time is spent together, and how often the individuals see each other may also affect the impact of the relationship on the individuals involved. These characteristics, which create a composite view of the relationship, are potentially limitless. They are also influential in determining the value to be derived from the relationship. Using existing theory from social capital literature, we can examine what aspects of a relationship other researchers have suggested as the important components of social capital.

Theorists of social capital have posited different ways that the aspects of social relationships or networks influence outcomes. While James Coleman (1988) focused on the quality of relationships, loosely defined in terms of time spent between individuals, other researchers such as Granovetter (1973), and Lin, Ensel, and Vaughn (1981), have focused on issues of homogeneity and heterogeneity within relationships and networks. These researchers attribute different aspects of the relationships as important to upward mobility and other positive outcomes. Other research has linked different forms of social capital to increased academic achievement and other positive academic outcomes. Social capital effects have been observed net of family background and school effects. Specifically, these studies have found that social capital resulted in increased test scores, increased high school graduation rates, college completion, and overall years of educational attainment (Hagan, MacMillan, and Wheaton, 1996; Kahne and Bailey, 1999; Sun, 1999).

The broad goal of this paper is not to define social capital, but rather test theories of how social capital operates within the confines of a mentoring relationship to

determine which aspects of the relationship affect the benefits derived from the relationship. To reach this goal, first, I will explain how mentoring might be thought of as social capital. Next, I will review the relevant theories of social capital and their follow-up studies which will frame the question in the form of competing hypotheses. Then, I will briefly describe existing studies of mentoring and relate them to the theories of social capital. Finally, I will analyze data from mentoring to examine how different dimensions of the quality of the relationship and the similarities and differences between individuals within the relationship influence the academic benefits derived from this form of social capital.

## **B. BACKGROUND AND SIGNIFICANCE**

### *At-Risk Youth and Mentoring as a Form of Social Capital*

In the United States today, there are nearly 8.5 million children living in single parent households below the poverty level (CPS 2008 Annual Social and Economic Supplement). Of children who live in households with just a single mother, 42.9% live below the poverty line. These staggering numbers represent a population of children at serious risk of continuing to live in poverty as they become adults. Children from single parent homes face an up-hill battle during adolescence, including lower academic performance and overall academic attainment (McLanahan & Sandefur, 1994). Poor children are more likely than nonpoor children to experience academic problems in school, including lower grades (Duncan and Brooks-Gunn, 1997), lower scores on standardized tests (Blau, 1995; Smith, et al., 1997), higher instances of placement in special education programs and lower curriculum tracks (Lucas, 1999), higher instances of drop-out and retention, more unexcused absences and tardies (Nunn and Parish, 1992),



and overall lower chances for graduation from high school or attendance of college (Duncan, et al., 1998). With more negative academic outcomes for these “at-risk” youth, gainful employment becomes more difficult and the vicious cycle of poverty continues (Restuccia and Urrutia, 2004).

These youth, then, tend to have limited financial and human capital available to them. With the myriad of disadvantages stacked against these youth, additional assistance is needed to give them an increased chance at success, academically and otherwise. Thus, turning to social capital is one way the parents of at-risk youth can help supplement their chances of success (Hofferth, Boisjoly, and Duncan, 1998). Mentoring programs such as Big Brothers/Big Sisters of America (BBBSA) provide an interpersonal relationship with an adult for these youth. These programs are considered one of the largest (in terms of numbers of youth and funding) forms of intervention in the U.S. for at-risk youth, providing assistance for over 2.5 million youth (Rhodes, 2002; Rhodes and DuBois, 2008; Rhodes, 2008). Many studies have found general success for mentoring programs because the relationships cultivated through the programs promote positive outcomes for school, health, and behavior (see DuBois, et al., 2002 for a meta-analysis of previous academic studies on mentoring programs).

Mentoring programs for adolescents have become increasingly popular, and they boast a wide variety of positive results for the young people involved, including increased educational achievement. A mentoring relationship allows youth close one-on-one interaction with another person. While this form of social capital has potential benefits for at-risk youth, research has been limited in determining exactly which aspects have the largest and most critical effects. Few large-scale studies, for instance, have examined

key characteristics of mentor-mentee matching, such as overall time spent together, racial homogeneity, and class heterogeneity. In fact, no studies have looked at all of these aspects within the same models and existing mentoring research seems to offer conflicting advice about which characteristics matter most. In short, mentoring programs may be highly beneficial to youth under the right circumstances, but there is limited theoretical and empirical evidence to help us fully understand how well they work. However, the social capital literature suggests a number of aspects of mentoring relationships which may be essential to understanding the conditions under which they are most effective.

In the sections that follow, I describe the implications of different conceptualizations of social capital for mentoring relationships. I begin with Coleman's work on the concept, which focuses on the strength of the bond between individuals.

*A Theory of Social Capital – Frequency and Time*

In his work on social capital, James Coleman describes social capital as “making possible the achievement of certain ends that in its absence would not be possible” (1988: S98). Without explicitly stating it, this definition recognizes social capital as supplemental to other types of capital. Coleman's definition of social capital also acknowledges multiple dimensions and types of social capital. He outlines three forms of social capital: obligations and expectations based on trustworthiness, information channels, and norms. Trusting another party in a relationship is required for successful operation of social capital in any situation. In one particular form, however, social capital is built through trust and the knowledge that each party will follow through on their obligations and meet expectations. Another form of social capital comes as the

embodiment of information channels, which provide knowledge. A final form of social capital exists as norms, which may exert rewards and penalties for certain types of behavior, and reflect the values of a community.

Coleman explored social capital in the context of relationships between adults and youth, particularly between parent and child. Adults can offer connections to other adults, experience, general knowledge, and specific information to youth, but a youth must first have access to adults to be able to benefit from their human capital. He further explains that the more time and attention an adult gives a youth, the better their relationship will be, and thus the more useful that adult's human capital is to the youth. The human capital of an adult is important, but a strong, high quality relationship between an adult and youth must come first. Thus, Coleman suggested that individuals within a relationship hold resources (such as human capital) that can be accessed through strong relationships (relationship strength as a measure of social capital).

For youth with a single parent, however, Coleman found that having additional siblings and a mother with no expectation of college for the child, all increased the child's likelihood of dropping out of high school, independent of financial and human capital within the child's family because these factors reduced the amount of time an individual child spent with his parent(s), and therefore, the value of the relationship as social capital. In effect, time spent together and strength of the bond, generally described as relationship quality, were used as proxies for a measure of social capital.

Research using Coleman's social capital framework found that some aspects of time spent with parents, such as activities with parents, had a positive effect on educational outcomes, while others, such as parents helping with homework, had no

significant effect on educational outcomes (Furstenberg and Hughes, 1995). Other researchers have critiqued Coleman's measurement of social capital, and called for more refined measures of the concept. Teachman, Paasch, and Carver (1996) attempted to better measure one dimension of social capital, interaction time spent between parent and child. Their findings, using NELS data, indicated that parent-child connectivity had a negative effect on dropping out of high school, net of family structure, race, parental income, and parental education.<sup>1</sup> Additional research with the NELS dataset has shown that the same measures of parent-child interaction have a positive effect on college enrollment as well (Sandefur, Meier, and Campbell, 2006). Other studies of social capital find support for proxy measures of time spent between parent and child having a significant effect on test scores in the NLSY dataset (Parcel and Dufur, 2001). While some studies find no support for Coleman's conceptualization of social capital (Wellman and Wortley, 1990), most studies indicate that time spent in a relationship is an important aspect of social capital, although researchers continue to debate how best to measure it.

Coleman's framework suggests that a mentoring relationship can be considered a form of social capital because mentors provides information channels for youth. In terms of education information, this may range from direct knowledge disseminated as assistance on homework to information on the application and financial processes of higher education. Additionally, mentors may display norms and provide rewards and sanctions for different types of behavior. A mentor may help guide a youth's academic achievement by rewarding good grades and other positive academic behaviors, while

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<sup>1</sup> The measure of parent-child connectivity was a composite of answers to eight questions asked to both children and parents regarding frequency of discussion of education and school issues.

discouraging skipping school and other negative academic behaviors. According to Coleman though, the key to achieving greater benefits from social capital is through stronger bonds based on more time spent together and more frequency contact. Thus, mentoring may only provide increases in academic achievement and serve as a powerful form of social capital if the relationship between youth and mentor is strong. If Coleman's theory of social capital is correct, one would expect this measure of relationship quality to have the largest effect on academic outcomes. One way this research will represent a true test of Coleman's conceptualization of social capital is by the measure of time spent between mentor and youth. Although Coleman and others did not have an exact measure of this variable and used proxies, my data has a measurement of this exact variable. But first, I will examine some other theories of social capital, which posit different concepts than time as the key factors determining outcomes.

#### *A Second Theory of Social Capital – Weak Ties & Heterogeneity In Relationships*

Originally outlined in relation to social network theory, Mark Granovetter's (1973) theory of social capital posits that two basic types of social relationships exist, those that are based on either strong or weak ties. Strong ties occur between close family members and friends. Weak ties are explained as relationships with acquaintances or friends of friends, typically a dyad created by two more heterogeneous individuals than would be created in a close friendship or between familial-related individuals. Granovetter postulates that these weak ties form a network of heterogeneous members through which valuable social connections are created and upward mobility can be obtained. The author defines tie strength as a composite of several correlated factors, including time, emotional intensity, and intimacy involved in the relationship. While there are some similarities

with Coleman's definition of social capital within relationships, this theory indicates there is more to activating social capital than just the amount of time spent between two individuals (see below).

Granovetter further explains a form of weak ties as bridges. Bridges occur when a weak tie exists between two people such that certain information or influence can only pass through that connection. However, not all weak ties can be bridge ties, as weak ties are a necessary, but not a sufficient condition of a bridge tie. An individual's connection to a high school friend would be a weak tie if contact between the two individuals is limited to contact once a year, but the tie is not a bridge tie if both individuals keep in contact with other common high school friends. Bridge connections open doors to opportunities that would not otherwise be available, because they often provide access to socially distant people who have information that closer friends and relatives do not have. Granovetter claims that bridge ties help in the connection of information because “the fewer indirect contacts one has the more encapsulated he will be in terms of knowledge of the world beyond his own friendship circle” (1371).

In researching how people receive information about new jobs, Granovetter finds that weak ties between individuals produce more favorable outcomes than strong ties. Among a sample of non-working class employees, those who found their jobs through existing network connections were more likely to have obtained their job through a weak rather than strong tie. In this work, Granovetter's measure for tie strength was based solely upon frequency of contact and not the multiple dimensions listed within his theoretical framework. However, other researchers extended Granovetter's theories and developed additional components of tie strength.

In work further expanding Granovetter's theories, Lin, Ensel, and Vaughn (1981) explained that social resources (capital) are “embedded in the positions of contacts an individual reaches through his social network” (395). The authors hypothesized that an individual of lower status would need to use weak ties who were higher in status to obtain jobs of higher occupational status. Their analysis showed that males in the labor force obtained higher status jobs indirectly through weak ties. Weak ties led to higher status individuals which led to higher status jobs, because weak ties represent contacts who are different than the individual, in terms of social class factors (i.e. education, income, etc.). Additionally, the authors found that the results depended upon the person's original status, as higher status individuals could use weak or strong ties to obtain similar outcomes. In a similar application using the same data, Lin, Vaughn, and Ensel (1981) also found that the educational status of the connection (through a weak tie) had a significant and positive result on obtained occupational status. Individuals who found jobs through connections with higher academic attainment than themselves were hired for higher status positions. These studies adjusted Granovetter's original social tie theory by indicating that the main importance of a relationship is the difference in status, that is, the initial status of an individual compared to the status of a contact.

Marsden and Campbell (1984) took up the task of more precisely measuring tie strength as originally defined by Granovetter. The authors suggested that two aspects should be considered: predictors and indicators. They defined indicators of tie strength as the components that Granovetter suggested, including time and emotional intensity and predictors as measures of social homogeneity or heterogeneity. Although their data analysis provides mixed results, the findings suggest that class differences, or social

heterogeneity, in terms of occupational prestige and education, predict weak ties. The authors also find that duration and closeness (or emotional intensity) of the relationship and frequency of contact have positive effects on tie strength; that is, they indicate strong ties. Overall, their results pit Coleman's ideas of social capital against Granovetter's.

Bridging social capital or the idea that social capital results in better outcomes amongst heterogeneous groups or dyads has received much support from a variety of research. Studies have replicated similar results to those of Lin, Ensel, and Vaughn (1981), showing that higher status contacts lead to increased occupational prestige (Marsden and Hurlbert, 1988; Moerbeek, Ultee, and Flap, 1995; Lai, Lin, and Leung, 1998). At least one study has also suggested that heterogeneity in terms of race may be necessary as well as class (Green, Tigges, and Browne, 1995). Although almost all of the literature supports the idea that status differences or social heterogeneity has an effect, there are indeed mixed results regarding the importance of the tie being weak, or even how tie strength should be defined (see Lin, 1999, for a meta-analysis and full explanation of this literature).

Still, the theory that relationships based on class heterogeneity lead to better outcomes can also be tested in the context of mentoring relationships. Social ties or connections are another aspect of the mentor/mentee relationship that could potentially lead to increased educational achievement and attainment for the mentee. As other authors have noted, Granovetter's theory implies that weak ties or status differences between individuals may be especially important for upward mobility (Lin, Ensel, and Vaughn, 1981). In the case of the mentor/mentee relationship, the weak tie hypothesis suggests that the best mentor for a disadvantaged youth may be the person who is socially



distant in terms of social class, educational attainment, and occupational attainment. A college-educated mentor, who is likely to have a network of college-educated friends and acquaintances, may prove very beneficial to a mentee with few or no college educated relatives. The mentor could serve as a bridge to others with high levels of education, provide guidance and information regarding the education process, and help stress the importance of education. Additionally, the mentor may serve as an example of how the education process helps someone attain upward social mobility, an example that may not be readily available for at-risk youth in their own communities. Mentoring research has shown that these relationships do provide tutoring and lead to information on continuing education, information on specific careers, and valuable connections to other influential people (Dreher and Cox, 1996; Fagenson-Eland, Marks, and Amendola, 1997; Wright and Wright, 1987). One would expect that these factors which reinforce the importance of education at the present time, would lead the youth to take school more seriously and work harder. The results should be seen in improved grades, and school-related behavior, and attitudes. Thus, according to the rich literature on social resource and network tie theory, a more heterogeneous mentor/mentee dyad should be most beneficial for the youth, in terms of social class (and perhaps race<sup>2</sup>), while the amount of time spent together would be of secondary or possibly minimal importance.

### *A Third Theory of Social Capital – Strong Ties & Homogeneity In Relationships*

In contrast to heterogeneous relationships and networks creating more positive

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<sup>2</sup> Granovetter (1974) also reanalyzes data received from Charles Korte used in Korte and Milgram (1970). He finds that weak interracial ties were more likely to result in the delivery of a letter from various white senders to an unknown black recipient (unknown to the original white sender), than strong interracial ties were.

outcomes through social capital, some literature suggests that some forms of social homogeneity are crucial for successful use of social capital. The idea that similarity results in more intimate relationships and longer-lasting relationships has been discussed at length by numerous scholars (Homans, 1950; Lazarsfeld and Merton, 1954; Laumann, 1966). While writing on these ideas, Merton<sup>3</sup> (Lazarsfeld and Merton, 1954) coined the term homophily to indicate a relationship between two like individuals. Merton studied friendship networks and predicted that, on average, an individual's network would consist of more relationships based on homophily than heterophily. In his analysis, he found that individuals had more associations based on status homophily (including race) and value homophily (including racial attitudes) than heterophily. These early theories and research demonstrated that the deepest relationships of everyday importance in people's lives are founded on the individuals being similar to each other in some respects. Based on Granovetter's (1974) proposed measures of tie strength (intimacy and time) these are strong ties, which network tie researchers would argue are not the most beneficial in activating social capital. But, perhaps homogeneity, instead of heterogeneity, might be the important factor in social capital leading to more positive outcomes.

In a review of literature on homophily within social networks, McPherson, Smith-Lovin, and Cook (2001) found that homophily based on race and ethnicity was prevalent in a wide range of relationships, including strong bonds such as marriages and friendships, as well as weak bonds such as short term contacts. Literature on racial segregation in neighborhoods, schools, and the workplace, makes it clear that many

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<sup>3</sup> Although the authors are listed together in the chapter, it consists of two individually authored pieces by Lazarsfeld and Merton.

individuals deal with mostly people of their own race on a daily basis.

Not only are relationships based on racial homogeneity prevalent throughout society, but relationships based on racial heterogeneity may be damaged by a lack of trust. Research has shown that, in particular, minorities and low-SES individuals typically have lower levels of cross-racial trust (Alesina and La Ferrara, 2002; Costa and Kahn, 2003; Eckel and Wilson, 2004). No matter how much social capital may be available from the joining of dissimilar individuals, if they cannot form a trusting bond, it is unlikely that the relationships will result in positive outcomes for the individuals involved.

In fact, the findings of at least two studies suggest that higher levels of trust result in better use of social resources in networks (Light, 1984; Light and Bonacich, 1988). In both of these cases, Asian immigrants contributed to funding new Asian immigrant businesses in the United States. Perceived similarity to one's own situation unlocked community resources. Although racial trust is not explicitly measured or analyzed in these studies, the willingness to invest in a business enterprise connotes a certain level of trust. Furthermore, other literature on racial trust leads us to believe that this situation would not have been possible between cross-race immigrants.

A series of studies on mentoring relationships in the workplace have found support of racial homogeneity leading to more positive outcomes than racial heterogeneity in dyads. Thomas (1989) found that in racially similar pairs, race helped the individuals form a stronger bond than in cross-race pairs. This finding was observed in both black and white dyads. However, when paired individuals were racially dissimilar, white mentors struggled more than black mentors to identify with their

protégés, and seemed to have less of an impact on the successful development of the protégé. Additionally, cross-race relationships in the work environment were also observed to be less supportive (Thomas, 1990). Among work groups, Tsui, Egan, and O'Reilly (1992) found similar results. Their findings showed that white workers were more satisfied in homogeneous rather than heterogeneous groups. In a workplace environment experiment, Ensher and Murphy (1997) examined interns randomly assigned to mentors in either same-race or cross-race pairings. The authors found that same-race mentees were more likely to report that the relationship was higher quality. Additionally, the authors found that same-race mentors were more likely to go above and beyond the goals of the program when providing support for their mentees. This finding indicates that when mentors feel a connection to their mentees, they may put more effort and time into the relationship, and thus increase the chance for a higher-quality and longer-lasting relationship.

In a program analysis study, Kahne and Bailey (1999) examined the effects of Chicago area “I Have a Dream” (IHAD) programs on low-SES, mostly minority youth. These programs target an entire sixth grade class at various schools. They are sponsored by wealthy families and provide college scholarships for those who graduate from high school and project coordinators and other individuals to oversee and provide additional tutoring, service connections, and other assistance. The program also helps to build trust between youth and adults, which may help foster and build other forms of social capital. Kahne and Bailey (1999) found that students required strong trusting relationships with adults involved in the program that they had interaction with (project coordinators and other assistants) to take advantage of their network ties. In their analysis, the authors

found that students were able to get information about and connections to jobs, as well as information and access to schools, but “[t]he[se] youth needed strong ties to benefit from weak ties” (emphasis in original). Although the finding that strong relationships with project personnel were necessary to access social capital was obtained through limited interviews with part of the sample, it still helps highlight the idea that social homogeneity may be required within a dyad for the benefits of social capital and resources to be realized.

This final way of viewing social capital can be seen as possibly important in mentoring relationships as well. If, as the research indicates, people are more socially comfortable and more trusting of individuals who share their race, then we should expect to see social capital resulting in more benefits in same-race dyads. The youth involved in mentoring programs may not be very trusting of an outsider, someone who is dissimilar to them, entering their world and having close proximity to them on a regular basis. The lack of trust may create distance within the dyad and result in the mentor having less of a positive influence and impact on the youth. If the mentor is more similar to the youth however, the youth may see the mentor as sympathetic and knowledgeable about his or her particular circumstances. The two may also be more likely to share values and viewpoints and this might help the youth to take the mentor more seriously and listen to his or her advice and recommendations. This literature indicates that racial homogeneity, rather than class heterogeneity, may be the most important factor for youth to realize the benefits of social capital.

### *Existing Evidence on Youth Mentoring and Social Capital Theories*<sup>4</sup>

If we consider improved academic outcomes as a measure of social capital success in youth mentoring relationships, we can look to previous research to see first, how simply having a mentor can improve educational outcomes in a variety of ways. Within BBBSA programs, Tierney, Grossman, and Resch (1995) found that students with mentors showed higher levels of self-efficacy about school, were less likely to skip school, and showed more improved grades than students without mentors. Researchers have also found that having a mentor results in increased positive attitudes regarding school, increased school attendance, and increased school performance over students who do not have a mentor (Grossman and Tierney, 1998). Additionally, Thompson and Kelly-Vance (2001) found higher standardized test scores in math and reading for students with mentors than without.

Multiple studies examining youth and mentors in the BBBSA program have consistently found similar results for measures of scholastic competence, school value, grades, attendance, and other measures of schooling outcomes (McLearn, et. al, 1998; McKinney, et. al, 1999; and see Hansen, 2007 for a complete review of BBBS studies). Overall, these studies and many others that have concentrated on the effects of mentoring show that students who have a mentor have improved attitudes toward school and better performance in school. Although the magnitude of the results in these and other studies varies, the direction of the results almost always points to mentors having a positive influence on academic outcomes for their mentees. These particular studies, however, do

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<sup>4</sup> This section is limited to *youth* mentoring situations. Research discussing mentoring in the workplace environment obviously does not deal with the same types of outcomes, mainly academic outcomes.

not examine how certain characteristics of the mentoring relationship contribute to the mentees' improved academic outcomes. It is unclear how the qualities of the relationship, such as time spent together, homogeneity, and heterogeneity, might influence the relative effectiveness of mentoring. Thus the question remains, how does social capital operate within the context of these dyads?

Although there have been a number of articles on youth mentoring relationships which look at characteristics of the relationships, the research has been mostly limited to program evaluations and has examined individual characteristics while not controlling for others. Of those studies that have analyzed length of relationship and/or frequency of meetings, Slicker and Palmer (1993) found that youth with mentors who met with them more frequently were less likely to drop out of school than youth with mentors who met with them less frequently, and Grossman and Rhodes (2002) found some evidence that mentoring matches of 12 months or longer led to better academic outcomes than matches of less than 12 months.

Research related to heterogeneity of matches or even any aspect of mentor SES is almost non-existent. Perhaps the only research related to youth mentoring and class found that the educational attainment and occupational prestige of a role model have no impact on the student's academic performance, goals, positive events, or other related outcomes (Zirkel, 2002). This study, although not about mentoring<sup>5</sup> in a formal

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<sup>5</sup> On her student questionnaires, Zirkel allowed students to list what I define as a role model (no interaction) or a mentor (interaction). Thus, her results include some students who are not receiving any sort of feedback from their listed "role model". In either case, this study is not about a formal mentoring situation, which makes comparison of the results somewhat problematic.

capacity<sup>6</sup>, appears to be the only one that examines the importance of class through mentor characteristics of educational attainment and occupational prestige. However, while the study examines the effects of mentor characteristics, it does not account for class differences between mentor and mentee. Still, Zirkel's is one of the few studies to also examine race matches with relationships. Her research found that students who had race-matched role models received better grades, reported more goals and more positive extracurricular activities, and were more likely to consider future plans. The study was one of the first to examine the relationship characteristics of same-race versus cross-race dyads.

Perhaps the most thorough examination of mentoring relationship characteristics to date used the BBBSA dataset (Rhodes, et al., 2002). This research examined the impact of same-race versus cross-race pairings for a variety of outcomes, including academic outcomes. Controls for mentee characteristics were used, but not for most mentor characteristics. The authors found some positive effects for same-race relationships that varied by gender. Minority boys did better on scholastic competence scores when matched with a same-race mentor versus a cross-race mentor, while minority girls fared better on school value scores when matched with a same-race mentor versus a cross-race mentor.

While these youth mentoring studies suggest that concepts from the social capital literature, such as length of time of the relationship, homogeneity of race within dyads, and (perhaps) heterogeneity of class may increase the efficacy of mentors in boosting

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<sup>6</sup> Students who listed what I define as a mentor, may have listed anyone in their non-immediate family, community members, or anyone else they have interactive relationships with. However, these are all included in informal settings, whereas my data is focused on a formal mentoring program.



student's educational achievement, there is not an abundance of studies and the evidence that is available is still somewhat limited in scope. Additionally, no studies have examined these measures simultaneously to determine the best way to make use of this social capital. Given the shortcomings of these studies, more research is needed to determine how these qualities of relationships can influence the impact that mentors have on academic achievement. This research will further analyze mentoring relationship characteristics to shed some additional light on what methods of matching mentor and mentee may lead to more consistent and better academic outcomes.

### **C. DATA AND METHODS**

#### *Hypotheses*

The first goal of this paper is to test the multiple theories of social capital presented here, to determine which aspects of a relationship have the greatest effect on outcomes from social capital. The following competing hypotheses are based on the idea that the characteristics of a relationship have independent effects on academic outcomes resulting from mentoring (viewed as social capital). Although I may find all three aspects of a relationship to have independent effects, only one can have the greatest impact on academic outcomes.

Hypothesis 1: The amount of time a mentor spends with a mentee will be more likely to elicit higher levels of academic achievement among their mentees than either the heterogeneous or homogeneous factors of the relationship.

Hypothesis 2: Being in a heterogeneous relationship, in terms of social class, will

be more likely to elicit higher levels of academic achievement among mentees than either the amount of time spent together or the homogeneous factors of the relationship.

Hypothesis 3: Being in a homogeneous relationship, in terms of race, will be more likely to elicit higher levels of academic achievement among mentees than either the amount of time spent together or the heterogeneous factors of the relationship.

A final aim of this paper is to test the combined effects of racial homogeneity with the amount of time spent together. This hypothesis is based on the idea that being in a homogeneous relationship may lead to increased time spent together, thus having an indirect effect on academic outcomes.

Hypothesis 4: Being in a homogeneous relationship, in terms of race, will be more likely to lead to higher levels of time spent together, which in turn will elicit higher levels of academic achievement among mentees than the heterogeneous factors of the relationship.

### *Data Design*

To test these hypotheses, I will use a BBBSA dataset compiled by Public/Private Ventures. I have chosen data based on mentoring relationships because the relationships are dyadic, they are arranged between a youth and an adult who have not previously

know each other, and the program is based on specifically helping at-risk youth. Additionally, this particular dataset includes variables on length of match, meeting frequency and hours, race data on both youth and mentor, and socioeconomic status data on both youth and mentor. Essentially, it has all the variables necessary to effectively test the three theories regarding social capital presented here.

Although the sample is not nationally representative, it is comprised of mentoring dyads from eight cities. An experimental design was used in which a random sample from existing BBBSA applicants was taken and a control and treatment group was created for each of the eight sites. The dataset includes variables on each of the youth, their family background characteristics, each of the mentors, and each of the relationships.

One of the key components to the Big Brothers/Big Sisters of America program and many other mentoring programs is that at-risk youth are exclusively targeted for assistance. In fact, to be a mentee participant in the BBBSA program, the youth must come from a single parent home. The goal of the BBBSA program is to help alleviate many of the problems these youth face (academic and otherwise) through positive interaction with a mentor. The program does not endeavor to present youth with mentors who preach lessons or focus on direct academic assistance; rather the goal is to foster a two-way relationship between a young person and an adult. Therefore, it is important to note that while mentors can and usually do provide direct academic assistance, this is not the focus of the program.

The BBBSA study selected eight local chapters to participate in the research: Philadelphia, Pennsylvania; Rochester, New York; Minneapolis, Minnesota; Columbus,

Ohio; Wichita, Kansas; Houston, Texas; San Antonio, Texas; and Phoenix, Arizona. The chapters were selected based on two criteria: diversity in geographic location (across multiple U.S. regions and diversity based on type of city) as well as chapters which had large numbers of applicants to the program, to ensure large sample availability and to minimize any intrusion into the program because of the research.

The BBBSA study included 959 applicants (mentees) to the BBBSA program who completed a baseline and follow-up interview. Roughly half (487) of the applicants were randomly assigned to a treatment group (where they were matched with a mentor) and the remaining applicants (472) were randomly assigned to a waiting list (control group). This allows for a comparison between youth with mentors and those without. A baseline for each youth was taken at the beginning of the data collection in 1992. The data include information on youth's grades, hours spent on homework, attitudes toward school, a composite scale of school value, parent's SES variables, mentor's SES variables, weekly amount of time mentor and mentee spend together, and important demographic characteristics of the parent or guardian, mentor, and mentee. The dataset is comprised of roughly 62% males and 57% minorities in the youth groups. Once the treatment and control groups were assigned, youth were assigned mentors based on the guidelines of the local BBBSA chapter. All of the chapters match youth with mentors mainly based on gender and geography, but individual chapters may also match on other criteria<sup>7</sup>. Information on students was recorded before the students were matched with a mentor and then at an eighteen-month follow-up interval for both the matched dyads and the non-

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<sup>7</sup> Unfortunately, this information is not available.

matched students. Table 1 includes descriptive statistics on the youth who were placed in a mentoring relationship.

The characteristics of the mentors and what they bring to each individual relationship are a key issue of this research. A critical point to consider is that mentors are self-selected volunteers. This limits the types of mentors that may be available. In the BBSA dataset, for instance, roughly 64% of all the mentors are between the ages of 20-29. The biggest problem this might post for the current analysis, however, is that mentor education levels may be limited. Yet, this is not the case, as approximately 14% of the volunteers have only a high school degree, 28% have some college, 46% have a college degree, and 12% have a graduate degree. The mentor pool is also predominantly white, with only 20% (n=76) black mentors. Still, the possibilities of all type of race-matched and non-matched dyads, for blacks and whites, are available in significant numbers. Table 2 includes descriptive statistics on the mentors and the mentoring relationships.

Table 1 – Descriptive Statistics for Youth

	Total		Treatment		Control	
N=		959		487		472
Demographic Characteristics						
Male	62.46%	599	62.63%	305	62.29%	294
Female	37.54%	360	37.37%	182	37.71%	178
White	42.56%	406	44.65%	217	40.38%	189
Black	40.99%	391	40.12%	195	41.88%	196
Other Races	16.46%	157	15.23%	74	17.74%	83
Average Age (in years)		12.25		12.25		12.26
At-Risk Characteristics						
HH Income < \$25,000	82.67%	773	82.84%	391	82.51%	382
Lives with 1 parent <sup>8</sup>	89.95%	859	88.20%	426	91.74%	433
Academic Characteristics		Avg		Avg		Avg
GPA (t1)		2.77		2.79		2.75
GPA (t2)		2.68		2.74		2.62
Hours spent per week on homework (t1)		3.50		3.38		3.61
Hours spent per week on homework (t2)		4.93		5.05		4.80
B&M school value score (t1)		56.58		56.44		56.73
B&M school value score (t2)		56.11		56.50		55.71

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<sup>8</sup> Versus living with no parent (i.e. a guardian, grandparent, etc.). All of the youth in this dataset live with a maximum of one parent, since it is a requirement of the national BBBSA standards to be in the program.

Table 2 – Descriptive Statistics for Mentors and Mentoring Relationships

	Total					
N=		376				
Demographic Characteristics (of mentor)						
Male	58.24%	219				
Female	41.76%	157				
White	73.94%	278				
Black	20.21%	76				
Other Races	5.85%	22				
Average Age (in years)		29.58				
	Total		White		Black	
SES Characteristics (of mentor)						
% HH Income < \$25,000	33.43%	117	34.62%	90	27.78%	20
% HS Degree or GED	8.51%	32	8.99%	25	7.89%	6
% Associates or some college	30.32%	114	30.22%	84	30.26%	23
% College graduate or higher education	61.17%	230	60.79%	169	61.84%	47
Mentoring Relationship Characteristics	Total		White Youth		Black Youth	
Average Length of Match (in days)		253.47		272.73		236.87
Average Meeting Frequency (per month)		3.27		3.37		3.06
Average Meeting Length (in hours, each meeting)		3.74		3.90		3.48
Class Heterogeneity	84.16%	287	83.85%	135	85.61%	113
Class Homogeneity	15.84%	54	16.15%	26	14.39%	19
Racial Heterogeneity	35.51%	136	4.55%	8	52.32%	79
Racial Homogeneity	64.49%	247	95.45%	168	47.68%	72

### *Independent Variables*

A number of independent variables are used for the purposes of this research. The control variables used for each mentee in all of the models are: age, sex, race, if the

mentee has a learning disability, and if the mentee's household is on welfare. The other independent variables of interest require brief explanation. A composite variable of relationship time was created by multiplying the monthly meeting frequency of the dyad by the average number of hours of each meeting by the number of months of the match. The log of this variable was then taken and used as the composite of relationship time variable. I feel confident that this measure captures the amount of interaction between mentor and mentee, although with some minimal error as it was reported at the eighteen month follow-up. Still, the measure closely captures the relationship quality described by Coleman (1988) and used similarly by other researchers following Coleman's theory of social capital. This composite of relationship time variable serves as a good variable to test the first competing hypothesis.

A variable to measure social class distance was created by a dichotomous variable that is coded "1" for heterogeneous class matches and coded "0" for homogeneous class matches. Because nearly 83% of the sample youth are in households with incomes less than \$25,000, there are not enough cases to accurately test the regressions for multiple categorization of this variable. Ideally, the sample would allow for separate testing of homogeneous middle-class matches vs. homogeneous lower-class matches. However, this is unfortunately not an option with this dataset. The class heterogeneity variable is a sufficient indicator related to the social capital theories stemming from Granovetter (1973) and Lin, Ensel, and Vaughn (1981) and is used to test the second competing hypothesis.

The final independent variable to test theories of social capital is a dichotomous variable that is coded "1" for homogeneous racial matches and coded "0" for



heterogeneous racial matches. In this sample, there a total of 247 same-race dyads, consisting of 168 white and 72 black homogeneous racial matches, and 136 cross-race dyads, including 79 white mentor and black mentee heterogeneous matches. Other racial matches, such as black mentor and white mentee, make up the remaining 57 cross-race dyads, but no one category has a significant number of matches. Additionally, the data collection did not allow for mentors and youth to identify as multiracial, so these categories are the race individuals primarily self-identify as. This racial homogeneity measure is used to test the third competing hypothesis.

### *Dependent Variables*

There are three academic outcome variables, or dependent variables, which are of interest to this research: self-reported GPA; self-reported time spent per week on homework; and the Berndt & Miller school value composite score, which is an eighteen item measure of how much students value school and academic success (see Berndt and Miller, 1990 for full details). For the regression analyses, each of these variables is calculated in terms of change (time 2 – time 1). Overall, the trend for GPA for these youth is downward over the eighteen months studied (average change in GPA =  $-.09$ ), which is not surprising given their background, family characteristics, and the age group included in this study (which captured a number of youth transitioning to high school). Youth in the treatment group fair better (average change in GPA =  $-.05$ ) than youth in the control group (average change in GPA =  $-.13$ ). The trend for change in hours spent on homework is upwards over the time period and similarly, youth in the treatment group fair better than youth in the control group.

## D. RESULTS

### *Preliminary Data Analyses*

Initial regressions were run (not presented here) to set a baseline of characteristics for important model variables, such as the youth's background characteristics. These models were also used to verify the results from previous literature which indicate that having a mentor has a positive and significant effect on the various academic outcome indicators used in this research. On all three measures of academic outcomes (GPA change, change in homework hours, and B&M school value change), having a mentor had a positive and significant effect. I now move to additional exploratory analyses before beginning to test the competing hypotheses.

There were seven cases in which some variable(s) gave me concern that data may have been entered incorrectly. One dyad had the maximum number of meeting hours and maximum number of meeting frequencies recorded, which indicated that the dyad met for eight hours, twice a week on average. The other six cases had group mean times recorded for either time 1 homework hours, or time 2 homework hours. In all of these cases, it was determined that a data entry error occurred and these variables were recoded as missing.<sup>9</sup>

Another area of concern with this data is that there are 168 cases where mentors or mentees have withdrawn from their dyad, but not the research study. In most of these cases, reasons for the changes or losses have been recorded. A number of t-tests were run

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<sup>9</sup> Through personal communication with Igor Holas, the former data manager for Public/Private Ventures, I learned that the dataset averages were sometimes used in cases of missing variables, like those cases discussed here. He also believed that the meeting hours case was likely a data entry error, since it would be very difficult to meet for an average of 16 hours per week over a long period of time.

to test the means differences between characteristics of mentors and mentees who left the program and characteristics of the relationship or the individuals. A t-test between white and black mentees who left the program showed there was no statistical difference between the two groups. There was also no statistical difference between black and white mentors who left the program and dyads of same race and dyads of different race configurations. In this case, the richness of recording these issues (which might otherwise be missed in a different dataset) makes the BBBSA dataset a good match for this research project. This analysis indicates that there are no biases occurring from individuals (either mentors or mentees) dropping out of the program. In the next sections, I present the analysis for the four hypotheses.

### *Regression Analyses*

In table 3, I explore how the different aspects of a mentoring relationship affect a mentee's change in GPA, change in homework hours, and change in B&M school values score. Net of the independent variables used to control for mentee demographic characteristics and risk characteristics, the indicators of social capital components (mentoring relationship characteristics) are used to predict the academic outcomes. OLS regressions are used to estimate these relationships and the coefficients and standard errors are presented.

The results from table 3 for the model showing change in GPA reveal that the composite relationship time variable is positive. It is also the strongest and most significant variable in the model. This indicates that the longer a match with a mentor is and the more time spent together, both in terms of number and length of meetings, the greater the positive effect on change in GPA from time 1 to time 2 will be. Since I am

dealing with a logged composite independent variable, I can interpret this as a doubling of the amount of time spent with a mentor results in an increase in 0.137 for GPA change, holding all else constant. These results are an encouraging indicator that the composite relationship time variable is possibly the most important aspect of social capital in this model. The other coefficients indicate that having a learning disability and having a parent on welfare have negative and significant effects on GPA change. Surprisingly, in this model, both class heterogeneity and racial homogeneity have no significant effect on GPA change. Because of the previous theoretical and substantive research, I expected to see at least a moderately significant effect from one or both of these variables.

The results for the model of change in weekly homework hours are somewhat similar. The composite relationship time variable has a positive and significant effect on the change in time spent on homework. Again, this coefficient tells us that the longer a match with a mentor is, along with the more time spent together, both in terms of frequency and hours met, the greater the positive effect on change in hours spent on homework from time 1 to time 2 will be. Having a learning disability has a negative and significant effect on the change in hours spent on homework. Perhaps slightly surprisingly, having a parent on welfare in this sample has a positive and significant effect on the change in hours spent on homework. I interpret this as the lowest income households in the sample reinforcing and focusing on the disciplinary and rules/norms aspects of schooling more often than the non-welfare households.

Table 3 – Regression Estimates

Independent Variable	Dependent Variable					
	$\Delta$ GPA (t2-t1)		$\Delta$ Time spent on homework per week (t2-t1)		$\Delta$ B&M School Value (t2-t1)	
Demographic Characteristics (of mentee)	$\beta$	s.e.	$\beta$	s.e.	$\beta$	s.e.
Age	0.019	0.041	-0.283	0.230	-0.295	0.442
Male	-0.086	0.117	0.561	0.654	-0.958	1.002
Black	0.040	0.141	0.191	0.790	0.282	1.187
Hispanic	0.077	0.246	0.661	1.384	1.922	2.014
Other Races	-0.154	0.276	-0.033	1.577	1.619	2.315
Risk Characteristics (of mentee)						
Learning Disability	-0.292†	0.161	-1.944**	0.881	1.081	1.292
Parent on Welfare	-0.189†	0.112	1.184*	0.634	0.010	0.965
Relationship Characteristics						
Composite Relationship Time	0.137**	0.054	0.662**	0.316	-0.466	0.501
Class Heterogeneity	0.025	0.113	-0.745	0.629	0.712†	0.373
Racial Homogeneity	0.009	0.153	-0.636	0.860	1.310	1.285
R <sup>2</sup>	0.0643		0.0756		0.0261	
† $p \leq 0.10$ , * $p \leq 0.05$ , ** $p \leq 0.01$						

Finally, in table 3, the model for change in B&M school value score from time 1 to time 2 shows differing results than the models for the other two outcome variables. In this model, class heterogeneity has a positive and slightly significant (at the  $p \leq 0.10$  level) effect on the change in B&M school value score. Additionally, unlike the previous models, no other independent variables, including composite relationship time and racial homogeneity, have a significant effect on the dependent variable. Some additional testing with this model indicated that the correlation between other psychological measures in the dataset, and not having them in the model but rather in the error term, may have led to

the unusual results for this model. Another possibility is that changing a belief in the value of school for youth from such a disadvantaged background may be very difficult to accomplish in such a limited period of time. Because this model shows limited value at this stage, and the results did not change based on categorization of racial match, models using the change in B&M school value score as a dependent variable are not used for the next section.

Although models 1, 2, and 3 in table 3 show some relatively strong evidence in support of the meeting frequency, time, and length of relationship aspects of social capital, I examine some additional models to further test the theories of social capital. In hypothesis 4, I predict that the composite relationship time variable will be significant and have a larger effect in relationships that are racially homogeneous. This idea stems from the literature that indicates trust is necessary for social capital to be useful and trust is generally seen in lower levels in cross-racial dyads. In table 4, I run models similar to those used in table 3 for change in GPA and change in weekly homework hours, but separate the models by the type of racial match. I question if the other social capital variables operate differently based on the type of racial match, and if so, how?

Viewing the models by type of racial match shows that the composite relationship time variable is positive and significant only for matches based on racial homogeneity. This is true for both the models of change in GPA and change in weekly homework hours. However, for the models with matches based on racial heterogeneity, the composite relationship time variable is not significant. I also ran fully interactive models to test the significance between types of racial matches. In the model of change in GPA, the interaction term of racial homogeneity by composite of relationship strength is not

significant. Thus, I cannot definitively say there is *no* effect for heterogeneous racial matches. For the model of change in hours spent on homework, I do find that the interaction term of racial homogeneity by composite of relationship strength is significant ( $p < 0.05$ ). These results indicate that the significance of the composite relationship time variable is most likely determined by matches based on racial homogeneity.

## **E. CONCLUSION**

This research has examined how different theories of social capital operate within a dyadic relationship produce various academic outcomes. I set out to analyze how different definitions of measures or aspects of social capital might be important in its operation. Using data from mentoring in the Big Brothers/Big Sisters of America program, I tested these different theories to see just how various aspects of a mentoring relationship might impact three different educational outcome measures.

In the initial analysis, it appeared that the variable related to relationship length and time spent together was the only important aspect of social capital which leads to increased positive academic outcomes. However, additional analyses supported the more complex idea that racial homogeneity is required for the benefits of social capital to be realized in a dyadic relationship. Hypothesis 4 was confirmed as both the relationship time factors and racial homogeneity were observed to be important variables in the operation of social capital in the data presented here.

This research has uncovered and clarified a general model regarding the operation of social capital in a dyadic relationship. I have outlined an entire process of what I believe the previous literature indicates in smaller pieces. In some ways, this has been substantiated by the present research. Class heterogeneity and racial homogeneity each

lead to factors which can be thought of as aspects of social capital. A relationship based on class heterogeneity may lead to previously unavailable, additional resources, such as the literature on weak ties indicates (although this idea was not substantiated in the present research). Furthermore, a relationship based on racial homogeneity leads to increased trust and increased time spent together. Trust and time generally have positive effects on each other and are likely strongly correlated. Together these factors (and perhaps other latent factors) make up the phenomenon we explain as social capital, on a dyadic relationship level.

What are the implications of these findings? Parents who are presented with limited human and financial capital often turn to programs like Big Brothers/Big Sisters of America to assist with their child's development. In these types of one-on-one programs where a youth is matched with a stranger, the results of this study indicate that youth are likely to benefit most from homogeneous racial matches. However, when same-race mentors are not available, adults who spend more time with their mentees may be the next best substitute. If trust can be built over a long period of interaction between adult and youth, even in a cross-race relationship, youth might reap similar benefits from long-term mentoring relationships. Although I believe I presented a reasonable case for homogeneity within racial matches as a viable proxy for trust, future research should attempt to analyze how trust fully fits into the model and test additional models.

Additionally, in a dyadic relationship such as mentoring at a secondary school level, the findings of this research indicate that class heterogeneity has little impact on academic outcomes. These results might lead one to state that class heterogeneity appears to be of little importance as a form of social capital within a dyadic relationship,



but the issue is more complicated. It is likely that class heterogeneity is important for other academic and career outcomes, such as college attendance or employment.

Unfortunately, the BBBSA dataset does not allow an analysis of these outcomes. The final model presented in table 4, as well as the existing literature on weak ties and job seeking, leads me to believe that class heterogeneity might be more important for providing disadvantaged youth with information regarding college and employment that they may not otherwise have access to. Here, future research may be able to test these possibilities more fully with a dataset which includes youth through the end of high school age.

Depending on the outcome(s) examined, different social capital factors may be more or less important, as seen in this mentoring analysis. Regardless, social capital is still an important path towards upward mobility for individuals short on human and financial capital. Research has made and should continue to make uncovering a full model of the inputs and workings of social capital a top priority.

Table 4 – Regression Estimates by Type of Racial Match

Independent Variable	Dependent Variable							
	$\Delta$ GPA (t2-t1)				$\Delta$ Time spent on homework per week (t2-t1)			
	Racial Homogeneity		Racial Heterogeneity		Racial Homogeneity		Racial Heterogeneity	
Demographic Characteristics (of mentee)	$\beta$	s.e.	$\beta$	s.e.	$\beta$	s.e.	$\beta$	s.e.
Age	0.0371	0.053	-0.021	0.064	-0.663*	0.292	0.400	0.365
Male	-0.083	0.153	-0.116	0.182	-0.305	0.840	2.135	1.033
Black	0.056	0.161	0.050	0.346	0.134	0.883	1.802	1.971
Hispanic	0.223	0.709	0.180	0.381	2.160	3.902	2.146	2.168
Other Races	--	--	-0.135	0.385	--	--	1.495	2.205
Risk Characteristics (of mentee)								
Learning Disability	-0.193	0.200	-0.529†	0.280	-2.267*	1.075	-0.923	1.536
Parent on Welfare	-0.406**	0.150	0.155	0.171	1.404†	0.824	0.816	0.974
Relationship Characteristics								
Composite Relationship Time	0.137*	0.068	0.082	0.097	1.020**	0.387	-0.305	0.554
Class Heterogeneity	-0.005	0.148	0.092	0.176	-0.686	0.805	-0.979	1.003
R <sup>2</sup>	0.071		0.070		0.099		0.070	
† p ≤ 0.10, * p ≤ 0.05, ** p ≤ 0.01								

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