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The Impact of Mentoring on the Academic Achievement of At-Risk Youth

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**THE IMPACT OF MENTORING ON THE ACADEMIC
ACHIEVEMENT OF AT-RISK YOUTH**

An Ed. S. Project

Presented to the

Department of Psychology

and the

Faculty of the Graduate College

University of Nebraska

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

University of Nebraska at Omaha

by

Lynn A. Thompson

April, 1999

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Ed.S. Project Acceptance

Acceptance for the faculty of the Graduate College, University of Nebraska, in partial fulfillment of the requirements for the degree Specialist in Education, University of Nebraska at Omaha.

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**THE IMPACT OF MENTORING ON THE ACADEMIC
ACHIEVEMENT OF AT-RISK YOUTH**

Lynn A. Thompson , Ed.S.

University of Nebraska, 1999

Advisor: Lisa Kelly-Vance, Ph.D.

Since the late 1980's, planned mentoring programs have flourished as one possible solution to the problems affecting youth. Little research has been conducted evaluating mentoring programs in spite of the generally accepted belief that only positive effects can result from planned mentoring. This study examined the impact of mentoring on the academic achievement of at-risk youth involved in the Big Brothers/Big Sisters of the Midlands' program. Individual academic achievement tests were administered to 12 boys in the treatment group (i.e., had a mentor) and 13 boys in the control group (i.e., on a waiting list to receive a mentor) over a nine month period. Subjects were also given an individually administered intelligence test to control for cognitive ability. Results indicated that boys in the treatment group did significantly better on the achievement test than boys in the control group. Specifically, they had higher composite scores, reading scores, and math scores. These results indicated that having a mentor may contribute to academic achievement success. Implications of the results are discussed.

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The Impact of Mentoring on the Academic Achievement of At-Risk Youth

Mentoring programs have burgeoned in the past decade. The programs have been touted as solutions to the various problems affecting youth, such as increased drug and alcohol use, teenage pregnancy, poor academic performance, low self-esteem, and increase in juvenile crime. School psychologists, educators, counselors, and parents continue to look for effective interventions for school-related problems affecting at-risk youth, since these students are at a substantially higher risk of school failure and dropping out. Proponents of mentoring programs hypothesize that mentoring programs could be part of the answer to these problems; however, little research has been conducted evaluating the effectiveness of mentoring programs. The present study investigated the impact of mentoring on the academic achievement of at-risk youth.

The definition and prevalence of at-risk youth, the relationship between at-risk youth and academic achievement, the history of mentoring, and the difference between natural and planned mentoring will be discussed. The process involved in establishing mentoring programs and the impact of mentoring programs will also be presented. Few studies have systematically reviewed the impact of mentoring programs, in spite of the generally accepted belief that only positive effects can result from mentoring. The present study evaluated whether participation in a well-established mentoring program significantly impacted the academic performance of at-risk youth. Implications, limitations, and further areas of research are also addressed.

Literature Review

At-Risk Youth: Definition

The term "at risk" youth encompasses a wide range of definitions. Kazdin (1993) stated that at-risk referred to the "increased likelihood over base rates in the population that a particular outcome will occur" (p.129). He referred to at-risk behaviors as those activities in which youth engage that increase the likelihood of adverse psychological, social, and health consequences.

Dryfoos (1990) defined the term as applying to young people who are at risk for not maturing into responsible adults.

Resnick and Burt (1996) offered a more detailed definition. They stated that youth can be defined as at risk because they engaged in risky behavior (e.g., early sexual behavior, truancy, tobacco/alcohol/drug use, running away from home/foster home, associating with delinquent peers). Exposure to certain environments may place a child at risk, and these environments or situations included poverty, dangerous neighborhoods, and family dysfunction (e.g., abusive/neglectful caretakers, out of home placement, and single parent homes). Resnick and Burt's definition of risk was the "presence of negative antecedent conditions, which create vulnerabilities, combined with the presence of specific early negative behavior or experiences that are likely to lead, in time, to problem behavior that will have more serious long-term consequences" (p. 174).

In conclusion, a youth can be categorized as at-risk depending on his/her engagement in certain activities (e.g., substance use) and/or exposure to certain conditions (e.g., homelessness). In general, the following factors are commonly used in defining at-risk youth: living in poverty, being abused or neglected, being from a single parent home, history of substance abuse by youth and/or family, early sexual activity, delinquency and acting out, and school failure.

At-Risk Youth: Prevalence

Resnick and Burt (1996) stated that no single study has addressed the prevalence of the full range of youth problems. Estimating the prevalence of at-risk youth is difficult primarily because of definitional issues. One specific problem is that the rate depends upon the risk factors used in the definition. A second problem is that risky behaviors are interrelated and several studies have shown that problem behaviors of adolescents occur together (see Farrow & French, 1986, and Watts & Wright, 1990, for further information on the comorbidity of risky behaviors).

In spite of the problems related to definition, attempts have been made to calculate the number of at-risk youth. The U. S. Bureau of the Census (1998) reported the following: 1) in 1997, 32% of children lived in homes without the presence of two parents (24% in female-headed households, 4% in male-headed households, and 4% with neither parent); 2) in 1996, 13.7 million children lived in poverty, 2.0 million reports of child abuse/neglect were made (969,000 were substantiated), 5% of students were high school dropouts, 32% of adolescents between 12-17 years had used alcohol, 36% had smoked cigarettes and 16% had used other drugs; and 3) in 1996, teenage mothers had 506,000 children and in 1995, 1.7 million adolescents were involved in delinquency cases in juvenile courts.

Dryfoos (1990) estimated that among the approximately 28 million adolescents in the United States, 10% or 2.8 million were at very high risk (simultaneously delinquent, failing school, abusing drugs, and having early unprotected sex); 15% or 4.2 million were at high risk (involved in the above activities but had not been arrested and placed in the juvenile justice system); 25% or 7 million were at moderate risk (engaged in only one problem behavior); and 50% were at low or no risk because they were doing well in school and were not involved in any behavior with potentially negative consequences.

In Nebraska, thousands of children are designated at-risk. One report compiled data from state agencies, the U.S. Bureau of the Census, and the U.S. Department of Commerce, and concluded that in Nebraska, in 1996: over 3600 children were found to be abused and neglected; 12.7% of children (under 18 years old) were living in poverty; 10,053 children entered foster care and institutions; and 6866 children were involved in a divorce (Bentz, 1997).

At-Risk Youth and Academic Achievement

At-risk youth are more susceptible to a variety of plights including school failure. In one study, Nunn and Parish (1992) found that at-risk students had a history of unexcused absences and tardiness, were significantly below average in school performance, had behavioral and disciplinary problems, had less self-confidence as a learner, had a locus of control that was more

externally oriented, and desired a more informal and non-traditional approach to learning. In another study, Dryfoos (1990) reported that at least seven million young people were behind their expected grade level in school and about 14% of every class did not graduate from high school. From this information, Dryfoos asserted that there were several major predictors of school failure and dropping out of school, including race and ethnicity, low expectations, low grades, low test scores, truancy, retention in early grades, family in poverty, low parental education, and early involvement in other high risk behaviors (e.g. substance abuse, early sexual activity).

The above mentioned data indicated a strong relationship between at-risk youth and academic achievement. At-risk youth are at a substantially higher risk of school failure and dropping out; therefore, it becomes imperative to implement and evaluate programs that might be effective in assisting at-risk youth overcome these obstacles. Mentoring programs appear to offer one possible solution to the myriad of problems at-risk youth face.

Mentoring

History. While many youth mentoring programs have emerged since the late 1980's, the concept of mentoring has a long history. The word "mentor" derives etymologically from a number of Greek roots meaning "think," "counsel," and "endure" (Freedman, 1993). The word mentor first appeared as a character's name in Homer's Odyssey (Haensly & Parsons, 1993). The character, Mentor, was a friend of Odysseus who became the guardian, tutor, and companion to Odysseus's son while Odysseus was involved with the Trojan War (Boston, 1976). Freedman (1993) described the traditional concept of mentoring as older men assisting boys with learning a trade or skill. Urie Bronfenbrenner provided a more useful, contemporary definition of mentoring. Bronfenbrenner's definition is "a one-to-one relationship between a pair of unrelated individuals, usually of different ages and is developmental in nature... a mentor is an older, more experienced person who seeks to develop the character and competence of a younger person" (cited in Freedman, 1993, p.31).

Freedman (1993) stated that a second wave of mentoring gained force in the 1970's when the notion of corporate mentoring, especially for women, became popular. The theory was that in order to succeed in the corporate or academic world, a mentor was essential. This idea remains relevant, and corporate mentoring continues to be implemented. A third wave of the mentoring movement began in the late 1980's. It involved the use of volunteers, particularly from the professional class, to mentor disadvantaged children and youth. Freedman (1993) stated that the third wave appeared because of "the dire circumstances of disadvantaged youth, the current crisis in education and social policy, the yearning and frustration felt by many middle class adults and mentoring's inherent qualities as a mechanism" (p. 42).

Natural versus Planned Mentoring. Mentoring can be described by two types: natural mentoring and planned mentoring (Floyd, 1993). Natural mentoring occurs through friendship, teaching, coaching, and counseling. Traditionally, certain institutions (e.g., families, churches, neighborhoods, and schools) have provided opportunities for natural mentoring. These institutions have changed and thus reduced the ability of adults to provide assistance and guidance to youth. For example, there are fewer adults in families (more than one in four children are born into a single-parent home); many extended family members do not live in the same town; higher teacher/student ratios exist; and neighbors tend to keep more to themselves (Tierney, Grossman, and Resch, 1995). Because of the decline in natural mentoring, planned mentoring programs have emerged.

The theory of planned youth mentoring programs is that mentoring can be implemented systematically. Planned mentoring occurs through structured programs in which an adult and a youth are selected and matched through formal processes. The purpose of the programs is to provide at-risk youth with assistance and guidance to enable them to grow into responsible adults, and to fill the gap created by the diminished opportunity for natural mentoring.

Planned mentoring programs for at-risk youth blossomed in the late 1980's and early 1990's. A variety of programs exist at the national and local level. Freedman (1993) stated that it

is not possible to determine the precise number of programs or volunteers due to the “quickly changing environment” (p. 6).

A rapid increase has occurred in mentoring programs, with Big Brothers/Big Sisters of America and its local affiliates being the oldest and probably best known of them. The origins of the Big Brothers/Big Sisters of American program began in 1904 by Ernest Coulter, a newspaperman who left journalism to work in New York's first children's court (Beiswinger, 1985). He was concerned about the problems of recidivism and the need for boys to have assistance rather than being sent to a reformatory. As a result, he approached a local church and requested volunteers to help the boys. His initial plea enlisted thirty-nine volunteers who became the first Big Brothers. In 1921, the first Big Brother/Big Sister federation was formed, and this eventually evolved into Big Brothers/Big Sisters of America, the national, governing body of the organization.

The national office developed standards and required procedures for screening the volunteers and youth, and standards for the creation and supervision of matches. The screening procedures for volunteers included a minimum of three written personal references, background investigation (police check and child abuse registry check), individual interview, and home visit. The screening for youth included parent/guardian interview, child interview, school report, and home visit. After the matches were made, case managers supervised them which included contacts with the parent, youth, and volunteer within two weeks of the match, and monthly contact during the first year of the match. After the first year, quarterly contacts were made with all parties. The agencies also provided training to all volunteers and families. Currently, there are over 500 local programs affiliated with Big Brother/Big Sister, which serve about 75,000 youth (Tierney et al., 1995).

Evaluation of Mentoring Programs

Evaluation of mentoring programs is imperative to determine if they offer a possible solution to the problems affecting at-risk youth. Flaxman (1992) stated that mentoring programs

should be evaluated for both their process and impact; however, only a few studies have been completed. Possible reasons for the lack of research are that most program administrators would rather use money and staff resources to provide more services than to complete an evaluation, and many programs have not been in operation very long, and potential outcomes are difficult to quantify. Research has focused more on the process of mentoring, especially the formation of the relationships, than the impact of the mentoring programs. Both types of studies will be discussed in the following sections.

Process Studies. Mentoring programs evolved rapidly but without the subsequent infrastructure to establish and maintain the relationships. Process studies evaluate the formation of the relationship between a mentor and a youth. Several researchers investigated factors that contributed to successful relationships, and their results will be discussed in this section.

Tierney and Branch (1992) evaluated six Campus Partners in Learning programs, which paired college students as mentors with teenagers and younger children. They found that only 45% of the participants formed successful relationships (defined by the youth's satisfaction with both the mentor and the relationship, the duration of the relationship, and the youth's desire that the relationship continue). The authors cited the following possible explanations for the modest success rate: lack of consistent meetings between the youth and mentor, newness of the program, staff inexperience in running the program, lack of planning, and limited financial resources for administration and support services.

Styles and Morrow (1992) examined four Linking Lifetimes programs and the relationship established between elders (age fifty-five and older) and at-risk youth (ages twelve to seventeen). They conducted interviews with the youths and adults at four sites at two separate times and found several practices that aided satisfaction with the relationship. The first and most important practice was to establish youth-driven relationships. The majority of youths reported that they were interested in the program to "go places." Mentors found it easier to build trusting relationships when they allowed the youth to help make decisions about what activities to do.

Other practices that aided the relationship were: training for mentors on active listening skills and problem solving; the mentor's sensitivity and nonjudgmental attitude toward the youth's family, social class, and culture; and ongoing training and support throughout the relationship on setting expectations for the match and establishing realistic expectations on how the relationship will progress.

Mecartney, Styles, and Morrow (1994) studied two mentoring programs for youths in the juvenile justice system. They found that these programs were not successful because the rate of interactions between mentors and youths were limited. Mentors missed more than one-third of their scheduled meetings and only forty percent of scheduled meetings took place between mentors and non-incarcerated youths. Additionally, supervision of the relationships was problematic, since it was added to staff duties and they did not have adequate time or preparation to properly fulfill the responsibilities.

Schneider (1995) found several elements that were necessary to establishing a mentoring program. These elements were: clearly defined roles and responsibilities of all participants; adequate funding for staff to monitor the program; and transportation logistics to be worked out, so mentors and youth could meet on a regular basis. Slicker and Palmer (1993) also found that the mentoring relationships that were successful were those that met frequently and consistently, and met for longer periods of time, and engaged in activities designed to build academic progress and improve feelings of self-worth.

To summarize, the previously cited research emphasized the need of mentoring programs to have well established processes and strong infrastructures. Tierney et al. (1995) stated that part of the initial appeal that led to the burgeoning of mentoring programs was their seeming simplicity. However, the research clearly demonstrated that programs need to have strong foundations in order to be successful. Recommendations for establishing successful relationships included clearly defined rules and expectations, training for mentors, and having paid program staff to operate and oversee the program.

Impact Studies. Mentoring programs that have well established processes can be evaluated to determine their impact. Impact studies assess whether positive changes are made in the youth's life as a result of having an adult mentor. Impact studies of mentoring programs are limited.

The only comprehensive and systematic impact study related to mentoring and at-risk youth was conducted by Tierney et al. (1995). They evaluated 959 youths involved in eight local, accredited Big Brothers/Big Sisters programs. The youths were between 10 and 16 years old (93% were between 10 and 14) and 487 were in the treatment group and 472 were in the control group. The control group consisted of children on the waiting list to receive a mentor. Boys represented 62.4 % of the sample and girls represented 37.6%. Additionally, over 55% of the sample were members of a minority group. Tierney et al.'s findings were based on self-reported data, obtained from baseline and follow up interviews of the mentors and youths, and forms completed by agency staff. The purpose of the study was to determine whether having a mentor might affect the following areas: antisocial activities, attitudes and behaviors, relationship with family members, relationship with friends, self-concept, social and cultural enrichment, and academic performance. (The area of academic performance will be addressed in the next section).

The research compared the data of youths in the treatment group with youths in the control group. Their results indicated some overall positive results. They found that youths who had a mentor were 46% less likely to start using drugs. The impact was even greater for minority youth. Minority girls with a Big Sister were 72% less likely to start using drugs and minority boys with a Big Brother were 67% less likely to start using drugs. They found similar results with alcohol use; youths who had a mentor were 27% less likely to start using alcohol.

Tierney et al. (1995) also reported that the quality of relationships between the treatment group youths and their parents or guardian were better at the end of the study period than it was for the control youths. The youths in the treatment group reported trusting their parents more and

lying to them less. Additionally, their relationships with peers improved and those in the treatment group were one-third less likely than youths in the control group to hit someone.

However, Tierney et al. found no differences between the treatment and control groups in the following areas: participation in social and cultural activities, and feelings of self-worth, self-confidence, or social acceptance. Additionally, Slicker and Palmer (1993) evaluated the impact of a school-based mentoring program on 86 at-risk tenth grade students and also found no improvement in the self-concept of at-risk students who had been mentored. Additionally, when they subdivided the relationships into those who had been effectively and ineffectively mentored, they still found no improvement on measures of self-concept.

In summary, only one comprehensive impact study related to mentoring and at-risk youth has been conducted. Tierney et al. (1995) reported positive results in the areas of decreasing alcohol and drug use, improving peer relationships, and improving parent/child relationships. However, the authors strongly cautioned that the "report does not provide evidence that any type of mentoring will work, but that mentorship programs that facilitate the specific types of relationships observed in the Big Brothers/Big Sisters program work" (p.51). This type of relationship was a one-to-one friendship of a child with an unrelated adult that focused on friendship rather than any specific goals. Additionally, the relationship received assistance and supervision from program staff.

Mentoring and Academic Achievement. Research on the impact of mentoring on the academic achievement of at-risk youth has been conducted with conflicting results. Torrance (1984) conducted a longitudinal study of 220 students and found that those with mentors completed more years of education (men with a mentor completed 17.8 years compared to 15.8 years of education for men without a mentor; women with a mentor completed 18.1 years compared to 14.9 years for women without a mentor). A major limitation of this study was that the participants were mostly middle class and would not be defined as at-risk.

Slicker and Palmer (1993) evaluated the impact of a school-based mentoring program on 86 at-risk tenth grade students. The initial results indicated no differences in the drop-out rate or grade point average between the treatment and control groups. When they redesigned their analysis and evaluated the difference between those students who were effectively mentored versus those who were ineffectively mentored, (they designated those as "effective" if the student answered affirmatively to all five of the mentor evaluation criteria), they found that effectively mentored students had a lower dropout rate than ineffectively mentored students. Although differences were found in dropout rates, grade point average differences between the two groups were not significant.

McPartland and Nettles (1991) evaluated the academic outcomes of middle school students who were involved in Project Raise, a well-financed, multi-faceted, structured program in Baltimore, Maryland, designed to provide mentors and advocates to very high risk children. One of the major goals of the program was improving academic progress. The researchers compared participants in Project Raise with non-participants from the same school. They found two statistically significant positive effects for students involved in the program. First, there was a reduction of nearly 3% in the school absence rate of youths involved in the program when compared to students in the same school, who did not have a mentor. The authors noted that the absence rate of participants in the program was still higher than the overall district average. Second, students involved in Project Raise received better grades on their report cards than other students at their schools. Once again these grades were still below the district average. Additional findings indicated that students' participation in Project Raise had no impact on promotion rates and no impact on achievement, measured by scores on the reading and mathematics sections of the California Achievement Test. The study by McPartland & Nettles is significant because it was one of the first to use comparison groups and statistical tests to evaluate the students' school outcomes after they were involved in a well-financed, structured mentor program.

The study of Big Brothers/Big Sisters by Tierney et al. (1995) evaluated the effectiveness of mentors on academic achievement. As previously stated, Tierney et al. evaluated 959 youths involved in eight Big Brothers/Big Sisters programs (487 youths were in the treatment group and 472 youths were in the control group). Those involved in the Big Brothers/Big Sisters programs were significantly less likely to skip classes or days of school. The students who had mentors skipped 52% fewer days and 37% fewer classes. The impact was greater for girls, Little Sisters skipped 84% fewer days of school than did girls in the control group. An additional finding was that girls in the treatment group (i.e., had a mentor) reported 3% better grades than girls in the control group.

Relatedly, Tierney et al. (1995) demonstrated that treatment group members felt more confident of their ability to complete their schoolwork than did control group members: "The effect was particularly strong for Little Sisters, especially minority Little Sisters, whose perceived scholastic competence score was 10 percent higher than that of the minority girls in the control group" (p. 38). The study also investigated other school-related outcomes (e.g., hours spent each week reading and doing homework, number of times youth visited a college and went to a library, and the number of books read) and found no overall statistically significant differences between the control and treatment group members.

To summarize, the research on the impact of planned mentoring on the academic achievement of at-risk youth had varied results. School absence rates and dropout rates did decline. However, promotion rates and scores on a standardized achievement test did not improve significantly. Also, the effect of mentoring on grade point average showed conflicting results. McPartland and Nettles (1991) found significant improvement, while Slicker and Palmer (1993) did not.

Summary

At-risk youth are defined as those engaged in certain risky behaviors (e.g., substance abuse) and/or those exposed to certain conditions (e.g., poverty). The number of at-risk youth

continues to increase while the opportunities for natural mentoring decline. Planned mentoring programs have flourished since the late 1980's as one possible solution to the problems affecting youth, including those who are at risk for school failure and dropping out. Mentoring is a one-to-one relationship between an adult and a youth established for the purposes of guidance, support, tutoring, and caring. The notion of planned mentoring programs is that the relationship will provide the scaffolding necessary for at-risk youth to become responsible adults.

In spite of the generally accepted belief that only positive effects can result from planned mentoring, little research has been conducted evaluating mentoring programs. The research on evaluating mentoring programs primarily concerns the process of establishing a mentoring program, specifically the formation of the mentor/mentee relationship. Impact studies of mentoring programs are sparse because many programs do not have the necessary process to establish effective mentoring relationships. Thus, the impact of mentoring can not be effectively analyzed until the process component is well established.

Conclusions from the few available studies indicate that at-risk youth have a substantially higher chance of school failure and dropping out. Mentoring programs appear to offer a possible solution to this problem; however, previous research studies have produced varied results on the impact of mentoring on academic achievement. School absence and dropout rates declined, but promotion rates and scores on a standardized achievement test did not improve. The review of the research indicates that additional studies need to be conducted to determine the impact of mentoring programs on the academic achievement of at-risk youth.

The purpose of the present study was to evaluate the impact of mentoring on the academic achievement of at-risk youth. Specifically, the question was whether involvement in a well-established mentoring program, Big Brothers/Big Sisters, had a significant impact on the academic achievement of at-risk youth, as measured by a individually administered standardized achievement instrument given after an eight month lapse. The hypothesis was that at-risk youth, who have mentors, would show greater improvement in academic achievement than at-risk youth

who do not have mentors. Mentors provide the extra, individual attention that at-risk youth are missing. Additionally, they provide a positive role model for the child. These conditions help to reduce some of the academic risk factors that these youths encounter. It is unlikely that mentoring can eliminate all academic risks; however, it may decrease some of them, which would lead to improvement in academic achievement.

The current study was important because there are few impact studies on mentoring and the previous impact studies had several limitations. One of the limitations of prior research was the use of grade point average as the measure of achievement. Grades are subjective and do not always accurately reflect achievement. Another limitation was that youth self-report was utilized. Self-report measures can provide insight into youth's perception; however, they may not measure academic achievement. Another shortcoming was that a group administered achievement instrument was used. Individual achievement scores were not addressed, particularly in the impact study of Big Brothers/Big Sisters.

The proposed study utilized an individually administered instrument because it is more sensitive to change and provides a more accurate assessment of each individual. Additionally, the study controlled for the impact of cognitive ability when assessing the effects of the mentoring program on achievement. The study was approved and monitored by the University of Nebraska Institutional Review Board, IRB #494-97-FB.

Method

Participants and Program

Participants were recruited from an established mentoring program, Big Brothers/Big Sisters of the Midlands. This agency was chosen because it has well defined rules and policies, a long history of operation, casework staff to monitor and support the established matches, and a group large enough from which to obtain a sample. Thus, the process components of the Big Brothers/Big Sisters of the Midlands program were well established and the impact could be assessed. Participants were recruited over a period of four months. The treatment group

participants were recruited at agency events. The researcher approached all boys at the events and explained the study. All boys, except three, agreed to participate. The parent or guardian of each boy was contacted to explain the purpose of the study, and to gain her initial verbal consent. Written parent consent and youth assent were obtained before the initial assessment. Control group participants were recruited at program orientation meetings and through telephone calls. The orientation meetings yielded five participants (a total of ten parents were approached). The remainder of the control group was obtained through telephone solicitation. Two of the boys who were contacted over the phone did not want to participate. Recruitment for the control group continued until it had the same number of participants as the treatment group.

The treatment group consisted of boys who had a mentor, and the control group was comprised of boys without mentors, who had been accepted into the Big Brothers/Big Sisters program but were waiting to be assigned a volunteer. The boys were on the waiting list an average of fifteen months. The groups did not contain any girls because they were not on the waiting list over two months; thus, they were paired with a volunteer prior to the end of the study. Participants in the treatment group ranged in age from 9.11 to 15.8 ($M = 11.9$) and participants in the control group ranged in age from 7.6 to 15.9 ($M = 10.4$). The ethnic distribution was 92% Caucasian ($n = 11$) and 8% Hispanic ($n = 1$) in the treatment group, and 77% Caucasian ($n = 10$), 15% African-American ($n = 2$), and 8% Hispanic ($n = 1$) in the control group.

Initially, the control and treatment groups had 17 subjects. During the posttest, the size was reduced to 12 subjects in the treatment group and 13 subjects in the control group. The reasons for attrition in the treatment group were: out of state residential placement for the child; the remarriage of a mother; child and parent moved out of state; and match discontinued voluntarily by mentor and youth. One subject was excluded from the treatment group because he met with his volunteer only one to two times a month. The Big Brothers/Big Sisters program recommends weekly contact of two to four hours between the child and volunteer and the criteria for being in the treatment group was for the youth and mentor to meet an average of three to four

times a month ($M = 3.5$). The reasons for attrition, in the control group, were: youth was matched during waiting period; child no longer eligible due to mother's marriage; child and parent moved out of state; and mother removed child's name from waiting list.

All participants had the risk factor of being from a single parent home (a requirement to participate in the Big Brothers/Big Sisters program). Each youth had to have an additional risk factor to participate in this study. This was determined by the researcher through interview with the parent or guardian of each participant. The risk factors were: truancy/running away; living in poverty; out of home placement; associating with delinquent peers; tobacco/alcohol/drug use by youth; history of physical/emotional/sexual abuse; family history of domestic violence; family history of substance abuse; physical disability; involvement in juvenile justice system; academic problems (behind in grade level, special education placement); and frequent school absences/detentions/suspensions. The reliability of identifying the second factor was limited since it was obtained through self-report and was not independently verified. The risk factors were not individually tabulated since the parent or guardian did not have to identify all factors that applied to each participant.

Materials

Each participant was administered the Kaufman Test of Educational Achievement (K-TEA) Brief Form. The Brief Form was chosen because it provides a composite score as well as scores on three subtests: Reading, Mathematics, and Spelling. Additionally, the test can be administered in approximately thirty minutes as compared to sixty to seventy-five minutes for the complete K-TEA. Doll (1994) stated that the reliability of the subtests of the Brief Form is adequate at .85 and the composite score has higher reliability. Sattler (1994) stated that the K-TEA Brief Form is a well-normed standardized test of educational achievement that provides reliable and valid scores for the basic achievement areas covered in school.

Participants were also administered the Kaufman Brief Intelligence Test

(K-BIT) in order to control for the impact of cognitive ability when assessing achievement. Miller (1995) stated that the K-BIT is a psychometrically sound measure of verbal, nonverbal, and composite intelligence with a test-retest reliability of .94 and a .78 correlation with the Wechsler Intelligence Scale for Children-Third Edition. Young (1995) stated that the K-BIT is a well-normed, standardized individual intelligence test that is useful when only a gross measure of intellectual functioning is required.

Procedure

The K-TEA Brief Form and the K-BIT were individually administered to each participant at the beginning of the study. The K-TEA Brief Form was also administered eight to nine months after the first administration ($M = 8.75$ for the treatment group and $M = 8.69$ for the control group). Due to possible variation in the amount of time a child spent with the volunteer, an assessment of this factor was also completed. During the follow-up phase, the child and parent were interviewed about the amount of time the child spent with his mentor.

Results

The present study is categorized as a quasi-experimental design since assignment to the control and treatment groups was not random. One of the major limitation of this type of design is that group differences on the posttest may be attributed to preexisting group differences, rather than to a treatment effect. One possible difference is intellectual functioning level. Therefore, an analysis of covariance (ANCOVA), with cognitive ability score as the covariate, was used to interpret the data. This statistical technique "permits the researcher to attribute mean change scores to the effect of the experimental treatment rather than to differences in initial scores" (Borg & Gall, 1983, p. 724). Borg and Gall (1983) also stated that "analysis of covariance reduces the effects of initial group differences statistically by making compensating adjustments to the posttest means of the two groups" (p. 683). ANCOVA evaluated whether the posttest mean of the treatment group (youths who have mentors) was significantly different from the posttest mean of the control group (youths without mentors) after

taking into account the preexisting differences in cognitive ability. The independent variable was having a mentor and the dependent variables were the composite score, reading score, math score, and spelling score from the K-TEA Brief Form. The concomitant variable was cognitive ability, as measured by the K-BIT ($M = 100.3$ for treatment group and $M = 96.7$ for control group).

A test of the linear relationship between the covariate (K-BIT score) and the composite scores produced a significant result, $F(1,24) = 13.38$, $p < .001$. Further testing revealed a significant result between the covariate and the reading scores, $F(1,24) = 15.47$, $p < .001$ and a significant result between the covariate and the math scores, $F(1,24) = 10.25$, $p < .01$. However, there was not a significant result between the covariate and the spelling scores $F(1,24) = 2.60$. The power of these tests was good (see Table 1). Therefore, this testing indicates that analysis of covariance was appropriate.

The adjusted mean scores of the two groups were computed after controlling for the covariate (see Table 2). Results indicated a significant difference in the composite scores of the two groups, $F(1,24) = 4.85$, $p < .05$. Additionally, there was a significant difference in the reading scores, $F(1,24) = 5.85$, $p < .05$, and the math scores $F(1,24) = 4.87$, $p < .05$. However, there was not a significant difference in the spelling scores $F(1,24) = .084$ (see Table 3). The observed power of each analysis was adequate (see Table 4). The power would have increased given an equal sample size and a larger sample size. In summary, the effect of having a mentor significantly improved performance in academic achievement, except spelling.

Discussion

The results of this study indicate that having a mentor positively impacts the academic achievement of at-risk youth. Boys in the treatment group performed significantly better than boys in the control group, as measured by the composite score of the K-TEA Brief Form. In addition, the treatment group performed better in reading and math than the control group. However, there was not a significant difference between the groups in spelling.

This study's results are very exciting due to the nature of the Big Brothers/Big Sisters program. Their purpose is to provide a one-to-one friendship between a child and an adult volunteer. The friendships are built around a social relationship rather than a tutor or teacher approach. The adult's role is to support the child, not to explicitly change behaviors such as improving academic scores. Big Brothers/Big Sisters does not closely monitor academics except for graduation rate. Therefore, it is very interesting that their general supportive friendship approach seems to have a secondary benefit of increasing academic success. Achievement scores increased without a specific emphasis in this area from the volunteers. The program demonstrates improvement beyond social skills and psychological well-being which directly impacts the child's future.

A major reason that mentoring from Big Brothers/Big Sisters of the Midlands was successful appears to be the well established infrastructure to screen, match, and support relationships. This infrastructure and ongoing supervision of the adult/youth relationship appear essential to the success of the friendship, as was discussed in the literature review. The improvement of the achievement scores may not have happened if the agency did not have the standards and operations that promote successful relationships. The positive results of this study cannot be generalized to any other mentoring program, unless they have a well established infrastructure and process.

One possible explanation for the results is the unique measure of academic achievement utilized. The present study used an individually administered standardized achievement test, as compared to prior studies which used grade point average or group administered tests. Individual assessment is more sensitive to change and is less subjective than other academic measures. Additionally, when comparing the groups on achievement, this study controlled for cognitive ability (e.g., used as a covariate) which had not been done in previous studies. Therefore, the current results may be more accurate than those of previous studies.

The treatment group had a significant increase in all areas except spelling. A possible explanation is that spelling is a measure of rote memory which shows improvement with practice. Since the boys did not have specific practice with the spelling words, the scores did not show improvement. It is also interesting to note that cognitive ability did not have an interaction effect with the spelling scores. This result may reinforce the argument that spelling ability has a nominal connection to intellectual ability.

The ability to generalize the results of this study are restricted because of some limitations. The major limitation of this study is that assignment to the treatment and control groups was not random. Random assignment is preferred because the differences between the control and treatment groups can be confidently linked to the intervention (i.e., having a mentor). However, there was an ethical concern of random assignment. If the groups were randomly assigned, the control youth would not have been able to receive a mentor until the end of the study, which would have been at least ten months. Non-random assignment was used, which limits the validity of the study.

Another limitation of the study is that the sample primarily included only Caucasian boys. Minority youth were not represented in enough size to draw any meaningful conclusions on the impact of mentoring for minority youth. Additionally, girls were not included in the sample. This study also did not investigate other possible covariates (e.g., socio-economic status, age, additional academic support) that can impact academic achievement.

Future research should examine the effects of mentoring on the academic achievement of minority youth and girls. It would also be interesting to evaluate at what age mentoring has its greatest impact on academic achievement. A further area of research is looking at youth and volunteer personal characteristics that positively impact achievement. Since nonprofit agencies continue to compete for a limited amount of funds, it would also be beneficial to compare various mentoring programs. Research about the effectiveness of several mentoring programs could assist in resource allocation.

The present study can be viewed as an initial exploration into the impact of mentoring programs on academic achievement. A mentoring program that has a well established foundation appears to be effective in increasing academic achievement. Consistent, positive one-to-one attention from an adult role model appears to reduce some of the academic dangers that at-risk youth encounter. The literature supports the notion that the process of the mentoring program needs to be firmly entrenched before the impact of the program can be evaluated. School personnel, who may consider implementing a mentoring program, need to be mindful of the components that are necessary for a successful program. These include: developing standards and procedures for screening the volunteers and youth; procedures for the creation of the relationship and ongoing supervision of the relationship; clearly defined expectations of all parties, including the necessity for consistent contact between the youth and the adult; ongoing training for volunteers; and having paid program staff to operate and oversee the program.

In summary, this study evaluated the impact of mentoring on the academic achievement of at-risk boys. Youth continue to be exposed to a variety of situations that make them at-risk for academic failure. Results of this study indicate that having a mentor appears to positively affect this area. Boys who had consistent contact with an adult volunteer did better on the composite, reading, and math portions of an achievement test. The results are unique because the purpose of the relationship between the adult and child was friendship rather than the adult being a tutor. The results of this study are encouraging and reiterate the important work of Big Brothers/Big Sisters. Their program is an option to assist youth overcome some academic obstacles; however, due to the shortage of volunteers, boys continue to wait almost two years for a mentor. Mentoring programs, that are systematized similar to Big Brothers/Big Sisters, might also demonstrate positive impact on academic achievement. This information is useful to school personnel who work with at-risk youth because it is another tool that can be used to help alleviate some of the achievement problems of at-risk youth.

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Table 1**Observed Power of Covariate Tests^a**

Composite	.937
Reading	.964
Math	.864
Spelling	.338

a. computed using alpha = .05

Table 2**Adjusted Mean Scores after Controlling for Covariate^a**

K-TEA Scores	Time 1	Time 2
Composite	<u>M</u>	<u>M</u>
Group 1	92.7	96.3
Group 2	91.2	90.2
Reading		
Group 1	96.8	102.8
Group 2	94.8	93.7
Math		
Group 1	103.5	107.5
Group 2	94.9	94.0
Spelling		
Group 1	84.9	85.4
Group 2	87.9	87.8

Note. Group 1 = treatment group and Group 2 = control group

a. The K-TEA Brief Form has a standard score of 100 with a standard deviation of 15.

Table 3**ANCOVA Summaries for Measures of Achievement**

Source	df	F			
		Composite	Reading	Math	Spelling
Group (A)	1	1.58	2.86	7.54*	.404
Covariate (B)	1	13.38***	15.74***	10.25**	2.60
A x Composite	1	4.85*			
A x Reading	1		5.85*		
A x Math	1			4.87*	
A x Spelling	1				.084
Error	22	(108.58)	(129.69)	(194.00)	(221.65)

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4Observed Power of Multivariate Tests^a

Composite	.558
Reading	.638
Math	.560
Spelling	.059

a. computed using alpha = .05