Impacts of a school-based mentoring program on academic and behavioral outcomes for middle school youth

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IMPACTS OF A SCHOOL-BASED MENTORING PROGRAM ON ACADEMIC AND BEHAVIORAL OUTCOMES FOR MIDDLE SCHOOL YOUTH

by

Kari Lisa Dupuis

A Dissertation

Submitted to the University at Albany, State University of New York

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Department of Social Work

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DEDICATION

This dissertation is dedicated with love to my husband Jeff, our daughters Laura and Emily, my parents Robert and Audrey Blafield and my sister Alma. Your continued love, nurturing and support mean the world to me.
ACKNOWLEDGEMENT

I would like to thank my dissertation committee – Dean Katharine Briar-Lawson, Dr. Barry Loneck and Dr. Kevin Tobin. Your encouragement and help in my professional growth is deeply appreciated. I am also thankful for the many family members, friends and colleagues who have encouraged me throughout the doctoral process.
ABSTRACT

In the past two decades, major progress has been made towards understanding the effective practices and positive results of mentoring. Although numerous studies on mentoring have yielded compelling results, there are still many areas, especially in school-based mentoring for middle school students, that remain unexplored. This study helps to address a key gap in mentoring research by designing, testing and evaluating the impact of a comprehensive middle school-based mentoring program. Guided by a resiliency theoretical framework, this intervention research tests some best practices derived from mentoring research.

This study tests the following hypotheses:

1) Students who receive Comprehensive School Based Mentoring (CSBM) will have greater gains in academic performance than those in the control group.

2) Students who receive CSBM will have a greater decrease in attendance problems than those in the control group.

3) Students who receive CSBM will have a greater decrease in behavioral referrals than those in the control group.

4) Students who receive CSBM will have a greater increase in resilience than those in the control group.

5) Students who receive CSBM will have a greater increase in school connection than those in the control group.

To test the hypotheses posed by this study, a non-equivalent comparison group design was used. The sample for the study consisted of 83 at-risk middle school students.
A set of multiple and logistic regression analyses with controls for age and gender were used to investigate the hypotheses. The multiple and logistic regression analyses did not find a statistically significant relationship between most of the variables. However, the exploratory data analysis revealed that academic performance, attendance, school connection and the most serious discipline referrals were trending in a positive expected direction.

The findings of this study are followed by a discussion of some of the implications of this research project. This includes a discussion of the limitations of this research study including non-random sampling, a relatively small sample size and issues relating to the duration of the mentoring as well as the quality of the mentoring relationship. The study concludes with recommendations for future studies and overall implications for social work contributions to mentoring practice.
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Preface

My interest in the mentoring relationship developed as a result of my experience working as a Guidance Counselor at a middle school located in a relatively low income area of a small city in Western Massachusetts. My professional experiences have shown me that students experience a wide array of problems. Many are from single parent homes and talk with me about financial difficulties, substance abuse, absent parents and violence within their homes. Many of these students are receiving low grades in school and have poor attendance. Teachers, including myself, have developed over the years informal mentoring relationships with these students and have noticed a definite positive improvement in the academic and behavioral performance of students who are informally mentored.
Chapter One

Youth are Facing Pronounced Risk Factors

There are a myriad of challenges faced by youth today. One quarter of our national population is comprised of children and they are experiencing significant stressors in their lives (Forum on Child Family Statistics, 2010, p. 18). These risk factors are negatively impacting youth in several ways including poor academic achievement and their overall social emotional functioning. This chapter delineates some of the risk factors facing youth and their families. It also explores the multiple work pressures experienced by teachers and suggests that some youth risk factors, as well as challenges faced by teachers, might be addressed by school-based mentoring. Adults working with and caring about children are turning to mentoring in large part because of the promising research evidence showing its effectiveness. Major research studies showing the positive impact of mentoring include a meta-analysis of youth mentoring programs conducted by DuBois et al., (2002), as well as national studies of the Big Brothers Big Sisters community and school-based mentoring programs (Tierney, Baldwin-Grossman & Resch, 1995., Herrera et al., (2007). This chapter will conclude with questions that remain unexplored in school-based mentoring research.

A major challenge for children in America is the on-going stress of living in poverty. Nineteen percent of all children in the United States ages 0 to 17 are living in poverty. Thus, close to 1 in 5 children lived in poverty in 2008 (Forum on Child Family Statistics, 2010, p. 6). A total of 35 % of all black children, 10 % of white children and 29 % of all Hispanic children are living below the federal poverty level. Furthermore, 8 percent (5.9 million) of all children lived in extreme poverty in 2008, meaning that their
family was surviving with an income that was less than half of the poverty level (*Forum on Child Family Statistics*, 2010, p. 6). In addition, almost 22% of children in the United States lived in households that were defined as food insecure in 2008, meaning that these children did not have regular access to enough food to meet their nutritional needs (*Forum on Child Family Statistics*, 2010, p. 7). Close to 60% of all children in the United States receive free or reduced cost lunch (USDA, 2007). In addition, a quarter of our nation’s children live in single parent homes resulting in fewer economic and parental resources within the family (*Forum on Child Family Statistics*, 2010, p. 4). A total of 43% of all children who are living in female-headed households live in poverty (*Forum on Child Family Statistics*, 2009, p. 1).

In addition to coping with the stress of poverty, children are also experiencing significant stressors within their families. In the 2007 *Making a Difference in Schools: The Big Brothers Big Sisters School-Based Mentoring Impact Study*, it was reported that of the nearly 1,139 youth in their sample: 26% had parents who were divorced or separated; 46% had someone close to them die in the last year; 53% knew someone was seriously ill; 19% had a parent or guardian lose their job; and 32% had moved (Public/Private Ventures, 2007, p. 12). In addition, the most recent national sample of children’s well-being reports that 43% of all children experience stressful housing conditions due to overcrowding or inadequate housing (*Forum on Child Family Statistics*, 2010, p. 19). Furthermore, children are experiencing or witnessing acts of stressful and frightening violence within their homes. In a large study of Big Brothers Big Sisters it was reported that of the 959 youth in the sample: 28% had a family history of domestic violence; 11% experienced physical abuse; 21% stated they were emotionally abused; 7%
experienced sexual abuse; and 40% had a family history of substance abuse (Tierney, Baldwin-Grossman and Resch, 1995, p. 14). Many children do not report acts of violence committed against them due to fear among other factors. The most recent rate of violence inflicted upon children that was reported and substantiated involved 10 reports of child maltreatment per 1,000 children in 2008. (Forum on Child Family Statistics, 2010, p. 5)

In addition to coping with the stress of poverty, as well as significant challenges at home, children may also experience stressors at school and with their peers. The 2007 Making a Difference in Schools survey revealed that students have significant difficulty in their academic work. Teachers reported that over half of the youth were performing below grade level in one or more subjects, and 27% percent of the students indicated that they lacked confidence in their academic ability (Public/Private Ventures, 2007, p. 13). Forty one percent of the students reported that they had been absent and 20% had been tardy in the last four weeks (Public/Private Ventures, 2007, p. 13). In addition, to feeling overwhelmed at school, the youth in this study also reported that over 35 % had changed schools in the last year, making it even more difficult to keep up with their academic work (Public/Private Ventures, 2007, p. 12). Furthermore, children who speak English as Second Languages (ESL) can face additional challenges at school due to their difficulty comprehending and speaking English. In 2008, 21% of children spoke another language rather than English at home. Of these children, 5% also experienced difficulty speaking English (Forum on Child Family Statistics, 2010, p. 5).

Public/Private Ventures also reports that students are also struggling to fit in with their peers and over 40% of the students in their study report being bullied at school.
In addition, 56% of the children also reported that they had a close friend move away. Eaton et. al., (2010) reports from their survey of 9th to 12th grade students, that in the 12 months prior to their survey, close to 10% of students in our nation experienced physical violence by their boyfriend or girlfriend and that 7.4% of students were forced to have sex (p. 4).

Finally, compounding the multiple stressors at home, school and with their peers, youth are also experiencing depression. “In 2008, 8% of adolescents ages 12 to 17 experienced at least one episode of major depression in the past year and that rates of depression were close to three times higher for adolescent girls” (Forum on Child Family Statistics, 2010, p. 17). In addition, 26% of all high school students had felt so depressed that they did not participate in their usual activities (Eaton et. al., 2010, p. 8).

It is especially concerning that while youth are grappling with this array of multiple stressors, they are spending less critically needed time with their families. According to Tierney, Grossman and Resch (1995), this is due in part to job demands, extended families living apart from each other, and stress within the family such as drug abuse, single parenting households, domestic violence or lack of awareness by parents that they need to spend quality time with their children. Overall, it is estimated that 11 million children and adolescents are alone without adult supervision between being dismissed from school and dinner time (Arevalo, Boggan and West, 2004, p. 13).

High-Risk Behavior of Children and Adolescents

Children and adolescents experiencing stressors both at home and at school, as well as lacking needed parental guidance, are particularly vulnerable for engaging in high-risk behavior. These risky behaviors can include: smoking; substance abuse;
behavior problems in the community and school; early sexual activity; and academic
difficulties including dropping out of school (Eaton et al., 2010, p. 1., *Forum on Child
Family Statistics*, 2010, pp. 20-21). These high risk behaviors have serious and long-
term consequences for youth, families and our nation.

The high risk behavior of smoking has serious consequences including long term
smoking related diseases and death as well as impacting all citizens in the United States
due to the increased cost of health care for treatments of diseases associated with
studied risk behavior for middle school youth, and found that youth ages 10 to 14 who
smoked at least one cigarette in the one month prior to the survey included 5 % of 6th
graders, 9 % of 7th graders and nearly 13 % of 8th graders (p. 7). In addition, Eaton et al.,
(2009) reports that of all high school youth in their survey, 46.3 % had tried smoking and
that 19.5 % had smoked at least one cigarette in the 30 days prior to taking their survey
(p. 2).

Alcohol and other drug use by middle and high school youth can also cause
serious and long-term consequences including difficulties in school, behavior issues, car
accidents, as well as cause other serious injuries and even death (*Forum on Child and
who had ever tried alcohol ranged from 28 % of 6th graders to 54 % of 8th graders, and
the percent of youth who tried marijuana ranged from 5 % of 6th graders to 19 % of 8th
graders (pp. 9-10). Further, Whalen et al., (2005) reveals that the use of cocaine was
reported by 4 % of 6th grade students and 6 % by 8th grade students, and the use of
inhalants such as paints or sprays ranged from 12 % of 6th grade students to 16 % of 8th
grade students (pp. 9-10). According to the Forum of Child Family Statistics (2010), eight percent of both males and females in 8th grade reported heavy drinking (five or more drinks in the last two weeks). The level of heavy drinking increased through high school with 18% in 10th grade and 25% in 12th grade. A total of 8% of 8th graders reported illicit drug use, with a peak of 23% in 12th grade. Finally, Eaton et al., (2010) reported that their sample of 9th through 12th grade students in private and public schools revealed the following levels of alcohol and other drug use: 72.5% had ever tried alcohol; 42% had used alcohol in the last 30 days prior to taking the survey; 37% had tried marijuana at least once in their lifetime; 12% had tried inhalants; 3% had used cocaine in the 30 days prior to taking the survey; and 20% had tried prescription drugs such as Ritalin, Oxycontin, Percocet or Xanax without a prescription from their doctor (p. 2, 17).

Youth who are engaging in at-risk behavior such as smoking, drinking and using other drugs are also at risk for engaging in early sexual activity. According to the *Forum on Child and Family Statistics* (2010), early sexual activity can result in significant emotional and physical risks including sexually transmitted diseases, as well as becoming pregnant (p. 13). Pregnancy at such a young age can adversely affect effective parenting due to limited economic and parental resources. According to Whalen et al., (2005), there are nearly 20,000 girls under the age of 15 who become pregnant and there are close to 3 million adolescents who contract a sexually transmitted disease annually (p. 1). Eaton et al., (2009) reports that there are “757,000 pregnancies among women aged 15-19” and “9.1 million cases of STD’s among persons ages 15 to 19”, as well as an “estimated 6,610 cases of HIV/AIDS among persons aged 15 to 24 that occur annually” (p. 3). Whalen et al., (2005 in their study of middle schools in the United States, that 9%
of 6th graders, 16% of 7th graders and 19% of 8th grade students had sex (2005, p. 12). In addition, 48% of high school students reported having sex (Forum on Child Family Statistics, 2010, p. 13). According to Eaton et al., (2009), 14% of high school youth report that they have had four or more sexual partners (p.4). In addition, 40% of all high school students engaging in sexual activity did not use a condom, placing them at high-risk for pregnancy, contracting HIV/AIDS and other sexually transmitted diseases (Forum on Child Family Statistics, 2010, p. 13).

Youth who are struggling with multiple stressors in their life and who lack adult guidance and support are more prone to engage in delinquent behaviors. “In 2008, the serious violent crime offending rate was 14 crimes per 1,000 juveniles ages 12 to 17 totaling 343,000 such crimes involving juveniles” (Forum on Child Family Statistics, 2010, p. 13). Herrera et al., (2007) in their report on school-based mentoring involving Big Brother Big Sisters, revealed that 41% of the youth had been absent in the last four weeks; 12% had stolen something in the last four weeks; over 50% had difficulties relating with their parents, teachers and/or peers (p. 13). Whalen et al., (2005) revealed that middle school youth in their sample who reported that they had ever carried a weapon (such as a gun or knife) ranged from 33% of 6th grade students to 41% of 8th grade students (p. 5). In addition, the percentage of middle school students who had ever been in a physical fight ranged from 56% of 6th grade students to 65% of 8th grade students (Whalen et. al., 2005, p. 5). Eaton et. al., (2009) reports that of the high school youth in their survey: 18% had carried a weapon in the 30 days prior to taking the survey; 32% had been in a physical fight in the last year; and 6% of students had brought a weapon to school in the last month (p. 1).
Youth who are struggling with challenges such as poor behavior and failing grades at school may also consider dropping out of school. Lack of education is a high risk factor for our youth and for the future of America because “education shapes the personal growth and life chances of our children, as well as the economic and social progress of our Nation” and “youth who are neither enrolling in school nor working is a measure of the proportion of young people at risk of limiting their future prospects” (Forum on Child Family Statistics, 2010, p. 14). During the 2009 school year, close to 10% of all youth ages 6 to 19 were not in school and were not working (Forum on Child Family Statistics, 2010, p. 15). A total of 13% Hispanic, 12% African-American, and 7% of Caucasian youth were not enrolled in school in 2009 (Forum on Child Family Statistics, 2010, p. 15).

Sadly, students who experience multiple stressors in their lives may seriously think about and attempt suicide. Whalen et al., (2005) reports that middle school youth who thought about attempting suicide ranged from 18% of 6th grade students to 24% of 8th grade students (p. 6). In addition, the youth in this survey who reported that they had tried to kill themselves included 7% of 6th grade students and 11 percent of 8th grade students (p. 6). Eaton et al., (2009) reveals that 14% of the high school students in their survey had seriously thought about attempting suicide and that 6% of students had attempted suicide in the last year (p. 2).

**Teachers and the Problems of Their Students**

Despite the well documented needs of youth, teachers face growing pressures to spend less time in supporting the social-emotional-behavioral development of youth and more time on meeting state and national testing requirements. While many teachers face
major problems, the loss of meaningful student support is particularly daunting for middle school students. In elementary school, youth tend to have one teacher and attend all classes with one cohort of students. However, this changes once students attend middle school. They now have seven or more teachers and the number of students they interact with increases substantially. In addition, middle school students also have increased class and homework expectations when compared to elementary school. Furthermore, peer and family conflicts can intensify during this age due to peer pressure, a larger number of students they must relate to, as well as major developmental changes and increased school expectations. Middle school students also experience a significant amount of peer pressure regarding smoking, drinking, drugs and sexual activity. They are also experiencing major hormonal and developmental changes during this time (Whalen et al., 2005).

The No Child Left Behind Act of 2001 was passed in which all public schools are required to test students on basic skills in order to receive federal funding (Department of Education, 2010). After this Act was passed, researchers asked middle school teachers to rate essential teaching traits. Ninety two percent of the teachers in this study also rated the trait of understanding adolescents as essential or important (Greene et al., 2008, p. 49). Ninety nine percent of the teachers rated the ability to engage positively with students as important or very important (Greene et al., 2008, p. 48). One teacher stated, “the regulations don’t make people better teachers. In middle school, there must be a balance between knowledge and heart. We must be experts in our field, but we must also be experts at connecting with kids. State and national regulations don’t care about the ‘heart’ of the matter.” (Greene et al., 2008, p. 50)
Middle school teachers report a high level of dissatisfaction with state and national high stakes testing requirements. When asked about testing requirements, 76% of teachers disagree that quality of teaching improves (Greene et al., 2008, p. 52). Teachers also report a high level of frustration with “teaching to the test” and state “I feel like I spend more time testing than teaching. I also feel creativity is inhibited. I also sense greater stress from students. I love teaching, but with the new regulations, I feel limited and frustrated” (Greene et al., 2008, p. 58). Another teacher stated, “I don’t have the time I need to bond with kids. I feel pressure to meet content standards, no matter where my students really are or what they really need” (Greene et al., 2008, p. 54).

Middle school teachers in this study report that while state and national educational standards are important, “high stakes demands and limitations imposed by current state and national test policies” have sharply curtailed creativity, excitement and discovery in their classrooms (Greene et al., 2008, p. 56).

In addition to working with the limitations and demands of testing mandates, teachers must also work to close the significant and persistent testing achievement gaps shown by students. The Center on Education Policy (CEP) examined math and reading trends on state tests across the nation from 2002 through 2009 and found that low-income, as well as African-American, Latino and Native American students, had the lowest scores on state achievement tests. For example, test results from several states showed that the percentage of African-American and Native American students proficient on state tests was 20 to 30 points lower in 2009 when compared to the proficiency scores for white students. There were also 15 to 20 point gaps between the test proficiency scores for Latino and white students (Kober, Chudowky and Chudowsky, 2010, p. 1).
addition, many states showed gaps in proficiency scores of 25 points or higher between students from families with low-income and those students who were not from low-income families (Kober, Chudowsky and Chudowsky, 2010, p. 1). Therefore, teachers face the immense challenge of meeting state and national test mandates, as well as finding the time and resources to help close the achievement gaps for the at-risk children in their classrooms.

Teachers not only face testing pressures and achievement gaps, but also struggle to engage students and to involve parents. Twelve percent of elementary, 31% of middle school and 38% of high school teachers report that student apathy and students unprepared for class are serious concerns (Alt, Choy and Hammer, 2000, p. 43). Fifty percent of all teachers who participated In the Middle study also reported that they lack parental support (Alt, Choy and Hammer, 2000, p. vi). While teachers are frustrated with the lack of parental involvement, parents are also dissatisfied with the lack of connection with their child’s school. According to Epstein (1993), there should ideally be a “school and family partnership” where teachers and parents are able to share their mutual responsibilities and concerns in children’s education (pp. 83-84). However, this type of partnership tends to decline with each grade level and shows a substantial decrease in the middle grades (Epstein, 1993, p. 91). Most parents do not volunteer or make decisions in the school building for several reasons including: limited time because of work and home responsibilities; lack of interest; and uncertainty as to how to get involved because there are often little or no procedures in place to recruit and train parent volunteers (Epstein, 1993, p. 92). However, a majority of parents, up to 90% in middle school, want assistance on how to help their child succeed in school (Epstein, 1993, p. 92). A weak
family school partnership results in parents and teachers feeling frustrated about the lack of communication between schools and families during the critical time of adolescence.

Teachers in all levels of public education also face the on-going challenge of school violence, as well as serious discipline issues in the classroom. *Crime, Violence, Discipline, and Safety in U.S. Public Schools* reports that during the 2007-08 school year, there were 41 violent incidents such as rape, physical fights with or without a weapon or robbery, per 1,000 students, in middle schools when compared to elementary schools (26 incidents) or high schools (22 incidents) (Neiman, DeVoe and Chandler, 2009, p. 3). Teachers also report that their schools’ efforts to address school discipline and safety are compromised due to: “A lack of adequate programs for students with behavioral issues (25%); lack of funding (24%); and federal, state, or district policy requirements regarding the discipline of special education students (18%)” (Neiman, DeVoe and Chandler, 2009, p. 4). In addition, nearly 18% of all urban schools report that student disrespect for teachers happens every day or at least once a week (Neiman, DeVoe and Chandler, 2009, p. 3). Finally, “middle school teachers were more likely to report that physical fights between students and lack of student respect for teachers were serious problems when compared to teachers at elementary and high schools (Alt, Choy and Hammer, 2000, p. viii).

The multiple pressures of testing, lack of administrative and parental support, as well as student apathy and serious discipline issues often adversely impact teacher morale and job satisfaction. Nearly a quarter of all middle school teachers report being dissatisfied with their jobs (Alt, Choy and Hammer, 2000, p. 42). Middle school teachers also report lower satisfaction with their professional prestige when compared to
elementary school teachers (51% vs. 59%) (Alt, Choy and Hammer, 2000, p. 42) Finally, 30% of middle school teachers report “that they sometimes feel it is a waste of time to do their best as a teacher.” (Alt, Choy and Hammer, 2000, p. vi)

**Mentoring: A Promising Solution**

Teachers, community leaders, youth practitioners and researchers continue to look for effective ways to help at-risk youth in our nation. Teachers are also seeking ways to connect with and establish positive and meaningful relationships with their students. President Obama, as well as adults working with and caring about children, are turning to mentoring in large part because of the promising research evidence showing the effectiveness of mentoring. Major research studies showing the positive results of mentoring include the national study of Big Brothers Big Sisters community mentoring programs (Tierney, Baldwin-Grossman & Resch, 1995), a meta-analysis of youth mentoring programs conducted by DuBois et. al. (2002), and the study of the Big Brothers Big Sisters school-based mentoring programs conducted by Herrera et.al. (2007). Based upon his belief in and support of mentoring, as well as the promising research evidence regarding the success of mentoring, President Obama proclaimed January as National Mentoring Month (mentoring.org/news, January 4, 2011).

Reinforcing this national focus by President Obama are numerous research studies highlighting the need for positive and meaningful relationships between youth and adults. Adolescents and children are experiencing significant stressors at home and school, making them more likely to engage in at-risk behaviors. Parents are overwhelmed due to their work, personal and parenting responsibilities and are looking for help with their children. Teachers are faced with numerous administrative and testing mandates making
it difficult to share quality time with their students. Middle school is a vulnerable and pivotal time for adolescents. Middle school students are faced with mounting peer pressure, increased academic demands and major developmental changes. One promising solution to these multiple challenges for youth, families and schools is school-based mentoring. Moreover, there is a strong need for more intervention research on mentoring in middle school because there has not been a single study focusing exclusively on the impact of school-based mentoring for middle school students testing mentoring best practices as delineated by DuBois et. al. (2002).

**Questions in School-Based Mentoring**

Although numerous studies on mentoring have yielded compelling results, there are still many areas, especially in school-based mentoring for middle school students that remain unexplored. The following questions remain unanswered in school-based mentoring research. For middle school students: What impact does an independent school-based mentoring program have on GPA, attendance, school connection and discipline problems in school? How does involvement in an independent school-based mentoring program impact student behavior and relationships outside of school? How do students differ by gender and grade in their response to the school-based mentoring experience? How effective is a school-based mentoring program for students and mentors where teachers are primarily the mentors? How do teachers rate their overall experience as school-based mentors? Do teachers feel they are able to better create positive and meaningful relationships with students as a result of working as a mentor? How do parents and teachers rate the impact of school-based mentoring on student grades, behavior, school connection and self-esteem?
Chapter 2

Literature Review

This chapter will provide a historical review of mentoring research in order to describe the contributions of mentoring studies over time. In addition, the chapter will focus on several theoretical perspectives and show how the different theoretical perspectives can serve as a framework for understanding the mentoring process. Given the national focus on mentoring as one solution to reduce risk factors and increase academic achievement for youth, it is essential that a research review be framed against a theoretical backdrop. The next part of the literature review will focus on a historical review of key mentoring studies that have made a significant impact over time to the knowledge base of the mentoring field. This will be followed by a synthesis of key theoretical concepts and mentoring research findings that help to inform a school-based mentoring intervention.

Definition of School-Based Mentoring

School-based mentoring is where mentors, either school faculty or adults from the community, meet with students for at least one hour each week in a school setting (Herrera et al., 2007, p. ii). School-based mentoring includes several different activities such as: talking; engaging in activities such as arts and crafts, sports or sharing a meal together; and helping with academics. The goal of school-based mentoring is for mentors to provide friendship, guidance, support and homework assistance for high risk students (Herrera et al., 2007, p. ii).
Theoretical Perspectives

A review of the mentoring literature has shown that, while theory has not been widely used in previous mentoring research, there is now an increasing interest to utilize theory to better understand the mentoring process. Four theoretical perspectives are presented that conceptually support the practice of mentoring with implications for school-based mentoring interventions.

Developmental and Ecological Systems Theory

A prominent theory discussed in the mentoring literature is developmental theory. This theory is defined by several age-related stages of development that must be mastered in order to successfully progress to adulthood (Child Development Institute, 2010, p. 1). Erikson (1956) identified eight stages of development with “critical assets that must be mastered in order for the child to reach successful adulthood” (Mentoring Resource Center, 2007, p. 2). However, mentoring researchers also began to look towards ecological systems theory, an extension of development theory, because this perspective looked at how “family, culture and society, as well as the individual’s age and personal characteristics at each phase of development act to shape individual developmental outcomes” (Haensly & Parsons, 1993, p. 208). Ecological systems theory states that an individual’s outcomes are dependent on a number of variables including society, culture and family background (Haensley & Parsons, 1993, p. 208).

Keller (2005) demonstrated that key concepts of ecological systems theory, including family, culture and society, interact with one another and how these relationships had the potential to support or weaken the mentoring relationship (p. 169). For example, children who have a parent/guardian who actively supports the mentoring
match (communicating regularly with the mentor with information about their child and any family or cultural issues, as well as offering words of support about the mentor in front of their child) helps to strengthen the mentoring relationship. This is because the mentor has a deeper understanding of issues at home and the child may be more likely to trust their mentor as a result of hearing their parent support the mentor (Keller, 2005, pp. 177-179). In contrast, children who have a minimally invested mentor and/or experience a lack of support from their parent or the mentoring program coordinator, may in turn, view the mentoring relationship as less important (Keller, 2005, pp. 179-181).

Although ecological systems theory helps to contribute toward a better understanding of the mentoring process, certain key components of the mentoring relationship still remain unanswered. One of the remaining questions for those in the mentoring field relates to what is actually involved in creating an attached mentoring relationship. In other words, why is it that some mentees are able to form an attached relationship, while other mentees do not? Thus, in conjunction with ecological systems theory, mentoring researchers began to also incorporate attachment theory to help answer these questions.

**Attachment Theory**

Attachment theorists focus on the relationship bonds between children and their parent or guardian and how these bonds determine the connection and outcome of future relationships. Attachment theory is defined as a perspective that looks at how “early experiences of attachment to secure and responsive adults, usually parents, are an important foundation for later social competence” (Payne, 2005, p. 81). According to attachment theory, youth who have developed an attached relational bond with their
parent or guardian will be better equipped to develop a strong relationship with a mentor. In contrast, children who have not had the experience of an attached bond with a parent or guardian may struggle in developing relationships with their mentors (Zimmerman, Bingenheimer and Behrendt, 2005, p. 144).

A review of the attachment theory literature also reveals that these perceptions of relationships by youth have the capacity to change based upon the presence of a consistently supportive person in a child’s life. Styles and Morrow (1995) provide examples of youth who have strong emotional attachments with their mentors who gradually develop a more positive and trusting relationship with parents and peers in their life. These improved relationships have the potential to impact a child’s self-esteem, academic performance, attendance and value placed upon school (Rhodes, Grossman & Resch, 2000, p. 1663).

Attachment theory also supports the mentoring process due to its emphasis on the relationship bonds between children and their parent/guardian and how these attachments strongly influence the connection and success of all future relationships (Payne, 2005, p. 81). If a child has a weaker bond with their parent or guardian, then a mentoring match will benefit from receiving extra support from the mentoring program including: More intensive case management for the child; additional training offered to the mentor; and greater attention paid to the quality and type of mentoring match activities (Zimmerman, Bingenheimer & Behrendt, 2005).

However, mentoring researchers still could not understand why some children who are able to form an attached mentoring relationship still vary in their overall resilience to risk factors in their life (Zimmerman, Bingenheimer & Behrendt, 2005).
That is, why is it that some youth are more resilient to risk such as negative peer influences, poverty, drugs and violence, while other children appear more vulnerable to these same risk factors? Researchers turned to resiliency theory in their efforts to understand why some youth succeed in spite of significant adversity in their life.

**Resiliency Theory**

Resiliency theory is defined as a theoretical perspective that examines how certain factors in youth’s lives may protect and help them to succeed in spite of negative risk factors (Zimmerman, Bingenheimer and Notaro, 2002, p. 223). According to resiliency theorists, there are compensatory and protective factors that may help protect youth from challenges in their life (Zimmerman, Bingenheimer & Behrendt, 2005, p. 146). A mentor has the potential to exert a protective influence by providing consistent guidance and support to their mentee. As a result, a child may develop improved self-confidence and stronger social skills which can help protect them from adverse events in their life. In addition, a mentoring relationship may have a compensatory effect in that a mentor has the potential to counteract some of the negative effects of risk factors such as negative peer influences. For example, if a child is being pressured by friends to use drugs, this negative influence can be counteracted by the positive influence and support of a mentor (Randolph & Johnson, 2008, p. 179; Zimmerman, Bingenheimer & Behrendt, 2005, p.146).

One of the earliest mentoring studies utilizing a resiliency theoretical perspective was completed by Rhodes et al. (1992). She and her colleagues conducted a study with 129 young African American mothers in order to look at the potential impact of natural mentors in the lives of these young mothers. Natural mentors could include any non-
parental adult such as a school counselor, teacher, neighbor or other member of an extended family. Rhodes et al. (1992) discovered that those who had natural mentors reported higher levels of social support, experienced less depression and were more resilient in dealing with relationship problems when compared to other young mothers in the study without a mentor (Zimmerman, Bingenheimer & Notaro, 2002, p. 222).

A more recent study utilizing a resiliency theoretical framework was completed by Zimmerman, Bingenheimer and Notaro (2002). They conducted a study with 770 adolescents where they interviewed each youth and asked whether or not they had a natural mentor. Fifty two percent of the adolescents studied stated that they had a natural mentor and those with a mentor “were less likely to smoke marijuana or be involved in non-violent delinquency and had more positive attitudes towards school” when compared to those without a natural mentor (Zimmerman, Bingenheimer & Notaro, 2002, p. 221).

In summary, the four theories discussed in this section provide useful perspectives for the testing of mentoring interventions and programs. Developmental and ecological systems theories help to highlight how different stages of development, as well as environmental factors such as family and society, can influence youth outcomes in mentoring relationships. Attachment theory provides a helpful perspective in explaining why youth may vary in their ability to form an attached relationship with their mentor. Resiliency theory shows how protective and compensatory factors can help individuals develop a resiliency to difficult challenges in their life. Resiliency theory is especially relevant to promising interventions on school-based mentoring due to its emphasis on how mentors can help youth build resiliency and succeed in school and in their community despite significant risk factors in their life.
**Historical Review of Significant Mentoring Studies**

This section will highlight empirical research by placing significant studies in historical order. The description of each study includes: a critical review of its research methods; its contributions to mentoring research; limitations of the study; and how each study informed the next set of studies in mentoring research.

**Making A Difference: Study of Big Brothers Big Sisters**

The need to better understand Big Brothers Big Sisters (BBBS) led to a large national study conducted by Tierney, Baldwin-Grossman and Resch (1995). This study utilized a rigorous, large-scale research design, and obtained significant findings regarding community-based mentoring. The focus of this research study was to determine the impact of BBBS on mentee self-concept, behavior, school performance and relationships (Tierney et al., 1995, p. 8).

The researchers used an experimental pre-test and post-test study design. The post-test took place eighteen months after the initial pre-test. The sample of 959 participants, 487 in the experimental group (receiving mentoring) and 472 in the control group (on a waiting list for a mentor), were randomly selected from 8 BBBS agencies representing different regions of the United States (Tierney et al., 1995, p. iii, p. 7). The youth in this study (40% girls and 60% boys) ranged in age from 10 to 16, and more than 50% of the sample were members of a minority group (70% of the minority group participants were African-American) (Tierney et al., 1995, p. iii). The researchers used a set of established reliable and valid behavioral measures, as well as created their own reliable measures that were reviewed and pretested prior to administration (Tierney et al., 1995, p. 42).
This study found that community-based mentoring offered by BBBS makes a significant difference for youth. Youth receiving mentoring services were 46 percent less likely to use drugs during the study period when compared to students in the control group and that minority Little Brothers and Little Sisters were 70% percent less likely to use drugs when compared to other minority youth in the control group (Tierney et al., 1995, p. iii). The researchers also found that mentees were one-third less likely than those in the control group to hit someone; had improved school attendance; showed modest improvement in their academic grades; and had improved relationships with parents and peers (Tierney, Baldwin-Grossman & Resch, 1995, p. iii). However, this study did not show a significant difference in self-concept for mentees when compared to control group participants (Tierney, Baldwin-Grossman & Resch, 1995, p.iii).

The limitation of this study was that it was based entirely on the BBBS model. Therefore, the findings cannot be generalized to other community or school-based mentoring programs which might vary in terms of overall length of relationship, amount of time spent together each week, or level of formal support offered to mentors and mentees. Although this study focused on mentees ranging in age from 10 to 17, it was unclear how middle school students differed in their response to mentoring when compared to high school students.

This hallmark investigation showed that community-based mentoring makes a significant and positive difference for youth in the BBBS program. The results from this study were especially meaningful because the researchers used a rigorous design with a large and diverse sample. While this study provided valuable information about
community-based mentoring there was still little known at this time about the impact of school-based mentoring.

**School-Based Mentoring for Underachieving Middle School Students**

Aiello (1988) contributed to the mentoring research field by assessing the impact of a school-based mentoring program on achievement and self-concept for underachieving middle school students. The mentoring program was located at Ellen Glasgow Intermediate School in Fairfax, Virginia. The mentors were staff members at the school. The mentees were 7th and 8th grade students who were receiving multiple D’s and F’s on their report card. The mentoring took place over a period of 7 months during the 1986-87 school year in which mentees met with their mentor at least once a week for an “academic progress check, general assistance, and tutoring” (Aiello, 1988, p. 120, 124). The purpose of the mentoring experience was for students with poor grades to be provided with “an opportunity to overcome deficiencies in all subjects, improve study skills, time management skills and test-taking skills, and develop self-confidence as learners” (Aiello, 1988, p. 120).

Aiello (1988) used a quasi-experimental non-equivalent control group design to investigate the mentoring program in order to assess its impact on GPA, self-concept, and end of year failure rates (Aiello, 1988, p. 13). The experimental and control group were located at two separate middle schools in the Fairfax County Public School system (Aiello, 1988, p. 17). The experimental group consisted of fifty-five mentees (twenty-seven seventh graders and twenty-eight eighth graders) that included: twenty seven Caucasian; fourteen African-American; seven Latino; two American Indian; and five Asian students (Aiello, 1988, p. 118). The control group was made up of forty-two
underachieving students (twenty-one seventh graders and twenty-one eighth graders) that included: twenty-five Caucasian; six African-American; six Latino; and five Asian students (Aiello, 1988, p. 119). Unfortunately, the researcher did not include the distribution of gender in the experimental and control group. A total of forty staff members mentored students in the experimental group.

The measures used in this study consisted of the Self-Concept and Motivation Inventory (SCAMIN), as well as student Grade Point Average (GPA), the failure rate for classes, and student retentions (Aiello, 1988, p. iii). The researcher also used post qualitative measures, largely created by herself with assistance from her doctoral committee, that included “behavioral ratings by teachers”, as well as “mentor, mentee, and parent program evaluations” (Aiello, 1988, p. 124).

The results of this study revealed that GPA gain for the experimental group was not significant but trended in the expected direction and thus “it was concluded that the mentor program produced positive, achievement gains, as measured by GPA growth, that were non-significant” (Aiello, 1988, p. 145). Further, there was not a significant difference between the control and experimental groups regarding the failure retention rate or self-concept scores (Aiello, 1988, p. 155, 197). The results from the post qualitative measures show that “teacher ratings, mentor and students evaluations were positive, providing qualitative statements of program worth” (Aiello, 1988, p. iii).

There were several limitations to this study. First, participants in the experimental and control groups were from two different middle schools. Therefore, the two groups already differed from one another, aside from mentoring, since they were “subjected to grading characteristics unique to individual teachers and departments in each school”
There were also an unequal number of participants in each group (55 students in the experimental group and 42 students in the control group). In addition, random assignment was not used and thus the experimental and control groups were not equivalent. Furthermore, there was some contamination in the control group because academic tutoring and counseling, as well as career preparation activities were provided to several students in the control group (Aiello, 1988, pp. 16-17). Finally, a majority of the qualitative measures were created by the researcher (one was created by a mentor), and there is no information provided that describes how trustworthiness was established for these measures. There was also only one reliable and valid quantitative measure used (the SCAMIN) and thus this study may have benefited from the use of a variety of reliable and valid instruments to measure self-concept and academic performance.

Finally, the type of mentoring offered in this program primarily had an academic focus. Therefore, future research was still needed to assess the effectiveness of a middle school school-based mentoring program that utilizes both a socio-emotional as well as an academic focus. This highlights the continued need for rigorous intervention research regarding school-based mentoring at the middle school level. In addition, it was still not clear how school-based mentoring might impact the following variables: school connection, drop out rates, school attendance and discipline, as well as behavior at home and with peers. Finally, future research was still needed to better understand how male and female students differ in their response to the middle school school-based mentoring experience.
School-Based Mentoring for High School Students

Slicker and Palmer (1998) took an important next step in mentoring research history when they conducted one of the first published studies that focused exclusively on the impact of school-based mentoring for high school students. The purpose of their study was to determine if school-based mentoring made a positive difference in high school student’s self-concept, academic achievement and lowers their high school dropout rate.

The researchers used a non-equivalent control group design. The original sample consisted of 86 academically at-risk students in the 10th grade (Slicker & Palmer, 1998, p. 328). The measures used in this study were the Piers-Harris Children’s Self-Concept Scale, as well as a post intervention questionnaire that assessed “mentees regarding their own personal mentor relationship and its worth to them” (Slicker & Palmer, 1998, p. 329). The researchers also included the grade point average (GPA), current high school dropout status, as well as mentoring activity logs maintained by mentors.

The results of this study showed that there was not an improvement in self-concept, grades or high school drop-out status for mentored students compared to students who did not receive mentoring services. However, in light of the fact that several students indicated varying levels of satisfaction with their mentoring experience, the researchers decided to conduct an additional exploratory analysis in which they divided up mentees according to those students who indicated they were effectively mentored versus those who stated they were ineffectively mentored. The researchers obtained this information from the post mentee questionnaire regarding their satisfaction with the mentoring relationship. Those students who felt they were effectively mentored
showed a significant improvement in grades compared to the ineffectively mentored students and members of the control group (Slicker & Palmer, 1998, p. 331). In addition, all effectively mentored students returned to school for the next school year, while the ineffectively mentored students showed a 69% return rate to school and members of the control group had a 74% return rate to school (Slicker & Palmer, 1998, p. 330). Nevertheless, there was not a difference in self-concept shown between effectively and ineffectively mentored students (Slicker & Palmer, 1998, p. 330).

There were several limitations to this study. First, random assignment was not used and the authors also indicate that they placed higher risk students in the experimental group when compared to the control group. In addition, this research project had a high level of attrition so that only 45 participants remained in both the experimental and control groups (Slicker and Palmer, 1998, pp. 328-329). The authors write that “because of attrition and subdivision of the experimental group during post-hoc analysis, the final group sizes were quite small, which may have contributed to the small effect sizes or to no effect in some cases” (Slicker and Palmer, 1998, p. 332). Another limitation of this study is that there are no data from parents, teachers or information from mentors regarding their perspective of the mentoring relationship. The authors recommended that future research is needed to better understand the potential impact of middle school mentoring (Slicker and Palmer, 1998, p. 332).

The mentoring research field now had a better understanding of community-based mentoring, due in large part to the landmark study of the Big Brothers Big Sisters program conducted by Tierney et al., (1995). The preliminary study on school-based mentoring held by Slicker and Palmer (1998) also helped the mentoring research field
begin to gain an appreciation for the potential of school-based programs by highlighting
the importance of mentee perception of effectiveness. Nevertheless, it was still not clear
how school-based and community-based mentoring differed from each other. Herrera,
Sipe, McClanahan, Arbreton and Pepper (2000) took an important next step in mentoring
research history when they conducted an in-depth comparison of school and community-
based mentoring programs.

**Comparison of Community-Based and School-Based Mentoring Programs**

Herrera, et al., (2000, pp. 6-7) compared how community-based and school-based
mentoring programs differed in regards to relationship development, mentor
characteristics and overall program operations using a causal comparative/expost facto
research design. The sample consisted of 669 mentors from a total of 64 mentoring
programs with 346 mentors from 29 community-based programs and 323 mentors from
35 school based programs across the United States (Herrera et al., 2000, p. 44).

Data were obtained by conducting 25 minute telephone interviews with each
mentor from both the community and school-based mentoring programs. The survey
used in the study was created by Public/Private Ventures and focused on the relationship
development between mentors and youth, as well as their experiences working with the
mentoring program. Program data were also obtained from staff working at the above
community and school-based mentoring programs.

This study found that, in regards to program focus, school-based mentors tended
to spend more time working on academics and have more communication with teachers,
while community-based mentors spent more time on social activities and had more
contact with parents (Herrera et al., 2000, p. 7). In regards to the quality of mentoring
relationships in both programs, “over 90 percent of mentors in both community-based and school-based programs said they felt ‘close to their mentee’, and that “more community-based mentors reported feeling ‘very close’ to their mentees than did school-based mentors (45% versus 32% respectively)” (Herrera et al., 2000, p. 7).

Mentors in community based mentoring programs were primarily in the age range of 22 to 49, while mentors in school based mentoring programs “span the age spectrum” and “although mentors in both types of programs are mainly Caucasian, school-based programs attract more minority members” (Herrera et al., 2000, p. 7). In addition, cross-gender matches, or male-female mentoring matches, were more common in school-based mentoring programs which the authors state is “a major plus because there is a shortage of male mentors” and that “cross gender matches means more mentors for boys” (Herrera et al., 2000, p.7).

The researchers also found that community based mentors met with the mentees at least two to three hours a week for twelve months, while school-based mentors met with youth for one to two hours a week for nine months (Herrera et al., 2000, p.7). They also found that, while school-based matches are supervised and “may not permit as much spontaneity or variety as do community-based meetings”, mentor-mentee pairs who met at school have several advantages for mentors in that “it offers mentors a safe location for meeting with their mentees, reduces their out-of-pocket costs, reduces the time-and cost-consuming rigor of mentor screening required by unsupervised meetings, and reduces the length of the commitment mentors must make” (Herrera et al., 2000, p.7). Finally, the authors also found it costs $567 each year to mentor one youth in school based mentoring programs, and that it was significantly more expensive to mentor a child in community
based mentoring programs with a cost of $1,369 each year to mentor one child (Herrera et al., 2000, p. 7).

This study led to a greater understanding of the differences between school and community-based mentoring programs. However, a major limitation of this investigation was that it did not include a youth, parent or teacher perspective on the differences between these two types of mentoring programs. In addition, the authors included a wide variety of school and community-based programs in their study that differed widely in terms of their mentoring program structure and expectations. It would have been helpful to analyze these differences within both school-based and community-based programs to determine if and how they impacted the quality of the mentoring experience for both mentors and youth.

**Predictors and Duration of Long-Lasting Mentoring Relationships**

Baldwin-Grossman and Rhodes (2002) took the next step in the study of mentoring when they explored the predictors of long-lasting mentoring relationships. In this study, they also investigated how the duration of these relationships impacted youth outcomes. Up to this time the mentoring research field did not know what factors contributed to strong long-lasting mentoring relationships or how the length of these relationships affected youth outcomes.

In order to explore the predictors and duration in mentoring relationships, Baldwin-Grossman and Rhodes (2002) conducted a secondary analysis of existing data based upon the 1995 Big Brothers Big Sisters (BBBS) study. The researchers placed mentees in four groups based upon the amount of mentoring that they had received. The groups consisted of youth who had worked with a mentor: fewer than 3 months (6%); 3
to 6 months (13%); 6 to 12 months (36%); and one year or more (45%) (Baldwin-Grossman and Rhodes, 2002, p. 206). The researchers found that youth who had received mentoring for one year or more showed the highest improvements in academic, behavior and self-worth variables when compared to youth in mentoring relationships 6 to 12 months. They also showed higher improvements when compared to youth in the 3 to 6 months mentoring group. In addition, mentees who received less than 3 months of mentoring actually showed a drop in their self-worth and academic self-competence when compared to their pretest results (Baldwin-Grossman and Rhodes, 2002, p. 213).

The authors of this study also discovered several predictors that influence the length of mentoring relationships. They found that mentors with higher incomes had longer relationships, while married mentors in the 26 to 30 age range had the shortest relationships (Baldwin-Grossman and Rhodes, 2002, p. 215). They also found that older adolescent mentees tended to have shorter mentoring relationships when compared to middle school youth (Baldwin-Grossman and Rhodes, 2002, p. 214). The authors do not indicate if this may be due to the fact that older adolescents age out of the program or because they are less receptive to mentoring. In addition, youth who had experienced abuse in their life also experienced shorter relationships with their mentor. The authors stated that knowledge of these predictors can help inform the training and supervision of mentors, as well as help caseworkers better support youth as they develop a new relationship with their mentor.

A major limitation of this study was that it only studied the predictors and duration of mentoring relationships in community-based BBBS programs. Thus, it did
not examine any other varieties of community based mentoring nor did it examine any school-based mentoring programs.

At this point in the mentoring research field, there was a significant amount of research on the Big Brothers Big Sisters program. However, there was an increasing interest among mentoring researchers to better understand the overall effectiveness of mentoring programs beyond BBBS. In order to address this need, DuBois, Holloway, Valentine and Cooper (2002) conducted an in-depth meta-analytic review of community and school-based youth mentoring programs that yielded significant contributions to the mentoring field.

**Meta-Analysis of Mentoring Programs for Youth**

DuBois, Holloway, Valentine and Cooper (2002) began their meta-analysis with an extensive literature review of published data regarding school and community-based youth mentoring programs. The researchers selected 59 studies for their meta-analytical review based upon the criteria that evaluations must focus upon one-to-one youth mentoring programs and must also include either pre-post program data or a control group. Three of the studies from this meta-analysis, Aiello (1988), Slicker and Palmer (1993) and Tierney, Grossman and Resch (1995) offered unique contributions to the mentoring field. For example, the study by Tierney, Grossman and Resch (1995) serves as a landmark research study in the mentoring field due to its rigorous, large-scale research design and significant findings regarding community-based mentoring. The study by Aiello (1988) is the only published intervention research that focused on studying the impact of a school-based mentoring/tutoring program, not affiliated with BBBS, based at a middle school for underachieving adolescent students. The study by
Slicker and Palmer is the only study that examined the sole impact of a school-based mentoring program for high school students. However, other articles studied by DuBois et al. (2002) are not highlighted in this chapter either because: their focus was on work-based mentoring; peer to peer mentoring (high school student mentoring a younger student) or; featured small community-based mentoring programs that had a weaker research design when compared to the more rigorous, large-scale research design utilized by Tierney, Grossman and Resch (1995).

The meta-analysis of youth mentoring programs showed that while mentoring programs were making a positive difference, the overall effect size was relatively small. “The average estimated effect sizes of .14 and .18 obtained under the assumptions of fixed and random effects, respectively, are consistent with only a small effect for mentoring programs” (DuBois et al., 2002, p. 187). However, the researchers also found that mentoring programs with the highest positive effects were those that featured “ongoing training for mentors, structured activities for mentors and youth as well as expectations for frequency of contact, mechanisms for support and involvement of parents and monitoring of overall program implementation” (DuBois et al., 2002, pp. 187-188).

The major contribution of this meta-analytic review was that it highlighted the fact that there is a large variety of mentoring programs, some of which may differ widely in their program effectiveness. By including strong mentoring programs along with less effective programs in their meta-analysis, the researchers provided a realistic portrayal of youth mentoring. The researchers also showed that there are specific program features that have a more significant impact on positive youth outcomes.
The limitations of this study were that, while it included community, school and work-based mentoring, there was not an in-depth discussion of how these three different types of mentoring compare to one another in regards to their overall effectiveness. Furthermore, the studies were not broken down by the age of mentees. Therefore, we don’t know how elementary, middle and high school age mentees differ in their response to mentoring. In addition, this meta-analysis focused on research reports from 1970 to 1998. The expectations for mentoring programs have grown since this period of time, and thus the mentoring field would benefit from a more current meta-analysis that compared the impact of school, community and work-based mentoring programs that utilize the best practices identified in this meta-analytic review.

**Qualitative Evaluation of Project RESCUE**

Anda (2002) made an important contribution to the mentoring research field because she conducted one of the first published qualitative studies regarding the impact of the community-based mentoring relationship experience for mentors and mentees participating in Project RESCUE. (Reaching Each Student’s Capacity Utilizing Education) program (Anda, 2002, p. 98). Mentors were firefighters and other community members who met one-on-one on a weekly basis with their mentees in Los Angeles County.

The participants in this study included 18 mentees (9 African-American, 8 Latino and 1 African-American and Latino) and 3 mentors (“the fire chief, a Latino male, and an African American female firefighter, both in their early forties.”) (Anda, 2002, p. 99). A pre test audio-taped interview was conducted at the beginning of the academic year, using the same set of open ended questions for both mentors and mentees. Mentors and
mentees were interviewed separately from one another and all pre-test interviews were conducted by the study’s author in the common meeting room at the fire station. The post-test interview utilized the same set of questions used in the pre-test, and occurred in June. Mentees completed a written version of the post-test interview rather than the audio-taped interview because, for reasons not explained in the research report, “the youth were not available for individual interviews” (Anda, 2002, p. 100). In addition to the pre and post-test qualitative data, the study’s author also obtained data about the mentees from caseworkers supervising the Project RESCUE mentoring program.

This qualitative study offered insightful information about the mentoring relationship experience for both mentees and mentors. Youth stated that having a mentor helped them improve their behavior by showing “how to stay out of trouble and respect others and stop the violence” and that mentors also helped them with life skills by helping them get jobs, assist with communication skills, obtain a driver’s license and help with school work (Anda, 2002, pp. 103-104).

Mentors also described their experiences working with youth in positive terms, with one mentor stating that “my understanding of the youth in the community changed. I sort of had a negative impression of the kids in the community until I got to know them in the program” and another stated that her role as a mentor “offered a growth experience because of the ability to have an influence on somebody else, share similar experiences and grow from that” (Anda, 2002, p. 109). Overall, this study showed that the mentoring pairs felt that their relationship “is a special type of friendship” and was a “positive and growth enhancing” experience for both mentors and mentees (Anda, 2002, p. 110).
Even more compelling was the descriptive case study data that showed the potential impact of mentoring on youth over a period of time. For example, after the completion of mentoring all mentees either were registered for college or remained in high school (Anda, 2002, p. 97). In addition, “fifteen of the mentees completed a two-week job readiness course, and six had already obtained employment” (Anda, 2002, p.110). This research study also provided four case examples to illustrate that mentees experienced “significant prosocial changes and developmental growth” over a more than two year period of time as a result of working with a mentor (Anda, 2002, p. 110).

As meaningful as these results are regarding the impact of mentoring, the overall trustworthiness of this research is mixed. In order to evaluate trustworthiness, qualitative research looks at credibility, transferability, and dependability rather than the respective quantitative terms known as internal validity, external validity, and reliability (Grinnell & Unrau, 2008, pp. 454-455).

In order to establish credibility, Anda (2002) triangulated her data sources by using three different groups of people (mentors, mentees and case managers). She also provided a rich and in-depth description of what mentors and mentees said during their qualitative interviews. Anda (2002) also triangulated her data collection methods by obtaining data from interviews, program case management data, as well as school records. However, there was only a single interview held with mentees, so we don’t know if the responses of participants might be consistent over time. Anda (2002) did not indicate in her research report whether or not she checked with participants or colleagues regarding her data collection techniques, data analysis or the overall accuracy of her findings (such as using member checks or peer debriefing).
Although the researcher provided a thorough and rich description of the participants and the Project RESCUE mentoring program, the study had limited transferability. She was also cautious in generalizing the results of her study stating that “the qualitative nature of the program evaluation and the non-representative sample limit the generalizability of the findings” (Anda, 2002, p. 116).

Dependability was established in part through the researcher providing an in-depth description of her sample, as well as providing an audit trail of her data collection procedures. However, she did not conduct member checks with participants in order to determine the accuracy of the transcripts or the overall conclusions of the study. In addition, the researcher did not indicate in her research report that she established intracoder reliability or intercoder reliability where she conducted coding checks with colleagues.

An overall strength of this study was that it provided rich and in-depth qualitative data regarding the impact of mentoring on at-risk youth. The research report also included qualitative case studies over time which had not been seen previously in the mentoring research field. However, this research was limited to only high school students so we don’t know the potential impact of this type of community mentoring on middle or elementary school youth. It would have also been helpful to obtain qualitative data from parents, teachers and case workers in order to determine the full impact of this mentoring experience for youth.

**Youth Friends: School-Based Mentoring**

Nearly seven years after one of the first studies conducted on school-based mentoring by Slicker & Palmer (1998), Portwood, Ayers, Kinnison, Waris and Wise
(2005) conducted an important study on school-based mentoring that investigated the impact of the YouthFriends mentoring program on mentee substance use, grades, school connection and attitudes about self (Portwood et al., 2005, 132). This study differed from the earlier study conducted by Slicker and Palmer (1998) because it focused on students from 4th to 12th grade, and included the impact of school-based mentoring on substance use and school connection. In addition, it had a larger number of participants.

The YouthFriends program was located across several school districts in the Midwest. The researchers selected five school districts to participate in this study. These school districts were chosen because they “were identified by YouthFriends staff as representing the program as it was designed to be implemented. Participating districts were at least 75% compliant with program data reporting requirements, had been active in the program for at least one year; and maintained at least 25 one-to-one matches between students and volunteers” (Portwood et al., 2005, p. 132).

The researchers used a non-equivalent control group design. A total of 170 students (52% female and 48% male) from five school districts (105 elementary school students, 38 middle school students and 22 high school students) agreed to participate in this study (Portwood et al., 2005, p. 133). The YouthFriends questionnaire was developed by the researchers. Instruments that measured concepts such as substance use, school connection, attitudes towards self and academic performance “were selected from among widely accepted psychometrically validated instruments and then compiled into the YouthFriends Evaluation Study Questionnaire” (Portwood et al., 2005, p. 134).

The findings from this study revealed that mentored youth did show a higher level of school connection when compared to students in the control group (Portwood et al.,
There was not a statistically significant difference in substance use for mentored youth versus non-mentored youth. However, these results should be re-examined in future studies because only older youth (35% of the sample) were given the substance use questions (Portwood et al., 2005, p. 138). Although there was a positive difference for mentored male youth in regards to an improvement in self-esteem, there was not a statistically significant difference found in mentored girls (Portwood et al., 2005, p. 142). The authors state that “the effects of mentoring by gender should continue to be explored to determine not only how outcomes may differ, but also how various components of the mentoring relationship (e.g., type of mentoring activity, duration) may impact these outcomes” (Portwood et al., 2005, p. 142). Finally, there was no statistically significant difference between mentored youth and control group participants in regards to academic performance. However, mentored youth with a grade point average of 2.0 or lower showed a significant difference in improved grades when compared to control group youth (Portwood et al., 2005, p. 143).

One of the limitations of this study was that the different age groups were not divided equally. For example, there were 105 elementary school participants but only 22 high school youth participating in the study (Portwood et al., 2005, p. 133). Although there was a younger and older version of their survey instrument, certain questions such as substance use were left off of the younger version so the overall sample responding to the substance use question was quite small (only 35% of the sample) (Portwood et al., 2005, p. 138). Future studies might want to examine specific questions geared towards specific age groups with an equal number of participants in each group. In addition, it
would have been helpful to obtain data from mentors, parents and teachers regarding the potential impact of mentoring.

**School-Based Mentoring**

A major contribution to the mentoring research field was made by Herrera, Baldwin-Grossman, Kauh, Feldman, McMaken and Jucovy (2007) in their evaluation of the Big Brothers Big Sisters school-based mentoring program. The BBBS School-Based Mentoring program currently serves approximately 126,000 students across the nation (Herrera et al., 2007, p. 1). In this study, school-based mentoring was defined as youth meeting with a trained BBBS mentor at least once a week in a supervised setting at school (Herrera et al., 2007, p. 20).

The research questions posed by this study included the following: What are the characteristics of the school-based mentoring programs? How do youth benefit from school-based mentoring? (Herrera et al., 2007, p. 2). In order to study these research questions, the authors conducted a fifteen month study of 1,139 youth that ranged from grades 4 through 9. The study focused on ten BBBS agencies and more than 70 schools across the nation (Herrera et al., 2007, p. 2). A total of 1,139 students were recruited into the BBBS school-based mentoring programs “as they normally are - mostly through school referrals” (Herrera et al., 2007, p. 2). A lottery was used to randomly select half of the 1,139 youth to receive a mentor, while the remaining youth were placed on a waiting list where they received a mentor 15 months later (Herrera et al., 2007, p. 2). Teacher and youth surveys were distributed at three different times during the study and measured behavioral, social and academic outcomes (Herrera et al., 2007, p. 2).
The results of the study found significant positive results for the students at the end of the first year. There was an improvement in their academic performance, a reduced number of unexcused absences, avoidance of skipping school, less behavior problems at school, an increased sense of academic self-efficacy, a belief that they would attend and finish college, and were more likely to report the presence of a non-parental adult as a source of support in their lives (Herrera et al., 2007, p. 3). However, it was difficult to assess the long-term effects of mentoring since nearly a third of their entire mentee sample either left the school district or transitioned to the next middle or high school level (Herrera et al., 2007, p. 3).

One of the limitations of this study was that it focused exclusively on BBBS school-based mentoring programs. However, it would have been helpful to also include other types of school-based mentoring (not run by BBBS) in order to compare their overall effectiveness. In addition, the sample in this study focused on students in grades 4 to 9. It would have been helpful to study each school separately (elementary, middle and high school) in order to compare the impact of mentoring on different age groups. Finally, this study did not include any parent feedback regarding how school-based mentoring may have impacted their child’s behavior at home.

**Synthesis of Theoretical Literature**

Thus far, the literature does not provide consistent support for school-based mentoring. However, when one takes into account key theoretical concepts, it is clear to see why. School-based mentoring that focused primarily on academics has shown less positive results (Aiello, 1988; Slicker & Palmer, 1998; and Portwood et al., 2005), when compared to school-based mentoring that has utilized a more comprehensive approach.
(Herrera et al., 2007). The theoretical literature strongly supports the use of a comprehensive school-based mentoring approach that contains a strong social-emotional perspective.

Ecological systems theory states that an individual’s outcomes are dependent on a number of variables including society, culture and family background (Haensley & Parsons, 1993, p. 208). Keller (2005) demonstrated that key concepts of ecological systems theory, including family, culture and society, interact with one another and how these relationships had the potential to support or weaken the mentoring relationship (p. 169). For example, children who have a parent/guardian who actively supports the mentoring match (communicating regularly with the mentor with information about their child and any family or cultural issues, as well as offering words of support about the mentor in front of their child) helps to strengthen the mentoring relationship because the mentor has a deeper understanding of issues at home and the child may be more likely to trust their mentor as a result of hearing their parent support the mentor (Keller, 2005, pp.177-179). In contrast, children who have a minimally invested mentor and/or experience a lack of support from their parent or the mentoring program coordinator, may in turn, view the mentoring relationship as less important (Keller, 2005, pp. 179-181).

Attachment theory also supports a more comprehensive school-based mentoring approach due to its emphasis on the relationship bonds between children and their parent/guardian and how these attachments strongly influence the connection and success of all future relationships (Payne, 2005, p. 81). According to attachment theorists, youth who have developed an attached relational bond with their parent or guardian are better equipped to develop a strong relationship with mentors. In contrast, children who have
not had the experience of an attached bond with parents or guardians may struggle in developing relationships with mentors (Zimmerman, Bingenheimer & Behrendt, 2005, p.144). If a child has a weaker bond with their parent or guardian, then a mentoring match will benefit from receiving extra support from the mentoring program including: More intensive case management for the child; additional training offered to the mentor; and greater attention paid to the quality and type of mentoring match activities (Zimmerman, Bingenheimer & Behrendt, 2005).

A review of the attachment theory literature also reveals that perceptions of relationships by youth have the capacity to change based upon the presence of a consistently supportive person in a child’s life. Styles and Morrow (1995) provide examples of youth who have strong emotional attachments with their mentors who gradually develop a more positive and trusting relationship with parents and peers in their life. These improved relationships have the potential to impact a child’s self-esteem, academic performance, attendance and value placed upon school (Rhodes, Grossman & Resch, 2000, p. 1663).

Resiliency theory also provides strong support for a comprehensive school based mentoring approach. Its key principles indicated how certain factors in youths’ lives help them succeed in spite of negative risk factors (Zimmerman, Bingenheimer and Notaro, 2002, p. 223). According to resiliency theorists, there are compensatory and protective factors that may help protect youth from challenges in their life (Zimmerman, Bingenheimer & Behrendt, 2005, p. 146). Mentors have the potential to exert a positive influence by providing consistent guidance and support to their mentees. As a result, children may develop improved self-confidence and stronger social skills which help
when adverse events occur in their life. In addition, mentoring relationships have a compensatory effect in that mentors have the potential to counteract some of the negative effects of risk factors such as negative peer influences. For example, if a child is being pressured by friends to use drugs, this negative influence can be counteracted by the positive influence and support of a mentor (Randolph & Johnson, 2008, p. 179; Zimmerman, Bingenheimer & Behrendt, 2005, p. 146).

Rhodes et al. (1992) provided additional support for mentoring programs that utilize a resiliency theoretical approach as a result of her study that examined the potential impact of natural mentors in the lives of young African American mothers. The results of this study showed that those who had natural mentors reported higher levels of social support, experienced less depression and were more resilient in dealing with relationship problems when compared to other young mothers in the study without a mentor (Zimmerman, Bingenheimer & Notaro, 2002, p. 222). In addition, a more recent study utilizing a resiliency theoretical framework was conducted with 770 adolescents where they interviewed each youth and asked whether or not they had a natural mentor. Fifty two percent of the adolescents studied stated that they had a natural mentor and those with a mentor “were less likely to smoke marijuana or be involved in non-violent delinquency and had more positive attitudes towards school” when compared to those without a natural mentor (Zimmerman, Bingenheimer & Notaro, 2002, p. 221).

In summary, the four theories discussed in this section provide a useful framework that strongly supports comprehensive school-based mentoring programs that include social-emotional considerations when working with youth and their mentors. Ecological systems theories encourage mentoring programs to consider how key factors
such as family, culture and society, may influence youth outcomes in mentoring relationships. Attachment theory shows that school-based mentoring programs should also consider the prior relationship bonds between children and their parent or guardian and how they might influence the mentoring relationship. Resiliency theory shows how protective and compensatory factors can help individuals develop a resiliency to difficult challenges in their life. Resiliency theory is especially relevant to promising interventions on school-based mentoring due to its emphasis on how mentors can help youth build resiliency and succeed in school and in their community despite significant risk factors in their life.

**Synthesis of Research Supporting Comprehensive School-Based Mentoring**

A comprehensive school-based mentoring approach should include specific components identified by mentoring researchers as strong predictors of positive outcomes for mentoring programs. Research studies conducted by Tierney, Baldwin-Grossman and Resch, 1995; Herrera et al., 2000; DuBois, Holloway, Valentine and Cooper, 2002; and Herrera et al., 2007 recommend the following best practices for a comprehensive school-based mentoring program: 1) careful screening of all mentors by mentoring program; 2) time and attention on matching pairs based upon mutual interests, personality and personal background; 3) initial and on-going training of mentors; 4) clearly communicated expectations of frequency and duration of contact for mentor matches; 5) structured mentor match activities; 6) regular support and supervision of mentors by mentoring program coordinators; and 7) consistent communication between mentors, parents and teachers.
Research evidence from mentoring studies conducted over the last two decades provides strong support for each of the above best practices. Tierney, Baldwin-Grossman and Resch (1995) recommend that a thorough mentor screening is required in order to help ensure the safety of youth, as well as to recruit mentors who are more likely to keep their commitment to youth (p. 31). Their recommendation was based upon the positive results found from BBBS programs that utilized thorough mentor screening procedures. In a study of relationship development with community and school-based mentoring programs conducted by Herrera et al. (2000), programs with more rigorous screening procedures were more likely to have strong mentor matches when compared to programs with less stringent screening requirements (p. 28). Anda (2001) also recommends careful screening of mentors as a result of the findings from her qualitative study of a successful mentoring program. She writes “besides screening for criminal history, each program needs to establish general eligibility criteria for the adult volunteers, depending upon the aims of the program and the characteristics of the youth they serve” (p. 114). A historical review of mentoring research literature also showed that the above mentoring programs with thorough screening procedures had more positive outcomes (Tierney, Baldwin-Grossman and Resch, 1995; Herrera et al., 2007) when compared with mentoring programs with fewer screening requirements (Aiello, 1988; Slicker and Palmer, 1998; and Portwood et al., 2005).

Research also supports the best practice of matching procedures that take into account the mutual interests, personality and personal background of mentors and youth. Tierney, Baldwin-Grossman and Resch (1995) in their study of the successful Big Brothers Big Sisters program state that effective mentoring programs should have
“mentoring procedures that take into account the preferences of youth, their family and the volunteer, and that use a professional case manager to analyze which volunteer would work best with which youth” (p. 31). Anda (2002) recommends that for successful mentoring matches to be made, the mentoring program coordinator needs to get acquainted with mentors and youth and use that knowledge to create mentor matches based upon personal background, interests and personality (p. 114). Furthermore, Herrera et al., (2002) in their study of successful community and school-based mentoring programs found that the strongest mentoring relationships occurred when the mentor and mentee shared the same interests. In contrast, they found mentors in weak mentoring relationships did not have shared interests with their mentee (p. 28). A review of the historical literature on mentoring shows that mentoring programs with careful matching procedures have more positive outcomes (Tierney, Baldwin-Grossman and Resch, 1995; Anda, 2002; and Herrera et al., 2007) when compared those mentoring programs who spend less time and attention on matching procedures (Aiello, 1988; Slicker and Palmer, 1998; and Portwood et al., 2005).

DuBois, Holloway, Valentine and Cooper (2002) provide research support for the remaining key components of a comprehensive mentoring program as a result of their meta-analytic review of 55 mentoring programs. They discovered that the mentoring programs with the most positive outcomes included initial and on-going training of mentors (DuBois, Holloway, Valentine and Cooper, 2002, p. 187). Additional support for providing orientation training for mentors can also be found in the study conducted by Tierney, Baldwin-Grossman and Resch (1995). They discovered that the most effective BBBS mentoring programs had a strong mentor training component that included
relationship building tips and communication skills. Herrera et al., (2000) also found that the strongest mentoring relationships occurred in mentoring programs that contained more than six hours of pre-match training (p. 28). Furthermore, Herrera et al., (2007) found in the study of BBBS school-based mentoring programs, that mentor programs with the highest level of mentor match relationship quality had more pre and post-match training for mentors when compared to mentoring programs with lower levels of mentor match relationship quality. Anda (2001) believed that the success of the Project RESCUE community-based mentoring program depended upon including the key component of providing an orientation training for mentors with topics such as: “their roles and responsibilities, relevant developmental issues, the particular needs and problems of this youth population, the goals of the program, and communication skills” (p. 114).

DuBois, Holloway, Valentine and Cooper (2002) in their meta-analytic review also found that mentoring programs with the most positive outcomes had clear expectations for frequency of contact between mentors and youth (p. 187). A historical review of the mentoring literature reveals that school-based mentoring programs have mentor matches that are expected to meet one hour a week or less during the academic year (Aiello, 1988; Slicker and Palmer 1998; Portwood et al., 2005; and Herrera et al., 2007). However, community-based mentoring programs often require mentors to meet with youth four or more hours a week for one year or more (Tierney, Baldwin-Grossman and Resch, 1995; and Anda, 2001). Herrera et al., (2000) in their study of relationship building in community and school-based mentoring programs found that mentors in the strongest mentoring relationships met with youth more than 10 hours each month (p. 28).
In contrast, mentors who met with youth less than 3 hours each month had the weakest mentoring relationship (p.28). Grossman and Rhodes (2002), using data from the 1995 study of BBBS, looked at how the duration of mentoring impacts youth outcomes. They found that the most positive results in behavioral, social-emotional and academic outcomes occurred when youth were in a mentoring relationship for one year or longer (p. 213). In contrast, youth whose mentoring relationships lasted for six months or less “reported decrements in several indicators of functioning, including significant increases in alcohol use” (p. 213). As a result of the findings from these research studies, a comprehensive school-based mentoring program should require mentors to meet with youth for at least one hour each week, as well as to continue the mentoring program throughout the summer in order to extend the duration of mentoring.

Research studies also provide evidence that mentoring programs should include the key component of structured mentor match activities. DuBois, Holloway, Valentine and Cooper (2002) found in their meta-analytic review of mentoring programs that those with the most positive outcomes for youth offered on-going structured mentoring match activities (p. 187). Herrera et al., (2000) discovered that mentors in the strongest mentoring relationships were in mentoring programs where there were a variety of mentoring activities and that youth also had a significant role in choosing mentoring activities (p. 28). Anda (2001) felt that a particular strength of the community-based Project RESCUE program was the rich variety of mentoring activities that were offered. These activities might be attending the movies or attending a group camping trip (p. 115). Mentoring programs featured in the historical review of mentoring literature reveal that those programs that consistently offer a variety of mentoring activities have the most
positive outcomes for youth (Tierney, Baldwin-Grossman and Resch, 1995; and Anda, 2001) and those with limited mentoring activities have less positive outcomes (Aiello, 1988; Slicker and Palmer, 1998; and Portwood et al., 2005).

The research literature also provides support for the best practice of providing regular mentor supervision by mentoring program coordinators. For example, Tierney, Baldwin-Grossman and Resch (1995) found that the most effective BBBS programs provided intensive support and supervision of mentor matches (p. 31). Herrera et al., (2000) in their study of relationship building in community and school-based mentoring programs found that mentors in the closest mentoring relationships had support and supervision at least once or more a month by mentoring program staff (p. 28). Anda (2001) stated that support and supervision of mentors is a key component of mentoring programs and that “staff support for mentors is important to reduce a sense of isolation and to encourage retention” (p. 115). DuBois, Holloway, Valentine and Cooper (2002), as a result of their meta-analytic review of mentoring programs, state that offering structured mentoring activities is a predictor of positive youth outcomes for mentoring programs (p. 187). A review of the mentoring literature also shows that mentoring programs that did not offer structured mentoring activities had less positive results (Aiello, 1988; Slicker and Palmer, 1998; and Portwood et al., 2005) when compared to mentoring programs that included mentoring activities as a key component (Tierney, Baldwin-Grossman and Resch, 1995; Anda, 2001; and Herrera et al., 2007).

Research on successful mentoring programs also provide support for encouraging on-going communication between mentors, parents and teachers as a key component of mentoring programs. Tierney, Baldwin-Grossman and Resch (1995) found that effective
BBBS mentoring programs had a case manager who had regular contact with parent or guardian, mentor and student (p. 31). DuBois, Holloway, Valentine and Cooper (2002) also stated that involvement of parents in the mentoring program is a predictor of positive outcomes for mentoring programs (p. 188). Herrera et al., (2007) also discovered that mentors reported higher levels of closeness with youth when they had frequent communication with teachers (p. 28). The school-based mentoring programs reviewed in this literature review had consistent communication with teachers but limited contact between the mentoring program coordinator and parent or guardian (Aiello, 1988; Slicker and Palmer, 1998; Portwood et al., (2005; and Herrera et al., (2007). In contrast, community-based mentoring programs tend to have regular communication with parents but less contact with school staff (Tierney, Baldwin-Grossman and Resch, 1995; and Anda, 2001).

To date, no one has tested a comprehensive school-based mentoring program that is grounded in (1) ecological systems theory, (2) attachment theory, and (3) resiliency theory and includes the evidence-based practices of (1) careful screening of all mentors by mentoring program, (2) time and attention on matching pairs based upon mutual interests, personality and personal background (3) provision of initial and on-going training of mentors, (4) clear communication regarding expectations of frequency and duration of contact for mentor matches, (5) structured mentor match activities, (6) consistent support and supervision of mentors by mentoring program coordinator, and (7) encourage regular communication between mentors, parents and teachers. Thus, based on the theoretical findings and forgoing research, the hypotheses posed by this comprehensive school-based study (CSBM) are as follows:
Hypotheses

1) Students who receive CSBM will have greater gains in academic performance than those in the control group.

2) Students who receive CSBM will have a greater decrease in attendance problems than those in the control group.

3) Students who receive CSBM will have a greater decrease in behavioral referrals than those in the control group.

4) Students who receive CSBM will have a greater increase in resilience than those in the control group.

5) Students who receive CSBM will have a greater increase in school connection than those in the control group.

Operational Definition of Comprehensive School-Based Mentoring Program

The CSBM program utilizes a school-based mentoring approach that requires the majority of mentoring activities to take place at school. It is designed for at-risk students in grades 6, 7 and 8. Potential student mentees were recruited from referrals made to the mentoring program coordinators by staff members at Herberg Middle School, as well as from students who expressed an interest in participating in the mentoring program. Mentors were recruited from the following areas: local colleges; staff members at Herberg Middle School; retired teachers; Berkshire Life (school-business partner); senior centers; and local cultural, business and volunteer organizations. Mentors were expected to provide at least one hour of mentoring each week during the academic school year. All mentors were strongly encouraged to attend an initial two hour mentor training held by the local Big Brothers and Big Sisters at the school. This training covered such topics
as: the mentoring process; confidentiality issues; diversity; challenges of mentoring; and mentor expectations. In addition, mentors were offered on-going support by the two staff coordinators of the program. Finally, monthly trainings on school-based mentoring topics were also offered during the school year.

Mentoring activities in the CSBM program included: playing a sport in the school gymnasium; providing on-going emotional support and encouragement; sharing lunch or breakfast at school; conversing; providing academic assistance as needed; and sharing other fun activities such as crafts or taking a walk on the school grounds. In addition, group mentoring events took place at the school such as a mentor/mentee breakfast, holiday gatherings and dinners for parents, mentors and mentees.

*Operational Definitions of Dependent Variables*

The dependent variables are academic performance, attendance problems, behavioral referrals, resilience, and school connection. Academic performance is operationally defined by (1) grade point average, (2) Massachusetts Comprehensive Assessment System (MCAS) English Language Arts score, and (3) MCAS math score. Attendance problems are operationally defined by (1) days absent from school and (2) days tardy to school. Behavioral referrals are operationally defined by (1) number of detentions, (2) number of in-school suspensions, and (3) number of out of school suspensions. Resiliency is conceptually defined as the perceived level of psychological resilience in coping with adverse life circumstances (Prince-Embury, 2008). It is operationally defined by the student self-efficacy, optimism and adaptability scores on the Resiliency Scale for Children and Adolescents: Sense of Mastery (MAS). School connection is conceptually defined as children’s attitude to school, teachers and students
(Reynolds & Kamphaus, 2004). It is operationally defined by student scores on the Behavior Assessment System for Children – Version 2 (BASC-2).

**Need for Intervention Research on School-Based Mentoring**

Given the gaps found in mentoring research and need to further test key theoretical variables, there are compelling reasons for more intervention research on school-based mentoring. Despite the popularized movement of mentoring as depicted in President Obama’s call for mentoring work, the paucity of systematic studies with middle school youth prompts the need for intervention research regarding the impact of mentoring on adolescents. The CSBM study will help address a key gap in mentoring research by studying the impact of a comprehensive school-based mentoring program, guided by a resiliency theoretical framework, and features best practices recommended by mentoring researchers.
Chapter 3

Methods

A review of the mentoring literature reveals that school-based mentoring has potential to make a significant and positive difference for adolescents. Therefore, these findings provide strong impetus to test school-based mentoring programs in middle schools. Upon receiving consent from the Institutional Review Board (IRB), steps were taken to initiate a study assessing the impact of the CSBM program.

The first part of this chapter will provide a description of the research design used by this Comprehensive School-Based Mentoring (CSBM) study. The next part of this chapter will discuss the sampling approach utilized; a description of participant selection includes: who they were; where they were recruited from; and the number and characteristics of participants. The next section describes the psychometric properties of the measures used, followed by a description of the procedures used to collect data. The final section discusses the statistical analyses plan that will be used to test the hypotheses.

Research Design

To test the hypotheses posed by the CSBM study, a non-equivalent comparison group design was used. This type of research design was selected because the independent variable, school-based mentoring, is categorical, and the dependent variables are continuous. The dependent variables in the CSBM study are: (1) attendance, (2) school behavior, (3) grade point average (GPA), (4) resilience, and (5) school connection. A non-equivalent comparison group design was selected because random assignment was not possible due to the concern of depriving students who urgently need mentors. Instead, all at-risk students for behavioral and academic problems, recommended by
middle school staff, were placed in the CSBM program. Additional students who were not matched with a mentor, due to a lack of available mentors, were placed on a waiting list or control group. The study and control group are non-equivalent because, without random assignment, it is not possible to ensure that both groups are equivalent to one another in regards to the pretest values of the dependent variables.

The CSBM study will include age and gender as the control variables. Age is important because mentoring research literature supports the inclusion of this variable. Herrera et al. (2000) found that mentors matched with middle and high school youth experienced less close mentoring relationships when compared to mentors matched with elementary school children (p. 9). They stated that these findings may be due to mentors having less in common with older youth, mentors not feeling as competent relating to older mentees and, consequently, needing additional training to help create closer mentoring relationships (p. 9). Grossman and Rhodes (2002) also discovered that mentoring matches in the community-based Big Brothers Big Sisters (BBBS) program with 13 to 16 year olds “were 65% more likely to break up in each period than matches with 10-12 year olds” (pp. 211-212). They explain that older adolescents tended to have briefer mentoring relationships possibly because developmental changes cause older adolescents’ to desire autonomy from adults and, therefore, may be less compliant and emotionally accessible with their mentor (p. 214). However, Herrera et al. (2007) in a study of school-based BBBS programs found that middle and high school students with mentors may benefit more than elementary school students in regards to their academic performance (p. 40). These findings from the mentoring literature indicate that age should be included as a control variable because it has the potential to influence the
closeness and duration of mentoring relationships, as well as may have an impact on mentee academic performance.

Gender is also important because the mentoring research literature shows that this variable can influence the dependent variables posed by this study. Tierney, Grossman and Resch (1995) in their study of the BBBS program found that gender had a significant impact on academic performance, behavior and attitude towards school. Specifically, although both males and females benefited from having a mentor, the effects of mentoring on grade point average, school behavior and attendance were larger for Little Sisters when compared to Little Brothers (p. 23). Herrera et al. (2007) stated that while male and female mentees in school-based BBBS programs did not differ significantly from one another in regards to their academic performance, there were “suggestive patterns of effects that perhaps warrant more research in that girls with school-based mentors may benefit more than boys” (p. 40). Portwood et al. (2005) in their study of the Youth Friends school-based mentoring program discovered that while there was an improvement in self-esteem for male mentees, there was not a statistically significant increase in self-esteem for female mentees (p. 142). They write that “based on these findings, the effects of mentoring by gender should continue to be explored to determine not only how outcomes may differ, but also how various components of the mentoring relationship (e.g., type of mentoring activity, duration) may impact these outcomes” (p. 142).

Participants

The sample for this study contains at-risk students from an urban middle school in Western Massachusetts. Students were considered to be at risk if they were receiving
grades of D’s or F’s, as well as having poor attendance and behavior problems at school. The total sample of 83 students were 53 percent males (n=44) and 47 percent females (n=39). The ages represented in the sample are as follows: 38% 11-year olds (n=31); 31% 12-year olds (n=26); and 31% 13-year olds (n=26). The distribution of race in the sample was 15% African-American (n=12); 72% Caucasian (n=60); and 13 percent Hispanic (n=11). Table A presents the distribution of the various demographic variables.
Table 1: Distribution of Student Demographic Variables

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
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<tr>
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<td><strong>Grade:</strong></td>
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<td>6(^{th}) Grade Students</td>
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<tr>
<td>7(^{th}) Grade Students</td>
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<td>8(^{th}) Grade Students</td>
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<tr>
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<td>72</td>
</tr>
<tr>
<td>Hispanic</td>
<td>11</td>
<td>13</td>
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</tbody>
</table>
A chi square was conducted in order to determine if the distributions of gender, grade and race/ethnicity in the sample differed from the school population. According to the Massachusetts Department of Education (DOE), enrollment by gender (2009-2010) at Herberg Middle School (N=678) is 52% male and 48% female. (doe.mass.edu/profiles, 2010). The $X^2$ results for gender in the sample was 0 with an $X^2$ criteria 3.84 ($0<3.84$) and, therefore, can conclude that gender in the sample was not significantly different from the school.

The Massachusetts Department of Education (DOE) also reports enrollment by grade (2009-2010) at Herberg Middle School includes: sixth grade 32%; seventh grade 33%; and eighth grade 35% (doe.mass.edu/profiles/student, 2010). The $X^2$ results for grade in the sample was 5.92 with an $X^2$ criteria 5.99 ($5.92<5.99$) and, thus, can conclude that grade in the sample was also not significantly different from the school.

Further, the Massachusetts Department of Education reports that enrollment by race/ethnicity (2009-2010) at Herberg Middle School is as follows: African American 8.0%; Asian 0.7%; Hispanic 5.2%; Native American 0.1%; White 83.5%; Multi-Race, Non-Hispanic 2.5% (doe.mass.edu/profiles/student, 2009). The $X^2$ results for the sample was 15.3 with: African-American (5.2); Asian (.5); Hispanic (6.6); Native American (0); Multi Race (2); and Caucasian (1). The $X^2$ for df=4 at alpha =.05 is 11.07. Because $X^2_{observed}=15.5>11.07=X^2_{criteria}$, we can conclude that race/ethnicity was significantly different from the school. However, the higher representation of African-American and Hispanic students in the study was expected because research shows that these two groups continue to be at higher risk when compared to Caucasian students. For example, the U.S. Bureau of Labor Statistics reports that “Black (12 percent) and Hispanic (13
percent) youth were more likely to be neither enrolled (in school) nor working than were White, non-Hispanic youth (7 percent)” (Forum on Child and Family Statistics, 2010, p. 15). In addition, Black and Hispanic young adults were less likely to complete high school, 87% and 76% respectively, when compared to White young adults (94%) (Forum on Child and Family Statistics, 2010, p. 15). Black and Hispanic students are also more disadvantaged in their economic circumstances with more than 1 in 3 Black and Hispanic children when compared to 1 in 10 Caucasian Children (Forum on Child and Family Statistics, 2010, p. 6).

The sample size for the CSBM study was comparable to previous research studies that studied the impact of independent school-based mentoring programs for adolescents. The sample size in Aiello’s (1988) study of school-based mentoring had a total of 55 students in the study group and 42 students in the control group (Aiello, 1988, p. 119) while Slicker and Palmer (1998) in their study of school-based mentoring for high school students had a total sample size of 86 10th grade students. In addition, Portwood, Ayers, Kinnison, Waris, and Wise (2005) in their study of the YouthFriends school-based mentoring program had a sample size of 170 at-risk students in five school districts or approximately 35 participants from each school district (p. 134).

The 83 at-risk students were either placed in a study group (n= 42) or on a waiting list (i.e. control group) (n=41). Students were placed in the study group by using nonrandom selection. There were several factors affecting the selection of student program participants, as well as different influences potentially impacting a successful mentoring match. First, approximately 10% of informal mentoring relationships were already in place and teachers volunteering as mentors specifically requested these
students. Therefore, the CSBM program did not want to disrupt these valuable relationships already in place. Second, there were approximately 5% of students in the study group who requested a specific mentor on their own and based upon their level of need, as well as being highly receptive to having a mentor, the program made every effort to match them with their requested mentor. Third, there was a large group of students who were initially referred by administrators and teachers due to their on-going at-risk behavior (failing grades, attendance and/or discipline issues) at school, these students were placed with a mentor they either knew informally or did not know at all. However, because the CSBM facilitators were staff members in the middle school and knew the students and school mentors well, mentoring matches were made according to shared interests or based upon the perception that a student might feel most comfortable with a certain type of mentor (i.e. similarity in gender, cultural background and/or type of personality). However, several at-risk students who were in need of a mentor were unable to be matched due to a finite number of mentors and, thus, had to be placed on a waiting list.

There were 42 mentors with 91% females (n=38) and 9% males (n=4). Mentor ages were as follows: 14% twenty-year olds (n=6); 12% thirty-year olds (n=5); 38% forty-year olds (n=16); 29% fifty-year olds (n=12); and 7% sixty-year olds (n=3). The distribution of race in the mentor sample was 98% Caucasian (n=41); and 2% Mixed Race (n=1). Table B presents the distribution of various mentor demographic variables.
### Table 2: Distribution of Mentor Demographic Variables

<table>
<thead>
<tr>
<th></th>
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<th>%</th>
</tr>
</thead>
<tbody>
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<tr>
<td><strong>Age:</strong></td>
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<td></td>
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<td>Twenty-year olds</td>
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<tr>
<td>Thirty-year olds</td>
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<tr>
<td>Forty-year olds</td>
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<tr>
<td>Fifty-year olds</td>
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<td>7</td>
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<td><strong>Race:</strong></td>
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<tr>
<td>Hispanic</td>
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<tr>
<td>Asian</td>
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<td>0</td>
</tr>
<tr>
<td>Native American</td>
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</tr>
<tr>
<td>Mixed Race</td>
<td>1</td>
<td>2</td>
</tr>
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</table>
**Measures**

This next section of the Methods Chapter will describe how the key variables were measured in the CSBM study. Attendance was measured by the number of days absent and times tardy to school. Pre and post attendance data were retrieved for one year (2009-10) from computerized student records.

Discipline was measured by the number of times a student had out of school suspension (OSS), in house suspension (ISS) and detention. Pre and post discipline data were also retrieved for one year (2009-10) from computerized student records.

Academic performance was measured by student grade point average (GPA), as well as by Massachusetts Comprehensive Assessment System (MCAS) data in both Math and English Language Arts. Pre and post GPA and MCAS data were obtained from computerized student records. The MCAS tests in Math and ELA show strong reliability with Cronbach’s alpha coefficient scores ranging from .85 to .90 (MCAS Technical Report, 2009, p. 136). In addition, “Massachusetts has accumulated a substantial amount of evidence of the criterion-related validity of MCAS tests. This evidence shows that MCAS test results are strongly correlated with relevant measures of academic achievement” (MCAS Technical Report, 2009, p. 145). For example, a positive correlation of 0.75 was shown between the MCAS and the Iowa Test of Basic Skills (ITBS) (MCAS Technical Report, 2007, p. 214). Researchers also found that students who had a proficient or advanced score on the MCAS “tended to score above the 75th percentile on the Stanford 9 Achievement Test” and students with a warning score on the MCAS “consistently averaged below the 25th percentile on the Stanford 9” (MCAS
Resilience was measured with the Sense of Mastery Resiliency Scale for Children and Adolescents (MAS) created by Sandra Prince-Embury in 2005. The MAS was designed for children and adolescents between the ages of 9 to 18 (Prince-Embury, 2005, p. 69). The MAS instrument assesses resiliency by measuring the following three scales: optimism, self-efficacy and adaptability (Prince-Embury, 2005, p. 86). The MAS contains a total of 20 items. Children and adolescents respond by using a five-point Likert scale (0=never, 4=almost always) with a higher score reflecting stronger resiliency in areas such as optimism, self-efficacy and adaptability.

The Cronbach alphas of the MAS subscales with their reliability alpha coefficients are as follows: optimism (.78); self-efficacy (.83); and adaptability (.61) (Prince-Embury, 2005, p. 87). Test-retest reliability was also assessed with a sample of 49 children, ages 9 to 14, who were given the MAS twice with a mean interval of 12 days and intervals ranging from 5 to 61 days (Prince-Embury, 2005, p. 90). The test-retest reliability for the MAS was strong with an overall score of .79 (Prince-Embury, 2005, p. 90). The stability coefficients for the MAS subscales were as follows: optimism (.66); self-efficacy (.78); and adaptability (.61) (Prince-Embury, 2005, p. 91).

Prince-Embury (2005) also provided evidence of convergent and divergent validity by showing that the MAS had both negative and positive correlations with other variables measured by a variety of standardized instruments for children and adolescents. The MAS correlated in predicted directions with the Beck Youth Inventories (BYI-II)
that assess depression, anxiety, anger, disruptive behavior and self-concept (Prince-Embury, 2005, p. 103). “The MAS resiliency scale had significant negative correlations with all of the BYI-II Negative Affect scale scores” and “had significant positive correlations with the Self-Concept scale of the BYI-II (r=74)” (Prince-Embury, 2005, p. 104). In addition, the MAS also correlated in the hypothesized direction with the Piers-Harris 2 instrument. The Piers-Harris 2 measures self-concept for adolescents (Prince-Embury, 2005, p. 106). The MAS scale and subscale scores showed a positive correlation with the Piers-Harris 2 total score with “the Sense of Mastery scale score (r=.60), Optimism (r=.62), and Self-Efficacy (r=.51)” (Prince-Embury, 2005, p. 106). Furthermore, the MAS showed expected negative correlations with the Conners Adolescent Symptom Scale: Short Form (CASS-S). The CASS-S measures conduct and cognitive problems, as well as impulsivity and ADHD for adolescents (Prince-Embury, 2005, p. 108). The MAS score correlated negatively with the CASS-S scores: (conduct (r=-.51); cognitive problems (r=-.45); impulsivity (r=-.37); and Attention Deficit Hyperactivity Disorder (r=-.60) (Prince-Embury, 2005, p. 108).

In addition, criterion group validity was also assessed by comparing how clinical (including anxiety, conduct, depressed and bipolar disorders) and nonclinical groups of children and adolescents scored on the MAS resiliency scale. The results showed that the clinical group had a lower sense of mastery mean score (T=44) when compared to the nonclinical group (T=54) (Prince-Embury, 2005, p. 110). These findings support the hypothesis that children in the clinical group would “report significantly less personal resiliency than nonclinical controls” (Prince-Embury, 2005, p. 111).
School connection was measured by the Behavior Assessment System for Child – Version 2. The BASC-2 was developed by Reynolds and Kamphaus (2004) and was created for elementary, middle and high school students. The BASC-2 for children measures, from the child’s perspective, their behavior both at home and in school. This instrument contains a total of 139 items with 14 subscales (Reynolds and Kamphaus, 2004, pp. 1-3, Reynolds and Kamphaus, 2009, p. 129). Children respond to the first 51 items by answering true or false and then respond to the remaining 88 items by using a four-point Likert scale (1=never, 2=sometimes, 3=often and 4=almost always) (Reynolds and Kamphaus, 2004, pp. 1-3).

The subscales for the BASC-2 for children include: attitude to school; attitude to teachers; atypicality; locus of control; social stress; anxiety; depression; sense of inadequacy; attention problems; hyperactivity; relations with parents; interpersonal relations; self-esteem; and self-reliance (Reynolds and Kamphaus, 2009, p. 129). Reynolds and Kamphaus (2009) state that the internal consistency reliabilities for the BASC-2 subscales are strong “with median values near .80. The most reliable scales, with values in the middle to upper .80s, are attitude to school, atypicality, social stress, anxiety and depression. The remaining scales have reliabilities generally in the middle .70s to lower .80s, with slightly lower figures for somatization and self-reliance” (Reynolds and Kamphaus, 2009 p. 197). In addition, test-retest reliability of the BASC-2 for children was .71 and the strongest test-retest reliabilities were shown in the attitude to school, locus of control and atypicality subscales (Reynolds and Kamphaus, 2009, p.200). The CSBM study will focus on the following BASC-2 subscales: attitude to school; social stress; anxiety; interpersonal relations; self-esteem and self-reliance. The
attitude to school, social stress and anxiety reliability values are in the middle to upper .80’s, with the interpersonal relations, self-esteem and self-reliance reliability values in the middle .70s to lower .80s (Reynolds and Kamphaus, 2009, p. 197).

Convergent validity for the BASC-2 for children was shown due to its positive correlation with other measures of children’s behavior including: the Achenbach System of Empirically Based Assessment Youth Self-Report; Conners-Wells’ Adolescent Self-Report Scale; Children’s Depression Inventory and Revised Children’s Manifest Anxiety Scale; Brief Symptom Inventory; Beck Depression Inventory –II; Minnesota Multiphasic Personality Inventory-2; and the original BASC (Reynolds and Kamphaus, 2009, pp. 213-228). For example, the correlations between the BASC-2 for children and the Achenbach System of Empirically Based Assessment (ASEBA) Youth Self-Report shows that “the correlation between anxiety scales is .83, and correlations between the SRP (BASC-2) and ASEBA scales of depression, social stress, and attention problems are around .70” (Reynolds and Kamphaus, 2009, p. 213). In addition, the correlation evidence between the BASC-2 and the Conners-Wells’ Adolescent Self-Report Scale (CASS) shows that the “CASS Emotional Problems scale correlates highly with SRP atypicality (.74) and anxiety (.70) and with the internalizing problems composite (.69)” and that the CASS also “correlates strongly with a diverse array of SRP scales, including somatization (.68), atypicality (.67), anxiety (.59), sense of inadequacy (.57), and attention problems (.56)” (Reynolds and Kamphaus, 2009, p. 217). Finally, a small sample of children took the original BASC and then a few weeks later took the BASC-2. The correlation between the BASC and the BASC-2 results for children was .51. The
authors write that “the sample at the child level is quite small (N=35), so this result may be an anomaly” (Reynolds and Kamphaus, 2009, p. 228).

Additional validation evidence for the BASC-2 includes scale intercorrelations of the clinical and general norm samples and “show that the pattern and level of correlations are very similar between the two samples. As expected, correlations within clinical scales and adaptive scales are positive, whereas correlations between clinical and adaptive scales are negative” and “in general, scales are moderately correlated with one another” (Reynolds and Kamphaus, 2009, p. 202).

Data Collection Procedures

A total of 83 at-risk middle school students in grades 6, 7 and 8 at Herberg Middle School consented to participate in the CSBM study. Students were recruited from referrals made to the school mentoring program by staff members (administrators, counselors and teachers) at the school. Students were placed in the CSBM group based on their level of need or personal connections already established with staff members who requested to mentor these specific students. Students who did not already have an informal mentoring relationship in place or who were referred to the program shortly after the mentoring pairs were established were placed on a waiting list (i.e., control group). The study and control groups are equivalent groups based on similar inclusion criteria such as poor grades, attendance problems and behavior problems in school.

Consent to participate in the study was obtained by mailing parents of students in the study a copy of the parent consent form. They were asked to sign this parent consent form provided they agreed to have their child to participate in this research project. Upon receiving parent consent, a co-facilitator met individually with students and read the
student consent letter for their review and potential signature. All consent forms were monitored by a co-facilitator of the program, rather than the principal investigator, in order to prevent any participant from feeling coerced to take part.

Upon receiving consent from all participants, all students in the study were asked to complete a set of pretests in September, 2009 and then complete a set of posttests in June, 2010. Thus, all students in the study completed the pretests and posttests of the BASC-II for children and the MAS. The administration of all student surveys, including brief verbal instructions from the principle investigator, took approximately 30 minutes. Students in the study took their surveys in a quiet location and on separate days.

Confidentiality was maintained in several ways, including use of an identification number rather than name on each measure given to students. In addition, the control and study group took their surveys apart from one another so that the survey results were not linked in any way and their responses were kept confidential from each other. Students were asked to hand their completed surveys directly back to the principle investigator of the study. Students were also asked to sit apart from each other during the administration of surveys to ensure the confidentiality of their answers.

Each student in the treatment and control group were asked to complete the BASC-2 for children and the MAS survey for the pretest in September, 2009 and again for the posttest in June, 2010.

In addition, pre and post attendance, discipline and academic performance (GPA and MCAS scores) data were retrieved from computerized student records at the end of the 2010 academic school year by the principal investigator.
**Statistical Analysis**

In order to assess the impact of mentoring on multiple dependent variables, statistical analyses were conducted in four phases. First, data were checked for outliers and for possible data entry errors. In addition, a univariate analyses of pre-test variables were conducted in order to assess pre-test values and scores for normality. Highly skewed variables were transformed into categorical variables. Second, a series of t-tests were done to test for the equivalence of the treatment and control groups on pre-test values and scores for continuous variables and a series of chi-square tests for categorical variables.

The third phase of statistical analysis consisted of a set of multiple regression analyses for continuous variables and logistic regression analyses for categorical variables to assess the impact of the CSBM on each of the dependent variables. Because this study was, in effect, a pilot study, a series of multiple regression analyses were conducted to test whether the CSBM had a significant impact on variable change while controlling for gender and age. A static-score or conditional change panel (Finkel, 1995) was used because some pre-test values of the treatment group were trending towards poorer pretest performance when compared to the control group. This model addressed this by regressing each dependent variable change on treatment group (CSBM versus control), age, and gender.

Because there were three predictor variables, group, age and gender, in each multiple regression analysis there was a risk for type 1 error. Thus, the statistical analysis used modified Bonferroni criteria to determine statistical significance to decrease the risk of identifying relationships by chance. Base level of significance was established by dividing alpha by the number of independent variables (i.e. .05/5=.01); predictor
variables were then ranked from the lowest to highest level of significance. The
significance for each variable was determined by the product of base level of significance
and the rank order of each variable (Simes, 1986).
Chapter 4

Results

A. Descriptives

Participants were 83 students from Herberg Middle School; 42 (%) in the CSBM study group, and 41 (%) in the control group. The sample of students ranged from ages 10.9 to 14.9 with a mean age of 12.5 years. There were a total of 39 female and 44 male students participating in this study. Descriptive information on the student participants is provided below in Table 3. For any variables where range values are not able to be determined, “not applicable” was designated in the table column.

As described on the table, the student participants in the study and control group struggled academically and behaviorally in school. On a 10.0 scale, their Grade Point Average (GPA) was 3.6 and their overall performance was in the Needs Improvement range in MCAS English (233.2) and in MCAS Math (229.4). They also had a high absentee and tardy rate with a mean of 10.5 days absent and 8.7 days tardy. Students in the study and control group averaged the following maximum behavioral consequences: detentions (13); in-house suspensions (11); and out-of-school suspensions (9). As shown on Table 3, the students in this study also performed below average in their resilience (8.3 to 24.3) and school connection (6.9 to 118).
### Table 3

**Descriptives of Pre-Test Variables**

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<th>Variable</th>
<th>N</th>
<th>Mean/Percent</th>
<th>SD</th>
<th>Possible Range</th>
<th>Sample Range</th>
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<td>Study Group</td>
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<td>.503</td>
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<td>Not Applicable</td>
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<td>Age in Years</td>
<td>83</td>
<td>12.5</td>
<td>.977</td>
<td>10-15</td>
<td>10.9-14.9</td>
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<td>Female</td>
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<td>47%</td>
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<td>Not Applicable</td>
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<tr>
<td>Male</td>
<td>44</td>
<td>53%</td>
<td>.502</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>-.123</td>
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<td>Grade Point Average</td>
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<td>.6-8</td>
<td>.658</td>
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<td>MCAS English</td>
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<td>233.2</td>
<td>12.4</td>
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<td>208-258</td>
<td>-.022</td>
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<tr>
<td>MCAS Math</td>
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<td>15.3</td>
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<tr>
<td>Days Absent</td>
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<td>10.5</td>
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<td>Days Tardy</td>
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<td>8.7</td>
<td>12.5</td>
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<td>Detentions</td>
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<td>1.6</td>
<td>2.7</td>
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<td>0-13</td>
<td>1.991</td>
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<td>In-House Suspensions</td>
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<td>.83</td>
<td>1.9</td>
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<td>0-11</td>
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<tr>
<td>Out-of-School Suspensions</td>
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<td>.40</td>
<td>1.4</td>
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<tr>
<td>MAS Optimism</td>
<td>78</td>
<td>16.7</td>
<td>5.1</td>
<td>0-28</td>
<td>6-28</td>
<td>.148</td>
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<tr>
<td>MAS Self-Efficacy</td>
<td>78</td>
<td>24.3</td>
<td>5.8</td>
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<tr>
<td>MAS Adaptability</td>
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<td>-.503</td>
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<td>BASC School Problems</td>
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<td>78-177</td>
<td>.378</td>
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<tr>
<td>BASC Attitude to Teachers</td>
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<td>8.5</td>
<td>4.643</td>
<td>0-25</td>
<td>0-18</td>
<td>.291</td>
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<tr>
<td>BASC Attitude to School</td>
<td>73</td>
<td>6.9</td>
<td>3.976</td>
<td>0-25</td>
<td>0-19</td>
<td>.659</td>
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</table>
B. Univariate Analyses

Prior to testing the hypotheses, univariate analyses were conducted. The first step was to differentiate the proximal and distal variables featured in the CSBM study.

**Description of Proximal and Distal Variables**

The proximal variables include the following composite scales: School problems; internalizing problems; inattention/hyperactivity; emotional symptom index; resiliency and personal adjustment. The subscales include: Attitude to school; attitude to teachers; atypicality; locus of control; social stress; anxiety; depression; inadequacy; attention problems; hyperactivity; parent relations; interpersonal relations; self-esteem and self-reliance. These scales and subscales are identified as proximal variables because they are expected to change first as a result of the CSBM intervention.

The distal variables include: Grade point average; MCAS English and Math scores; days absent; days tardy; detentions; in-school suspensions; and out-of-school suspensions. These are identified as distal variables because they are expected to change after the proximal variables.

As part of the univariate analyses, distribution statistics were obtained for all proximal and distal variables featured in the CSBM study.

**Proximal Variables Distribution Statistics**

The means, standard deviations, skewness and kurtosis are presented in Table 3A for proximal measures. For all proximal scales and subscales, skewness and kurtosis are within traditional bounds. Table 4A presents the distribution statistics for proximal pretest values and scores.
Table 4A: Distribution Statistics for Proximal Pretest Values and Scores

<table>
<thead>
<tr>
<th>Pre-Test Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resiliency:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS Total Resiliency</td>
<td>49.29</td>
<td>11.27</td>
<td>-.063</td>
<td>-.421</td>
</tr>
<tr>
<td><strong>BASC:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Problems</td>
<td>118.77</td>
<td>21.044</td>
<td>.378</td>
<td>-.168</td>
</tr>
<tr>
<td>Attitude to School</td>
<td>6.90</td>
<td>3.976</td>
<td>.659</td>
<td>.672</td>
</tr>
<tr>
<td>Attitude to Teachers</td>
<td>8.45</td>
<td>4.643</td>
<td>.291</td>
<td>-.664</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>306.86</td>
<td>48.153</td>
<td>1.097</td>
<td>1.401</td>
</tr>
<tr>
<td>Atypicality</td>
<td>5.08</td>
<td>5.377</td>
<td>1.179</td>
<td>1.094</td>
</tr>
<tr>
<td>Locus of Control</td>
<td>7.26</td>
<td>4.381</td>
<td>.686</td>
<td>.201</td>
</tr>
<tr>
<td>Social Stress</td>
<td>5.68</td>
<td>4.085</td>
<td>.685</td>
<td>.825</td>
</tr>
<tr>
<td>Anxiety</td>
<td>10.71</td>
<td>7.113</td>
<td>.675</td>
<td>-.132</td>
</tr>
<tr>
<td>Depression</td>
<td>7.52</td>
<td>6.758</td>
<td>1.379</td>
<td>1.617</td>
</tr>
<tr>
<td>Inadequacy</td>
<td>7.59</td>
<td>3.876</td>
<td>1.329</td>
<td>2.671</td>
</tr>
<tr>
<td>Inattention/Hyperactivity</td>
<td>113.47</td>
<td>18.166</td>
<td>.011</td>
<td>-.056</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>10.85</td>
<td>4.663</td>
<td>.031</td>
<td>-.274</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>8.26</td>
<td>3.958</td>
<td>.073</td>
<td>.084</td>
</tr>
<tr>
<td>Emotional Symptom Index</td>
<td>316.88</td>
<td>47.616</td>
<td>.899</td>
<td>1.390</td>
</tr>
<tr>
<td><strong>Personal Adjustment</strong></td>
<td>178.84</td>
<td>33.660</td>
<td>-.344</td>
<td>-.079</td>
</tr>
<tr>
<td><strong>Parent Relations</strong></td>
<td>15.03</td>
<td>6.694</td>
<td>.052</td>
<td>-.938</td>
</tr>
<tr>
<td><strong>Interpersonal Relations</strong></td>
<td>13.29</td>
<td>3.151</td>
<td>-1.787</td>
<td>4.004</td>
</tr>
<tr>
<td><strong>Self-Esteem</strong></td>
<td>14.45</td>
<td>4.359</td>
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<td>-.158</td>
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<tr>
<td><strong>Self-Reliance</strong></td>
<td>12.58</td>
<td>4.007</td>
<td>-.014</td>
<td>-.735</td>
</tr>
</tbody>
</table>
Distal Variables Distribution Statistics

The means, standard deviations, skewness and kurtosis are presented in Table 4B for distal variables. The following distal variables were in traditional bounds for skewness and kurtosis: Grade point average; MCAS English; MCAS Math; and days absent.

However, the distal variables that were not in traditional bounds for skewness and kurtosis are as follows: Days tardy; detentions; in-school suspensions; and out-of-school suspensions. To address this, these variables were categorized. Days tardy was categorized as 0 for 0 to 5 days tardy and as 1 for 6 or more days tardy. Detentions, in-house suspensions and out-of-school suspensions were categorized as 0 for 0 discipline incidents and were categorized as 1 for 1 or more detentions, in-house suspensions or out-of-school suspensions (Table 4B).
Table 4B: Distribution Statistics for Concrete Pretest Values and Scores

<table>
<thead>
<tr>
<th>Pre-Test Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Performance:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-GPA</td>
<td>3.557</td>
<td>1.9011</td>
<td>.658</td>
<td>-.705</td>
</tr>
<tr>
<td>-MCAS English</td>
<td>233.16</td>
<td>12.385</td>
<td>-.022</td>
<td>-.901</td>
</tr>
<tr>
<td>-MCAS Math</td>
<td>229.36</td>
<td>15.316</td>
<td>.896</td>
<td>-.093</td>
</tr>
<tr>
<td><strong>Attendance:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Days absent</td>
<td>10.46</td>
<td>9.769</td>
<td>1.907</td>
<td>5.088</td>
</tr>
<tr>
<td>-Days tardy</td>
<td>8.68</td>
<td>12.486</td>
<td>4.008</td>
<td>20.650</td>
</tr>
<tr>
<td><strong>Behavioral Referrals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Detentions</td>
<td>1.22</td>
<td>2.379</td>
<td>2.926</td>
<td>10.115</td>
</tr>
<tr>
<td>-In-school suspensions</td>
<td>.81</td>
<td>1.966</td>
<td>3.592</td>
<td>14.376</td>
</tr>
<tr>
<td>-Out-of-school suspensions</td>
<td>.18</td>
<td>.767</td>
<td>4.986</td>
<td>26.213</td>
</tr>
</tbody>
</table>
C. Test for Equivalence of Two Groups

After obtaining the distribution statistics for the proximal and distal variables, a test for equivalence of the two groups was conducted.

_Proximal Continuous Scores: Test for Equivalence_

The first test for equivalence focused on the scores for the proximal continuous variables. As mentioned previously, the proximal variables include the following composite scales: School problems; internalizing problems; inattention/hyperactivity; emotional symptom index; resiliency and personal adjustment. The subscales include: Attitude to school; attitude to teachers; atypicality; locus of control; social stress; anxiety; depression; inadequacy; attention problems; hyperactivity; parent relations; interpersonal relations; self-esteem and self-reliance.

Based on t tests for both composite and subscale scores, the proximal continuous variables were equivalent before interventions on all but one composite scale. Hyperactivity for the intervention group was higher than the control group at pretest. Similarly, the subscales for anxiety and the composites for interpersonal relations and inattention/hyperactivity trended towards significance with the CSBM group trending towards greater anxiety, inattention/hyperactivity and poorer interpersonal relations. Thus, those in the CSBM group were at a greater disadvantage and gave a more conservative test of the hypotheses.
**Distal Continuous Values: Test for Equivalence**

The distal continuous variables included: grade point average; MCAS English; MCAS Math; and days absent. The t tests results show that the two groups were not statistically significantly different at pretest.

**Distal Categorical Values: Test for Equivalence**

The following distal categorical variables were not significantly different at pretest: Days tardy; detentions; and in-house suspensions. However, out-of-school suspensions trended towards significance, with the CSBM group having more out-of-school suspensions at pretest than the control group. Thus, the CSBM group had somewhat more serious behavior problems at pretest. Tables 5A, 5B and 5C present the t test results for proximal continuous scores, distal continuous values and distal categorical values.
Table 5A: Test for Equivalence of CSBM and Control Groups on

Pre-test Proximal Continuous Scores

<table>
<thead>
<tr>
<th>Pre-Test Variables</th>
<th>T</th>
<th>Df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resiliency:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS Total Resiliency</td>
<td>-.202</td>
<td>76</td>
<td>.841</td>
</tr>
<tr>
<td><strong>BASC:</strong></td>
<td></td>
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</tr>
<tr>
<td>School Problems</td>
<td>-.449</td>
<td>71</td>
<td>.655</td>
</tr>
<tr>
<td>Attitude to School</td>
<td>.319</td>
<td>71</td>
<td>.751</td>
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<tr>
<td>Attitude to Teachers</td>
<td>-1.280</td>
<td>71</td>
<td>.205</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>-.682</td>
<td>71</td>
<td>.498</td>
</tr>
<tr>
<td>Atypicality</td>
<td>-1.401</td>
<td>71</td>
<td>.166</td>
</tr>
<tr>
<td>Locus of Control</td>
<td>.299</td>
<td>71</td>
<td>.766</td>
</tr>
<tr>
<td>Social Stress</td>
<td>-1.423</td>
<td>71</td>
<td>.159</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-1.968</td>
<td>71</td>
<td>.053</td>
</tr>
<tr>
<td>Depression</td>
<td>.215</td>
<td>71</td>
<td>.830</td>
</tr>
<tr>
<td>Inadequacy</td>
<td>.228</td>
<td>71</td>
<td>.821</td>
</tr>
<tr>
<td>Inattention/Hyperactivity</td>
<td>-1.748</td>
<td>71</td>
<td>.085</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>-1.085</td>
<td>71</td>
<td>.282</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>-2.143</td>
<td>71</td>
<td>.036</td>
</tr>
<tr>
<td>Emotional Symptom Index</td>
<td>-.615</td>
<td>71</td>
<td>.541</td>
</tr>
<tr>
<td>Personal Adjustment</td>
<td>.546</td>
<td>71</td>
<td>.587</td>
</tr>
<tr>
<td>Parent Relations</td>
<td>-.487</td>
<td>71</td>
<td>.628</td>
</tr>
<tr>
<td>Interpersonal Relations</td>
<td>1.941</td>
<td>71</td>
<td>.056</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>.843</td>
<td>71</td>
<td>.402</td>
</tr>
<tr>
<td>Self-Reliance</td>
<td>-.679</td>
<td>62.566</td>
<td>.500</td>
</tr>
</tbody>
</table>
Table 5B: Test for Equivalence of CSBM and Control Groups on Pre-test Distal Continuous Values

<table>
<thead>
<tr>
<th>Pre-Test Variables</th>
<th>T</th>
<th>Df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Performance:</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td>.387</td>
<td>80</td>
<td>.700</td>
</tr>
<tr>
<td>MCAS English</td>
<td>1.195</td>
<td>79</td>
<td>.236</td>
</tr>
<tr>
<td>MCAS Math</td>
<td>.264</td>
<td>79</td>
<td>.792</td>
</tr>
<tr>
<td><strong>Attendance:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Absent</td>
<td>.000</td>
<td>80</td>
<td>1.000</td>
</tr>
</tbody>
</table>
Table 5C: Chi Square Test Results for Equivalence of CSBM and Control Groups on Pre-test Distal Categorical Values

<table>
<thead>
<tr>
<th>Variable</th>
<th>$X^2$</th>
<th>Df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days Tardy</td>
<td>.195</td>
<td>1</td>
<td>.659</td>
</tr>
<tr>
<td>Detentions</td>
<td>.008</td>
<td>1</td>
<td>.931</td>
</tr>
<tr>
<td>In-House Suspensions</td>
<td>.098</td>
<td>1</td>
<td>.754</td>
</tr>
<tr>
<td>Out-of School Suspensions</td>
<td>2.982</td>
<td>1</td>
<td>.084</td>
</tr>
</tbody>
</table>
D. Statistical Analyses Used to Test Hypotheses

Upon completion of the univariate analyses and testing for equivalence between the two groups, tests of the hypotheses were then initiated. The following is an overview of the statistical analyses used to test the variables in each hypothesis.

Continuous Dependent Variables

For each continuous dependent variable in the foregoing hypotheses, a multiple regression analysis was conducted that included the independent variable of interest, type of group (CSBM versus control), as well as the two control variables, age and gender. For each multiple regression that achieved significance, multiple regression coefficients and related t-value were examined for each predictor variable to determine whether it made a significant contribution to the variance of the particular dependent variable.

Categorical Dependent Variables

For each categorical dependent variable in the foregoing hypotheses, a logistic regression was completed that included the independent variable of interest, type of group (CSBM or control), as well as the two control variables, age and gender. The categorical dependent variables analyzed by logistic regression included: days tardy; detentions; in-house suspensions; and out-of-school suspensions.

For each logistic regression that achieved statistical significance, the odds ratios and related p-values for each predictor variable were examined to determine whether it made a significant contribution to the variance of the particular dependent variable.
Upon completion of the multiple regression and logistic regression, an exploratory data analysis was also completed. This consisted of examining the probability of concrete, distal and proximal measures trending in the predicted direction.

**Test of Hypotheses**

**E. Analysis of CSBM on Academic Performance**

The first hypothesis of the CSBM study is outlined below:

H1: Students who receive CSBM will have greater gains in academic performance than those in the control group.

The multiple regression analysis, as outlined in Table 6A, revealed that the independent variable and control variables did not have a statistically significant relationship with grade point average. However, there were statistically significant relationships with the MCAS English and MCAS Math variables. Further inspection of the respective multiple regression analysis only indicated a statistically significant relationship between age and MCAS English and MCAS Math. These results correspond with MCAS data that shows that MCAS performance actually decreases for each grade while in middle school (MCAS Technical Report, 2009) (Tables 6B and 6C).

**F. Analysis of CSBM on Student Attendance**

The second hypothesis of the CSBM study is outlined below:

H2: Students who receive CSBM will have greater decrease in attendance problems than those in the control group.

The multiple regression analysis, as outlined in Table 6A, revealed that the independent variable and control variables did not have a statistically significant relationship with days absent. However, the logistic regression findings, as described in Table 7A, showed that the independent variable and the control variables did have a
statistically significant relationship with days tardy. Further inspection of the logistic regression showed that only age had a statistically significant relationship. Once again, these results correspond with middle school data that shows that there is a decrease in attendance as students move up in middle school (Alt, Choy and Hammer, 2009) (Table 7B presents the odds ratio results for categorical dependent variables that achieved significance).

G. Analysis of CSBM on Student Behavior Referrals

The third hypothesis of the CSBM study is outlined below:

H3: Students who receive CSBM will have greater decrease in behavioral referrals than those in the control group.

The logistic regression findings, as described in Table 7A, showed that the independent variable and the control variables did not have a statistically significant relationship with in-house suspensions. However, there were statistically significant relationships with detentions and out-of-school suspensions. Further inspection of the logistic regression led to a variety of findings. For detentions, only gender had a statistically significant relationship. Boys had higher rates of detentions when compared to girls. These results correspond with middle school data that shows that boys experience higher rates of behavioral referrals when compared to girls (Alt, Choy and Hammer, 2009). However, for out-of-school suspensions, gender, age and type of group all had significant relationships. For type of group, those in the CSBM group were 14.7 times more likely to have positive change in out-of-school suspensions. Male students were 5.9 times more likely to have positive change in out-of-school suspensions. For every increase of 1 year older, students were 2.1 times more likely to have poor change in out-of-school suspensions. These results indicate that, while there may not be
statistically significant multiple regression findings at this point, the CSBM program is starting to have a positive impact on serious behavioral referrals as measured by out-of-school suspensions. The reason for improved out-of-school suspensions may be due to the initial positive impact of the care and attention of mentoring, while the less severe behavior will eventually show improvement the longer a student meets with their mentor (Tables 7B, 7C and 7D).

**H. Analysis of CSBM on Resilience and School Connection**

The fourth and fifth hypotheses of the CSBM study are outlined below:

**H4:** Students who receive CSBM will have greater increase in resilience than those in the control group.

**H5:** Students who receive CSBM will have a greater increase in school connection than those in the control group.

The multiple regression analysis, as outlined in Table 6A, revealed that the independent variable and control variables did not have a statistically significant relationship with resiliency and with school connection variables including: school problems; attitude to school; and attitude to teachers. These results are not surprising since students in the study group already had statistically significantly poor levels of resiliency and school connection. Thus, they would have much more to overcome before showing statistically significant positive results.

**Exploratory Data Analysis**

While the multiple and logistic regression analyses did not reveal statistically significant findings for the variables examined in this study, except for that involving out of school suspensions, the exploratory data analysis showed that the variables were starting to show some limited movement in a positive direction. For example, all
academic performance variables, including grade point average, MCAS English and MCAS Math showed beginning positive trends. The concrete probability, assuming a 50/50 chance of trending in the predicted direction, showed that chances of 6 out of 8 concrete measures trending in the predicted direction was .144 (Table 8).

In addition to the academic variables, the days absent and days tardy also started to show some limited positive directions. The concrete probability, assuming a 50/50 chance of trending in the predicted direction, showed that chances of 6 out of 8 concrete measures trending in the predicted direction was .144. Student attendance and academics may be starting to improve due to a more positive connection with school as a result of the relationship with their mentor; knowing their mentor is checking their attendance and grades; and wanting to come to school to spend quality time with their mentor (Table 8).

In addition to the academic and attendance variables, the exploratory data analysis also showed that the out-of-school suspensions variable was beginning to trend in the expected direction. However, the detentions and in-house suspensions did not trend in the predicted direction at this time. A school-based mentoring study conducted over a greater length of time with a greater emphasis on the quality of mentoring relationships may see more positive changes in these areas (See Table 8).

While the multiple regression analysis did not reveal statically significant findings for resilience or school connection, the exploratory data analysis showed some limited positive directions. While the resiliency variable as measured by the MAS measure did not trend in the expected direction, the school connection variables, including attitude to teachers, school problems and attitude to school, were starting to show beginning positive trends. Further, several additional variables featured in the MAS and BASC, including
self-esteem, parent relations, social stress, anxiety, reliance and interpersonal relations, began to trend in a positive direction. The chances for the BASC composite and MAS scores trending in the predicted direction was .109. The chances of 13 out of 14 sub-scales trending the predicted direction was .0009. Finally, the concrete and composite results show that 11 out of 14 of these variables trended in the predicted direction (.029) or 3 in a 100 chance for these variables to move in the right direction. These findings on internal thoughts, such as self-esteem and anxiety, may be a result of students starting to experience positive change in their grades and behavior due to the positive care and attention from their mentor. In addition, students may be starting to experience an increase in school connection because they now want to come to school to visit with their mentor, as well as having more positive relations with their teachers because their grades, attendance and discipline issues are starting to improve (Table 8).
### Table 6A: Model Summaries (Multiple Regression)

**Continuous Dependent Variables**

**Specified in Hypotheses**

<table>
<thead>
<tr>
<th>Variable</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Standard Error of Estimate</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Significant F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BASC:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Problems</td>
<td>.155</td>
<td>.024</td>
<td>-.023</td>
<td>4.68432</td>
<td>.506</td>
<td>3</td>
<td>62</td>
<td>.680</td>
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<tr>
<td>Attitude to School</td>
<td>.234</td>
<td>.055</td>
<td>.009</td>
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<td>Attitude to Teachers</td>
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<td>.024</td>
<td>-.023</td>
<td>4.68432</td>
<td>.506</td>
<td>3</td>
<td>62</td>
<td>.680</td>
</tr>
<tr>
<td><strong>MAS Total Resiliency</strong></td>
<td>.194</td>
<td>.037</td>
<td>-.003</td>
<td>12.40204</td>
<td>.935</td>
<td>3</td>
<td>72</td>
<td>.428</td>
</tr>
<tr>
<td><strong>Academic Performance:</strong></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
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<td>.027</td>
<td>-.011</td>
<td>1.27035</td>
<td>.716</td>
<td>3</td>
<td>78</td>
<td>.546</td>
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<tr>
<td>MCAS English</td>
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<td>.127</td>
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<td>.004</td>
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<td>MCAS Math</td>
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<td>77</td>
<td>.006</td>
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<tr>
<td><strong>Attendance:</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Absent</td>
<td>.236</td>
<td>.056</td>
<td>.020</td>
<td>7.51580</td>
<td>1.540</td>
<td>3</td>
<td>78</td>
<td>.211</td>
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</table>
Table 6B: Model Coefficients Continuous Dependent Variables

Achieved Significance in Table 5A

MCAS English

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>B</th>
<th>Standard Error</th>
<th>Beta</th>
<th>T</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
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Table 7A: Model Summaries (Logistic Regression)

Categorical Dependent Variables

Specified in Hypotheses

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Table 7B: Odds Ratio
Categorical Dependent Variables Achieved Significance
With Model in Table 6A: Tardy Change

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Categorical Dependent Variables Achieved Significance
With Model in Table 6A: Detentions Change

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### Table 8: Exploratory Data Analysis Results

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Chapter 5

Discussion

A. Discussion of Major Findings

The CSBM study sought to take the next step in mentoring research by examining the impact of a comprehensive school-based mentoring program on the following variables: academic performance; attendance; discipline referrals; resilience; and connection to school. While the multiple and logistic regression analyses did not find a statistically significant relationship among the variables, except for that involving out of school suspensions, the exploratory data analysis revealed that academic performance, attendance, school connection and the most serious discipline referrals were indicating some limited positive directions.

This chapter will include a description of major findings for each hypothesis, as well as how these results compare to previous theoretical and mentoring research. This will be followed by the contributions and limitations of this study, as well as recommendations for future studies and will conclude with implications for social work, as well as school-based mentoring practice.

**Academic Performance**

Theoretical research findings inform how the mentoring relationship has the potential to positively influence student academic performance. For example, attachment theory literature provides support for the positive impact of mentoring on academic performance. Specifically, the findings from attachment theory research have shown that, even for children who have not had the experience of an attached bond with a parent or guardian, there is still the capacity to build positive relationships in the presence of a
consistently supportive person in a child’s life. Styles and Morrow (1995) provide examples of youth who have strong emotional attachments with their mentor who gradually develop a more positive and trusting relationship with parents and peers in their life. According to Rhodes, Grossman and Resch (2000), these improved and attached relationships have the potential to positively impact a child’s self-esteem, value placed upon school and academic performance (p. 1663). The enhanced self-esteem, interest in school and the consistent academic support from the attached mentoring relationship may all interact to positively impact student grades.

Additional support for the attachment literature findings regarding the impact of mentoring on academic performance are also found in previous mentoring research studies. For example, Aiello (1988), Slicker and Palmer (1998), and Portwood et al. (2005), each conducted a nine month study on school-based mentoring using a non-equivalent comparison group design. Aiello (1988) found that the GPA gain for the experimental group was not significant but trended in the expected direction and thus “it was concluded that the mentor program produced positive, achievement gains, as measured by GPA growth, that were non-significant” (p. 145). Slicker and Palmer (1998) found that there was not an improvement in grades for the mentored high school students in their study. However, they did discover that students who felt they were effectively mentored, showed a significant improvement in grades compared to the ineffectively mentored students and members of the control group (Slicker & Palmer, 1998, p. 331). Portwood et al. (2005) in their study of 170 students found there was no statistically significant difference between mentored youth and control group participants in regards to academic performance. However, mentored youth with a grade point
average of 2.0 or lower showed a significant difference in improved grades when compared to control group youth (Portwood et al., 2005, p. 143).

However, Herrera et al. (2007) showed a more impressive connection between school-based mentoring and academic performance. The researchers conducted a fifteen month study of 1,139 youth that ranged from grades 4 through 9 and used an experimental pre-test and post-test study design. The results of the study found significant positive results in student academic performance, as well as an increased sense of academic self-efficacy and a strengthened belief that they would attend and finish college (Herrera et al., 2007, p. 3). The researchers were perhaps better able to illustrate the positive connection between academic performance and school-based mentoring because of using a random research design, and by conducting their study over a longer period of time with a higher number of participants.

The results from the CSBM study provide limited support to previous theoretical and mentoring research findings regarding the impact of mentoring on student grades. Although the multiple regression analysis did not reveal statistically significant findings for academic performance, the exploratory data analysis showed that grade point average, MCAS English and MCAS Math were beginning positive trends. However, as will be discussed in the next section on intervention research, future school-based researchers might want to assess mentoring duration, quality of mentoring relationships, as well as qualitative improvements in the interventions. However, this is a matter of conjecture as future study will help clarify the direction of future mentoring intervention research. See Tables 6A, 6B, 6C and 8 for a description of the multiple regression and exploratory data analysis findings.
Attendance

In addition to the positive evidence shown between school-based mentoring and academic performance, theoretical and mentoring researchers have also provided evidence that mentoring can exert a positive influence on school attendance. For example, in a study conducted by Rhodes, Grossman & Resch (2000) on attachment theory, these researchers were able to show, that as a result of improved attached relationships with mentors, students have the potential to improve their attendance and value placed upon school (p. 1663). Ecological systems theory also provides support for the positive impact of mentoring on student attendance by showing how different systems, such as invested mentors and parents that support mentoring, can help to enhance the mentoring relationship (Keller, 2005). The strengthened mentoring relationship may help to improve attendance because students experience more positive associations with school as a result of looking forward to seeing their mentor at school. In addition, attendance may improve because students are beginning to see an improvement in their grades as a result of academic assistance from their mentors.

Additional evidence for the positive impact of mentoring on school attendance can be found in studies conducted by Tierney, Baldwin-Grossman and Resch (1995). These researchers discovered that youth receiving community-based mentoring showed a statistically significant improvement in school attendance (p. iii). Further, the recent study conducted by Herrera et al. (2007) found that students who received school-based mentoring showed significant improvement in attendance with a reduced number of unexcused absences and avoidance of skipping school (p. 3). Thus, these research studies and the theoretical literature show that mentoring can have a positive impact on school
attendance. The reasons for improved attendance may be due to several factors including: a more positive connection with school as a result of the relationship with their mentor; knowing their mentor is checking their attendance; and wanting to come to school to spend quality time with their mentor.

The results from the CSBM study again provide some support for the theoretical and mentoring research findings regarding the impact of mentoring on attendance. While the multiple and logistic regression analyses did not reveal statistically significant findings for student attendance, the exploratory data analysis showed that the days absent and days tardy variables were beginning positive trends. However, these results show that a one shot study on school-based mentoring is not enough to effect statistically significant findings. Positive change may be starting to occur due to a more positive connection with school and their mentor, but additional interventions, as outlined in the next section on intervention research, are needed to achieve statistically significant results. See Tables 6A, 7A, 7B and 8 for the multiple and logistic regression findings, as well as the exploratory data analysis.

**Student Discipline**

The research evidence shows that, along with showing having a positive influence on student attendance and academic performance, mentoring can also reduce student discipline issues at school. The resiliency theoretical literature provides a framework for understanding how mentoring can exert a positive influence on student behavior. According to resiliency theorists, there are compensatory and protective factors that may help protect youth from challenges in their life (Zimmerman, Bingenheimer & Behrendt, 2005, p. 146). A mentor has the potential to exert a protective influence by providing
consistent guidance and support to their mentee. As a result, a child may develop improved self-confidence and stronger social skills which can help protect them from adverse events in life. In addition, a mentoring relationship may have a compensatory effect in that a mentor has the potential to counteract some of the negative effects of risk factors such as negative peer influences. For example, if a child is being pressured by friends to misbehave in school, this negative influence can be counteracted by the positive influence and support of a mentor (Randolph & Johnson, 2008, p. 179; Zimmerman, Bingenheimer & Behrendt, 2005, p. 146).

In a study conducted by Zimmerman, Bingenheimer and Notaro (2002), the researchers found that adolescents who had a natural mentor “were less likely to smoke marijuana or be involved in non-violent delinquency and had more positive attitudes towards school” when compared to those without a natural mentor (p. 221). These studies conducted by resiliency theoretical researchers, show how mentors can help students develop resiliency to difficult challenges in their life and achieve academic and behavioral success despite significant risk factors in their life.

Additional support regarding the impact of mentoring on student discipline issues can be found in previous studies conducted by mentoring researchers. For example, Tierney, Baldwin-Grossman and Resch (1995), in their study of the community-based Big Brothers Big Sisters program, discovered that youth who received mentoring services were one-third less likely than those in the control group to hit someone; and were 46 percent less likely to use drugs (p. iii). In a qualitative study conducted by Anda (2002), youth stated that having a mentor helped them improve their behavior by showing “how to stay out of trouble and respect others and stop the violence” (pp. 103-104). Further
support for the impact of mentoring on student discipline issues was demonstrated by Herrera et al. (2007). The researchers discovered that students with a school-based mentor experienced less behavior problems at school (p. 3).

One of the discoveries made by the CSBM study provide limited support to findings from resiliency theorists, as well as previous mentoring research studies regarding the impact of mentoring on student behavior at school. The multiple and logistic regression findings found that, while there was not a statistically significant relationship between in-house suspensions and detentions and mentoring, there was a statistically significant relationship between out-of-school suspensions and type of group. For type of group, those in the CSBM group were 14.7 times more likely to have positive change in out-of-school suspensions. These results indicate that, while there may not be statistically significant multiple and logistic regression findings for in-house suspensions or detentions, the CSBM program was starting to have a positive impact on serious behavioral referrals as measured by out-of-school suspensions. The reason for improved out-of-school suspensions may be due to the initial positive impact of the care and attention of mentoring, while the less severe behavior will eventually show improvement the longer a student meets with their mentor. See Tables 7A, 7B, 7C, 7D and 8 for a description of the logistic regression findings, as well as the exploratory data analysis.

The research evidence shows that, along with showing having a positive influence on student attendance, academic performance and discipline, mentoring may also help build student resilience to challenges in their life (Tierney, Baldwin-Grossman and Resch, 1995; Herrera et al., 2007; (Randolph & Johnson, 2008; Zimmerman, Bingenheimer & Behrendt, 2005).
**Resiliency**

Theoretical research findings have also shown how the mentoring relationship has the potential to positively influence student resiliency. For example, the resiliency theory literature provides support for the positive impact of mentoring on helping youth to become more resilient to challenges in their life (Zimmerman, Bingenheimer & Behrendt, 2005, p. 223). A mentor has the potential to exert a protective influence by providing consistent guidance and support to their mentee. As a result, a child may develop improved self-confidence and stronger social skills which can help protect them from adverse events in their life. Rhodes et al. (1992) discovered that in a study of 129 young African American mothers that those who had natural mentors reported higher levels of social support, experienced less depression and were more resilient in dealing with relationship problems when compared to other young mothers in the study without a mentor.

The CSBM study is the first in the mentoring research field to analyze the impact of school-based mentoring on student resiliency. However, mentoring researchers have examined how mentoring impacts self-concept. Since this variable describes how a student views their self, and thus may impact internal resiliency, it is helpful to understand how these results compare to the findings from the CSBM study. Aiello (1988) in a study of school-based mentoring at a middle school, discovered that there was not a significant difference between the control and experimental groups regarding self-concept scores. Slicker and Palmer (1998) confirmed these results when they found that there was not a significant positive difference in self-concept shown between effectively and ineffectively mentored students (p. 330).
The results from the CSBM study again provide partial support to previous mentoring and theoretical research. Although the multiple regression analysis revealed that there was not a statistically significant relationship between mentored students and resiliency, the exploratory data analysis showed that self-esteem, parent relations, social stress, anxiety, reliance and interpersonal relations, were showing indications of some limited positive directions. These findings on internal thoughts, such as self-esteem and anxiety, may be a result of students starting to experience positive change in their grades and behavior due to the positive care and attention from their mentor. However, the lack of a statistically significant relationship between mentored students and resiliency shows that more testing is required of the mentoring model so that this intervention might be more effective. See Tables 6A and 8 for a description of the multiple regression and exploratory data analyses. In addition to studying the impact of mentoring on resiliency, mentoring and theoretical researchers have examined the effect of mentoring on students feeling connected to school.

**School Connection**

Theoretical research findings have shown how the mentoring relationship has the potential to positively influence school connection for mentored students. For example, attachment theorists have shown how strong emotional attachments with their mentors help youth develop a more positive and trusting relationship with parents and peers in their life (Styles & Morrow, 1995). Researchers found that these improved relationships have the potential to impact their value placed upon school (Rhodes, Grossman & Resch, 2000, p. 1663). Resiliency theorists discovered in a study of 770 adolescents, that those
with natural mentors “had more positive attitudes towards school” when compared to those without a natural mentor (Zimmerman, Bingenheimer & Notaro, 2002, p. 221).

Previous mentoring research studies have provided additional evidence showing that mentored students experience an improvement in their connection to school. For example, Portwood et al. (2005) discovered in a study of the YouthFriends school-based mentoring program, that mentored youth showed a higher level of school connection when compared to students in the control group (p. 140). Although Herrera et al. (200) did not specifically study a school connection variable, the researchers found that mentored students showed an improvement in grades, attendance and were more likely to report the presence of a non-parental adult at school as a source of support in their lives (p. 3). These results indicate that youth may be experiencing a greater degree of school connection since they are more likely to be connected to school when they are attending more frequently, seeing an improvement in their grades, as well as know that there are supportive adults waiting for them at school.

The findings from the CSBM study provide partial support to the discoveries made by attachment and resiliency theorists, as well as previous mentoring research studies. Although the multiple regression analysis did not reveal statistically significant findings for school connection, the exploratory data analysis showed that the school connection variables, including attitude to teachers, school problems and attitude to school were beginning positive trends. This positive change may be starting to occur because they now want to come to school to visit with their mentor, as well as having more positive relations with their teachers because their grades, attendance and discipline issues are starting to improve. See Tables 6A and 8 for a description of results from the
multiple regression and exploratory data analyses. However, lack of statistically significant findings for the school connection and all other variables examined in the CSBM study, clearly shows that this one shot study of school-based mentoring is not enough to effect strong and positive change. The findings from intervention researchers may help to explain why this study did not achieve statistically significant results, as well as offer valuable insights for future school-based mentoring intervention researchers.

**Discussion of Intervention Model**

The primary elements of intervention research focus on the development of knowledge from empirical research, linking the research findings to potential interventions, and continually refining interventions based upon research findings (Abell and Wolf, 2003, p. 5). There are several intervention models that have been developed in recent decades, including social research and development (Rothman 1974, 1980); model development (Reid 1979, 1985); and design and development (Thomas and Rothman 1994). These models all state that “effective interventions must be built systematically through a process of design, continual testing, feedback and modification” (Fortune & Reid, 1999, p. 418).

The major intervention model created by Thomas and Rothman (1994) will be used to help explain why the CSBM study did not achieve statistically significant findings. The design and development (D&D) approach formulated by Thomas and Rothman (1994) states there are six stages that should be followed for social work interventions. These stages include: 1) problem analysis and project planning; 2) information gathering and synthesis; 3) intervention design; 4) early development and pilot testing; 5) evaluation and advanced development (which should include more
rigorous testing); and 6) dissemination (Thomas and Rothman, 1994; Fortune and Reid, 1999, p. 418). A review of the steps that should be taken in each stage of this intervention model may help to explain why the CSBM study did not obtain statistically significant findings. The following is a description of what steps Thomas and Rothman (1994) recommend should be taken in each stage. The discussion of the intervention model shows that the CSBM study was strong in the first two stages and noticeably weaker in the program design, pilot testing and evaluation stages.

According to Thomas and Rothman (1994), the first stage should focus on creating goals to be addressed by the intervention. The CSBM study successfully completed this step by creating the following intervention goals for mentored students: Improve academic performance; reduce days tardy and days absent; reduce problem behavior at school; enhance resiliency; and increase school connection. Thomas and Rothman (1994) recommend that this first stage should also include a literature review of what interventions have been developed thus far to address these problems. Once the goals and literature review have been completed, an intervention plan is created where the setting, number participants and design of program is created. The CSBM study completed these steps with a thorough literature review of previous successful mentoring interventions, as well as the completion of an intervention plan consisting of a middle school setting, number of cases and design of a comprehensive school-based mentoring program.

The second phase of the intervention model created by Thomas and Rothman (1994) focuses on identifying empirically supported interventions that can be incorporated into the design of the program (Fortune and Reid, 1999, p. 421). The
CSBM study completed this stage by including comprehensive mentoring strategies in the design of its program. As previously discussed in Chapter 2, these interventions were shown to be effective in the meta-analytic review conducted by DuBois et al (2002).

Upon completion of the program goals, literature review, and identifying empirically supported strategies in the intervention plan, the third phase is then initiated. According to Thomas and Rothman (1994), this stage consists of creating the actual design of the intervention. This phase should also include the development of a detailed and comprehensive intervention protocol. While the CSBM study created an intervention plan consisting of key empirically supported strategies, the implementation of this phase was weakened due to the lack of an intervention protocol. For example, while it was communicated to mentors that they were expected to meet with their mentee for a minimum of an hour every week, it was discovered that there was a discrepancy in regards to the amount of time mentor pairs actually met each week. However, had there been an intervention protocol in place that outlined how mentoring duration would be monitored, this problem may not have been as prevalent. As a result of meeting less than one hour every week, the quality of the mentoring relationship may have been adversely affected. Therefore, less effective mentoring relationships may have diminished the potential positive gains shown by higher quality mentoring pairs. In addition, while there were mentoring match activities as well as supervision of mentors, an intervention protocol would have strengthened these empirically proven strategies by outlining clearly where, when and how supervision and training were to occur.

The fourth phase of the Thomas and Rothman (1994) intervention model consists of conducting exploratory field tests of the intervention. The purpose of these pilot tests
are to assess what is or is not working and modify the interventions based upon the feedback from the field tests. Intervention research can last as much as three to ten years as a result of continually refining interventions (Abell and Wolf, 2003). However, continual field tests with modifications from feedback can help to refine the effectiveness of program services (Abell and Wolf, 2003; Fortune and Reid, 1999).

The CSBM interventions would likely have been strengthened had field tests been conducted. For example, this study would have benefited from conducting a pilot study where the quality of the mentoring relationship was assessed. Assessing the quality of the mentoring relationship may have resulted in learning what effective strategies were being used by stronger mentors and then training all mentors on those effective techniques. As previously discussed in Chapter 2, the benefit of completing a pilot test on mentoring relationship quality is supported by Slicker and Palmer (1998) in their study of school-based mentoring with high school students. In addition, the quality of the mentoring relationships in the CSBM study may have also been impacted by the amount of time mentors and students spent together each week, as well as the entire duration of their relationship. As previously mentioned in Chapter 2, Baldwin-Grossman and Rhodes (2002) found that duration of mentoring had a statistically significant relationship with academic and behavioral outcomes. It was discovered at the end of the CSBM study that there was variation in the amount of time mentor pairs met each week. Some mentor pairs met for only a half hour each week, while other mentor pairs met for one or more hours each week. In addition, there were mentor pairs that had been meeting informally for six months prior to the initiation of the CSBM program. It would have been very helpful for this study to have conducted field test(s) in order to correlate the relationship
between quality of mentoring and duration of the relationship. In addition, these initial exploratory studies would have yielded helpful data on how the amount of weekly mentoring time, as well as how the overall duration of the mentoring relationship impacted academic and behavioral outcomes for middle school students.

The final two phases of the intervention model created by Thomas and Rothman (1994) consists of the rigorous evaluation stage and dissemination of results. Although controlled testing was utilized, the CSBM program would have benefited from an experimental research design using random sampling. Recent intervention research reiterates the importance of random assignment. Fraser and Galinsky (2010), state “randomization balances groups on unobserved heterogeneity and permits an unbiased estimate of treatment effects” and that random assignment “provides the best estimate of the effect of an intervention” (p. 462). Dissemination of an intervention study should include the intervention tested, a description of research methods used, findings, limitations and contributions of the intervention (Fortune and Reid, 1999, p. 427). The CSBM study completed this final phase by describing its interventions, methods and findings in this dissertation report.

B. Contributions and Limitations of the Study

Contributions of the CSBM Study

Overall, the results from the CSBM study indicate that there were not a statistically significant relationship between school-based mentoring and academic performance, attendance, discipline, resiliency and school connection. However, the exploratory data analysis showed indications of some limited positive directions. While
this study did not yield statistically significant findings, it made several contributions to the mentoring field.

A major contribution of this study was that for the first time in mentoring research history, a test was conducted on the impact of a comprehensive school-based mentoring program that was grounded in (1) ecological systems theory, (2) attachment theory, and (3) resiliency theory. The CSBM program included evidence-based practices of (1) careful screening of all mentors by mentoring program, (2) time and attention in matching pairs based upon mutual interests, personality and personal background, (3) provision of initial and on-going training of mentors, (4) clear communication regarding expectations of frequency and duration of contact for mentor matches, (5) structured mentor match activities, (6) consistent support and supervision of mentors by an on-site mentoring program coordinator, and (7) encourage regular communication between mentors, parents and teachers. All of these mentoring best practices were recommended by DuBois et al., (2002) based upon their meta-analysis results of mentoring programs for youth.

A further advantage of this study was that, up until now, there has been a paucity of intervention research focusing on studying the impact of school-based mentoring on middle school youth. The majority of school-based mentoring research conducted thus far has either focused on elementary or high school students or a combination of different school levels and thus, it has been unclear how mentoring might affect middle school students. For example, the study conducted by Herrera et al., (2007) analyzed the impact of school-based mentoring offered by Big Brothers Big Sisters on students from 4th to 9th grade and Portwood et al., (2005) examined the effect of mentoring on 4th to 12th grade
students. Furthermore, Slicker and Palmer (1998) only looked at high school students in their study of school-based mentoring. The only study on middle school students in previous mentoring research was conducted by Aiello (1988). However, the major limitation to Aiello’s study was that its mentoring program had an almost exclusive tutoring focus and thus the mentoring field was not able to ascertain the impact of evidence-based mentoring practices on middle school students. Thus, a significant contribution was made by the CSBM study because, for the first time in mentoring research history, a research project has been conducted analyzing the impact of an independent school-based mentoring program using mentoring best practices on middle school youth.

Further contributions were made by this study because it measured the impact of mentoring on middle school youth with measures that show strong reliability and validity. While Herrera et al. (2007) and Tierney, Baldwin-Grossman and Resch (1995), Slicker and Palmer (1998) and Portwood et al. (2005) used measures with sound psychometric properties, their research did not focus exclusively on middle school students. The one school-based mentoring study conducted by Aiello (1988) primarily used a qualitative measures created by the researcher (one was created by a mentor), and there was not any information provided that describes how trustworthiness was established for those measures. There was also only one reliable and valid quantitative measure used (the SCAMIN) and thus this study may have benefited from the use of variety of reliable and valid instruments to measure self-concept and academic performance.
Therefore, the CSBM study made a valuable contribution to the mentoring research field through its use of a variety of reliable and valid measures to assess the impact of mentoring on middle school students. For example, resiliency was measured in this study with the Sense of Mastery Resiliency Scale for children and Adolescents (MAS) (Prince-Embury, 2005). The MAS instrument assessed resiliency by measuring the following three scales: optimism, self-efficacy and adaptability (Prince-Embury, 2005, p. 86). The reliability alpha coefficients for the MAS subscales ranged from .61 (adaptability) to .78 (optimism) and the test-retest reliability for the MAS was strong with an overall score of .79 (Prince-Embury, 2005, pp. 87, 90). The MAS measure also shows evidence of convergent and divergent validity by showing expected negative and positive correlations with other variables measured by a variety of standardized instruments for children and adolescents (Prince-Embury, 2005, pp. 103-106).

School connection was measured by the Behavior Assessment System for Child – Version 2 (Reynolds and Kamphaus, 2004). The authors of this measure state that the internal consistency reliabilities for the BASC-2 subscales are strong “with median values near .80” (Reynolds and Kamphaus, 2004, p. 200). Convergent validity for the BASC-2 for children was shown due to its positive correlations, ranging from .56 to .83, with other measures of children’s behavior including: the Conners-Wells’ Adolescent Self-Report Scale; the Achenbach System of Empirically Based Assessment Youth Self-Report; Minnesota Multiphasic Personality Inventory-2; and the original BASC (Reynolds and Kamphaus, 2009, pp. 213-228).

Academic performance was measured by student grade point average, as well as by Massachusetts Comprehensive Assessment System (MCAS) data in both Math and
English Language Arts. The MCAS tests in Math and ELA show strong reliability with Cronbach’s alpha coefficient scores ranging from .85 to .90 (MCAS Technical Report, 2009, p. 136). In addition, “Massachusetts has accumulated a substantial amount of evidence of the criterion-related validity of MCAS tests. This evidence shows that MCAS test results are strongly correlated with relevant measures of academic achievement (MCAS Technical Report, 2009, p. 145).

In addition to using measures with proven reliability and validity, this study was also able to obtain attendance, discipline and academic data from computerized student records. This data included (1) the number of days absent and times tardy to school, (2) student grade point average, and (3) the number of times a student had out-of-school suspensions, in-house suspension and detentions. Access to this data was helpful because it provided a concrete and objective picture of how students were performing pre and post-test in regards to their school attendance, discipline and academic performance.

Further contributions were made to mentoring research as a result of the non-equivalent comparison group design used by this study. Although it would have been preferable to have used an experimental research design, as will be discussed in the limitations section, there were advantages to the non-equivalent comparison group design. The first advantage was the use of a control and study group. This provided an opportunity to compare the academic and behavioral progress between mentored students and non-mentored students. Further, a pre and post-test analysis of data was utilized which helped to clarify how mentored and control group students performed on a number of variable before and after the mentoring intervention. In addition, there was an equivalent number of students in each group with 44 students in the study group and 41
students in the control group. Furthermore, chi square results show that the distributions of gender and grade were not significantly different from the school. Thus, a strength of this study was the accurate representation of gender and grade within its sample. While race/ethnicity in the sample was significantly different from the school, the higher representation of African-American and Hispanic students in the study was expected because research shows that these two groups continue to be at higher risk when compared to Caucasian students (Forum on Child and Family Statistics, 2010, pp. 6, 15).

An additional contribution made within the design of this study was the inclusion of age and gender as the control variables. Age and gender were important because the mentoring research literature supports the inclusion of these variables. For example, Herrera et al. (2000), Grossman and Rhodes (2002) and Herrera et al. (2007) indicated that age should be included as a control variable because it has the potential to influence the closeness and duration of mentoring relationships, as well as may have an impact on mentee academic performance. Gender is also important because the mentoring research literature shows that this variable can influence the dependent variables posed by this study. For example, Tierney, Grossman and Resch (1995) in their study of the BBBS program found that gender had a significant impact on academic performance, behavior and attitude towards school. Portwood et al., (2005) in their study of the Youth Friends school-based mentoring program found that, while there was a statistically significant difference in self-esteem for boys, there was not a statistically significant increase in self-esteem for female mentees (p. 142). They write that “based on these findings, the effects of mentoring by gender should continue to be explored to determine not only how
outcomes may differ, but also how various components of the mentoring relationship (e.g., type of mentoring activity, duration) may impact these outcomes” (p. 142).

**Limitations of the CSBM Study**

While there are several significant contributions made by this research project, there are also a number of limitations with the current study. First, a non-equivalent comparison group design was used. This type of research design was selected because random assignment would have resulted in depriving students who urgently need mentors. Thus, all at-risk students for behavioral and academic problems, recommended by middle school staff, were placed in the CSBM program. Additional students who were not matched with a mentor, due to a lack of available mentors, were placed on a waiting list or control group. However, the major problem with this study design was that the study and control group were non-equivalent, because without random assignment, it was not possible to ensure that both groups were equivalent to one another in regards to the pretest values of the dependent variables. In fact, the statistical tests for equivalence showed that the CSBM group experienced: (1) greater anxiety; (2) more difficulties with inattention and hyperactivity; (3) more difficulty with interpersonal relations; and (4) a higher number of out-of-school suspensions. Thus, those in the CSBM group were at a greater disadvantage and gave a more conservative test of the hypotheses.

Another limitation of this study was that the overall sample size was relatively small with a total of 83 participants. The sample size could have potentially been increased by either recruiting additional students from Herberg or by inviting our district’s second middle school to participate in this study. However, adding extra
mentor pairs might have adversely affecting the provision of mentoring supervision due to the full-time teaching and counseling responsibilities of the two coordinators. Further, the second middle school was in the program planning phase and had not yet started their school-based mentoring program. Yet, the sample size in this research project was relatively small, which may have contributed to the smaller effect size found in this study. A larger sample size might have provided enhanced statistical power and could have potentially resulted in more significant statistical findings.

A further limitation of this research project was the relatively short duration of this study. It is interesting to note that in previous school-based mentoring studies with a similar duration of one academic year (10 months), there were less significant findings noted in the research (Aiello, 1988; Slicker & Palmer, 1998; and Portwood et al. 2005). However, studies on school and community-based mentoring that researched the impact of mentoring for at least 15 months, discovered more significant research findings (Tierney, Baldwin-Grossman and Resch, 1995; Anda, 2002; and Herrera et al., 2007). In addition, as recommended by Thomas and Rothman (1994) in their intervention model, the CSBM study would have been strengthened by conducting a pilot study to assess the impact of how mentoring duration impacts the quality of the mentoring relationship. Further, it would have also been helpful to conduct a field study to determine how duration of mentoring affects academic and behavioral performance. As mentioned previously, Baldwin-Grossman and Rhodes (2002) discovered that youth who had received mentoring for one year or more showed the highest improvements in academic, behavior and self-worth variables when compared to youth in mentoring relationships 6 to 12 months. In addition, mentees who received less than 3 months of mentoring
actually showed a drop in their self-worth and academic self-competence when compared to their pretest results (Baldwin-Grossman and Rhodes, 2002, p. 213). These results show that the length of time could be an important variable. Empirical evidence shows that mentoring duration has an effect on academic and behavioral outcomes and may also influence the overall quality of the mentoring relationship.

In addition to the limitations of the non-equivalent comparison group design, as well as a relatively small sample size and shorter study duration, this study may have also benefited by conducting a field test to assess the quality of the mentoring relationship. As mentioned previously, the intervention model created by Thomas and Rothman (1994) recommend field tests to help refine and create an effective intervention. An exploratory pilot study by Slicker and Palmer (1998) found that effectively mentored students showed a significant improvement in grades compared to the ineffectively mentored students and members of the control group (Slicker & Palmer, 1998, p. 331). In addition, all effectively mentored students returned to school for the next school year, while the ineffectively mentored students showed a 69% return rate to school and members of the control group had a 74% return rate to school (Slicker & Palmer, 1998, p. 330). Thus, there may have been more significant findings in the CSBM study by assessing the quality of the mentoring relationship and then comparing the results for effectively and ineffectively mentored students. The strategies employed by more effective mentors could then have been incorporated into more effective mentoring interventions.

A final limitation of this study was its use of the lengthy BASC-2 measure. Although this instrument has proven reliability and validity, it also consisted of 140 question items. As a result, students experienced test-taking fatigue and either left many
items blank or were not able to give as much thought to the numerous items on this test. Thus, had this study used a shorter and more user friendly measure, a more accurate portrayal of the school connection variables might have been obtained.

**C. Recommendations for Future Studies**

In the last two decades, major progress has been made towards understanding the effective practices and positive effects of mentoring, as well as in the design and implementation of effective mentoring research studies (Tierney, Baldwin-Grossman and Resch, 1995; Slicker and Palmer, 1998; Baldwin-Grossman and Rhodes, 2000; DuBois et al., 2002; Anda, 2002; Portwood et al., 2005; Herrera et a., 2007). However, there are still many areas that are recommended for future studies in the mentoring research field.

The first area recommended for further exploration is to build upon the findings of the CSBM study and to include the recommended changes outlined in the limitations section. These changes include: (1) using an experimental research design; (2) increased sample size; (3) extended duration of study; (4) conducting field tests to assess mentoring relationship quality, as well as how mentoring duration affects academic and behavioral outcomes; (5) student measures with fewer question items; and (6) develop a mentoring protocol.

An experimental research design, rather than the non-equivalent comparison group, is recommended because this will create equivalent study and control groups and thus would provide a more accurate assessment of the impact of school-based mentoring (Tierney, Baldwin-Grossman and Resch, 1995; Herrera et al., 2007). It is conjectured that perhaps the lack of statistically significant findings in the CSBM study may have been due in part to the higher risk students in its sample. The use of random sampling by
Tierney, Baldwin-Grossman and Resch, (1995) and Herrera et al. (2007) may have resulted in a lower risk sample and thus more positive findings in their respective studies. Additionally, the increased sample size would provide a greater representation of middle school students and would help to provide a more statistically accurate picture of school-based mentoring (Tierney, Baldwin-Grossman and Resch, 1995; Herrera et al., 2007).

Further, the extended duration of study could potentially result in more significant findings because previous mentoring research shows that more positive effects are found the longer students are in the mentoring relationship (Tierney, Baldwin-Grossman and Resch, 1995; Baldwin-Grossman and Rhodes, 2002; Herrera et al., 2007). Conducting field tests to assess mentoring relationship quality, as well as how mentoring duration affects academic and behavioral outcomes will help to refine and improve mentoring interventions. In addition, the use of more user friendly student measures may result in a more accurate picture of student performance because students may be more likely to complete all items on a shorter instrument.

Another area recommended for future study would be to conduct a longitudinal study on the effects of school-based mentoring. The longest study duration of school-based mentoring was conducted by Herrera et al., 2007 and lasted for a total of 15 months. Baldwin-Grossman and Rhodes (2002) discovered that the duration of mentoring is significantly correlated with increasingly positive results. There has never been a school-based mentoring study in which the impact of mentoring on students is assessed each year starting in middle school and ending in their senior year in high school. It would be a valuable study because it may yield important findings regarding the impact of mentoring on at-risk behavior including dropping out of high school. As
mentioned previously, dropping out of school is a serious problem because “education shapes the personal growth and life chances of our children, as well as the economic and social progress of our Nation” (Forum on Child Family Statistics, 2010, p. 14). Dropping out of school is a significant concern in our country because a total of 13% Hispanic, 12% African-American, and 7% of Caucasian youth were not enrolled in school in 2009 and puts these young people at increased risk of sharply limiting their future career and academic prospects (Forum on Child Family Statistics, 2010, p. 15).

A further area recommended for future study would be to complete a meta-analysis of current school, community and work-based mentoring programs. The last comprehensive meta-analytic review of mentoring programs was completed by DuBois et al. (2002) and yielded highly useful results in regards to what is involved in creating comprehensive mentoring. However, the mentoring research field would benefit from a more comprehensive and current meta-analysis of mentoring programs. An updated meta-analytic review should include community, school and work-based mentoring programs and how these three different types of mentoring compare to one another in regards to their overall effectiveness. In addition, this review should break down the studies by the age of mentees. This would help enhance our understanding as to how elementary, middle and high school age mentees differ in their response to mentoring.

An additional area recommended for future studies is to assess the impact of school-based mentoring from the perspective of the mentors and middle school students receiving mentoring services. In studies completed on school-based mentoring thus far, Herrera et al. (2007) obtained this information from mentors and students receiving school-based mentoring in the Big Brothers Big Sisters program. However, there has
never been a study where mentors and mentees have evaluated their experience in school-based mentoring programs not affiliated with BBBS (Aiello, 1988; Slicker and Palmer, 1998; Portwood et al., 2005). Furthermore, there has never been a study that examined this area specifically in middle school-based mentoring programs. The information gleaned from this type of study would be important because it would help school-based mentoring program coordinators better understand what helps or hinder mentoring practices in middle schools. In addition, there has been only one qualitative study conducted on the impact of mentoring for mentors and students (Anda, 2002). However, this research project focused on community-based mentoring for high school students and did not address the impact of school-based mentoring for middle school students and their mentors. Therefore, it would also help to include a qualitative component in order to obtain a more rich and detailed description of the mentoring experiences for mentors and students.

D. Implications for Practice

Overall, the results from the CSBM study indicate that there was not a statistically significant relationship between school-based mentoring and academic performance, attendance, discipline, resiliency and school connection. However, there was a statistically significant relationship between school-based mentoring and out-of-school suspensions. Further, the exploratory data analysis showed indications of some limited positive directions. The implication from this study is that it expands the knowledge base in mentoring by suggesting that more effective mentoring interventions are needed or studies of a longer duration are required in order to achieve statistically significant positive change.
The findings from this study may have been strengthened by regularly assessing the quality of the mentoring relationship for students and mentors throughout the school year. This is important because ineffective mentor pairs would then receive extra needed time and attention by the mentoring coordinator, and if needed, a student and mentor can be re-assigned to a more positive mentor match. Thus, the implication from this study, as well as the results from Slicker and Palmer (1998) is that mentoring coordinators might see more positive mentoring outcomes as long as students continue to feel that they are effectively mentored. Mentoring coordinators should recognize that, at times, mentoring pairs must be re-assigned in order to obtain optimal mentoring results for their students.

Further, previous research has also shown that a longer duration of mentoring is linked with more positive results for students (Baldwin-Grossman and Rhodes, 2002). The CSBM study might have experienced more significant findings had the mentor matches met for more than one academic year. In addition, the creation of an intervention protocol should specify how mentoring facilitators can ensure mentoring pairs are meeting at least one hour a week. Therefore, the implications for mentoring coordinators is to strongly consider longer weekly and yearly mentoring duration for their mentor matches in order to obtain the most positive academic and behavioral results for their mentored students.

Further implications from the CSBM study can be found in strengths and limitations of its research design. For example, the strengths of this research project was its focus on analyzing a middle school-based mentoring programs not affiliated with BBBS. There was only one previous study completed in mentoring research history on the impact of school-based mentoring for middle school students (Aiello, 1988).
However, there were major limitations with that research project including a lack of comprehensive school-based mentoring practice, as well as limited use of reliable and valid instruments to measure student progress. The implication of the CSBM study was that it was able to expand the knowledge base in the mentoring field by providing comprehensive school-based mentoring as recommended by DuBois et al., (2002), as well as measure the impact of mentoring on middle school youth with measures that showed strong reliability and validity. In addition, this study has implications for future researchers in that it advanced school-based mentoring research with the inclusion of age and gender as the control variables. Age and gender were important because the mentoring research literature supports the inclusion of these variables because of their documented influence on mentoring outcomes (Herrera et al., 2000; Grossman and Rhodes, 2002; Portwood et al., 2005; Herrera et al., 2007).

Additional implications can also be found for future mentoring research from the limitations of this research project. The CSBM study, supported by previous mentoring research findings, might have experienced stronger outcomes had this project used a larger random sample, as well as shorter measures. It is conjectured that a lack of a random sample in this study may have resulted in a sample of higher risk students in the study group. Therefore, these students had much more to overcome when compared to previous experimental studies with more successful outcomes (Tierney, Baldwin-Grossman and Resch, 1995; Herrera et al., 2007). Thus, the implications from the limitations of this study, as well as previous research with more robust findings, are that future school-based mentoring researchers might find more significantly positive results by using an experimental research design with a larger sample size and shorter measures.
in order to accurately document mentor outcomes for middle school students. These shorter measures might include the Match Characteristics Questionnaire (MCQ), as well as the Youth Mentoring Survey (YMS) both created by Harris and Nakkula in 2008. The MCQ is designed for mentors working with elementary, middle and high school students and measures the mentor’s perspective on the mentoring relationship quality (Harris, 2010, p. 1). The YMS measures the quality of the mentoring relationship from the perspective of elementary and secondary youth. (Harris, 2010, p. 1) Further, the use of field studies are highly recommended in order to assess mentoring relationship quality, as well as mentoring duration prior to conducting a rigorous test of the mentoring intervention.

This study, as well as previous studies conducted throughout mentoring research history, has implications for social work practice. Social workers working with youth continue to look for effective ways to help at-risk youth in our nation. Social work practitioners are urgently aware that adolescents and children continue to experience significant stressors at home such as poverty, divorce and violence and are also experiencing problems at school including bullying, failing grades and a lack of connection to their school (Forum on Child Family Statistics, 2010, pp. 5-6, 19). Parents are overwhelmed due to their work, personal and parenting responsibilities and are looking for help with their children. Social workers know that children and adolescents experiencing stressors both at home and at school, as well as lacking needed parental guidance, are particularly vulnerable for engaging in high-risk behavior. These risky behaviors can include: smoking; substance abuse; behavior problems in the community and school; early sexual activity; and academic difficulties including dropping out of
school (Eaton et al., 2010; Forum Child Family Statistics, 2010). A significant amount of
time, energy and money is spent within the social work field on addressing the serious
and long-term consequences of these high risk behaviors.

This study has helped to advance the knowledge base for the social work field by
conducting a test of a comprehensive school-based mentoring program for middle school
students. However, the results from this study show that strategies employed by this
program were not enough to effect positive statistically significant change. The use of a
more rigorous intervention model is needed. Future studies should include field tests to
assess the quality of mentoring relationship and how duration affects academic and
behavioral outcomes for middle school youth. The CSBM study also shows that in order
to implement effective intervention research, an experimental research design is needed
so that experimental and control groups are equal and thus more accurately show the real
effect of an intervention. The promising trends shown in previous mentoring research
indicate that school-based mentoring has the potential to positively influence academic
performance, attendance, discipline, resiliency and school connection for middle school
youth. However, the results from this study also show that mentoring is not a panacea.
The social work field needs to be cautious in embracing mentoring until many more of
the design features are understood. This study offers some additional contributions to the
mentoring literature as the absence of statistically significant results suggests that more
time and thought need to go into testing the design features of a mentoring program. It is
hoped that the continued exploration of school-based mentoring by social work
researchers will help to foster its further development and provide the social work field,
as well as other adults working with and caring about children, one promising solution to
the multiple challenges faced by at-risk youth in our nation.
## Appendix A

### Table: Summary of Research Studies on Effectiveness of Community and School-Based Mentoring Programs

<table>
<thead>
<tr>
<th>Study Focus</th>
<th>Research Design</th>
<th>Target Group</th>
<th>Control Group</th>
<th>Benefits for Mentees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Brothers Big Sisters community-based mentoring program</td>
<td>Experimental design: pretest and post-test 18 months after initial test</td>
<td>959 youth ages 10-17 (487 experimental group and 472 control group)</td>
<td>Yes</td>
<td>Improvement in school performance, school attendance, and school behavior. Decrease in substance use.</td>
</tr>
<tr>
<td>Assessment of a school-based mentoring program located at a middle school</td>
<td>Quasi-experimental non-equivalent control group design</td>
<td>55 middle school students</td>
<td>Yes</td>
<td>Positive, nonsignificant improvement in GPA scores. Positive post program evaluations from teachers, mentors and students.</td>
</tr>
<tr>
<td>Evaluation of a school-based mentoring program located at a high school</td>
<td>Quasi-experimental design: pretest and post test 6 months after initial test</td>
<td>45 10th grade students</td>
<td>Yes</td>
<td>Decrease in high school dropout rate and increased academic performance for effectively mentored students.</td>
</tr>
<tr>
<td>Comparison of community and school-based mentoring programs</td>
<td>Causal Comparative/Expost facto</td>
<td>29 community based programs and 35 school based mentoring programs</td>
<td>No</td>
<td>School based mentors spend more time on academics and more contact with teachers, community based mentors focus more on social activities and have more contact with parents.</td>
</tr>
<tr>
<td>Predictors of a positive mentoring relationship and the effect of time in mentoring relationships</td>
<td>Secondary data analysis</td>
<td>487 youth ages 10-17</td>
<td>No</td>
<td>Found highest improvements in academic performance, behavior and self-worth for youth with one or more years of mentoring. Youth with less than three months of mentoring experienced a drop in self-worth and academics.</td>
</tr>
<tr>
<td>Meta-analytic review of work, school and community-based mentoring programs</td>
<td>Meta-analysis</td>
<td>59 mentoring programs for youth from late childhood to older adolescence</td>
<td>No</td>
<td>Mentoring is making a positive difference. Effect size is small. The programs with highest effects featured on-going support and training for mentors, as well as clear expectations for mentors.</td>
</tr>
<tr>
<td>Evaluation of the Project R.E.S.C.U.E community mentoring</td>
<td>Qualitative Study</td>
<td>18 High school youth and their mentors</td>
<td>No</td>
<td>Helped to improve the behavior and life skills for high school youth.</td>
</tr>
<tr>
<td>Assessment of the YouthFriends school-based mentoring program</td>
<td>Quasi-experimental design: pretest and post test at the end of the first school year</td>
<td>105 elementary school students, 38 student in middle school and 22 high school students</td>
<td>Yes</td>
<td>Improvement in school connection. No improvement in self-esteem for girls, but improvement in self-esteem for boys. No change in substance use.</td>
</tr>
<tr>
<td>Big Brothers Big Sisters school-based mentoring program</td>
<td>Experimental design: Teacher and youth surveys three different times during study</td>
<td>1,139 adolescent mentees grades 4 to 9: Half to control group</td>
<td>Yes</td>
<td>Improvement in grades, academic self-efficacy; behavior; and school attendance.</td>
</tr>
</tbody>
</table>
## Appendix B

**Table: Summary of Measures Used to Test Each Hypothesis Variable**

<table>
<thead>
<tr>
<th>Hypotheses/ Exploratory Question Variables</th>
<th>BASC-2 Student Version</th>
<th>MAS</th>
<th>GPA</th>
<th>MCAS</th>
<th>Attendance</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Performance</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>School Behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Resilience</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Connection</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
References


References Continued


References continued


References continued


References continued


North, D., Sherk, J., & Strother, J. *Starting a mentoring program*. Folsom, CA: The EMT Group, Inc.


References continued


