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Determining the Quality and Impact of an E-Mentoring Model on At-Risk Youth

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Determining the Quality and Impact of an
E-Mentoring Model on At-Risk Youth

by

Diane W. Culpepper

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
Department of Adult, Career and Higher Education
College of Education
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Keywords:  high school dropouts, online mentoring, self-esteem, National Mentoring Partnership, GED Exit Option

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Dedication

I wish to dedicate this dissertation to the mentors in my life: my parents, who taught me to always believe in myself; to Richard Miglorie who taught me what it means to be a servant leader; to Bill Blank who taught me patience and perseverance; and to my husband who taught me to take risks and enjoy. I am forever grateful.
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Special recognition goes to the mentors and mentees that participated in this study. You said “Yes” when I asked you to be a part of the study. You were eager contributors to the process and an inspiration to each other. You completed surveys and answered questions when I asked you to – I could not have done this without you! You truly were the co-participants of my design.
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Determining the Quality and Impact of an E-Mentoring Program on At-Risk Youth

Diane W. Culpepper

Abstract

The purpose of this research was twofold. Since e-mentoring is relatively new, there have been very few studies that have explored the impact of an e-mentoring program on both the academic and psychological outcomes of its participants. In addition, there is little research on the quality of implementing, or what we will call the working quality, of an e-mentoring model. This study addressed both.

First, the study examined whether or not e-mentoring had an academic and psychological impact on 32 high school students who were at-risk of dropping out of school. The students were enrolled in a GED Exit Option program at two technical centers in a large urban school district in Florida. Each student was matched with a mentor who was a business partner and involved with one or both of the technical centers in an advisory capacity. The students and mentors were randomly matched and never met face-to-face during the program. All of their communication and mentoring was done online using a secure e-mail program.

Second, the working quality of the e-mentoring model was addressed. By using the design experiment methodology during the course of the study and examining the quality of each component of the e-mentoring model as it was being implemented,
revisions were made as problems were identified during each component of the e-mentoring program.

The structured e-mentoring model used was based on a review of the literature and specifically on the research of Single and Muller (1999). The students, mentors, and instructors who participated were co-participants in the design and analysis and provided input using surveys and focus groups at several intervals throughout the e-mentoring program. The design experiment approach was intended to help researchers deal with and learn from events in classrooms where it is impossible to control many variables and where the objective of the research is to refine a system (e.g., an e-mentoring program) or a curriculum.

Analysis of the data showed there were no significant differences between the participants and the non-participants in the program as it related to self-esteem, career indecision, attendance, and academic achievement. However, the rich dialogue that occurred throughout the program allowed the researcher to examine the working quality of the program in progress. The modifications and improvements made to the e-mentoring process will provide an excellent foundation for future e-mentoring programs.
Chapter 1

Introduction

The problem of students leaving school before graduation is a national crisis. The National Center for Education Statistics reported that in 2005 approximately 3.5 million 16- through 24-year-olds were not enrolled in high school and had not earned a high school diploma or alternative credential such as a GED. These individuals accounted for 9.4 percent of the 36.8 million 16-through 24-year-olds in the United States in 2005. Research reveals that although the dropout rate has declined between 1972 (14.6%) and 2005 (9.4%) (NCES, 2007), leaving school without a diploma continues to pose a serious problem to the social and economic health of the country as well as to the individual dropout (Lehr, 2004).

Parents, high school counselors, teachers, and administrators, along with employers and the business community, worry about the fate of high school dropouts. As the United States moves towards a higher-skilled labor force, high school dropouts will have a more difficult time surviving economically (Beatty, Neisser, Trent, & Heubert, 2001; Hull & Grevelle, 1998; Swanson, 2007). Those who drop out of high school can expect to earn considerably less money, expect to experience difficulties with mental and physical health, and will most likely have less than adequate academic skills than high school graduates (Bridgeland, Dilulio, & Morison, 2006; Catterall, 1985; Edmondson & White, 1998; Harlow, 2003; Rumberger, 1987). For example, in 2005 the unemployment
rate for dropouts was 32.9%. Further, the earnings of a high school dropout over a 40 year period is approximately $350,000 less than those of a high school graduate over a lifetime of working (Spotlight on Statistics, 2007). Dropping out not only makes an impact on the readiness of the workforce in the 21st century global economy, but it is also intertwined with other issues impacting America’s social structure. Poverty, teen pregnancy, child abuse, drug abuse, and criminal activity are often the result of a lack of education and training necessary to succeed in today’s workplace.

Until the beginning of the 20th century, dropping out of high school was not perceived as a problem in society because very few students enrolled in high school in the first place. As the United States moved from a rural economy to an urban one, more and more students enrolled in and graduated from high school. However, there were plenty of jobs still available for adults without high school diplomas. Today, this is simply not the case. American competitiveness and worker prosperity are tied tightly to the education attainment and skill development of the workforce (Swanson, 2007; U.S. Department of Commerce, 2004).

Only recently have educators begun placing greater attention on dropout prevention in this country (Boniilla, as cited in Lunenburg, 2000; Hammond, Smink, & Drew, 2007). In 1986, Florida passed the Dropout Prevention Act which authorized and encouraged district school boards to establish comprehensive dropout prevention programs. Since that time, various programs and strategies have been developed to help keep students in school including modifying the instructional environment, strengthening school membership, developing relationships with students, counseling, and mentoring (Bransford, Brown, & Cocking, 2000; Lunenburg & Irby, 1999; Stanard, 2003).
Unfortunately, many of these programs rarely constitute a major effort to hold youth in school. They are often too small, poorly funded, and isolated to really make a dent in the dropout problem (Dorn, 1996).

During the last decade and a half, mentoring has been rapidly gaining momentum in the school environment. Approximately five million youth are involved in school and community-based mentoring programs nationwide (McLearn, Colasanto, Schoen, & Shapiro, 1999). Mentoring can be found in programs that address the needs of youth at risk for educational failure, teen pregnancy, delinquency and substance abuse. Mentoring can also be found in career exploration and preparation programs both at the secondary and postsecondary levels. Mentoring is also often implemented as part of a dropout prevention program.

According to the National Mentoring Partnership (n.d.), approximately 15 million young Americans are waiting to be matched with a mentor. Scarcity of resources, lack of time, and a limited number of available adults have hindered the successful implementation of many mentoring programs. Although the research indicates mentoring is an extremely effective way to promote student success and decrease the high school dropout rate, like many other intervention strategies, mentoring has not become a major component in the American education model.

One reason mentoring has not been fully implemented throughout the education world is that the demand for mentors far outweighs the available supply. Volunteers are scarce. People who otherwise might wish to become mentors are leading very busy and hectic lives (Furano, Roaf, Styles, & Branch, 1993). Many people who might make excellent role models for at-risk youth feel they are unable to commit the required time
necessary. Retirees might have time to serve as mentors but often lack the ability to do so due to financial or transportation issues. College students might have the interest in the students but might find it difficult to make a long-term relationship considered so important. Some potential mentors might be afraid to go into the neighborhoods that are most in need of positive role models for youth. Practitioners have begun to search for alternative forms of mentoring. One of these alternatives is e-mentoring.

E-mentoring is the telecommunications version of mentoring. Using the Internet, mentors are connected to their mentees. Many mentors cannot or do not have the time or ability to go to a classroom, but they can become involved with students via the Internet. Usually, the interaction between the mentor and mentee occurs via e-mail, but it could also entail instant messaging, audio and video conferencing, and online discussion boards both synchronously and asynchronously (Guy, 2002; Single & Muller, 1999). Currently, there is a great deal of excitement about e-mentoring, and as access to technology and the Internet has become more common in homes and schools across the country, it has become easier to develop e-mentoring programs. Some of the programs focus on career or school outcomes, while others focus on much broader developmental goals.

Currently, the most common form of e-mentoring is the ask-an-expert model. This model of connecting subject matter experts with students who are studying or researching a particular topic is easier to integrate into the classroom than more traditional mentoring programs. Two successful e-mentoring ask-an-expert projects currently underway in the United States are the International Telementor Project (ITP) and the Electronic Emissary Project (EEP). ITP creates matches between industry professionals and students. Since 1995, over 28,000 students have been served.
throughout nine countries (Lewis, 2005). EEP, which has been in existence since 1993, is designed to match students with subject matter experts from around the world via e-mail to provide assistance in curriculum-based projects. To date, over 400 teams of students, teachers, facilitators, and subject matter experts have participated in an EEP project. Other e-models are just emerging.

The literature is full of numerous mentoring projects that have been studied and researched; however, there is very little theoretical perspective for mentoring. Bozeman & Feeney (2007) suggest that there has been much emphasis placed on the nature of effective mentoring, the benefits of mentoring, and the impact of mentoring on a specific population, but there has been very little attention paid to the core concepts and theoretical foundation of mentoring.

In addition, the descriptions of mentoring programs are so diverse and the empirical studies so broad that the cumulative knowledge gained through the research is often inconsistent and sometimes opposing. Another problem is the lack of a common operational definition of mentoring (Bozeman & Feeney, 2007; Healy & Welchert, 1990; Jacobi, 1991). For the purposes of this study, the definition of mentoring was adapted from the National Mentoring Partnership (n.d.) and reads as follows: “Mentoring is a structured and trusting relationship that brings young people together with caring individuals who offer guidance, support and encouragement aimed at developing the competence and character of the mentee.”

Statement of the Problem

There were two problems that were investigated in this dissertation study. Since e-mentoring is relatively new, there are very few studies that explore the impact of an
e-mentoring program on both the academic and psychological outcomes of its participants. There is also little research on the quality of implementing, or what we have called the working quality, of an e-mentoring model. This study addressed both. First, the study helped determine whether e-mentoring had an academic and psychological impact on high school students who were at-risk of dropping out of school. Second, the working quality of the e-mentoring model was addressed. By using a design experiment methodology during the course of the study and examining the quality of each component of the e-mentoring model as it was being implemented, problems were identified and corrected or improved upon if appropriate as they arose during each individual phase of the e-mentoring program.

**Purpose of the Study**

The purpose of this study was twofold. The first purpose was to determine the impact of an e-mentoring program on at-risk students’ self-esteem, career indecision, attendance, and academic achievement. The students participating in the study were enrolled in the GED Exit Option program during the 2006-2007 school year.

Second, the study examined the working quality of each component of the structured e-mentoring program model and evaluated each as it was being implemented in order to determine the implication for design changes needed to improve the model while the program was underway and in future programs.

**Research Questions**

Three research questions were posed:

1. What is the impact of the structured e-mentoring model on at-risk students’ self-esteem, career indecision, attendance and academic achievement?
2. What is the working quality of each of the design components of the structured e-mentoring model?

3. What are the implications for design changes needed to improve the model during the study and in subsequent studies?

Definition of Terms

For the purpose of this study, the definitions of terms are as follows:

At risk students – Students who are in danger of dropping out of school before graduation.

Career indecision – The degree of certainty a person feels about his/her decision regarding a college major and/or a career.

E-mentoring – The telecommunications version of mentoring. Using the Internet, mentors are connected to their mentees.

GED Tests – General Education Development Tests that measure the outcome of a high school education.

GED Exit Option – An option that states have to administer the GED Tests to students currently enrolled in high schools in order to avoid the inducement of students to leave school before graduating (GED Exit Option Model Procedures Manual, 2003).

Mentee – The student being mentored or guided by the mentor.

Mentor – An individual who is a trusted guide; an adult who develops a relationship with a younger person in order to teach, lead, or coach.

Mentoring – Generally, a one-on-one relationship between an adult and youth that continues over time and is focused on the youth’s development.

Self-esteem – Self-worth; the value someone gives to his or her life and accomplishments.
Working quality – Quality of implementation; the quality of how the e-mentoring model actually works.

Assumptions

The researcher assumed that there was uniformity in understanding and implementing the mentoring program by the mentors, mentees, and teachers. It was assumed that all the participants responded honestly on the survey instruments that they are asked to complete. It was also assumed that the mentors and mentees were able to develop a relationship during the time period of five months. Three teachers and six classes participated. The curriculum for the GED Exit Option program is standard between classes and schools, and it was assumed that all students received comparable instruction. It was also assumed that all students were able to utilize the hardware and software necessary to communicate online.

Limitations

1. The random assignment of research participants to an experimental study greatly enhanced the validity of the study. However, in this study, students who were participating in the GED Exit Option program were not randomly assigned to the class. The students in the program met specific eligibility requirements and therefore had similar characteristics. However, they were assigned to the classes based only on their geographic location in the school district.

2. The use of self-report measures might have been problematic. The participants may have responded in a socially desirable manner instead of honestly. Students were assured of anonymity and confidentiality and were encouraged to answer truthfully.
3. The mentors were volunteers from the Central Florida business community. In order to meet the school district’s requirements for mentors who work with students, it was necessary to follow specific policies that were already in place in the district. The Central Florida business community might not have been representative of the potential mentor population in the Central Florida area.

4. Both the research participants and the mentors lacked experience with developing and sustaining relationships online.

5. Since students in the randomly selected mentored classes were allowed to choose whether or not they wished to have a mentor, mentored students and non-mentored students in the same class might have discussed the project with each other.

6. Three teachers participated in the program, and each teacher might have interpreted the implementation of the program differently.

7. Confounding variables such as other activities taking place in the classroom and at home might have had an impact on the results.

As with any study, there are unknown factors that may affect outcomes. For example, the general classroom environment or the relationship the student developed with the teacher might have had more influence on the student’s achievement and self-esteem than the e-mentoring program had on them.
Organization of the Study

The purpose of the Chapter 2, the Literature Review, is to present an overview of the significant research and theory surrounding four main topics: high school dropouts, mentoring as a possible solution to the dropout problem, a framework of one structured electronic mentoring model, and the conceptual framework of a mentoring program, as a way to successfully provide mentoring to more students across the nation. The key issues and challenges are highlighted in the review. Chapter 3 provides an overview of the methodology that was utilized in the study including the research design, the population and sample, the instruments and surveys used, the procedures that were followed, and the data analyses that were used. Chapter 4 provides an overview of the quantitative findings and results from the qualitative phases of the study. Chapter 5 provides a summary and conclusions of the results as well as recommendations for future research.
Chapter 2

Literature Review

Although often difficult to determine the exact percentage, students continue to drop out of high school at an alarming rate. The Editorial Projects in Education Research Center (2007) reported that about 30% of the class of 2007 will fail to graduate with their peers. In February, 2005, the Manhattan Institute for Policy Research reported that the nationwide graduation rate in 2002 was 71%, while the United States Department of Education’s National Center for Education Statistics reported the graduation rate for the same year was 86.5%. Mather and Rivers (2003) through the Population Reference Bureau, conducted a report on the 2000 Census and concluded that approximately 10% of teens ages 16-19 were high school dropouts.

Calculating a precise dropout rate is almost impossible because schools, districts, and states differ in their definition of a dropout, their counting methods, their methods of following a student who drops and reenters, and also of following those who leave the district and reenter another one. Some statistics include earning equivalent credentials such as the GED while others do not. Some of the states include students who quit school and then return while others do not. Dropout rates are calculated two ways – event and status. Event rates describe the proportion of students who leave school each year while status rates provide cumulative data on dropouts among a group of student within a specified age range. Sometimes institutions report rates as event and sometimes as status.
However, whether the number is 10% or 26%, dropping out of high school is a problem in the United States.

The statistics in Florida are just as disturbing. *Education Week* (2007) reported that Florida, based on 2004 data, has a 60.5% graduation rate, ranking it 45th out of 50 states and the District of Columbia. The Manhattan Institute (2005) analyzed graduation numbers for the state of Florida’s class of 2002 and concluded that 59% of Florida’s students graduated in the traditional four years. Although the event dropout rate has steadily decreased in Florida during the past five years from a high of 4.6% in 1999-00 to 3.0% in 2004-05, 27,784 dropouts were reported for grades 9 -12. In Orange County, Florida, the 11th largest school district in the nation, the event dropout rate was 2.0% in 2004-05, well above the state average. The graduation rate in Orange County was 73.8% for the same year (Florida Department of Education, 2007).

As the median income and the cost of living continue to rise in Central Florida, dropouts face bleak economic prospects in this community. The 2006 American Community Survey conducted by the U.S. Census Bureau reported that the average family income in Orlando was $40,143. Although hospitality is considered the number one employment sector in Central Florida, advanced manufacturing, aviation and aerospace, digital media, simulation and training, and biotechnology are quickly emerging as the industry sectors of the future. Adults without a high school diploma will be unable to compete in the Central Florida job market and may face a life of unfulfilled potential. In addition to the adverse economic consequences for those who drop out of school, the disaffiliation from society that occurs merits public attention.
Consequences of Dropping Out

The consequences of dropping out of high school have serious economic, social, and individual outcomes. Those who drop out of high school can expect to earn considerably less money, experience difficulties with mental and physical health, and have weaker academic skills than high school graduates. The U.S. Department of Labor (2005) reported that of the 18.9 million new jobs projected by 2014, 87% are expected to be filled by workers with at least some post-secondary education. If high school dropouts are working, they earn considerably less money than high school graduates. The average annual income for a high school dropout in 2005 was $17,018. The average annual income for a high school graduate during the same year was $26,933 (U.S. Bureau of the Census, 2006). Each year’s class of dropouts will cost the country billions of dollars during their lifetimes in lost earnings and unrealized tax revenue (Bridgeland et al., 2006; Catterall, 1985; Edmondson & White, 1998; Mann, 1986).

Other dropout statistics are equally alarming:

1. In the class of 2002, about 22% of white students dropped out of high school compared to 44% of African-American students and 48% of Hispanic students (Green & Winters, 2005).

2. The unemployment rate of young black dropouts is twice that of black high school graduates in the age group of 18 - 24; 35.8% for the dropouts and 18.3% for the graduates. (Bureau of Labor Statistics, 2004).

3. Of the 496,000 dropouts from the class of 2003-04, 39.9% were not employed. (Bureau of Labor Statistics, 2004).
4. In 2004, approximately 34.7% of high school dropouts were living at or below the poverty level (U.S. Department of Commerce, 2004).

5. Seventy-five percent of America’s state prison inmates are high school dropouts while 59% of the federal prison inmates did not finish high school (Harlow, 2003).

6. High school dropouts are less likely to vote than are high school graduates. (U.S. Bureau of Census, 2004).

The seriousness of the dropout problem in the United States can only get worse. As the country moves towards a higher-skilled labor force, high school dropouts will have an increasingly difficult time financially because they will not be able to compete in the global marketplace. As the number of students from low-income and immigrant families entering the public school system increases, the number of students at risk of dropping out will increase. The continued movement towards high school exit exams and the end of social promotion could also increase the number of students who do not complete high school (Rumberger, 2001).

Why Students Dropout of High School

There are probably as many reasons for dropping out of high school as there are high school dropouts. Dropping out is a process, not an event, and while it occurs at a specific moment, the process begins long before the decision to leave school is made (Bridgeland et al., 2006; Fasko & Flint, 1990; Gerics & Westheimer, 1988; Stanard, 2003). Dropping out is a combination of influences that are often multifaceted and interrelated. Poor academic performance, lack of goals for the future, substance abuse,
pregnancy, legal problems, truancy, tardiness, suspension, lack of family support, single parent households, primary language other than English, and poverty are almost always characteristics of dropouts (Horn, 1992; Woods, 1995).

Dropouts from the National Education Longitudinal Study of 1988 reported a variety of reasons for leaving school early. Seventy-seven percent mentioned school-related reasons like “did not like school,” “failing school,” and “could not get along with teachers.” Family-related reasons were mentioned by 34% while work-related reasons were mentioned by 32% of those in the study (Berktold, Geis, & Kaufman, 1988, as cited in Rumberger, 2001). Bridgeland et al (2006) reported that the major factors influencing dropping out of high school included “classes were not interesting,” “missed too many days and could not catch up,” and “was failing in school.”

Background Characteristics and Dropping Out

The literature seems to reveal that there are two background characteristics that are strong predictors of dropping out of high school. These two characteristics are socioeconomic status and race/ethnicity. Students of lower socioeconomic status tend to have higher dropout rates (Ekstrom, Goertz, Pollack, & Rock, 1986; Swanson, 2007; Woods, 1995). Dropping out occurs more often among Hispanics than among blacks, and more often among blacks than whites (Green & Winters, 2006; Jordan, Lara & McPartland, 1996; Swanson, 2007). Other background factors associated with dropping out include being raised by a single parent, coming from a large family, living in the South or living in a large city (Barro & Kolstad, 1987; Mather & Rivers, 2003). Students who leave school do so primarily for economic reasons, for reasons tied to their failure,
real or imagined, or because they do not fit in academically and/or socially (Catterall, 1986; Roderick, 1993; Rumberger, 2001).

During 2003 in the largest urban school district in Central Florida, the per capita income was $20,916 with 16.3% of the population under age 18 living below the poverty line. During the 2006-07 school year, 47.3% of the student population in this district received reduced-price or free lunch (Florida Department of Education, 2007). The racial makeup of the student population in this district was 34.84% white, 27.63% black, and 30.55% Hispanic. Only 47% of the families in this county were made up of married couples living together. The rest were single parent families, non-families living together, or individuals living alone. Once these statistics were analyzed, it seems understandable that the dropout rate in this urban school district is so high.

*Academic Performance and Dropping Out*

Poor academic performance is cited most often as a reason for dropping out of high school. Repeated failure in school leads to more failure and eventually to dropping out of school (Bridgeland, et al., 2006; Edmondson & White, 1998). Poor grades and low test scores increase a student’s frustration and reduce the motivation to stay in school (Bryk & Thum, 1989; Hale & Canter, 2000). One of the most thorough studies on why students drop out of high school was conducted by Ekstrom et al. (1986) who found that high school dropouts had lower school grades and test scores, spent less time reading and did less homework than their counterparts who stayed in school. They also reported that dropouts had an extended history of discipline problems including truancy and tardiness.
Truancy, Tardiness, and Dropping Out

High school dropouts have higher rates of chronic truancy and tardiness than those who stay in school. Attendance problems can be an early signal that the student is disengaging from the schooling process; daily school attendance reflects both student motivation and parental support (Ekstrom et al., 1986; Hale & Canter, 2000; Lee & Burkam, 1992). As students are disengaging, their academic achievement obviously suffers. The opposite is true as well. As academic achievement begins to suffer, students do not want their peers or teachers to know the extent of their academic problems. Students begin missing classes or skipping school to avoid frustration and embarrassment. Either way, students miss school, and many eventually drop out or are suspended for lack of attendance (Ekstrom et al., 1986). Deeper issues are often at the root of truancy including drug abuse, a troubled home, fear of bullies, and a need to work and help support the family. These same issues often impact students’ self-esteem and are intertwined as reasons for eventually dropping out of school.

Self-Esteem and Dropping Out

Self-esteem, or the feeling one has toward oneself, is often believed to be necessary for success in school. Educators generally agree that unproductive behavior resulting in dropping out of school is associated with low self-esteem and underachievement (Beck & Muia, 1980; Brodinsky & Keough, 1989). Self-esteem is defined by the perceptions that a person holds about him or herself. These perceptions vary in clarity, precision, and importance, and the value placed on these perceptions,
whether positive or negative, makes up one’s self-esteem. Students with poor self-esteem often see themselves to be poor learners (Weaver & Matthews, 1993).

Many programs that focus on improving at-risk student achievement and behaviors emphasize self-esteem. The research regarding this concept is inconsistent, however. Ekstrom et al. (1986) reported that dropouts were significantly more likely than their peers who stayed in school to show lower self-concept. Other studies, including the High School and Beyond Survey which focused on sophomores, found no difference in self-esteem between those who graduated and those who did not (Fasko & Flint, 1990; Royse, 1998).

Many adolescents, by the time they drop out, have lost all confidence in their ability to succeed in school and have developed low self-esteem and feelings of inferiority (Cairns, Cairns, & Neckerman, 1989; Colardarci, McCaul, Donaldson, & Davis, 1992). Students who drop out are more likely to perceive the school setting as nonsupportive and/or irrelevant. Some researchers suggest that the students’ psychological attachment to school and investment in learning are keys to academic and social success (Hale & Canter, 2000). High school dropouts appear to feel alienated from school life and have lower levels of participation in extracurricular activities, especially in athletics (Ekstrom et al., 1986).

Both ethnographic and survey-based studies indicate that students who leave school before graduation cite a lack of social and academic support as one reason for doing so. They feel disconnected from teachers and complain that their teachers do
not care about them and are not interested in how well they do in school (Croninger & Lee, 2001). Many dropouts report that they have fewer positive social interactions and less access to assistance from teachers than their peers.

**Career Indecision and Dropping Out**

Thousands of high school students graduate every year without a primary interest to pursue or a plan to pursue it (D. Neils, personal communication, March 19, 2004). Many students do not have an understanding of their future plans or even how to think about the future, particularly those students who are not doing well academically in school. They are unfocused and do not understand the reasons they are in school or the impact that education can have for their future. Many students do not connect what they are learning in school and what happens to them outside of school (Wakefield, Sage, & Coy, 2003).

In many cases, career guidance programs are few and far between in American high schools. According to the American School Counselor Association (2007), school counselors have an average load of 479 students. With numbers this high, it is difficult for counselors to provide substantive career guidance activities for all students. Unfortunately, most students receive little career guidance and educational planning while in school. Research indicates that when students have unclear goals or ambitions, they begin to choose what gives them an immediate solution instead of considering a variety of options or seeking advice from others. These students demonstrate limited decision-making ability and make choices too soon without considering all the alternatives. When disengaged, unfocused students come to high school and when they
face new academic challenges, they often choose to withdraw from the public school system (Kemple & Snipes, 2000, as cited in Wakefield, 2003; Wakefield, 2003).

In 2004, the State of Florida conducted a study through the Council for Education Policy, Research and Improvement (CEPRI) and found that helping students clarify career goals, understanding the world of work, and receiving personal advice regarding career planning would assist in improving Florida’s graduation rate. CEPRI recommended that “every student in Florida shall be made aware of career options by the start of high school and be provided with extensive guidance in order to plan their coursework in accordance with their career aspiration,” has just begun to be implemented and indicates the importance of career guidance in keeping students in school.

*Dropout Prevention Strategies*

Unfortunately, there is no one answer to preventing students from dropping out of high school. The problem is complex and the varied demographic and social characteristics of at-risk students make it difficult to design one type of program or strategy that will work with all students. The key, however, to reducing the dropout rate is helping young people overcome their sense of disconnectedness or alienation from school and the community (Woods, 1995). The research revealed numerous dropout prevention programs and strategies being implemented across the nation and in Florida including modifying the instructional environment, strengthening school membership, developing relationships with students, and counseling and mentoring (Lunenburg & Irby as cited in Lunenburg, 2000; Stanard, 2003).
Modifying the Instructional Environment

Students at risk of dropping out perceive they are treated differently from high-achieving students. Teachers often have lower expectations for the at-risk students’ ability to learn. At-risk students sense the teacher’s lower regard for their personal worth as learners and then live up to the low expectations. When the instructional environment is modified and teacher expectations rise, students seem to achieve (Acheson & Gall, 1998; Lee & Smith, 1994; Lunenburg & Irby, 1999). Many programs which strive to modify the instructional environment have been designed as dropout prevention strategies and exist in many urban school districts. Some of these programs include alternative credit programs, teen pregnancy programs, second chance programs, discipline programs, and school-to-work programs. However, they are limited in scope and are unable to meet the growing population of at-risk students.

Sense of Membership

Wehlage, Rutter, Smith, Lesko, & Fernandez (1989) studied schools with low dropout rates and determined that schools that created a sense of membership for at-risk students were more successful in keeping students in school than those that do not. Membership depends on social bonding and the development of relationships between the students and their teachers, peers or the school itself (Lunenburg, 2000). Organizing schools into small learning communities affords students more opportunities to build interpersonal relationships that are significant, to become engaged in their learning, to feel like they belong to a smaller group, and to become more aware of how their behavior affects others (Jekielek, Moore, Hair, & Scarupa, 2002). Smaller learning communities,
schools within a school, career academies, and belonging to school clubs create the opportunity for students to develop a sense of membership. Unfortunately, these programs are again very limited in size and scope across the United States, in Florida, and in Central Florida.

**Relationships**

All children need concerned adults in their lives. Positive, nurturing relationships with parents represent a critical resource for children. Other adults can also provide support that is similar to the support provided by parents. The other adult can often provide emotional support, advice, and guidance about subjects that adolescents do not feel comfortable discussing with their parents (Allen, Aber, & Leadbeater, 1990). Such involvement is especially important for at-risk youth who are often from single-parent families living in neighborhoods that often have a limited number of positive role models (Jekielek et al., 2002; Petersmeyer, 1989). Youth are growing up in families where parents are coping with financial stress and their own personal problems. With the decline in the social and family structure in the United States over the past fifty years, the institutions on which young people rely for support and guidance, like families, churches, community groups, and educational organizations are less effective than they have been in the past (Croninger & Lee, 2001). Support networks are needed to fill the emptiness left by busy or non-existent parents.

Positive relationships can create powerful incentives to attend school. These relationships provide students with the emotional support, encouragement, and actual assistance when an academic or personal problem threatens to overwhelm them. Positive
relationships help teens cope with their problems. Adolescence is also a time for
loosening home ties, exploring the world outside the family, and learning to be
independent (Sipe & Roder, 1999; Wakefield et al., 2003). During these difficult years,
the relationships teens have with adults can make a difference to their success or failure
in school and in life.

_Counseling_

Counselors play a crucial role in understanding the problem of school dropouts
and developing relationships with the potential dropouts they serve. Counselors are often
the key people who are able to identify students at-risk and coordinate effective
interventions. Successful dropout prevention programs include counseling for not only
academic guidance, but also to focus on the mental, social, and career planning aspects of
the students’ lives (Lunenburg & Irby as cited in Lunenburg, 2000; Stanard, 2003).

Unfortunately, counselors often have an extremely busy schedule in today’s high schools.
Their duties include providing academic support to teachers and students; helping
students with goal setting, postsecondary planning, and college applications; working
with students in areas of substance abuse, conflict resolution, and other emotional/social
issues; making recommendations for courses; reviewing transcripts; and handling the
requirements of federal, state, and district rules and policies. In Florida, the average
student to counselor ratio is 449 to 1 which allows very little time for individual attention
for at-risk students. In Central Florida, guidance and student support spending is $240 per
student while the state average is $330 (Florida Monitor, 2005). There does not seem to
be enough time or money to provide effective counseling strategies for at-risk students.
Mentoring as a Solution

Mentoring is a one-to-one supportive relationship between a mentor and mentee that is based on trust, personalized attention, and care (Flaxman, Asher & Harrington, 1998). Supportive relationships with adults can influence the course and quality of a young person’s life. Mentoring programs across the country have been developed to help students focus on their academics, explore careers, modify social behaviors, and develop parenting skills and are often part of a dropout prevention program. Mentoring is a popular intervention strategy because it appears simple and cheap, is positively perceived, and is seen as a legitimate way for adults to participate in the lives of youth in a direct way. In addition, mentoring speaks to the American traditions of achievement, optimism, improved workforce competitiveness, and community values (Freedman, 1991).

Historical Perspective of Mentoring

The concept of mentoring has been around since the first telling of the mythical legend of Mentor in 800 B.C. Mentor was a friend and counselor of King Odysseus who was entrusted with the education of Odysseus’ son Telemachus (Adams & Scott, 1997). Mentor was responsible for all facets of the son’s life, including physical, intellectual, spiritual, social, and administrative development. Mentor’s main role was to make sure that Telemachus would be a competent successor to the kingdom. The process also taught Telemachus how to think and act for himself (Crow & Matthews, 1998). It was customary in ancient Greece for young males to be paired with older males in hopes that each boy would learn the values and culture of his mentor and society. This tradition
continued throughout the Middle Ages as young boys served as apprentices in order to
learn skills and master a trade. Trusted advisors have been influencing the aspirations of
mentees ever since that time. Mentoring can occur in any aspect of one’s daily life – on a
formal or informal basis. Mentoring can occur at home, work, school, church, or any
other place where people gather.

*Mentoring in the Workplace*

Over the past 40 years, mentoring in the workplace has become quite
commonplace. Studies report that successful executives usually had someone in the
organization guiding their way (Bierema & Merriam, 2002; Eby, 1997; Freedman, 1991;
Kantor, 1977; Levinson, Darrow, Klien, Levinson, & McKee, 1978; Roche, 1979).
Historically, mentoring has focused on career development and psychosocial functions
within the boundaries of the organization. The relationships that develop through the
mentoring process contribute to the growth and career development of the individual
(Kram, 1985). Typically, workplace mentoring occurs between senior and junior levels in
the organization. Career development aspects of the mentoring relationship include
sponsorship, exposure and visibility, coaching, protection and providing challenging
assignments. Psychosocial functions include role modeling, acceptance, confirmation,
counseling and friendship (Allen & Poteet, 1999; Kram, 1985; McManus & Russell,
1997; Scandura, 1998).

Mentoring in the corporate world is often the key to career success and has been
the topic of much interest in the career development literature. Mentorships can facilitate
the development of skills and competencies that enhance performance and career
development. Individuals who are mentored report higher levels of compensation, career advancement and satisfaction (Dreher & Ash, 1990; Scandura, 1998; Simonetti, 1999).

During the past 25 years, mentoring in the workplace has evolved at times into a process to provide employees with a diversified set of skills to function in the midst of technological innovation and economic globalization (Allen & Poteet, 1999; Eby, 1997; Murray, 2001). Mentoring also has become a valuable tool to help socialize new employees or resocialize employees who have experienced dramatic organizational changes like restructuring or downsizing.

**Mentoring in School**

During the last 20 years, the structured mentoring programs from the business world have spread to the education and youth service arenas. Mentoring is often seen as an inexpensive way to improve the situation for disadvantaged youth. Mentoring has been noted for its potential to match caring adults who can provide encouragement and impart skills and values that are necessary for success in school and in work with youth in need of this support. Mentoring programs can provide students, especially at-risk students, with encouragement, emotional support, positive role models, and friendship that are not available anywhere else. Providing youth with consistent adult support through well-supervised mentoring programs that include frequent meetings and the development of a long term relationship improves grades and family relationships and helps prevent initiation of drug and alcohol use (Jekielek et al., 2002; Tierney, Grossman, & Resch, 1995). If caring concerned adults are available to support young people, these youth will be more likely to become successful adults (Scales & Gibbons, 1996).
A mentor is someone the young person can trust. The mentor must have competence, know something that the youth does not know, and be able to share that knowledge (Beier, Rosenfeld, Spitalny, Zansky, & Bontempo, 2000). Young people who perceive high-quality relationships with their mentors experience the best results. The key to creating valuable mentoring relationships seems to be the development of trust between two unfamiliar people of different ages (Sipe, 1996). Without trust, mentors can never support the youth with whom they interact. Learning to trust, especially for youth who have been disappointed by significant adults before, requires time and effort. Mentors who follow a gradual path in building trust find that once this relationship is built, the support they offer is meaningful. Overall, young people who are the most disadvantaged or at-risk seem to benefit the most from mentoring when compared to regular students (Jekielek et al., 2002).

Successful Mentoring Programs

Probably the largest, most comprehensive mentoring program in the United States is the Big Brothers Big Sisters of America (BBBSA) program with approximately 100,000 participants. BBBSA, founded in 1904, pairs unrelated adults with youth from single-parent families in over 500 programs throughout the United States (Big Brothers Big Sisters of America, 2003). BBBSA is designed to provide youth with an adult friend who can help promote positive youth development. The BBBSA mentor and youth mentee agree to meet two to four times per month for at least one year.

Several evaluation studies of the BBBSA programs have been conducted over the
years. In an 18-month study of the program which sampled 959 students, Tierney et al. (1995) found that high-intensity mentoring programs could work especially when the relationship includes one-on-one contact and meeting at least three times per month for an average of four hours per meeting. The results indicated 46% of the youth were less likely to use drugs, 52% were less likely to skip a day of school, and 37% less likely to skip a class. Students also felt slightly better about how they would perform in school (4% better). Overall, the researchers concluded that mentored youth make measurable gains in school achievement and attendance and in relations with peers and parents.

Public/Private Ventures (P/PV), an independent research firm, studied the BBBSA program again in 2000. P/PV found that well-run, school-based mentoring programs like BBBSA are likely to be a powerful intervention for many disadvantage youth.

In 1999, BBBSA researchers studied five of their own school-based mentoring programs – BBBS of Greater Fairbanks Area, Fairbanks, Alaska; BBBS of Delaware, Inc., Wilmington, Delaware; BBBS of Tampa Bay, Inc., Tampa, Florida; BBBS of Bartholomew County, Inc., Columbus, Indiana; and BBBS of Forsyth County, Inc., Winston Salem, North Carolina. The programs showed that children involved in BBBSA school-based mentoring programs developed improved attitudes towards school, achieved higher grades, and improved their relationships with adults and their peers. According to the teachers who referred all of the students in the study to the programs: 64% of the students developed more positive attitudes about school; 58% achieved higher grades in social studies, languages and mathematics; 60% improved relationships with adults; 56% improved relationships with peers; 55% were better able to express their
feelings; 64% developed higher levels of self confidence; and 62% were more likely to trust their teachers (Curtis & Hansen-Schwoebel, 1999).

The Office of Juvenile Justice and Delinquency Prevention (OJJDP) has supported mentoring through a program called the Juvenile Mentoring Program (JUMP). Over 41 JUMP programs provide one-on-one mentoring for youth at risk of delinquency, gang involvement, educational failure, or dropping out of school. A national evaluation of the JUMP programs in the United States (Novotney, Mertinko, Lange, & Baker, 2000) revealed that there were 7,422 youth enrolled, and of those, 5,425 had been matched with a mentor. Many of the projects reported having difficulty recruiting mentors to serve enrolled youth. Program directors are often able to recruit youth faster than they can recruit mentors. According to the OJJDP, youth who participated in a mentoring program for at least a year were 46% less likely to begin using illegal drugs, 27% less likely to begin using alcohol, 53% less likely to skip school, 37% less likely to skip a class, and 33% less likely to hit someone.

Jekielek et al. (2002) reviewed studies of 10 youth mentoring programs, both nationally and locally based. The researchers looked at the programs to assess the effects of mentoring in three major areas: educational achievement; health and safety; and social and emotional development. The evaluations of these programs revealed that overall, youth participating in mentoring relationships experienced positive outcomes including better attendance, a better chance of going on to higher education, and better attitudes toward school. Generally, the impact of mentoring on grade improvement was not as significant. The evaluations revealed that mentoring shows promise in the prevention of
substance abuse and in reducing some negative youth behaviors related to delinquency. This researcher discovered that mentoring promotes positive social attitudes and relationships but does not consistently improve youth’s perceptions of their own worth.

Some researchers suggest, however, that while there are numerous mentoring programs connecting adults with at-risk adolescents, there is little data to show that mentorship really makes a difference (Beier et al., 2000; Keating, Tomishima, Foster, & Alessandri, 2002). One problem may be that the mentorship program is often just a component of a larger intervention program for at-risk students and, therefore, it is difficult to determine the effect of mentoring alone. The inconsistent results may be attributed to the fact that mentoring is still in its infancy and research in this area is relatively new. Often the research studies rely on self-reported data, volunteers, and donations (Keating et al., 2002). Royse (1998) found statistically insignificant results on a mentoring program called the Brothers Project, specifically designed for high-risk African American adolescents. Youth were mentored for a minimum of six months with the median time period being 15 months. Self-esteem, attitude towards drugs, grades, attendance and disciplinary infractions were measured, and the study found no quantitative evidence that mentors had a beneficial impact upon mentees.

Limitations of Traditional Mentoring

It is estimated that there are about 350,000 mentors in the United States and at least several million youth who would benefit from being matched with an adult mentor (Sipe, 1996). In 2004, BBBSA served 225,000 youth, and while that number is very large, it does not come close to the number of youth waiting to be matched with a
mentor. Adults are busy and many studies report that time is a major concern for mentors. In addition to the actual time spent with the mentees, mentors have to spend additional time going to and from the school site. For mentoring to really make a difference in the lives of at-risk students in this country, the supply of mentors must match the potential demand.

_Electronic Mentoring_

Electronic mentoring may be the solution for recruiting larger numbers of mentors who would be able to build relationships with youth. In the literature, electronic mentoring is also called e-mentoring, cybermentoring, virtual mentoring, or telementoring. E-mentoring can be defined as a process that combines the practice of mentoring with the speed and ease of electronic communication. Usually, the interaction between the mentor and mentee occurs via e-mail, but it could also involve instant messaging, audio and video conferencing, and online discussion boards both synchronously and asynchronously with participants who could be widely distributed geographically (Guy, 2002; Harris, Rotenberg, & O’Bryan, 1997).

E-mentoring has the potential to allow busy people to make significant connections with students. Many adults find it more practical to share their expertise online than by visiting schools in person. E-mentoring is a practical way to give students and teachers expanded opportunities to work together as partners beyond the walls of the classroom (O’Neill, 2000). Busy adults find it easier to communicate online with students instead of driving to the school, meeting with the mentees, and then returning to work several times a month. Retirees, who may have the time to be a mentor but no longer
drive, can still participate as mentors. Communicating via e-mail provides an opportunity for people to mentor who never before thought they would have the time.

In 1994, e-mentoring was relatively new and experimental. Online exchange programs (electronic pen pals) were flourishing, but there were very few examples of one-to-one online mentoring between older professionals and youth. As e-mail has become more widespread, so have e-mentoring projects and programs. There have been very few studies that explore the interpersonal aspects of participants in an online mentoring relationship, but very few that have studied their development and impact.

Today, the most common form of e-mentoring is the ask-an-expert model. This model of connecting subject matter experts with students who are studying or researching a particular topic is easier to integrate into the classroom than more traditional mentoring programs (O’Neill, 2000). E-mentoring is very difficult to achieve, though, without purposeful orchestration (O’Neill & Gomez, 1998). Orchestration work can be conducted by the teacher or by a program coordinator. Merely getting people online is not enough; the building and maintaining online relationship is where attention must be paid (Bennett, Hupert, Tsikalas, Meade, & Honey, 1998).

E-Mentoring Projects

Over the last few years, a number of promising e-mentoring projects have begun. One of the largest is called the International E-mentoring Project (ITP). ITP facilitates electronic mentoring relationships between professional adults and students worldwide. Since 1995, over 14,000 students in nine countries have been involved in the program. An evaluation of the project analyzed both quantitative and qualitative data during the
period from May 2000 to March 2003. Of the 400 teachers participating in ITP, 256 responded to the survey used to evaluate the program. Teachers reported that the areas of greatest impact for students were centered on communication skills, self-directed learning, and proactive learning. Eighty-one percent of students made great strides towards taking more responsibility for their own learning as reported by their instructors. Fifty-seven percent of the students increased in their knowledge of the workplace. The teachers also answered qualitative questions, and several major themes emerged. Teachers described students as having an increased knowledge about careers, increased self-esteem, and an increased desire to get a job (Lewis, 2005).

The E-mentoring Young Women in Science, Engineering, and Computer Project began in 1994 when online mentoring was very new. High school girls were paired with professional woman and they communicated via e-mail in order to gain useful strategies for overcoming the challenges of everyday life. In addition, the students received expert knowledge and career advice. Twenty high schools in six states for a total of 216 students participated. There were 141 mentors so many mentors were assigned to more than one student. In a year three evaluation of the project, Bennett et al. (1998) reported that e-mentoring was a positive experience for students and mentors. One finding suggested that e-mail supports prolonged communication and messages and is similar to writing in a journal because the messages can be returned to for reflection and analysis.

Another e-mentoring project currently in existence is the Electronic Emissary Project. This project is sponsored by the University of Texas at Austin, the J.C. Penney Corporation, and the Texas Center for Educational Technology at the University of North
Texas. Subject matter experts (SMEs) serve as mentors to students and teachers who are exploring a specific topic of study. The Emissary also studied the adult-child interaction in an asynchronous, computer-mediated environment. Dimock (1998) conducted a qualitative study of the Electronic Emissary Project and concluded that telecomputing projects increased student interest and engagement with content and increases the depth of analysis of that content. Students seemed to be self-motivated and engaged in their computer-mediated projects.

Many corporations have developed e-mentoring initiatives as a way to encourage their own employees to become involved in outreach to students in their communities. In 2002, America Online (AOL) Time Warner and the AOL Time Warner Foundation started the “Connect More Kids with Mentors” initiative. The company’s goals included building an online community for mentoring professionals to develop new programs; enabling people to connect easily with mentoring programs near their homes or workplaces; and providing an Internet platform for mentoring programs to recruit local mentors. AOL Time Warner employees were encouraged to participate in a Digital Heroes Campaign, which was an e-mentoring program designed to match employees with underserved youth (Business Wire, 2002).

In 2001, AT&T teamed up with MentorNet, an e-mail network to link women engineering students with volunteers in the industry to boost the ranks of African-American and Hispanic women in mathematics, science and engineering. AT&T supported the program with $100,000 in 2003 to help continue the work of the program.
Advantages of E-Mentoring

There are many advantages of e-mentoring. Communication online offers a flexible environment free of time and space constraints, allowing for any time, any place exchanges. Since failure to meet due to time and space constraints is considered to be the demise of many traditional mentoring relationships (O’Neill & Gomez, 1998), the asynchronous nature of e-mentoring may reduce this barrier. People who may excel as mentors may choose not to become involved in a traditional face-to-face mentoring program because of the distance between their own office and the student’s location, the different schedules on which schools and businesses operate, and because of the time constraints that can occur. Telecommunication creates opportunity for more adults to work as mentors because of the flexible hours that would not upset work schedules or required routines (O’Neill, 2001).

The use of e-mail as the primary communication tool in a mentoring program results in the concealment of some of the social prompts that often hinder communication between various groups. Electronic mail allows students with disabilities to develop relationships without having to expose the physical challenges they have to cope with on a daily basis (Amill, 2002). The use of e-mail also bypasses some of the barriers that keep students from different communities apart. In addition, communicating in this manner provides for both the mentor and mentee to take the time to construct thoughtful messages without the pressure of immediately responding like one has to do when communicating orally (Single & Muller, 1999).
Since most communication is through e-mail, it is necessary to understand how communicating online differs from most other forms of communication. E-mail is:

1. asynchronous
2. primarily text-based
3. comparatively fast
4. dependent on the participants having computer literacy
5. a way for participants to be widely distributed geographically.

Asynchronous e-mail can be defined as having a time gap between sending the email and it being received and read. There has been little written on the asynchronous nature of email except that the time gap creates a lack of immediate feedback (Harrington, 1999; Harris & Figg, 2000). Asynchronous e-mail lacks the visual and audible cues that people are often dependant upon for clear communication. E-mentoring by e-mail requires different interaction strategies that impact interpersonal skills if it is to be used to create the maximum benefit (Harris, Rotenberg, & O'Bryan, 1997). The written word through e-mail may not attach meanings as intended. Without the use of visual and auditory information that can provide nonverbal information to participants sharing an exchange, the art of communication takes on a new meaning. For example, more frequent and more defined purpose setting, progress-reporting, and problem-solving communications may be necessary online (Kimball & Eunice, 1999).

Teens often open up and discuss subjects online in a way that they may not feel comfortable doing face-to-face (Fulop, n.d.). Many adults can provide advice, suggestions, friendship and support to young people online when they would not have
had the time to do so in the traditional face-to-face setting. E-mentoring, therefore, can extend mentoring opportunities to many more students.

While traditional mentoring programs often have trouble recruiting enough mentors, the opposite could be true in an online environment. In the E-mentoring project funded by the National Science Foundation, researchers found that over the three year period studied, greater numbers than expected of mentors were interested and willing to participate in the project. The utilization of the telecommunications technology created an ideal way for the mentor to contribute while still maintaining a very hectic and inflexible schedule which prevented in-person mentoring (Bennett et al., 1998).

Disadvantages of E-Mentoring

On the surface, an e-mentoring program may seem easy to initiate. Many of the corporations that start e-mentoring programs are under the mistaken belief that online mentoring is so easy to do that it will only take a few minutes per week and that the most important component is a Web site with all the bells and whistles the program participants might need (Fulop, n.d.). The research indicates, however, that any mentoring program, whether traditional or online, is more successful when the program is planned for, is structured, and is assessed. Many mentoring programs have failed because organizers do not realize that online mentoring requires time and commitment just like face-to-face mentoring.

E-mentors and their mentees do not share an organizational context like traditional workplace mentors and mentees do. Though all of the mentors were once students, they often have difficulty understanding each other. Mentors often assume they
would be mentoring someone who was like themselves when they were in high school. Many mentors did not understand the day-to-day workings of school and how it is very different from the workplace.

Most of the e-mentors have easy and frequent access to e-mail at their desktop and at home and have expectations to a very quick response. Students may have less frequent and less convenient access to e-mail, so they often frustrate their e-mentors. Additionally, students often do not understand why their e-mentor cannot drop everything to respond to a question the way their teachers can (O’Neill & Harris, 2000).

Lack of feedback is often cited as a problem in an online mentoring program. Since there are often no expectations for when the communication will occur, both mentees and mentors have reported frustration when there is a lack or a delay in response. Wadia-Fascetti and Leventman (2000) conducted a longitudinal study on e-mentoring in the engineering department at Northwestern University. They found that mentees wanted more face-to-face meetings in a mentoring program. Since e-mentoring is so new, many mentors and mentees don’t know what to expect in an e-mentoring relationship. The lack of experience with developing and sustaining online relationships can also create problems for success (Bennett et al., 1998).

One Structured E-Mentoring Model

Over the last two decades there has been a considerable amount of research on the design of traditional mentoring programs and the practices that make them effective. In 1990, MENTOR/National Mentoring Partnership and the United Way of America convened the National Mentoring Working Group, consisting of both national and
community-based not-for-profit organizations with significant experience in running mentoring programs. This group, including representatives from BBBSA, the National Urban League and the National Dropout Prevention Center, focused on how to promote the growth of responsible mentoring programs. A task force of The National Mentoring Working Group developed the *Elements of Effective Practice* which documented the effective design elements of mentoring programs. In 2003, the elements were reviewed and reflected the latest in mentoring policies, practices, experience and research. These practices have become the standard to which mentoring programs are measured (Dubois, Holloway, Valentine, & Cooper, 2002; National Mentoring Partnership, n.d.).

Since e-mentoring programs are relatively new, there has only recently been a body of research available that addresses the effective components of a structured e-mentoring program. Two leading researchers in this field, Single and Muller (1999), examined the mentoring literature, conducted research on the mentoring process, and created the only structured model for e-mentoring that can be found in the current literature.

These two researchers defined structured e-mentoring as:

- e-mentoring that occurs within a formalized program environment, which provides training and coaching to increase the likelihood of engagement in the e-mentoring process, and relies on program evaluation to identify improvements for future programs and to determine the impact on the participants (p. 108).
When their model is compared to the *Elements of Effective Practice* reported by the National Mentoring Partnership, the components are extremely similar. In the *Elements of Effective Practice*, there are four key components which include Program Design and Planning, Program Management, Program Operations, and Program Evaluation.

Single and Muller’s model includes three major phases: planning, program structure and assessment that through their research, they believe to be the most important to a successful mentoring program (see Figure 1).

![Figure 1. One Structured E-Mentoring Model, from Single & Muller, 1999.](image)

**Planning**

The planning phase of the Single and Muller model includes developing the program goals, recruiting the mentees and mentors, managing the expectations of all participants, and matching the mentors with the mentees. Planning lays the foundation for the success of the entire program and ensures that the participants and e-mentors are
aligned with the program goals and objectives (Boyle & Boyce, 1998; Single & Muller, 1999). Plans should be a shared vision organized and supported by consistent leadership (Fulop, n.d.; Harris & Figg, 2000).

Clearly conceived goals for the project, careful planning of all the operational details, and realistic and clearly-stated time and frequency of communication guidelines are all part of the planning component. Plans for the e-mentoring programs are often communicated online and therefore should be simple, clearly stated and quite detailed (Harris & Figg, 2000). Kimball and Eunice (1999) suggest that more frequent and clearly stated, purpose-setting, progress-reporting, and problem-solving communications are necessary online due to the lack of the face-to-face interaction. Many successful programs recommend building an expectation of the minimal number of e-mail messages that should be sent each week. In order for the positive relationship to develop online, frequent communication of at least one or two times per week is necessary (Bennett et al., 1998; Emery, 1999; Harris et al., 1997). Harris and Figg (2000), in a study of over 400 projects through the Electronic Emissary, suggest that the plan for an e-mentoring program needs to begin with a clear project structure with flexibility built in for customization as the project is underway.

Recruitment. Recruitment is the process of locating participants for both mentors and mentees. Since e-mail is how e-mentoring occurs, this communication tool can be utilized in the recruiting process. Many of the early e-mentoring projects recruited mentors within a single organization, i.e., Hewlett Packard, IBM, and AT&T, where the use of e-mail is centralized and all potential mentors have access. E-mail does not have to
be the only method for recruitment, however. Ads posted to listservs, newspaper ads, well-placed posters and presentations at suitable meetings (conferences, professional association meetings, service organizations, etc.) are effective recruitment methods for both traditional and e-mentoring programs (Single & Single, 2004). When recruiting mentors, it is important to search for those adults who understand that the mentor’s primary role is to develop a long-term, high quality relationship with the youth. Potential mentors need to know that it is often a difficult and time-consuming task to work with a teen, particularly one who is at-risk. It is also important to ensure the safety of the youth and protect the reputation of the program (Roaf, Tierney, & Hunte, 1994). Specific procedures that many programs use to screen potential mentors include checking police records, reviewing personal references, and holding face-to-face interviews. Sipe (1996) suggests that the screening process is useful in determining why a mentor wants to participate in the program. Mentors need to understand the importance of being a friend to their mentees. Some potential mentors are interested in changing youth instead of building a trusting relationship with them. It is the relationship development that is important, and mentors who are willing to invest in the relationship will have a better chance of being successful than those who do not.

Recruiting mentees is often easier. Structured school programs often provide an ample source of students. From at-risk students in need of a caring adult to students searching for subject matter experts to assist with a class project, there are numerous opportunities for students to become mentees.
Managing expectations. Managing expectations involves communication. It is important that the mentors and mentees know and understand the goals and purpose of the program. In addition, communicating the program expectations to the participants, such as the number and frequency of expected e-mail messages is critical (Single & Muller, 2001). The National Mentoring Partnership (n.d.) indicates that before the mentoring program begins, the program manager must determine what the program will accomplish, what outcomes will result, when the mentoring will take place, and how often mentors and mentees should meet. These expectations should be clearly defined in order to ensure program success. Foster (2001) suggests that mentoring programs with strong infrastructure, that includes helping mentors develop realistic expectations of what they can accomplish during the program, can produce positive results for the mentees. MentorNet, having matched 15,954 pairs of protégés and mentors electronically since its inception in 1998, lists the expectation of all participants on the opening page of its Web site.

Matching. The third component of the planning element is the matching process. Careful consideration should be given to the method by which e-mentors are paired with their mentees. The most important factor is to ensure that the mentors and mentees understand the matching process. The more the students and teachers were involved in the matching process, the more their level of commitment increased (Bennett et al., 1998). One method is to list the names and biographical descriptions of the mentors and mentees on the Web site. Interested participants can review the information and then choose their e-mentoring partner. A second method is uni-directional matching. As part
of the application process, the mentee would identify preferences for a mentor, and the program coordinator would match mentees’ preferences with e-mentors’ characteristics and interests. A third method is the bi-directional matching protocol. Rather than only matching the interests and preferences of the mentee with the mentor, this method takes both the mentor’s and mentee’s interests and characteristics into consideration. This method is most effective for a large sized e-mentoring program.

According to Bennett et al. (1998), most e-mentoring programs have found that random matching is easy and as effective as almost any other method. One matching strategy that provides students and teachers a sense of connection is to pull a mentor name from the approved mentor list out of a hat.

Once the match is made, it is important to obtain buy-in from both the mentor and mentee. Allowing the matched participants to accept or reject the match is one way to begin to establish the e-mentoring relationship. Research conducted by Bennett et al. (1998) suggests that the more students and teachers were involved in selecting their mentors, the greater their level of commitment. Other research indicates otherwise.

Program Structure

The second phase of the Single and Muller model is the program structure. The key components of this phase include training, coaching, and community-building so that throughout the duration of the program, the participants maximize the e-mentoring experience.

Training. According to Jekielek et al. (2002), the most successful mentoring programs are highly structured and provide mentors with in-depth training opportunities.
Harris et al. (1997) suggest training for the roles of both mentor and mentee is extremely important for a successful mentoring program. Training provides the mentors with the necessary information about the e-mentoring process, and it builds a sense of collegiality among the mentoring team (Wighton, 1993). Training for mentors before and after they are matched with youth appears to be the key to successful mentoring relationships. Mentors who received the most hours of training had longer lasting matches. Programs based on a developmental approach to mentoring seem to be more successful than those that are prescriptive. The developmental approach is driven by the needs and interests of the students where mentors spend up-front time getting to know their mentee and take cues from them about the youth themselves. In the prescriptive approach, mentors viewed their own goals for the match as the most important and were required to spend an equal amount of time and effort for maintaining the mentoring relationship (Single & Single, 2004).

Mentoring programs need to ensure that the adults who are participating as mentors are prepared for the role. Orientation and training helps the mentors understand their roles and the realistic expectations of what they can accomplish (Sipe, 1996). Some programs have extensive training and orientation. Others provide only minimal orientation to the procedures and policies of the program. There has not been enough research to determine an optimal amount of training, but there is general consensus that some training is critical. The most important component of the training is to encourage the mentor to approach the mentee with the goal of developing a good relationship (Sipe, 1996).
Training can also help mentors understand youth. Mentors are usually from a different generation than the youth they are mentoring. Mentors often are from a different gender, race and socioeconomic group (Ensher & Murphy, 1997; Herrera, Sipe, & McLanahan, 2000; Jucovy, 2002) and therefore may need training to help them understand the differences. Harris et al. (1996) suggest training for the roles that will be played (mentor and mentee) is extremely important. Training should also introduce some of the common drawbacks of online communication (Bennett et al., 1998). Greater emphasis should be placed on the training of the mentors for several reasons:

1. Mentors are the adults in the relationship and are expected to be primarily responsible for initiating and sustaining contact with their mentees.

2. Mentors have more online access time and experience with the culture of e-mail. Most working adults have continuous access to e-mail at their place of work and at home and check their e-mail often.

3. Mentors were more motivated to participate in the training experience. (Bennett et al., 1998).

*Coaching.* The coaching component is different from the training component. Training occurs before the relationship actually develops while coaching is ongoing throughout the program. Both mentors and mentees require training and coaching. Discussion groups, chat rooms, and e-mails from the program coordinator all serve to keep the mentors and mentees in contact with each other (Single & Muller, 1999). Harris and Figg (2000), through their research with the Electronic Emissary Project, suggest that the coach, or facilitator, plays an extremely important role in reminding the mentors to...
stay in contact with their protégés. Single, Muller, and Carlsen (2000) found that more frequent coaching messages were more effective than less frequent coaching messages. Research conducted by Neils (1997) on the International Telementoring Project suggests that the coach plays an extremely valuable role to the success of the program. Online facilitators or coaches help maximize the success rate of an e-mentoring program (Asgari & O’Neill, 2004; Harris et al., 1996). As the participants grow in their relationships, the coaching support provided becomes more crucial (O’Neill & Harris, 2000).

Community building. The third component, community building, can be created through electronic discussion lists for both the mentors and mentees that focus on issues related to the target audience or problems that may be developing. When participants feel connected to each other and are able to share thoughts, ideas, and feelings, then a sense of community is created. It does not happen automatically but requires attention to detail and caring for the needs of the participants (Guy, 2002; Single & Single, 2004).

Assessment

The last element of the model is assessment. Assessment is often done at the end of a mentoring program to provide information that is useful in planning future programs and creating benchmarks for those future programs. Participants usually provide the best suggestions for improving the program. However, data should be collected throughout the program (Boyle & Boyce, 1998; Single & Muller, 1999) so that modifications to the program could be made in a timely manner. In a review of the mentoring literature, Foster (2001) found that most mentoring programs, whether traditional or online, are not formally evaluated but rely heavily on anecdotal information and participant reports to
determine program effectiveness. There are very few follow-up studies to track long-
term outcomes.

*Involvement, formative, and summative data.* Single and Muller (1999) recommend collecting three types of data during the assessment component of the model. The first type is involvement data which indicate whether the participants are following the guidelines and expectations of the program. It is defined as the frequency of interactions between the mentor and the mentee throughout the program. Just like the face-to-face meetings in traditional mentoring programs, the frequency of e-mail communications is positively related to the development of the mentor-mentee relationship.

The second type of assessment data is formative which are collected from the participants to help researchers evaluate the program features and how to improve them for future programs. This type of data should be collected throughout the program. Formative data are used to evaluate program elements including the training and support the participants receive.

The third type, summative data, focuses on the outcomes associated with participating in the program. Summative data is used to determine the value of the mentoring program and how well the goals were met. Summative analyses focus on the mentees’ knowledge, attitude, or behavior change as compared to a control group.

*Conceptual Framework for E-Mentoring*

In order to frame the e-mentoring program designed for this study, the author began looking for a conceptual theoretical framework; a synthesis of the literature to be

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used as a road map to guide the study. However, the author discovered that while there is an enormous body of empirical research about mentoring and its various outcomes, there is a lack of a conceptual basis to explain the links between mentoring and the outcomes. School-based mentoring is still considered to be relatively new and much of the research is limited to programs with a small number of participants who are often volunteers. When the programs are evaluated, the data is frequently collected using instruments that may lack validity and reliability.

There are theoretical reasons to imagine that mentoring will help at-risk youth. Mentoring can provide support scaffolding for young people who may not have the parental support that other youth have available. Kashani, Reid, & Rosenberg’s study (as cited in Keating, Tomishima, Foster, and Alessandri, 2002) found that the youth without a support system were more withdrawn, more hopeless about their future, and more inattentive in school. Mentoring therefore could provide some of the scaffolding necessary for students to be able to function in a positive way in school and to reduce the negative psychological effects associated with the experiences that many students face in their lives, from abuse, neglect, poverty, or disinterest by parents or caregivers (Day, 2006).

In searching for the theoretical framework, the author decided to focus on using the available theory and research to answer three questions which would provide the conceptual framework for this study: What outcomes might be positively affected when students are mentored? What concepts must be included as the mentoring program is
designed? Which mentoring model should be followed and why? Figure 2 provides a visual diagram of the framework described.

*Figure 2. Theoretical Conceptual Framework for E-Mentoring Program.*
Positively Affected Outcomes

A search of literature revealed that mentoring often demonstrates positive outcomes across three primary areas: academics, risk behaviors, and psychosocial development (DuBois et al., 2002; Grossman & Tierney, 1998; Jekielek et al., 2002; Sipe, 2002). Jekielek, et al (2002) suggests that youth participating in mentoring programs experience positive gains in the areas of school attendance, interest in higher education, and in some cases, improved grades. Through this same research study, it was determined that the students at the highest risk of dropping out benefited the most from mentoring.

In the 2000 Public/Private Ventures impact study of the Big Brothers Big Sisters program, one of the largest and most influential evaluations of a mentoring program to date, the research showed that mentoring programs can positively influence youth. Their findings revealed that of the 959 students in the study, mentored students skipped half as many days of school as did the youth in the control youth, felt more competent about doing schoolwork, skipped fewer classes and showed modest gains in their grade point averages (Tierney, et al., 2000).

In addition, many mentoring programs, are designed to improve the youths’ perceptions of their own self-worth. Some studies have found that mentoring programs can improve the overall self-esteem and peer connectedness of youth participants. Other research indicates that it does not (Grossman & Garry, 1997; King, Vidourek, Davis, & McClennan, 2002; Rhodes, Haight, & Briggs, 1999; Royse, 1998). The e-mentoring program in this study was designed in order to analyze the impact of the program on the
at-risk youth’s self-esteem, career indecision, attendance, and academic achievement based on the work of the aforementioned researchers.

**Program Design Concepts**

The second question that needed to be answered in order to develop the theoretical framework was, “What concepts must be included as the mentoring program is designed?” The researcher found four key concepts that seemed to appear over and over again in the literature. The first concept is the relationship. Mentoring is defined as the relationship between the mentor and the mentee. The majority of the youth mentoring programs that are functioning today consist of a relationship between an adult and a young person (Grossman, 1999; Grossman & Teirney, 1998; Sipe, 1996). The electronic mentoring program in this study was designed with this same relationship in mind.

The second concept is the environment for the mentoring program. Some programs are set in a community-based environment, like the Big Brothers Big Sisters program. Others are set in a school environment where the mentor usually goes to the school and meets with the student on a regular basis. The e-mentoring program designed for this study was set in a technology-based environment; a context for mentoring that is just emerging.

The third concept is structure. The majority of mentoring programs, including the one designed for this study, are considered formal or structured. They include appropriate screening, matching, training, coaching, community building, and evaluation of the mentoring relationships as well as the program itself. The research indicates that there is more compliance from participants and more reported beneficial outcomes when the
The fourth concept is purpose. As the program is designed, it is important to set the expectations for the outcomes that one hopes to accomplish through the program. A program that is designed to reduce risk behaviors like drinking, smoking and drug abuse may be designed differently than one that is focused on academic achievement. The e-mentoring program designed for this study focused on four basic outcomes which were the students’ self-esteem, career indecision, attendance, and academic achievement. The purpose was clear as the program was developed.

Mentoring Model

The third question to be answered in order to develop the theoretical framework was, “Which mentoring model should be followed and why?” The literature revealed numerous examples of mentoring programs found in both the business and the education arena. Through the literature, the researcher discovered several vital elements associated with successful mentoring programs, whether they were set in a community-based, school-based, or technology-based context. The leading mentoring researchers highlight the importance of planning when preparing to implement a mentoring program, whether it is traditional or electronic. Setting the goals for the project, planning for all the operational details, and setting frequency of communication guidelines are time
consuming and often overlooked (Boyle & Boyce, 1998; Harris & Figg, 2000; Single & Muller, 1999). The National Mentoring Partnership (n.d.) suggests that designing a technology implementation plan, setting clear rules and expectations, and developing program goals will help ensure the success of a program.

Second, researchers address the necessity of training for both the mentors and mentees as a key driver of a successful mentoring program. The research does not reveal an optimal amount of training, however, it indicates that training can prepare the mentors with the information and strategies they need in order to increase their chances of developing a relationship with their mentees (Sipe, 1999). Since the mentors and mentees often come from very different backgrounds, training can assist the mentors in being prepared to work with students who are very different than the way they were when they were students (Ensher & Murphy, 1997). The mentees need training as well. They often have never participated in a mentoring program and might not understand both the purpose of mentoring and what the expectations of their roles are as mentees. Jekielek, et. al (2002) suggest that the most successful mentoring programs provide the participates with in-depth training opportunities.

Third, frequent interaction between the mentors and mentees and between the program coordinator and the participants (mentors and mentees) is critical for both traditional and electronic mentoring programs, but it seems even more critical when the program is electronic. Mentors often experience frustration with their mentees, especially early in the relationships, and benefit from the support they receive from the program
staff. Some infrastructure should be put into place in order to cultivate the development of the mentoring relationships (Sipe, 1996; Furano et al., 1993).

Last, but certainly just as important as the other three elements, is assessment. The literature indicates that there are few mentoring programs that are formally evaluated and yet assessment is important in order to monitor implementation, provide feedback for ongoing improvement, and to determine the effectiveness of the mentoring program. Assessment helps to improve, and to measure the value associated with, e-mentoring programs. In the assessment phase, the program coordinator should focus on collecting and analyzing data to support the goals so that the program can be improved upon for the future (Single and Muller, 2001).

As the literature was surveyed, the author discovered one structured e-mentoring model proposed by Single and Muller (1999). Their model was utilized as the foundation for the theoretical framework of this study which incorporated the key components found in the literature. Research describing successful e-mentoring programs with at-risk high school students is limited, particularly those that are focused on the areas of self-esteem, career indecision, attendance, and academic achievement. This study allowed the researcher to learn more about both the impact and the working quality of an e-mentoring model on this particular student population.

The literature seems to indicate that the field of youth mentoring, whether traditional or electronic, is ready for the injection of a theoretical basis for implementation (Jacobi, 1991; Rhodes, Grossman, & Roffman, 2002). There remains
much about mentoring that deserves further investigation and research particularly as new forms, like electronic mentoring, begin to emerge.

**Summary**

Dropping out of school has tragic implications for the future of America. Without a high school diploma, young men and women are having an increasingly difficult time finding a job that pays a living wage. Technology, the global economy, and the redesign of organizational structures all speak to the need for education and skills in order to succeed in today’s world. The literature revealed that America has a dropout problem which impacts not only the students who have left school but society and the economy as a whole.

In this chapter, the literature demonstrated how mentoring seems to make a difference for students who are at-risk for leaving school early. Whatever the reason, poor academic skills, poverty, low self-esteem, or being unfocused in school, developing a relationship with a caring adult can make a difference. Unfortunately, there are millions of students waiting for a mentor. While the research indicated that mentoring is worth the time, many adults are too busy to commit to working face-to-face with a student for the time it takes to develop the relationship. There simply are not enough mentors available for all the potential mentees.

E-mentoring, however, could be the answer. By connecting adults with youth online without having to worry about location, traffic jams, or even leaving the office, relationships can develop and become meaningful. Since e-mentoring is relatively new, there is little research to indicate whether or not structured e-mentoring can make a
difference in students’ lives – enough of a difference to eventually reduce the dropout rate. Early indications are positive, but further research is needed.
Chapter 3

Method

This chapter consists of six sections. The first section restates the research questions and provides an overview of the research design. The second section describes the pilot study that took place prior to the start of the actual research study. The third section provides information about the sample population for the main study. The measures used as well as the procedures for data collection follow in the next two sections. The sixth and final section describes the method used for analysis of the collected data.

Research Design

This research study was conducted in order to address the following questions:

1. What is the impact of the structured e-mentoring model on at-risk students’ self-esteem, career indecision, attendance, and academic achievement?

2. What is the working quality of each of the design components of the structured e-mentoring model?

3. What are the implications for design changes needed to improve the model during the study and in subsequent studies?

The researcher attempted to answer all three questions through the research method known as design-based research. Design-based research, or design experiments as they are sometimes called, bridge theoretical research and educational practice and
have become increasingly popular over the last decade for the study of learning in context and the study of instructional strategies. Design-based research has become an essential research approach within the broader context of design partnerships involving teachers, educational researchers, technologists, and scientists (Brown 1992; Collins, 1992).

Scholars have begun to engage in design-based research in order to better understand how to devise innovative learning experiences among students in their everyday educational settings and at the same time to develop new theories or insights into the theories about the nature of learning. According to Bell (2004), there is no singular method of design-based research; instead there are numerous methods because there is such a wide range of theories that depict human learning.

Brown (1992, p. 174) describes the intent of design experiments to “transform classrooms from academic work factories to learning environments that encourage reflective practice among students, teachers, and researchers.” The design-experiment approach is intended to help researchers deal with and learn from events in classrooms where it is impossible to control many variables and where the objective of the research is to refine a system (e.g., an e-mentoring program) or a curriculum.

Collins, Joseph and Bielaczyc (2004) suggest that design research was developed as a way to conduct formative research and then test and refine educational designs based on theoretical principles. Design-based research occurs in the real-world setting. It involves flexible design revision, multiple dependent variables, and encourages frequent social interaction among the participants. Participants are not treated as subjects but as co-participants in both the design and analysis (see Table 1).
Table 1

*Comparing Psychological Experimentation and Design-Based Research Methods*

<table>
<thead>
<tr>
<th>Category</th>
<th>Psychological Experimentation</th>
<th>Design-Based Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of research</td>
<td>Conducted in laboratory setting</td>
<td>Occurs in the buzzing, blooming confusion of real-life settings where most learning actually occurs</td>
</tr>
<tr>
<td>Complexity of variables</td>
<td>Frequently involves a single or a couple of dependent variables</td>
<td>Involves multiple dependent variables, (e.g., collaboration among learners, available resources), outcome variables (e.g., learning of content, transfer), and system variables (e.g., dissemination, sustainability)</td>
</tr>
<tr>
<td>Focus of research</td>
<td>Focuses on identifying a few variables and holding them constant</td>
<td>Focuses on characterizing the situation in all its complexity, much of which is not now <em>a priori</em></td>
</tr>
<tr>
<td>Unfolding of procedures</td>
<td>Uses fixed procedures</td>
<td>Involves flexible design revision in which there is a tentative initial set that are revised depending on their success in practice</td>
</tr>
<tr>
<td>Amount of social interaction</td>
<td>Isolates learners to control interaction</td>
<td>Frequently involves complex social interactions with participants sharing ideas, distracting each other, and so on</td>
</tr>
<tr>
<td>Characterizing the findings</td>
<td>Focuses on testing hypothesis</td>
<td>Involves looking at multiple aspects of the design and developing a profile that characterizes the design in practice</td>
</tr>
<tr>
<td>Role of the participants</td>
<td>Treats participants as subjects</td>
<td>Involves different participants in the design so as to bring their differing expertise into producing and analyzing the design</td>
</tr>
</tbody>
</table>

(Adapted from Collins, 1999, in Barab & Squire, 2004).
Rationale for Use of Methodology

Design experiments are contextualized in educational settings, and they focus on generalizing from those settings to guide the design process. As the design-based researchers suggest, each implementation of an educational design is different. The rationale for using design-based research to answer the three research questions in this study is based on the methodology itself.

First, a design experiment bases research in classrooms. Classrooms are very different than laboratories. Experiments in a laboratory can avoid contaminating effects. The treatment can be applied to the students who can concentrate without any distractions. However, very few variables that occur in a typical classroom can be controlled. Design experiments are set in a situation that is real-life and are not distorted by the sterile environment of the lab (Collins, Joseph, & Bielaczyc, 2004). One researcher even suggests that design experiments that work within classrooms have two main advantages: “(a) the rich nature of unanticipated consequences, and (b) the ecological validity of studying practice as it occurs” (Hsi, 1998, p. 5). The e-mentoring program that was the focus of this project allowed the researcher to study the process in the classroom.

Second, design-based research allows the researcher to study learning, to test and refine the learning environment, and to conduct the formative analysis while learning about learning (Kolodner, 2004). This fluid connection of research and practice allows the researcher to make improvements to the program while it is still ongoing. The ability to improve the initial design by testing and revising based on an ongoing analysis of all
of the participants helps to connect the research to the practice. The mentors and the
mentees, as well as the instructors, bring a variety of experiences, backgrounds, and
beliefs to the research setting. As they responded to the various components of the
mentoring program, their motivation and engagement were factors in the process that
must be considered. The design experiment model allows for flexibility to meet the
constantly changing responses to the program that the mentors, the mentees and the
teachers had throughout the program. As Collins (1992) proposed, design experiments
allow the researcher to test an innovation in education (e-mentoring) so that future
programs can benefit from previous experiences.

Third, there are multiple ways to analyze this e-mentoring program. Single and
Muller (1999) believe the assessment piece of a structured e-mentoring program is so
important that it is one of the three components of their model. The design-based research
model in this study has been aligned with the three types of assessment in Single and
Muller’s model. Involvement, formative, and summative data were collected and
analyzed. The researcher and teachers collaborated along with the mentors and mentees
to address the needs of all of the participants throughout the process.

Pilot

An informal pilot study was conducted during the Spring of 2006. Five students
who were enrolled in the GED Exit Option program at a technical center and five adults
who served as the mentors participated. The purpose of the study was explained to all the
participants. The students and mentors had the opportunity to evaluate the online training
materials and e-mail software available through the Mentors Online Tool Kit™ offered
by the National Mentoring Partnership (NMP). The students and the mentors reviewed the online surveys and focus group questions and were asked to make suggestions about any questions they deemed confusing or ambiguous.

The students and mentors indicated that the online training materials were easy to use and helpful. The students suggested that when the study was actually implemented, the program coordinator should be available to assist if needed. This suggestion was incorporated into the study. During the pilot it was determined that the online e-mail software did not work well with the school district’s firewalls and network. After a month of struggling with problems, the decision was made by the researcher to select another e-mail program. Gaggle.Net was then implemented and was found to be compatible with the school district’s network system. Both the students and mentors felt Gaggle.Net was more user friendly, and no problems were noted.

Both the students and the mentors indicated that the discussion starters which were sent each week by the program coordinator were very important to helping them develop their online relationships. Some of the same discussion starters were used in the actual study.

Online surveys and focus group questions were developed for data collection during the e-mentoring program. All the questions from the online surveys and focus groups (Appendices M through X) were adapted with permission from the Mentors Online Tool Kit™. The adapted survey and focus group questions were presented to the pilot group of mentors and students. Three instructors and two school-based
administrators also reviewed the questions. Several survey questions were clarified and further adapted based on the input from the pilot participants.

Sample for the Main Study

Participants for the study were students enrolled in the GED Exit Option program at two technical centers in a large urban school district in Central Florida. GED Exit Option is a state approved alternative education program designed to meet the needs of currently enrolled high school students at risk of leaving school without completing graduation requirements. GED Exit Option is classified as a dropout prevention strategy (GED Exit Option Model, 2003). The students feed into the GED Exit Option program from 16 high schools in the school district. The guidance counselors at the home high schools counsel the students into the program. Entrance criteria include: (a) entering the fourth or fifth year of high school; (b) having less than 12 earned high school credits; (c) scoring 9.0 or above on the Test of Adult Basic Education (TABE); (d) scoring 450 or above on the pre ED tests; (e) obtaining parental approval; and (f) obtaining approval from the high school principal. Students attend the technical center program that is closest geographically to their home high school.

Measures

To answer the first research question regarding the impact of the structured e-mentoring model on the at-risk students, measures of psychological (self-esteem, career indecision), behavioral (attendance), and academic success (GED pass/fail) that the researcher used are described in the following subsections.
**Self-Esteem**

The Rosenberg Self-Esteem Scale (Rosenberg, 1989) was used to measure self-esteem. The Rosenberg Self-Esteem Scale is one of the most popular and widely-used self-esteem measures in social science research (Blascovich & Tomaka, 1991). It is a 10 item Likert scale with items answered on a four-point scale using Strongly Agree, Agree, Disagree, and Strongly Disagree. The self-esteem total may range from 10 to 40 with higher scores representing more positive self-esteem. It focuses on people’s general feelings toward themselves, without referring to any specific quality or attribute (Appendix A).

The Rosenberg Self-Esteem Scale was originally developed for use with high school students. The original study sample consisted of 5,024 high school juniors and seniors from 10 randomly selected schools in New York. It has test-retest correlations in the range of .82 to .88 and Cronbach’s alpha are in the range of .77 to .88. Writers of other self-esteem instruments use the Rosenberg Self-Esteem Scale as the standard with which they often look for convergence (Blascovich & Tomaka, 1991).

This 10 question scale was administered to the students in the control group and in the mentored group before the e-mentoring program began and again after it was finished. Cronbach’s alpha was calculated to establish reliability for each item of the scale, a way of assessing the validity of the instrument. The results indicate good internal reliability (see Table 2).
Table 2

*Cronbach's Alpha Internal Consistency Reliability Estimates for Self-Esteem and Career Decision Scales, Pre and Post*

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Number of Items</th>
<th>Alpha</th>
<th>Range of Corrected Item-to-Total Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosenberg Self-Esteem Scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>10</td>
<td>.87</td>
<td>.19 to .73</td>
</tr>
<tr>
<td>Posttest</td>
<td>10</td>
<td>.82</td>
<td>.35 to .69</td>
</tr>
<tr>
<td>Career Decision Scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest Positive</td>
<td>2</td>
<td>.79</td>
<td>.67 to .67</td>
</tr>
<tr>
<td>Pretest Negative</td>
<td>16</td>
<td>.91</td>
<td>.46 to .75</td>
</tr>
<tr>
<td>Posttest Positive</td>
<td>2</td>
<td>.82</td>
<td>.71 to .71</td>
</tr>
<tr>
<td>Posttest Negative</td>
<td>16</td>
<td>.86</td>
<td>.32 to .63</td>
</tr>
</tbody>
</table>

*Note.* For both the Rosenberg Self-Esteem Scale and the Career Decision Scale pretests, \(N = 88\). For the Rosenberg Self-Esteem Scale posttest, \(N = 71\). For the Career Decision Scale posttest, \(N = 69\). The Career Decision Scale (CDS) (Osipow, Carney, Winer, Yanico, & Koeschier, 1987) is used to measure career indecision and provides outcome measures to determine the effects of relevant interventions. The CDS is composed of a 19-item Likert scale with items answered on a four point scale using Is Exactly Like Me, Is Very Much Like Me, Is Only Slightly Like Me, and Is Not at All Like Me. Items 1 and 2 measure the degree of certainty students feel about their career decisions. Items 3 - 18 provide a measure of career indecision. Item 19 is open-ended, allowing the students to clarify or provide additional information about their career decision making. The norm groups for the CDS consisted of high school students and college students. Test-retest reliability for total CDS scores ranged from .82 to .90. According to Osipow (1980) the mean and standard
deviation for the Certainty Scale Total are $M = 5.92$, $SD = 1.59$. For the Indecision Scale, these statistics are $M = 27.89$, $SD = 8.41$ for high school seniors.

This instrument was administered to the students in the control group and in the mentored group before the e-mentoring program began and again after it was finished. Cronbach’s alpha was calculated to establish reliability for each item of the instrument. The results indicate good internal reliability (see Table 2). Alphas ranged from .79 (pretest positive) to .91 (posttest negative).

Attendance

For the purpose of this study, the researcher tracked the number of absences per student in the control group and the number of absences per student in the mentored group during the course of the program. Students who dropped out of school before the program ended were not included in the data analyses.

Academic Achievement

To successfully complete the GED Exit Option program, students must pass the GED Tests. The GED Tests are developed by the GED Testing Service, a program of the American Council on Education, and consist of five subsections: Science, Social Studies, Reading, Mathematics, and Writing. Scores for each of the five GED Tests are reported separately on a standard score scale ranging from 200 (the lowest) to 800 (the highest). Although the GED Tests are national tests and minimum passing scores are set nationally, individual states can require higher scores in order to receive a passing score. Score requirements are reported as a minimum standard score for each test and a minimum average standard score across all five tests. The minimum passing standard set
by the GED Testing Service is an average of the five individual subject area test scores of 450 or greater (a total standard score of 2250 or greater), and each individual subject area test score must be 410 or greater. Florida uses this passing score requirement.

Prior to entering the GED Exit Option program, all students took a battery of pre GED tests which were used by the instructors to determine the students’ academic strengths and weaknesses in each of the five core subjects so that instruction could be individualized for the students. For example, if a student scored 600 on the mathematics pre GED test and scored 410 on the reading pre GED test, the student might receive reading instruction all five days a week and mathematics instruction only one day per week. Each student had an individualized instructional plan based on his or her scores on the pre GED tests.

Quality of Implementation

This study allowed the researcher to answer research questions two and three by observing the implementation of each component of the e-mentoring program and measuring the quality of implementation and by examining the design changes needed to improve the model during the study and in future studies. Each component of the three elements that were implemented; planning, program structure, and assessment, were assessed using online surveys and focus groups. Site visits were conducted by the researcher as necessary. The survey questions and focus group questions focused on three criteria:

1. ease of implementation
2. impact of technology

3. ability for flexible design revision (see Table 3).

Table 3

<table>
<thead>
<tr>
<th></th>
<th>Ease of Implementation</th>
<th>Impact of Technology</th>
<th>Flexible Design Revision/Implications for Design Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning</strong></td>
<td>Online survey</td>
<td>Not Applicable</td>
<td>Pilot study Online survey Site visits</td>
</tr>
<tr>
<td></td>
<td>Site visits</td>
<td></td>
<td>Site visits</td>
</tr>
<tr>
<td><strong>Program Structure</strong></td>
<td>Online survey</td>
<td>Online survey</td>
<td>Online survey Focus groups</td>
</tr>
<tr>
<td></td>
<td>Site visits</td>
<td>Focus groups</td>
<td>Focus groups</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>Gaggle.Net</td>
<td>Gaggle.Net</td>
<td>Pilot study Focus group data Discussion groups E-mail</td>
</tr>
<tr>
<td></td>
<td>Online surveys</td>
<td>E-mail, Web site, Telephone Discussion groups</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Focus groups</td>
<td>Discussion groups</td>
<td>E-mail</td>
</tr>
<tr>
<td></td>
<td>GED Tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attendance data</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rosenberg SE (^a) Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CDS (^b)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Self-Esteem. \(^b\) Career Decision Scale.

The complete chart which correlates each individual survey and focus group question to each component of the e-mentoring model is included in Appendix C.

**Ease of Implementation**

The criterion of ease of implementation was selected to help determine the working quality of the e-mentoring model for two reasons. Often when a new program is implemented in a school, administrators, instructors, and even students view it cautiously and as one more added burden to an already busy school day. If the new program is
difficult to implement, it can aggravate this situation. Evaluating the program components based on how easy they were to implement could improve the chances that a program such as this e-mentoring project would be implemented successfully.

The first element of Single and Muller’s structured e-mentoring model (1999) is planning. This phase lays the foundation that aids in the success of the program. When the goals are clearly articulated, the outcomes of the program planned for, and the execution steps organized, the program should be easy to implement. Both the online survey and focus group surveys asked specific questions that provided the researcher with information about the ease of implementation of each component of the model as it was being put into practice.

Impact of Technology

The second criterion was the impact of technology. Since technology is a key component of an effective e-mentoring program, the online surveys and focus groups contained specific questions about the technical operations of the e-mentoring program to determine if there were any technical glitches that occurred with the software and whether or not the participants (mentors, mentees, teachers, and researcher) had difficulties using it. Technical support was available to the mentors and mentees via the researcher and through a local school’s help desk. Software and hardware problems were tracked via log sheets.
Flexible Design Revision

The third criterion this researcher used to determine the quality of the e-mentoring model was flexible design revision which is a key element of design-based research. The researcher planned the e-mentoring program with an initial set of policies and procedures, but then meaningful change was implemented as the participants (students, mentors, and instructors) deemed necessary in the context of practice.

The survey and focus group questions were used as a continuous form of assessment leading to improving the quality of the e-mentoring program. The design of this study required multiple assessments to be completed so that revisions and modifications could be made while the program was underway. The researcher wanted to be able to easily make the revisions in order to improve the program while it was ongoing. Although not every improvement or recommendation could be implemented, they were all noted for use in subsequent studies.

Online surveys. The National Mentoring Partnership (NMP) has developed a variety of evaluation tools that this researcher used in creating both the online survey questions and the focus group questions. Using these tools, the researcher was also able to collect background information, perceptions of the effects of the mentoring relationship, perceptions of the quality of the mentoring relationship, and perceptions of the mentoring program. In order to be able to use the Tool Kit, an application and a $100 fee to the NMP were required. This application process was completed in June 2005 by the researcher and accepted by the NMP on June 23, 2005, for this project (see Appendix D). The pilot participants reviewed the questions, and minor adaptations were made. The
questions were then organized so that the mentors, mentees, and instructors could provide information to the researcher based on the ease of implementation of the component, the impact of the technology on the component, and their perceptions regarding the particular component and the program. Once the questions were finalized, the online surveys were created using an online software program called SurveyMonkey. From these surveys, the researcher gathered data that allowed for some immediate design revisions both during the study and in subsequent studies.

Each online survey utilized a Likert scale with items answered on a five-point scale using Strongly Agree, Agree, Neither Agree or Disagree, Disagree, and Strongly Disagree. Each survey included open-ended questions so the researcher could gather additional data.

*Focus groups.* Focus group questions were also adapted from the Mentors Online Tool Kit ™ and reviewed by the pilot group. The data collected from the focus groups allowed the researcher to determine if any design changes based on the participants’ responses needed to be made to the program. A goal of design-based research is to improve the way the design operates in practice. By gathering formative data from all the participants of the e-mentoring program, the researcher was able to analyze what was not working and why it was not working. Then, steps were taken to revise the program component or address the cause of the problem. Some problems could not be addressed during the study but are included as suggestions for further revision. All the refinements are documented and shared in the results section.
Implications for Design Changes

As stated in the section on working quality, design research assumes continuous refinement throughout the course of the study. All major changes in design were documented. Data relevant to the research questions were collected using the various tools discussed in the section above. A tracking sheet was developed to assist the researcher in managing all design revision themes, suggestions, ideas, and comments (see Table 4).

Table 4

Sample Design Revision Tracking Chart

<table>
<thead>
<tr>
<th>Source</th>
<th>Problem Description</th>
<th>Design Revision Idea</th>
<th>Implemented Date</th>
<th>Recommendation for Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researcher</td>
<td>Mentors Online™ software did not work during pilot.</td>
<td>Selected a new e-mail software, Gaggle.Net</td>
<td>Aug. 2006</td>
<td>Each school or district may have different firewalls/filters in place for e-mail use.</td>
</tr>
<tr>
<td>Instructor</td>
<td>Students need to be reminded to check their e-mail.</td>
<td>Create a check-in sheet to remind students to check their e-mail, especially at the beginning of program implementation.</td>
<td>Jan. 2007</td>
<td>Use a check sheet or some other tracking tool to help students remember to check their e-mail.</td>
</tr>
</tbody>
</table>

A complete list of all the design revisions can be found in Appendix E.

Procedures and Data Collection

The researcher served as the coordinator for the mentoring program. The duties of the coordinator included planning the program and setting the program goals, recruiting
mentors and mentees, managing the expectations of the participants, training and coaching the mentors and mentees, monitoring the e-mail messages sent through Gaggle.Net, managing the Web sites, helping the participants develop a sense of community, and conducting the evaluations throughout the program. In addition, the coordinator handled any problems, including technology related problems that arose during the program.

_E-mail Software_  
Finding the appropriate e-mail software that would provide a secure online environment for both the students and the mentors was important. In addition, the software had to work within the guidelines of the school district’s network protocol. The researcher utilized Gaggle.Net, a commercial e-mail program designed to make student e-mail safe. Both the mentors and mentees were required to use it for the purpose of this study. The software was designed so that the mentors and mentees exchanged e-mail through a central clearinghouse, a necessary security feature. For example, if an e-mail message sent by a mentor or mentee through Gaggle.Net contained objectionable language or content, the message would automatically be sent to the administrator’s mailbox for review. This e-mail program is a subscription service available to schools across the country, but the cost was waived by Gaggle.Net for use during this study.

_Planning the Program_

One of the biggest misconceptions about e-mentoring is that it is very easy to implement. However, according to the NMP, planning and running a quality e-mentoring program requires no less effort than planning and running a traditional mentoring
program (National Mentoring Partnership, n.d.). About a year and a half prior to the implementation of the program, the researcher created the statement of purpose and set the goals of the program which developed into the three research questions for the study. The application to the Mentors Online Tool Kit™ was submitted. An implementation timeline was developed so that the program would be organized and systematic (see Appendix F).

Recruitment of the instructors. During the spring of 2006, the GED Exit Option instructors from three technical centers in the school district received a brief orientation about the online mentoring program that was to be implemented in their classes beginning in October, 2006. The directors of the participating technical centers had already approved the program prior to this orientation. In August 2006, one technical center dropped out because its GED Exit Option enrollment was very low. A full orientation was conducted with the instructors from the other two technical centers to review the program goals, expectations, and operational details. The expectations for the instructors, outlined at both orientations, were minimal yet very important. The instructors were expected to allow time during the class for the students to use the computer to complete the training component, communicate with their mentors, complete surveys throughout the course of the program, and access a Web site created for the participating students. The instructors also received training on the Gaggle.Net software, so they were knowledgeable in how it works and would be able to answer some questions the students might have about the software.
Recruitment of mentors. During the spring and summer preceding the start of the e-mentoring program, mentors were actively recruited from the schools’ business and educational partners. Presentations were made to the business advisory committees that support each school. During the presentations, the program goals and expectations were outlined. The potential mentors completed a written application (see Appendix G) and were selected based on their willingness to participate and ability to commit to the project. After selection, all mentors were required to complete the school district volunteer application. There were eight more mentors recruited than were students willing to participate as mentees. Applications to be a mentor were accepted in the order in which they were received, so the final eight applicants were not matched with students for the purpose of this study.

Recruitment of mentees. Each of the three GED Exit Option instructor’s classes was randomly assigned as a mentored class or a control group class. During the first week of October, the program coordinator made a presentation to each designated mentored class about the e-mentoring project. The presentation included the goals, expectations, and operational details of the program and focused on how mentoring could be another tool to help the students be successful during the school year. Unfortunately, the day before the presentations were scheduled, Representative Mark Foley from Florida abruptly resigned his seat in Congress after ABC News confronted him with copies of sexually explicit e-mails he had sent to 16- and 17-year old congressional pages. Some students and their parents were concerned about online mentoring, particularly because the mentors were strangers to them.
The students from the randomly selected mentored classes could decide whether or not they wished to participate. Those who were interested in participating were given an application (Appendix H) and if they were 18 years of age or older, the appropriate informed consent forms (Appendix I) to review and sign. For students under the age of 18, parental or guardian permission was necessary, and interested students took the forms home for review and signatures (Appendices J and K). The program coordinator asked for all the forms to be returned to the instructors within one week. The program coordinator was available for student or parent questions about the program and available via the telephone or e-mail. Each student had the choice to decline to participate or withdraw from the research at any time.

Thirty-two students participated as mentors and 59 students did not. All the students in the classes that were randomly selected as the control classes were part of the control group. However, in the classes that were randomly selected as mentored classes, some students chose not to participate. These students were included in the control group for statistical purposes.

Managing Expectations

The expectations for this project were managed by the program coordinator and communicated to the instructors, mentees and mentors during the recruitment presentations and throughout the program. The instructors were expected to allow the students to complete the online training component during class, be able to access their e-mail at least once per day, and be supportive of the project. The mentors were expected to follow all the volunteer guidelines developed by the district school system, complete
the online training component, and send a minimum of two messages per week to their mentees. The mentees were expected to complete the online training component and send a minimum of two messages per week to their mentors.

In addition, all participants were expected to complete the online surveys, participate in the focus groups, and ask for assistance with the technology or any other component of the program as often as necessary. The mentees were expected to also complete the Rosenberg Self-Esteem Scale and the Career Indecision Scale before the study began and again after the program was over.

Matching. After the mentors were recruited and approved through the school district volunteer application process, they were randomly matched with the students who chose to participate in the program using a simple computer program. All the participants were informed that the mentor assignments were randomly completed by the computer.

Program Structure

The second component of the structured e-mentoring model includes three subcomponents, training, coaching, and community building, the actual operational aspects of the program. These components were implemented in a variety of ways.

Training. Before any mentoring began, the participating students (mentees) received online training on what it would be like to be a mentee. This online training was available through the National Mentoring Partnership and was used in its entirety by the researcher for this project. Topics included in the training were:

1. What is Mentoring All About?
2. Your Mentor’s Responsibilities
3. Your Responsibilities as a Mentee

4. Developing a Great Mentoring Relationship

5. Things to Do With Your Mentor

6. When and How to Say Goodbye

The program coordinator met with the students in a computer lab on the school campuses and assisted with the students’ online training component as recommended by the pilot group. The training was available online so the students had access to it throughout the mentoring program. The program coordinator also added a link to the training on the student Web site to make it easier to access.

During this same training, the mentees were provided with their personal Gaggle.Net e-mail address and were trained on how to use the Gaggle.Net system. At the end of the training, the randomly selected mentor’s name and secure Gaggle.Net e-mail address were distributed to each mentee, and the students were told to expect a message from their mentors within a week. Students who were not in school on the day of the training or who joined the mentoring project after this training date, were provided one-on-one instruction by the program coordinator on how to access the online training component and how to use Gaggle.Net.

The online training course for the e-mentors was also available through the NMP. The topics included in the mentor training were as follows:

1. What is Mentoring?

2. The Role of the Mentor

3. Tips for Success
The program coordinator sent an e-mail message to all of the selected mentors requesting they participate in the online training. This message was sent to the mentors during the same week that the mentees completed the training. In the same e-mail message, the mentor’s secure e-mail address along with his or her randomly selected mentee’s name and e-mail address were provided. The mentors were asked to send the first message to their mentees within one week of the training.

Coaching. Two Web sites were created by the researcher for this program as portals for additional information. The Web site for the mentors contained additional training and informational tools for the mentors including a handbook of basic information about the GED Exit Option program, adolescent behavior, communication strategies, and tips for developing relationships online. It also included discussion starters, a blog to be used as a discussion site, and a form to submit when requesting technical support. The Web site for the mentees contained similar information for the students including communication strategies, tips for developing relationships online,
suggested topics for discussion with their mentors, blogs to be used as discussion sites, and a form to submit when requesting technical support.

Each week, the program coordinator sent a discussion starter via e-mail to the mentors. These starters were designed to help the mentors develop conversation and topics to discuss with the mentees. One of the early discussion starters was as follows:

Ask your mentee’s opinion about one or more of these topics: the future, clothes, the environment, gossip, heroes, or responsibility. The students may want to know your opinion as well! Remember, don’t pass judgement – your mentee will feel good knowing that an adult cares enough to ask his or her opinion on a topic.

The initial discussion starters were designed as a way for the participants to get to know each other. The others always had a theme related to academic achievement, attendance, self-esteem, or career decision making. A complete list of the discussion starters can be found in Appendix L.

During the e-mentoring project, the program coordinator stayed in communication with the instructors via telephone and e-mail to remind them to encourage the students to check their e-mail and send messages to their mentors. The program coordinator also sent messages to the mentees either as a group or individually to remind them to communicate with their mentors on a regular basis. Continuous communication was important in this coaching phase.

Community building. Opportunities for the mentors to communicate with each other and the mentees to communicate with each other help build the sense of community.
that the research indicates leads to the success of online mentoring programs. The original plan was to have discussion boards and blogs for the mentees and mentors to utilize in order to assist with the community building. However, due to unforeseen school district firewall issues, the blogs and discussion boards were unavailable most of the time during the program. Community building occurred during the focus group sessions and other meetings the researcher had with both the students and the mentors. This community building was more informal than originally planned.

Assessment

Although assessment is often done at the end of a mentoring program, the design of this study required assessment to be completed at various stages of the program so that modifications could be made to the program while in progress. Three types of data were collected during the assessment component of this study (see Table 5).
Table 5

*Timeline for Data Collection*

<table>
<thead>
<tr>
<th>Week Of...</th>
<th>Type</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing – Review Weekly</td>
<td>Gaggle.Net reports</td>
<td>Involvement – Frequency of e-mails sent and received each week</td>
</tr>
<tr>
<td>July – Sept., 2006</td>
<td>GED pretest</td>
<td>Formative – Assessment</td>
</tr>
<tr>
<td>Oct. 1, 2006</td>
<td>Rosenberg SE (^a) Scale; CDS (^b)</td>
<td>Formative – Assessment</td>
</tr>
<tr>
<td>Oct. 30, 2006</td>
<td>Survey 1</td>
<td>Formative – Planning</td>
</tr>
<tr>
<td>Nov. 27, 2006</td>
<td>Survey 2</td>
<td>Formative – Program Structure</td>
</tr>
<tr>
<td>Jan. 8, 2007</td>
<td>Focus group 1</td>
<td>Formative – Planning and Program Structure</td>
</tr>
<tr>
<td>Feb. 2007</td>
<td>GED Tests</td>
<td>Summative – Assessment</td>
</tr>
<tr>
<td>March 1, 2007</td>
<td>Attendance reports</td>
<td>Summative – Assessment</td>
</tr>
<tr>
<td>April 2, 2007</td>
<td>Survey 3</td>
<td>Formative – Assessment</td>
</tr>
<tr>
<td>April 2, 2007</td>
<td>Rosenberg SE (^a) Scale; CDS (^b)</td>
<td>Formative – Assessment</td>
</tr>
<tr>
<td>April 30, 2007</td>
<td>Focus group 2</td>
<td>Formative – Assessment</td>
</tr>
</tbody>
</table>

\(^a\) Self-Esteem \(^b\) Career Decision Scale.

*Involvement data.* The number of e-mail messages the mentors and mentees sent and received were tracked using the Gaggle.Net administrative feature and an Excel spreadsheet. The program coordinator checked the Gaggle.Net site each day, and depending on what the data showed, additional online coaching sessions (group and individual) were incorporated to help encourage the mentors and mentees to communicate at least two times per week.

*Formative data.* The formative data were collected through the online surveys and focus groups and were used to allow the researcher to make improvements to the program.
while it was ongoing. At the appropriate time during the program, an e-mail message was sent to the mentors asking them to complete the online survey within one week. The link to the survey was included in the message. For the mentees, the program coordinator set a specific time during the school day and asked the students to come to the computer lab and complete the survey. This was done to ensure the students were completing the survey and to allow the program coordinator to touch base with the students. All the online surveys can be found in Appendices M through U.

The focus group questions were designed to help the researcher gather different, more detailed information from both the mentees and the mentors. The focus groups were conducted with the students at their own school during the school day. Focus groups for the mentors were offered at two different times during the day, either in the morning or after work, to accommodate the mentors’ schedules. The instructors met after school to participate in their focus groups. The focus groups for the mentees and the mentors usually had approximately 10 -15 participants in each group. During the focus groups, the researcher served as the facilitator. In addition, they were audio-taped so that the researcher had a full record of the responses. All focus group questions can be found in Appendices V through X.

After the data were collected from the online surveys and focus groups, it was compiled into several large charts and analyzed by the researcher. As appropriate, changes were made to the model and communicated to the participants through e-mail.

**Summative data.** The summative data, which were used to determine the impact of the mentoring program on at-risk students’ self-esteem, career indecision, attendance,
and academic achievement, were obtained using several measures. The Rosenberg Self-Esteem Scale was administered to the control group and mentored group of students before the program began and again at the end of the program. This same protocol was utilized for the Career Decision Scale. Attendance was tracked for all students. The students who dropped out of school were tracked separately. To determine academic success, the scores on each of the five GED Tests were utilized. The students took these tests in February or early March and received the results about a month later.

**Data Analyses**

The first research question was: What is the impact of the structured e-mentoring model on at-risk students’ self-esteem, career indecision, attendance, and academic achievement? In order to answer this question, descriptive data were collected and analyzed for the two groups of students, those in the mentored group and those in the control group. The data collected from Rosenberg Self-Esteem Scale and the Career Indecision Scale were analyzed using a 2 x 2 repeated measures ANOVA. The two independent variables were the group the students were in (mentored or control) and time (pretest versus posttest). The researcher initially scored all of the pretests and posttests administered in this study and entered the data into a spreadsheet. In order to ensure these instruments were scored accurately, a school-based administrator re-scored each test and validated the accuracy of all test scores entered into the spreadsheet.

The data collected from the students’ attendance reports were analyzed using the independent sample t-test. This test was conducted to determine if there was a statistically
significant difference in the attendance records for the students in the mentored group or the control group.

For each subtest of the pre GED and the actual GED Tests, the data were analyzed using the 2 x 2 repeated measures ANOVA. The two independent variables were the group the students were in (mentored or control) and time (pretest versus posttest). The researcher entered the students’ scores into a spreadsheet. A school-based administrator reviewed the accuracy of all test scores entered into the spreadsheet. This same process was used for the total score of the pre GED tests and the actual GED Tests.

The second research question was: What is the working quality of each of the design components of the structured e-mentoring model? In order to answer this question, the online survey questions were organized in a schema based on the components and subcomponents of the structured e-mentoring model (recruiting, managing expectations, training, coaching, and community building) and an independent t-test was run on each subcomponent to determine whether or not the mentors, mentees, and instructors had a positive experience with the mentoring process. Levene’s Test for Equality of Variances was also conducted in order to check for homogeneity of variance between the mentor and mentee groups. This analysis allowed the researcher to determine how satisfied the mentors and the students were with the components of the program during implementation and after the program was completed.

The third research question was: What are the implications for design changes needed to improve the model during the study and in subsequent studies? In order to answer this question, the involvement data, the data from the open-ended questions on
the online surveys, focus group discussions, conversations and e-mails with the mentors, mentees, and instructors, and e-mail dialogue between the mentors and mentees were analyzed by the researcher immediately upon completion of each. Every stakeholder group had the opportunity to look at the issue from their particular point of view and the researcher would log the issues and look for patterns to emerge. By triangulating the data, biases were eliminated that might have resulted from just relying on one source of the data. A school-based administrator and a teacher (who were not participants in the study) also reviewed the data independently to see what patterns they detected. Both of these independent evaluators hold Master’s degrees in Education and have taken coursework in statistical measurement and evaluation procedures.

All the identified issues were logged and as the patterns emerged, adjustments would be made and implemented if possible and appropriate. For example, the instructors, mentors, and mentees all indicated a need for a system to help the mentees remember to check their e-mail. One instructor began utilizing a simple check sheet that the students had to sign each day indicating they had checked their e-mail. This check sheet method was implemented among all the teachers in January 2007 after the survey results and focus groups data were compiled and this issue surfaced. There were other issues that could not be implemented during the study but were logged and perhaps could be addressed in the development of future mentoring programs.
Chapter 4

Results

The purpose of this research study was to determine the quality and impact of the e-mentoring model on at-risk high school students. The student participants were 17- and 18-year olds enrolled in the GED Exit Option dropout prevention program at two technical centers in a Central Florida school district. The mentor participants were business and community partners who volunteered to work with the students online during the course of the study.

A research-based, structured e-mentoring model was designed, implemented, and assessed over about a six-month period. Using a design experiment as the way to carry out this formative research allowed the investigator to test the e-mentoring model based on the theoretical principles found in the literature. This connection of research and practice allowed the researcher to make improvements to the program while it was still ongoing. The mentors and the mentees, as well as the instructors, were co-participants in the actual design and analysis of the project.

The design of this study was first a quantitative assessment of the relationship between participating as a mentee and the student’s self-esteem, career indecision, attendance and academic success. In addition, the study also contained a qualitative element used to evaluate the working quality of the structured e-mentoring model (see Figure 1). The quality of each component of the model was measured against three
criteria: (a) ease of implementation, (b) the impact of technology, and (c) the ability for flexible design revision. Last, since design experiments are fluid and require improvements to the e-mentoring program while it was underway, all changes to the program were recorded. The results from all the measures and their analyses are presented in the next section.

Study Participants

This research study included three groups of participants: mentors, instructors, and mentees. The mentors included individuals who were business or educational partners of the participating technical centers. Of the 32 mentors, 22 were female and 10 were male. The majority of the mentors were White (87.5%). The other 12.5% were either African American or Hispanic. Their occupations included business owners, managers, nurses, instructional support teachers, community volunteers, and engineers. Of the 32 mentors, 21 were business partners and 11 were educators. Two of the mentors lived in Texas. No specific data were collected on the exact age of the mentors; however, the youngest mentor was a college senior and the oldest was in his mid sixties.

At the two technical centers participating in the study, there were four instructors teaching the GED Exit Option program. One of the four instructors chose not to participate in the project. Of the three who did participate, two were female, one White and one African American, and the other was a White male instructor. Each instructor had two classes – one in the morning and one in the afternoon. The class sizes varied from a low of 9 students to a high of 24 students.
Students began enrolling in the GED Exit Option program during the summer prior to the school year. The enrollment period extended through the second week of September 2006. There were a total of 91 students enrolled in the six classes. The students were a mix of male and female, White, African American, Hispanic, and Asian and were either 17- or 18-years of age when the program began. Gender and race distributions are located in Table 6.

Table 6

Gender and Race Distribution for Students Enrolled in the GED Exit Option Program

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
</tr>
<tr>
<td>Male</td>
<td>55</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>41</td>
</tr>
<tr>
<td>Black</td>
<td>24</td>
</tr>
<tr>
<td>Hispanic</td>
<td>24</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>91</td>
</tr>
</tbody>
</table>

Impact of Structured E-Mentoring Model

To answer the first research question regarding the impact of the structured e-mentoring model on the at-risk students’ measures of psychological (self-worth, career indecision), behavioral (attendance), and academic success (GED Tests), quantitative analyses were conducted. The results are described in the following subsections.

Self-Esteem
The Rosenberg Self-Esteem Scale was administered to the students in the mentored classes and the non-mentored classes in a pretest/posttest control group design. The pretest was conducted during October prior to the actual start of the program. The posttest was conducted during March after the program was complete.

This instrument consisted of 10 questions (Appendix A). Five of the questions were worded positively and the other five questions were worded negatively. The participants answered the questions on a scale of 1 to 4 (4 for strongly agree, 3 for agree, 2 for disagree, and 1 for strongly disagree). Negative items were reversed scored. The surveys were scored by adding the individual responses to produce an overall self-esteem score for the individual. It is assumed that the higher the score, the higher the level of positive self-esteem.

The data collected were then analyzed using a 2 x 2 repeated measures ANOVA. The data sets were examined in two different ways. First, the students who were in the randomly selected mentored classes, but chose not to be mentored, were included in the control group. A second analysis was conducted using only the mentored students in the randomly selected mentored classes and only the control group students in the randomly selected control classes. An \( \alpha \) level of .05 was used for all tests.

Descriptive statistics including the mean, standard deviation, skewness and kurtosis are presented in Table 7.
Table 7  
*Descriptive Statistics for Rosenberg Self-Esteem Scale, Pretest and Posttest Results*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre Self-Esteem</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>45</td>
<td>32.64</td>
<td>5.68</td>
<td>-0.90</td>
<td>1.64</td>
</tr>
<tr>
<td>Mentored</td>
<td>26</td>
<td>32.92</td>
<td>5.35</td>
<td>-0.62</td>
<td>0.69</td>
</tr>
<tr>
<td><strong>Post Self-Esteem</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>45</td>
<td>34.40</td>
<td>4.44</td>
<td>-0.42</td>
<td>-0.41</td>
</tr>
<tr>
<td>Mentored</td>
<td>26</td>
<td>34.69</td>
<td>4.85</td>
<td>-0.73</td>
<td>-0.58</td>
</tr>
</tbody>
</table>

The means for both pretest and posttest measures were graphed to provide a picture of the analysis and can be found in Figure 3.

![Graph showing mean scores](image)

*Figure 3. Rosenberg Self-Esteem Scale, Pretest and Posttest Results.*

The ANOVA results $F (1, 69) = 8.75, p < .01$ indicated that there was a statistically significant increase in overall self-esteem scores from the pretest to the posttest. However, there was no statistically significant interaction between time and
group, $F(1, 69) = 0.00, p > .05$. Both groups progressed in the same direction (positive) at similarly significant rates. There was no statistically significant difference in overall scores, $F(1, 69) = 0.07, p > .05$, between the mentored group and the control group.

The students who were enrolled in the randomly selected mentored classes but chose not to be mentored were then excluded from the control group and a second repeated measures ANOVA was performed. The findings were the same. The results, $F(1, 55) = 6.50, p < .05$ indicated that there was a statistically significant increase in overall self-esteem scores from the pretest to the posttest. However, there was no statistically significant interaction between time and group, $F(1, 55) = 0.08, p > .05$. There was also no statistically significant different in overall scores, $F(1, 55) = 0.08, p > .05$ between the control group and the mentored group.

Career Decision

The Career Decision Scale data were analyzed using the same methodology as for the Rosenberg Self-Esteem Scale data. The surveys were administered to the students in the mentored classes and the non-mentored classes in a pretest/posttest control group design. The pretests and the posttests were administered on the same day that the Rosenberg Self-Esteem Scale was administered. The data collected were then analyzed using a $2 \times 2$ repeated measures ANOVA. The data sets were examined in two different ways. First, the students who were in the randomly selected mentored classes, but chose not to be mentored, were included in the control group. A second analysis was conducted using the mentored students in the randomly selected mentored classes and only the students in the randomly selected control classes. An $\alpha$ level of .05 was used for all tests.
This instrument was made up of 18 questions (Appendix B). Two of the questions were worded positively and were used to measure a student’s certainty about a career decision. The other 16 were worded negatively and measured a student’s indecision about a career choice. For the purposes of this analysis, the responses were separated into two groups. The respondents answered the questions on a scale of 1 to 4 (4 for exactly like me, 3 for very much like me, 2 for only slightly like me and 1 for is not at all like me). Therefore, a larger total score would be desirable among the positively worded questions, while a smaller total score would be more desirable among the negatively worded questions.

Using the 2 x 2 repeated measures ANOVA, the two different total scores – positive and negative – were analyzed to determine if the overall attitudes of the two populations differed significantly from one another in either the pretest or the posttest. The descriptive statistics are found in Table 8 and 9.

Table 8

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Career</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>43</td>
<td>6.47</td>
<td>1.75</td>
<td>-0.96</td>
<td>0.16</td>
</tr>
<tr>
<td>Mentored</td>
<td>26</td>
<td>5.69</td>
<td>1.64</td>
<td>-0.46</td>
<td>0.35</td>
</tr>
<tr>
<td>Post Career</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>43</td>
<td>6.70</td>
<td>1.60</td>
<td>-1.13</td>
<td>0.66</td>
</tr>
<tr>
<td>Mentored</td>
<td>26</td>
<td>6.00</td>
<td>1.58</td>
<td>-0.13</td>
<td>-1.10</td>
</tr>
</tbody>
</table>
Table 9

**Descriptive Statistics for Career Decision Scale, Pretest and Posttest Results**

*Negative Questions Measuring Career Indecision*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Career</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>43</td>
<td>30.77</td>
<td>10.41</td>
<td>1.50</td>
<td>3.05</td>
</tr>
<tr>
<td>Mentored</td>
<td>26</td>
<td>32.15</td>
<td>11.62</td>
<td>.040</td>
<td>-0.05</td>
</tr>
<tr>
<td>Post Career</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>43</td>
<td>30.19</td>
<td>7.28</td>
<td>0.33</td>
<td>-0.41</td>
</tr>
<tr>
<td>Mentored</td>
<td>26</td>
<td>33.88</td>
<td>9.37</td>
<td>0.15</td>
<td>0.10</td>
</tr>
</tbody>
</table>

The means for both pretest and posttest measures for the positive and negative questions were graphed to provide a picture of the analyses and can be found in Figures 4 and 5.

*Figure 4. Career Decision Scale, Pretest and Posttest Results for Positive Questions Measuring Certainty about a Career.*
Figure 5. Career Decision Scale, Pretest and Posttest Results for Negative Questions Measuring Career Indecision.

For the positively worded questions which measured career certainty, there was no statistically significant difference, $F(1, 67) = 2.49, p > .05$ from the pretest to the posttest. There was no statistically significant interaction between time and group, $F(1, 67) = 0.05, p > .05$. Both groups progressed in the same direction (positive) at similarly insignificant rates. There was no statistically significant difference in overall scores $F(1, 67) = 0.05, p > .05$ between the mentored and control groups.

For the negatively worded questions which measured a student’s career indecision, the results were similar. There was no statistically significant difference, $F(1, 67) = 0.28, p > .05$ in negative career decision scores from the pretest ($M = 31.29, SD = 10.82$) to the posttest ($M = 31.58, SD = 8.26$). There was also no statistically significant interaction between time and group, $F(1, 67) = 1.12, p > .05$. 
Both groups progressed at similarly insignificant rates. Finally, there was no statistically significant difference in overall scores, $F(1, 67) = 1.44, p > .05$ between the control and mentored group.

The same analysis was run using a data set that excluded the students who were enrolled in the randomly selected mentored classes but chose not to be mentored. The findings were the same; there were no statistically significant differences between the control group and the mentored group for either the positive questions, $F(1, 53) = .735, p > .05$ or negative questions $F(1, 53) = .006, p > .05$. Overall, these analyses indicate that there were no statistically significant group (mentored and control) by time (pretest/posttest) interaction effects or main effects of time or group conditions.

**Attendance**

A record of the student’s attendance throughout the study was recorded daily and analyzed at the end of the study. Only the attendance records for the students who completed the program and actually took the GED were analyzed. The results for the students’ attendance are found in Table 10.

Table 10

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>43</td>
<td>9.12</td>
<td>7.83</td>
<td>1.79</td>
<td>4.57</td>
</tr>
<tr>
<td>Mentored</td>
<td>26</td>
<td>11.62</td>
<td>9.48</td>
<td>1.61</td>
<td>2.56</td>
</tr>
</tbody>
</table>

An independent sample $t$-test was run to determine if there was a significant difference in the number of absences between the two groups of students, mentored and control. The test, $t(67) = -1.19, p > .05$, indicated that there was no significant difference
in the number of absences between the mentored students and those in the control group. Note that the mentored students \((M = 11.62, SD = 9.48)\) had a slightly higher average absence rate than those in the control group \((M = 9.12, SD = 7.83)\), but not different enough to be considered statistically significant.

A second \(t\)-test was run using data that excluded the students in the mentored group who chose not to be mentored. Again, the results, \(t(52) = 1.07, p > .05\) were not statistically significant. See Table 11 for the results.

Table 11

<table>
<thead>
<tr>
<th>Group</th>
<th>(N)</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>28</td>
<td>8.96</td>
<td>8.72</td>
<td>2.01</td>
<td>5.06</td>
</tr>
<tr>
<td>Mentored</td>
<td>26</td>
<td>11.62</td>
<td>9.48</td>
<td>1.61</td>
<td>2.56</td>
</tr>
</tbody>
</table>

Note. Students in the randomly selected mentored classes who chose not to be mentored were excluded from this data set.

**Academic Success**

The purpose of the GED Exit Option program is to provide an opportunity for students to prepare for and pass the GED Tests. Prior to entering the GED Exit Option program, the students took the pre GED tests which mirror the actual GED Tests. Both pretests and the actual GED Tests consist of five individual subtests in the areas of science, social studies, reading, mathematics, and writing. The minimum score a student can earn on each pre GED test is 200 and the maximum score a student can score on each test is 800.
Based on these scores, 69%, or 63 of the 91 of the students enrolled in the GED Exit Option classes that were part of this study, were ready to take the GED Tests upon entering the program. Twenty-eight students or 31% needed remediation in at least one of the five core subjects that make up the GED. Although their scores may indicated that they may have been able to pass the GED Tests upon entering the program, they were still required by school district policy to be part of the year-long GED Exit Option program in order to take the actual GED Tests and receive their home high school diplomas.

The results of the pre GED tests are provided in Table 12.

Table 12

<table>
<thead>
<tr>
<th>Test</th>
<th>Group</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>Control</td>
<td>390</td>
<td>800</td>
<td>535.52</td>
<td>101.50</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>400</td>
<td>800</td>
<td>568.39</td>
<td>121.38</td>
</tr>
<tr>
<td>Social Studies</td>
<td>Control</td>
<td>390</td>
<td>650</td>
<td>494.31</td>
<td>55.92</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>390</td>
<td>800</td>
<td>544.19</td>
<td>102.27</td>
</tr>
<tr>
<td>Reading</td>
<td>Control</td>
<td>400</td>
<td>800</td>
<td>507.93</td>
<td>91.93</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>400</td>
<td>680</td>
<td>505.16</td>
<td>80.29</td>
</tr>
<tr>
<td>Math</td>
<td>Control</td>
<td>390</td>
<td>630</td>
<td>475.86</td>
<td>54.71</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>390</td>
<td>690</td>
<td>480.00</td>
<td>66.48</td>
</tr>
<tr>
<td>Writing</td>
<td>Control</td>
<td>390</td>
<td>670</td>
<td>466.38</td>
<td>57.70</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>400</td>
<td>540</td>
<td>461.61</td>
<td>32.26</td>
</tr>
<tr>
<td>Total</td>
<td>Control</td>
<td>2160</td>
<td>3210</td>
<td>2480.00</td>
<td>242.84</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>2080</td>
<td>3250</td>
<td>2591.92</td>
<td>320.69</td>
</tr>
</tbody>
</table>
In February or early March (depending on the class), the students took the actual GED Tests which consisted of the same five subjects: science, social studies, reading, mathematics, and writing. The scoring was the same as for the pre GED tests. The results of the post GED Tests are found in Table 13.

Table 13

Post GED Results by Group, Control (N = 44) and Mentored (N = 26)

<table>
<thead>
<tr>
<th>Test</th>
<th>Group</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>Control</td>
<td>410</td>
<td>660</td>
<td>497.05</td>
<td>53.25</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>420</td>
<td>630</td>
<td>503.08</td>
<td>66.62</td>
</tr>
<tr>
<td>Social Studies</td>
<td>Control</td>
<td>410</td>
<td>660</td>
<td>510.23</td>
<td>62.75</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>360</td>
<td>630</td>
<td>500.00</td>
<td>81.29</td>
</tr>
<tr>
<td>Reading</td>
<td>Control</td>
<td>420</td>
<td>800</td>
<td>538.18</td>
<td>78.10</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>440</td>
<td>760</td>
<td>545.38</td>
<td>86.64</td>
</tr>
<tr>
<td>Math</td>
<td>Control</td>
<td>420</td>
<td>700</td>
<td>490.45</td>
<td>54.77</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>390</td>
<td>700</td>
<td>502.31</td>
<td>83.39</td>
</tr>
<tr>
<td>Writing</td>
<td>Control</td>
<td>390</td>
<td>760</td>
<td>487.05</td>
<td>72.10</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>410</td>
<td>580</td>
<td>489.23</td>
<td>56.35</td>
</tr>
<tr>
<td>Total</td>
<td>Control</td>
<td>2220</td>
<td>3130</td>
<td>2522.95</td>
<td>229.94</td>
</tr>
<tr>
<td></td>
<td>Mentored</td>
<td>2170</td>
<td>3320</td>
<td>2540.00</td>
<td>285.73</td>
</tr>
</tbody>
</table>

The means for both pretest and posttest subtests and total scores for the GED Tests were graphed to provide a picture of the analyses and can be seen in Figures 6 through 11.
**Figure 6.** Mean GED Science Scores, Pretest and Posttest (Control Group N = 44, Mentored Group N = 26).

**Figure 7.** Mean GED Social Studies Scores, Pretest and Posttest (Control Group N = 44, Mentored Group N = 26).
Figure 8. Mean GED Reading Scores, Pretest and Posttest (Control Group N = 44, Mentored Group N = 26).

Figure 9. Mean GED Mathematics Scores, Pretest and Posttest (Control Group N = 44, Mentored Group N = 26).
Figure 10. Mean GED Writing Scores, Pretest and Posttest (Control Group N = 44, Mentored Group N = 26).

Figure 11. Mean GED Total Scores, Pretest and Posttest (Control Group N = 44, Mentored Group N = 26).
Of the 44 students in the control group who took the actual GED Tests, 40 passed with the required scores. Of the 26 students in the mentored group who took the actual GED Tests, 20 passed with the required scores. A 2 x 2 repeated measures ANOVA was conducted and the results can be found in Table 14. For purposes of this particular analysis, the students who were in the randomly selected mentored classes but chose not to be mentored were included in the control group data set.

Table 14

<table>
<thead>
<tr>
<th>Test</th>
<th>Time x Group</th>
<th>Time</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>2.50</td>
<td>23.70**</td>
<td>1.62</td>
</tr>
<tr>
<td>Social Studies</td>
<td>11.62**</td>
<td>3.82</td>
<td>1.95</td>
</tr>
<tr>
<td>Reading</td>
<td>0.01</td>
<td>11.14**</td>
<td>0.20</td>
</tr>
<tr>
<td>Mathematics</td>
<td>0.07</td>
<td>4.28*</td>
<td>0.51</td>
</tr>
<tr>
<td>Writing</td>
<td>0.12</td>
<td>6.26*</td>
<td>0.01</td>
</tr>
<tr>
<td>Total GED</td>
<td>3.63</td>
<td>0.04</td>
<td>1.12</td>
</tr>
</tbody>
</table>

*Note.* Students who were in randomly selected mentored classes but chose not to be mentored were counted as members of the control group.

*p < .05  **p < .01

This analysis yielded only one significant result for the interaction effect between the variables of time and mentor group. On the social studies subtest, the overall mean scores differed significantly from pretest to posttest when accounting for the differences in mentoring versus control groups. The control group scores increased over time while the scores for the mentored group declined. When considering the factor of time only, there were significant results for science, reading, mathematics, and writing. The scores
for both groups increased for mathematics, reading, and writing. The scores for science decreased for both groups over time. The total GED Tests scores did not yield statistically significant results for either the mentored group or the control group. The control group’s scores increased while the scores for the mentored groups decreased but they were not statistically significant.

A second analysis was conducted by removing the students in the randomly selected mentored classes who chose not be mentored from the data set completely. The results differed only slightly. On the social studies and science subtests, the overall mean scores differed significantly from pretest to posttest between mentoring and control groups. The results are displayed in Table 15.

Table 15

<table>
<thead>
<tr>
<th>Test</th>
<th>Time x Group</th>
<th>Time</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>4.31*</td>
<td>14.38**</td>
<td>1.01</td>
</tr>
<tr>
<td>Social Studies</td>
<td>7.98**</td>
<td>3.23</td>
<td>2.94</td>
</tr>
<tr>
<td>Reading</td>
<td>0.06</td>
<td>6.57*</td>
<td>0.26</td>
</tr>
<tr>
<td>Mathematics</td>
<td>0.05</td>
<td>3.13</td>
<td>0.08</td>
</tr>
<tr>
<td>Writing</td>
<td>0.04</td>
<td>7.17*</td>
<td>0.53</td>
</tr>
<tr>
<td>Total GED</td>
<td>3.84</td>
<td>0.01</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Note. Students were excluded who were in randomly selected mentored classes but chose not to be mentored.

*p < .05  **p < .01

Of the 58 students in the control group when the program started, only 44 students or 76%, actually took the GED Tests and completed the school year. On the other hand, of the 31 students in the mentored group when the program began, 26 students or 84%,
actually took the exam and completed the school year. A total of 19 students dropped out before taking the GED. Independent $t$-tests were run to determine if the dropouts and the students who stayed in school performed significantly different from one another on the pre GED subtests and the total of the entire battery of pre GED tests. Based on the results, all of the students who stayed in school and took the actual GED Tests had higher scores on the pre GED tests than those students who dropped out. However, they were not statistically significant. The results can be found in Table 16.

Table 16

<table>
<thead>
<tr>
<th>Test</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>-0.74</td>
<td>.46</td>
</tr>
<tr>
<td>Social Studies</td>
<td>-1.16</td>
<td>.25</td>
</tr>
<tr>
<td>Reading</td>
<td>-0.18</td>
<td>.86</td>
</tr>
<tr>
<td>Mathematics</td>
<td>-0.83</td>
<td>.41</td>
</tr>
<tr>
<td>Writing</td>
<td>-0.56</td>
<td>.58</td>
</tr>
<tr>
<td>Total GED</td>
<td>-0.97</td>
<td>.34</td>
</tr>
</tbody>
</table>

Note. $p < .05$ df = 87 for all subtests

Correlations were run in order to measure the degree of association between each subtest of the pre GED test and the actual GED subtests. As expected, each pretest demonstrated significant correlation to its related posttest. The intercorrelations between GED subtests and the other three measures: self-esteem, career decision, and attendance were examined. As expected, the pretest and posttest for the Rosenberg Self-Esteem Scale as well as the pretest and posttest for both the positive and negative Career Decision Scale questions were significantly correlated.
Next, the intercorrelations between GED subtests and the other three measures: self-esteem, career decision, and attendance were analyzed for the control group of students and the mentored group of students. This data set for the control group included the students from the randomly selected mentored classes who chose not to be mentored. The correlation results for pretest to pretest, posttest to posttest, and pretest to posttest can be found in Tables 17 through 22.
Table 17

*Pearson Product Moment Correlation between Study Variables at Pretest, Control Group*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Self-Esteem</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Career Positive</td>
<td>0.12</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Career Negative</td>
<td>-0.54**</td>
<td>-0.28*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Attendance</td>
<td>0.21</td>
<td>0.11</td>
<td>-0.01</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Science</td>
<td>0.34**</td>
<td>-0.15</td>
<td>-0.17</td>
<td>-0.04</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Social Studies</td>
<td>0.31*</td>
<td>-0.16</td>
<td>0.12</td>
<td>0.08</td>
<td>0.37**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Reading</td>
<td>0.10</td>
<td>-0.07</td>
<td>-0.13</td>
<td>0.12</td>
<td>0.17</td>
<td>0.53**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Math</td>
<td>0.17</td>
<td>-0.07</td>
<td>0.01</td>
<td>0.12</td>
<td>0.47**</td>
<td>0.39**</td>
<td>0.17</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Writing</td>
<td>0.21</td>
<td>-0.28*</td>
<td>0.03</td>
<td>0.26*</td>
<td>0.23</td>
<td>0.25</td>
<td>0.32*</td>
<td>0.15</td>
<td>1.00</td>
</tr>
<tr>
<td>10.</td>
<td>Total GED</td>
<td>0.34*</td>
<td>-0.21</td>
<td>-0.17</td>
<td>-0.07</td>
<td>0.73**</td>
<td>0.73**</td>
<td>0.69**</td>
<td>0.61**</td>
<td>0.55**</td>
</tr>
</tbody>
</table>

*Note.* Students in control group included those from mentored classes who chose not to be mentored. For the Rosenberg Self-Esteem and Career Decision Scales, \( N = 57 \). For attendance, \( N = 44 \). For all GED subtests and total GED, \( N = 57 \).

*\( p < .05 \)  **\( p < .01 \)
### Table 18

*Pearson Product Moment Correlation between Study Variables at Posttest, Control Group*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-Esteem</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Career Positive</td>
<td>-0.17</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Career Negative</td>
<td>-0.01</td>
<td>-0.29</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Attendance</td>
<td>0.21</td>
<td>-0.13</td>
<td>0.05</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Science</td>
<td>0.10</td>
<td>-0.30</td>
<td>-0.04</td>
<td>-0.07</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Social Studies</td>
<td>0.12</td>
<td>-0.05</td>
<td>-0.01</td>
<td>-0.02</td>
<td>0.50**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Reading</td>
<td>0.09</td>
<td>-0.12</td>
<td>0.01</td>
<td>0.12</td>
<td>0.59**</td>
<td>0.51**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Math</td>
<td>-0.11</td>
<td>0.14</td>
<td>-0.13</td>
<td>0.24*</td>
<td>0.40**</td>
<td>0.40**</td>
<td>0.47**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Writing</td>
<td>0.02</td>
<td>-0.13</td>
<td>0.11</td>
<td>-0.08</td>
<td>0.25</td>
<td>0.29</td>
<td>0.20</td>
<td>0.35*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>10. Total GED</td>
<td>0.07</td>
<td>-0.13</td>
<td>-0.01</td>
<td>0.06</td>
<td>0.74**</td>
<td>0.75**</td>
<td>0.79**</td>
<td>0.71**</td>
<td>0.60**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note.* Students in control group included those from mentored classes who chose not to be mentored. For the Rosenberg Self-Esteem Scale, $N = 45$.

For the Career Decision Scale, $N = 43$. For attendance, $N = 44$. For all GED subtests and total GED, $N = 44$.

*$p < .05$  **$p < .0$*
Table 19

*Pearson Product Moment Correlation Between Study Variables Pretest to Posttest, Control Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pretest - Posttest $r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Esteem</td>
<td>.64**</td>
</tr>
<tr>
<td>Career Positive</td>
<td>.84**</td>
</tr>
<tr>
<td>Career Negative</td>
<td>.57**</td>
</tr>
<tr>
<td>Science</td>
<td>.60**</td>
</tr>
<tr>
<td>Social Studies</td>
<td>.61**</td>
</tr>
<tr>
<td>Reading</td>
<td>.44**</td>
</tr>
<tr>
<td>Math</td>
<td>.43**</td>
</tr>
<tr>
<td>Writing</td>
<td>.31*</td>
</tr>
<tr>
<td>Total GED</td>
<td>.73**</td>
</tr>
</tbody>
</table>

*Note. Students in control group included those from mentored classes who chose not to be mentored. For the Rosenberg Self-Esteem and Career Decision Scales, pretest, $N = 57$. For all pre GED subtests and total pre GED, $N = 57$. For the Rosenberg Self-Esteem Scale, posttest, $N = 45$. For the Career Decision Scale, posttest, $N = 43$. For all GED subtests and total GED, $N = 44$.*

*p < .05  ** p < .01
Table 20

*Pearson Product Moment Correlation between Study Variables at Pretest, Mentored Group*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-Esteem</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Career Positive</td>
<td>-0.35</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Career Negative</td>
<td>-0.15</td>
<td>-0.39*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Attendance</td>
<td>0.21</td>
<td>0.12</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Science</td>
<td>-0.40*</td>
<td>-0.31</td>
<td>0.02</td>
<td>-0.14</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Social Studies</td>
<td>-0.26</td>
<td>-0.24</td>
<td>-0.11</td>
<td>-0.04</td>
<td>0.75**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Reading</td>
<td>-0.06</td>
<td>-0.30</td>
<td>-0.02</td>
<td>0.16</td>
<td>0.65**</td>
<td>0.79**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Math</td>
<td>0.14</td>
<td>-0.18</td>
<td>-0.06</td>
<td>0.28</td>
<td>0.28</td>
<td>0.35</td>
<td>0.54**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Writing</td>
<td>0.11</td>
<td>0.26</td>
<td>0.16</td>
<td>0.30</td>
<td>0.25</td>
<td>0.41*</td>
<td>0.38*</td>
<td>0.02</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>10. Total GED</td>
<td>-0.21</td>
<td>-0.28</td>
<td>-0.03</td>
<td>0.11</td>
<td>0.86**</td>
<td>0.91**</td>
<td>0.90**</td>
<td>0.56**</td>
<td>0.43*</td>
<td>1.00</td>
</tr>
</tbody>
</table>


*p < .05  **p < .01
Table 21

*Pearson Product Moment Correlation between Study Variables at Posttest, Mentored Group*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-Esteem</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Career Positive</td>
<td>0.64**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Career Negative</td>
<td>-0.25</td>
<td>-0.43*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Attendance</td>
<td>0.18</td>
<td>-0.20</td>
<td>-0.07</td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. Science</td>
<td>-0.15</td>
<td>0.02</td>
<td>-0.07</td>
<td>-0.03</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Social Studies</td>
<td>-0.14</td>
<td>-0.08</td>
<td>0.00</td>
<td>-0.01</td>
<td>0.66**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Reading</td>
<td>0.07</td>
<td>0.04</td>
<td>-0.22</td>
<td>0.17</td>
<td>0.70**</td>
<td>0.50**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Math</td>
<td>-0.07</td>
<td>-0.06</td>
<td>-0.13</td>
<td>0.38</td>
<td>0.56**</td>
<td>0.59**</td>
<td>0.46*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Writing</td>
<td>0.11</td>
<td>0.15</td>
<td>-0.08</td>
<td>-0.21</td>
<td>0.35</td>
<td>0.31</td>
<td>0.40*</td>
<td>0.07</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>10. Total GED</td>
<td>-0.05</td>
<td>0.00</td>
<td>-0.14</td>
<td>0.11</td>
<td>0.86**</td>
<td>0.82**</td>
<td>0.82**</td>
<td>0.74**</td>
<td>0.51**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note. N = 26 for all variables.*

*p < .05  **p < .01
Table 22

*Pearson Product Moment Correlation Between Study Variables Pretest to Posttest, Mentored Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pretest - Posttest $r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Esteem</td>
<td>.43*</td>
</tr>
<tr>
<td>Career Positive</td>
<td>.33</td>
</tr>
<tr>
<td>Career Negative</td>
<td>.65**</td>
</tr>
<tr>
<td>Science</td>
<td>.54**</td>
</tr>
<tr>
<td>Social Studies</td>
<td>.40**</td>
</tr>
<tr>
<td>Reading</td>
<td>.69**</td>
</tr>
<tr>
<td>Math</td>
<td>.66**</td>
</tr>
<tr>
<td>Writing</td>
<td>.29</td>
</tr>
<tr>
<td>Total GED</td>
<td>.72**</td>
</tr>
</tbody>
</table>

*Note.* For the Rosenberg Self-Esteem Scale, pretest, $N = 32$. For the Career Decision Scale, pretest, $N = 31$. For all GED subtests and total GED, $N = 31$. For all the posttest variables, $N = 26$.

* $p < .05$  ** $p < .01$

Anecdotal Stories

The impact of the structured e-mentoring model was assessed using quantitative measures regarding the students’ self-esteem, career decision, attendance, and academic achievement. Although the literature indicates that these four factors have an effect on students and their success in school, the results from this study did not. As the anecdotal stories emerged from the study however, the researcher could conclude that while the quantitative results indicated that the e-mentoring model did not have a statistically
significant impact on the students’ self-esteem, career decision, attendance, and
academic achievement, the program had an impact on some of the students in ways that
could not be measured using the instruments in the study. The following examples
illustrate this point.

*Gina and Kathleen*

Gina entered the program at 18 years of age. She was behind in credits just like
many of the GED Exit Option students. She also worked 40 hours a week at a local
restaurant in a supervisory position, often until midnight or 1 am. Gina was randomly
assigned a mentor named Kathleen whose husband had retired after many years working
for a very large, national retail chain. Gina and Kathleen had a difficult time connecting
to start because Kathleen was having difficulty with the Gaggle.Net e-mail program.
Once their communication was underway however, Kathleen and Gina began to bond.
Kathleen recognized that Gina was exhausted and not getting enough sleep during the
week. Kathleen convinced Gina to restructure her work schedule so that she could focus
on preparing for the GED. Kathleen and Gina communicated often during the program
about health and wellness issues. Gina began to ask Kathleen for career advice and by the
end of the program, Kathleen had arranged for Gina to have an interview with the
national retail chain. Gina passed the GED Tests and in the focus group told the
researcher that “her mentor really made a difference for her life. I think I would have quit
school if she had not been there to offer suggestions as to how I could make work and
school fit in my life.”
Karen and Sue

When the researcher arrived at one of the classrooms to make the initial presentation, very few students in this particular classroom seemed interested in participating. The instructor was very negative about the program and did not want to participate either. Her lack of enthusiasm seemed to affect the students. However, her administrator required that she would allow her students to become involved. On the way out of the classroom that morning, Karen followed the researcher and said, “I need a mentor. I have issues.” Karen was 17 and needed parental permission to participate. Karen was not sure if her mother would allow her to participate so she asked the researcher to call her mother and discuss the program with her. The researcher did and the mother agreed.

Karen was randomly assigned to Sue. Sue was a 50 year old community partner who had been involved with the technical centers for only a few years. Karen and Sue bonded online almost immediately. Communication was almost daily between the two and Karen began telling Sue about her abusive boyfriend, her mom’s abusive boyfriend who was an alcoholic, her struggles in school and her desire to get a job and travel. Karen and Sue even developed nicknames for each other. Karen told Sue several times that if it wasn’t for her, she would see no reason to continue coming to school. By January, Karen’s life seemed to take a turn for the worse. Although she had found a job, her mother’s boyfriend was drinking more often and causing problems for both Karen and her mom. Karen’s own boyfriend seemed to be very verbally abusive. During the first focus group session, Karen told the researcher that her mentor “made all the
difference in the world to her. She is the only person that really cares about me. I consider her a good friend.” In late January, Sue received a distressing message from Karen indicating that she had some serious emotional problems. Sue immediately contacted the researcher who then contacted the school. Karen entered the hospital for a period of time. When she returned to school, she thanked Sue for once again being concerned about her.

In early February, Karen told Sue she was pregnant. The father was the abusive boyfriend who was not really interested in the baby. Sue and Karen continued to communicate about the responsibilities that Karen would need to take on as a single parent and how important passing the GED Tests would be for her. Karen took the test in February and by March found out that she had not passed the mathematics or the English sections. She was devastated, but told Sue that she hadn’t worked as hard as she should have to prepare for the exam. After the e-mentoring program ended in March, Karen and Sue continued to communicate, although not as frequently. Karen could have retaken the two GED subtests again in April or May but chose not to do so. In May, Karen contacted Sue and told her that she was moving out of state.

Sue contacted Karen several times since she moved. Karen was excited to tell Sue about the baby girl that was born in July and how she very much wanted to finish her GED. Sue continued to encourage her. Karen contacted Sue in November and told her she was going to move back to Florida and finish her GED here. Just recently, Karen contacted Sue again and indicated she was back in Florida and living with her mom. She
said the situation with her mom was not good and wanted to see if she could connect with Sue again for advice.

*Cyrie and Monica*

Cyrie and Monica developed an instant relationship as well. Cyrie, an 18-year old student, did not open up to Monica right away with as much personal information as Karen did with Sue. However, she seemed to value Monica’s opinion and when she learned that Monica was a former English teacher, she began asking Monica to help her with her academics. Monica would answer specific questions online and then the two exchanged phone numbers. Monica would spend an hour or two each week tutoring Cyrie on the telephone. Cyrie passed the GED Tests and told the researcher that her mentor was the reason why. “She was a stranger who cared about me. I think that is amazing.” After the program ended, Monica met Cyrie and her mother for lunch so they could meet face-to-face.

*Jose and Art*

Jose was a 17 year-old student who was into heavy metal and planned to take his band overseas when school was over. His guardian “made” him participate in the mentoring program and he told the researcher that he was extremely skeptical that some “stranger online could help me in any way.” Jose was not interested in preparing for the GED as he felt he “already knew everything that would be on the test.” He also had a poor attendance record from his previous school and by November, was missing days at the technical center as well.
Art was randomly assigned as Jose’s mentor and happened to have a son who had a great interest in heavy metal music. The first e-mail message was sent from Art to Jose. Jose’s message back to Art indicated that while “he would participate because his guardian wanted him to, he would be very leery about sharing any personal information with him.” Jose’s second message told a different story. It was several paragraphs in length and included his personal likes and dislikes. Jose told Art he thought he would give him a chance to prove himself.

Their mentoring relationship developed, but Jose continued to have an attitude about school and felt as though “he was better than everyone else in the class.” Jose also continued to have attendance problems. His mentor did not feel like he was able to communicate adequately about Jose’s attendance or academic subjects, but they had many good conversations about bands, Europe, and life in general. During the focus group sessions, Jose told the researcher that “his mentor seemed like a nice guy, and it is pretty cool that he understands his son’s music.” Jose believed that his mentor was interested in his life. When the test scores came back, Jose did not pass all five sections of the GED. He was very embarrassed and told his instructor that he just “might quit and take the test again on his own.” Art continued to encourage Jose to stay in school which Jose did. Jose then retook the test in April and passed it.

*Herberto and Julie*

Herberto was enrolled as a GED Exit Option student by his guardian. He didn’t think he wanted to participate because he was ready to “head for California to live on the beach.” However, since he was a minor, his guardian wanted him to try the program and
attempt to earn his GED. Herberto did not live with his parents; instead he was living in a group home, a requirement that was mandated the last time he was in court. His instructor and his guardian both encouraged him to participate in the mentoring program even though he didn’t really want to do so. Julie, his mentor, was in the health care field and a business partner of the technical center for many years. She had raised four daughters of her own and was excited about mentoring a young man. Julie began e-mailing Herberto as soon as the program started. Herberto shared his intentions to live at the beach because the city is “too polluted.” He wrote that “idk[sic] im pretty outgoing and u can joke w/me about anything im VERY liberal im a social activist, um yeah im pretty much pretty easy to get along w.” Julie had a very difficult time relating to Herberto or even understanding the way he wrote. She discussed this with the researcher several times even before the first focus group and shared that she did not think she could make any difference in this young man’s life. The researcher encouraged her to continue trying. They only communicated a total of 10 times throughout the entire program. Unfortunately, Herberto was dismissed from the program before he had a chance to take his GED Tests due to behavioral and attendance issues. Julie’s response when he was removed from the program was, “Well, I am not surprised. He did not seem to have what it takes to be successful. He didn’t know what he wanted.”

Deidra and Beverly

When the researcher made the presentation to the randomly selected mentored classes, Deidra was very excited about participating in the program. She was a minor, so she was required to receive parental permission in order to take part. Within the week,
Deidra brought her signed paperwork to her instructor and was assigned Beverly as her mentor. Beverly was a business partner who really enjoyed working with at-risk students. She had participated in several other mentoring programs over the years, but had never been involved with an e-mentoring program. She was excited about getting started.

Beverly sent a message to Deidra during the first week of the program. Deidra did not respond. Beverly sent several messages over the next few weeks, and Deidra did not respond to those messages either. The researcher contacted Deidra through her instructor and asked her if perhaps she was having technical difficulties or if she had changed her mind about participating. Deidra indicated she had been very busy, but that she was just as excited about participating as ever. The researcher told her that her mentor was anxious to hear from her and reminded her that the expectations of the program included writing to her mentor at least two times per week. Deidra said that she would write to Beverly as soon as she hung up the phone. Unfortunately, she did not. Beverly continued to send two e-mails each week to Deidra. Deidra never responded. During the focus group sessions, Deidra indicated that she thought the program was a great idea and she would get started as soon as she wasn’t so busy. Her instructor and the researcher continued to encourage her to write to her mentor, but she never sent one message.

Deidra quit school shortly after the winter break. She did not tell her instructor or the counselor why she was leaving school.

**E-Mail Conversations**

According to the research conducted by the National Mentoring Partnership (n.d.), e-mail conversations between mentors and mentees fall into three main categories.
The NMP describes them as “It was a rough day…” where the mentees and mentors talked about important and personal issues; “Hey, how’s it going…” where the mentees and the mentors had a friendly, warm relationship, but did not really discuss serious personal issues; and “How’s the weather…” where the mentees were not comfortable making personal admissions and the mentors often had a difficult time engaging the mentees in conversation. The conversations between the mentors and mentees in this study seemed to follow the patterns as presented in the research.

Cyrie and Monica – “It Was a Rough Day”

Cyrie and Monica seemed to develop a relationship right away. By Week 5, mentee Cyrie was telling her mentor Monica all about her boyfriend, their future together, her job, her volunteer work, and her struggles with the reading and writing portions of both the FCAT and GED tests. Monica wrote in one e-mail,

Hope you have an especially great day today. I’m glad your weekend was a good one. I am so impressed that you do volunteer work at your church. Your boyfriend sounds nice too. It is wonderful that he is going to college, but the most important thing is that he cares for you and treats you with respect. I’m sure he realizes how fortunate he is to have you as a girlfriend. I was glad to hear you are eating better. Your health is important. You are important to your family, your friends, your boyfriend, and now to ME.
As the relationship continued, Cyrie and her mentor, Monica, focused many of their conversations on how to help Cyrie’s academic performance. During Week 8, Cyrie wrote,

I received my FCAT scores and missed 1 too many on the reading. I can take it again in April. Will you try and help me with that? I really want to pass. I need the most to work on purpose and main idea/comprehension.

An indication that the relationship was growing seemed clear when during Week 14. Cyrie had been having problems with her mom who was addicted to drugs. Cyrie had decided to move in with a friend’s family because of this situation. She had also been sick several times since Thanksgiving. She wrote,

“Hello…. Sorry I haven’t been keeping in touch as much…. Been busy with moving and all… I moved out of my house now and all… But Anyways…. How is your family doing a- okay? Me and my mom are getting along better… and shes proud of my grades… Anyways, write back! Love, Cyrie.”

Cyrie and Monica continued to communicate after the program ended. Cyrie did not pass the GED Tests and was scheduled to retake them in mid-April. Towards the beginning of April, Cyrie really opened up about several problems she was having.

My mother and I are still having some issues. I tried to go see my dad in jail but couldn’t and he means the world to me. He won’t be out by the time I graduate which upsets me really bad… It hurts
really bad… its actually making me cry right now. I also found out my cousin committed suicide. I hope all this stress goes away.

Love, Cyrie.

Monica replied with the following:

“Dear sweet Cyrie, I am so sorry you and your mother are having these problems. I am sure she loves you very much and if indeed she has a drug problem, she is probably not acting like herself. Any kind of addiction is hard to battle. What can I do to help you?

My only advice is to focus on your goals. You have such a bright future ahead of you. Don’t let the problem with your mother stop you. I know it is hard because I know you love her and want the best for her too. I have come to care for you very much through our e-mails and would like to know how you are doing and how I can help. Love ya, Monica.”

Tara and Sally – Hey, How’s It Going

As soon as Tara, a teen mom, and Sally were matched as mentee and mentor, Sally’s husband took ill with a very serious condition. He recuperated after about a month, so the e-mentoring relationship between the two got off to a late start. By Week 11 however, the relationship seemed to be developing well. Sally wrote,

Hi Tara, Thanks so much for your lovely note. I, too, really do enjoy our emails! I feel as though I know you even though we’ve never met. And I would love to receive a picture of your daughter.
I am sure she is precious! Tara, you are wise beyond your years to realize already how very fast time goes with your children. And the older they get, the faster it goes! I think that may be one of the main reasons I would love to have a grandchild; it would be a second chance to really enjoy time with someone special. Your family must be so proud of you; I know I am! Tara, my family is doing well now; thank you for asking. I will be out-of-town next week at a conference so I won’t be where I can e-mail you, but I will as soon as I return. Take care. S.S.

Tara replied with the following e-mail,

Thank you so much for your encouraging words they really mean a lot to me, thank you so much I receive encouraging words from many people but your words really touch me to know that someone that I don’t know really cares a lot about me. I would love for us to meet because I enjoy talking to you, you make me feel so good about myself everyone else does to but someone that doesn’t really know me that means a lot to me. Sincerely, Tara.

*Sophia and Connie “How’s the Weather Here”*

Connie was excited about being a mentor. She worked extremely hard throughout the program attempting to engage her mentee in conversation. Although they exchanged e-mails two times a week as required, their conversations never amounted to more than
Connie asking questions based on the discussion starters and Sophia answering them (sometimes). For example, during Week 4, Connie wrote to Sophie,

> Hi Sophia, I was wondering how you were doing on the GED studies. Do you have a favorite subject? Do you have a subject you have difficulty with? When I was studying for my GED, my mathematics held me back. How I finally made it through was when my older sister came to visit me and taught me some tricks to help me keep the numbers straight.

Sophia responded, “No, all the subjects are pretty simple, sometimes its hard to consentrate [sic] on the test tho because all the people talking all the time in the classroom, so my scores suffer but only mildly.” Most of their conversations did not include any serious personal issues.

Neither Tara nor Cyrie, passed all five parts of the GED on the first attempt. However, Tara and Cyrie seemed to developed good online relationships with their mentors that seemed to sustain them throughout the school year. Sophia did earn her GED yet her relationship and conversations seemed less developed. When the stories are told, the impact can be seen, at least with some of the students in different ways than were measured quantitatively.

**Working Quality of the E-Mentoring Model**

The second research question was: What is the working quality of each of the components of the structured e-mentoring model? To answer this question, the results from the online satisfaction surveys administered during the study were analyzed. Three
surveys were actually administered during the course of the program to each participant group: mentors, mentees, and instructors. Each survey contained questions about the components of the structured model as well as questions about the ease of implementation and the technology being used. All of the participants answered the questions anonymously.

The first two surveys were administered after the implementation of each of the first two phases of the program. The results from these surveys were used to make design changes as needed during the program and were part of the formative assessment of the program. The third survey was administered at the completion of the study and was part of the summative assessment of the entire program. The results from all three surveys were used to analyze the working quality of the components of the model.

The online surveys were developed using a Likert scale of 1 to 5 (5 for strongly agree, 4 for agree, 3 for neither agree nor disagree, 2 for disagree, and 1 for strongly disagree). The answers to the online survey questions were organized in a schema based on the components and subcomponents of the structured e-mentoring model which included (a) recruiting, (b) managing expectations, (c) training, (d) coaching, and (e) community building.

Second, the answers to each individual question on all three surveys were converted to percentages so the researcher could assess the working quality of the model. The strongly agree and agree answers were combined as were strongly disagree and disagree answers before converting the numbers into percentages. An independent t-test was run on the summative results from the third survey for each of the five
subcomponents to determine whether or not the mentors and mentees had a statistically
significant experience with the mentoring process.

Third, the working quality of the e-mentoring model was also measured using the
three criteria of:

1. ease of implementation
2. impact of technology
3. ability for flexible design change

Several of the online survey questions addressed the ease of implementation as
each component was being put into practice. The surveys also included questions about
the technical operations of the e-mentoring program. In addition, any technical questions
or issues that arose during the program were recorded by the researcher using
a log sheet.

Recovering

In this study, the recruiting process included making presentations to the potential
students and mentors and then assisting interested participants as they completed their
applications. The survey questions focused on having enough information about the
program before it began and the ease of completing the application. The results of the
first formative survey for the recruiting questions are presented in Tables 23, 24, and 25.
### Table 23

**Mentor Satisfaction Survey 1, Recruiting (N = 15)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree/Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The application was easy to complete.</td>
<td>87% (13)</td>
<td>13% (2)</td>
</tr>
<tr>
<td>If I had questions about completing the application, I knew who to ask for assistance.</td>
<td>100% (15)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>When you asked questions about the program, they were answered to your satisfaction.</td>
<td>93% (14)</td>
<td>7% (1)</td>
</tr>
</tbody>
</table>

### Table 24

**Mentee Satisfaction Survey 1, Recruiting (N = 32)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree/Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The application was easy to complete.</td>
<td>100% (32)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>If I had questions about completing the application, I knew who to ask for assistance.</td>
<td>93.7% (30)</td>
<td>6.3% (2)</td>
</tr>
<tr>
<td>When you asked questions about the program, they were answered to your satisfaction.</td>
<td>93.7% (30)</td>
<td>6.3% (2)</td>
</tr>
</tbody>
</table>
Table 25

Instructor Satisfaction Survey 1, Recruiting (N = 3)

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>If my students had questions about completing the application, I could help them.</td>
<td>66.6% (2)</td>
<td>33.3% (1)</td>
</tr>
</tbody>
</table>

The mentors, mentees, and instructors were satisfied with the recruiting component of the program. No changes to the study were implemented based on results from this portion of the formative assessment survey.

Managing Expectations

Understanding the goals and purpose of the program was the major focus of the managing expectations component of the planning phase of the model. In this study, the goals were presented to the mentors, mentees, and instructors during the initial recruitment phase and communicated weekly throughout the program via e-mail, discussion starters, and face-to-face conversations. The participants were asked to exchange messages at least two times per week for the period of the study and to participate in the assessment over the course of the program. The limited research on e-mentoring indicates that in order for positive relationships to develop online, frequent communication of one or two times per week is necessary (Bennett et al., 1998; Emery, 1999; Harris et al., 1997; Harris & Figg, 2000). The program coordinator let the participants know that they would receive coaching messages every week, have access to a Web site, would receive technology support when needed, and would be able to participate in a blog. The survey questions focused on whether or not the goals of the
program were clearly stated and easy to understand. In addition, the mentors and mentees were asked if they always had their questions answered when they asked them. The results of the first formative survey for the managing expectation questions are presented in Tables 26, 27, and 28.

Table 26

*Mentor Satisfaction Survey 1, Managing Expectations (N = 15)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree or Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The goals of the program were clearly stated.</td>
<td>100% (15)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>The goals of the e-mentoring program were easy to understand.</td>
<td>100% (15)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>When you asked questions about the program, they were answered to your satisfaction.</td>
<td>93.3% (14)</td>
<td>6.7% (1)</td>
</tr>
</tbody>
</table>

Table 27

*Mentee Satisfaction Survey 1, Managing Expectations (N = 32)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree or Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The goals of the program were clearly stated.</td>
<td>93.8% (30)</td>
<td>6.2% (2)</td>
</tr>
<tr>
<td>The goals of the e-mentoring program were easy to understand.</td>
<td>100% (32)</td>
<td>0% (0)</td>
</tr>
</tbody>
</table>
**Table 28**

*Instructor Survey 1, Managing Expectations (N = 3)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree or Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The goals of the program were clearly stated.</td>
<td>100% (3)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>The goals of the e-mentoring program were easy to understand.</td>
<td>66.6% (2)</td>
<td>33.3% (1)</td>
</tr>
<tr>
<td>I am supportive of the program.</td>
<td>66.6% (2)</td>
<td>33.3% (1)</td>
</tr>
</tbody>
</table>

The mentors, mentees, and instructors were satisfied with the managing expectations component of the program. No changes to the study were implemented based on results from this portion of the formative assessment survey.

*Training*

The second phase of the model included three components: training, coaching and community building. Training helps the mentors and mentees understand their roles and the realistic expectations of what they can accomplish. Without adequate training, many researchers feel a mentoring program is doomed to failure (Harris et al., 1997; Single & Muller, 2001; Sipe, 1996). In this study, the online training component was developed by the National Mentoring Partnership and used in its entirety by this researcher. The mentors were presented with the link to the training component in an e-mail and given one week to complete it. The researcher met with the mentees in a computer lab and the actual training took place during class time. The instructors were trained in a workshop prior to the beginning of the program. The links to the training sites were then made
available on the mentor and mentee Web sites during the entire program for 24/7 access.

The survey questions focused on whether or not the online training material was easy to access, easy to understand, and helpful. In addition, the mentors and mentees were asked if they understood their role as mentor or mentee. The results of the second formative survey for the training questions are presented in Tables 29 and 30.

Table 29

*Mentor Satisfaction Survey 2, Training (N = 16)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree or Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The online training material was easy to access.</td>
<td>100% (16)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>The online training material was easy to understand.</td>
<td>100% (16)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>The online training material was helpful.</td>
<td>93.3% (15)</td>
<td>6.7% (1)</td>
</tr>
<tr>
<td>I understand my role as a mentor.</td>
<td>100% (16)</td>
<td>0% (0)</td>
</tr>
</tbody>
</table>
### Table 30

*Mentee Satisfaction Survey 2, Training (N = 22)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree or Disagree</th>
<th>Disagree or Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The online training material was easy to access.</td>
<td>100% (22)</td>
<td>0% (0)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>The online training material was easy to understand.</td>
<td>95.4% (21)</td>
<td>4.5% (1)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>The online training material was helpful.</td>
<td>91% (20)</td>
<td>4.5% (1)</td>
<td>4.5% (1)</td>
</tr>
<tr>
<td>If I have questions, I can access the online training materials.</td>
<td>95.4% (21)</td>
<td>4.5% (1)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>I understand my role as a mentee.</td>
<td>100% (22)</td>
<td>0% (0)</td>
<td>0% (0)</td>
</tr>
</tbody>
</table>

There were no questions on the instructor survey regarding the training component of the program. The mentors and mentees were satisfied with the training component of the program.

**Coaching**

Coaching is the support provided by the program coordinator to the participants. It plays a critical role and is the most resource intensive feature of structured e-mentoring programs (Harris & Figg, 2000; Neils, 1997). In this study, coaching consisted of weekly discussion starters e-mailed to the mentors, e-mail and phone conversations with the mentors as needed, and a Web site of resources available to the mentors on a
24/7 basis. For the mentees, coaching consisted of visits to the classroom, weekly e-mails, online resources, and additional e-mails and phone conversations as needed. The results of the second formative survey for the coaching questions are presented in Tables 31, 32, and 33.

Table 31

*Mentor Satisfaction Survey 2, Coaching (N = 16)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree or Disagree</th>
<th>Disagree or Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is support from the program coach to help me meet the challenges of online mentoring.</td>
<td>86.7% (14)</td>
<td>6.7% (1)</td>
<td>6.7% (1)</td>
</tr>
<tr>
<td>The e-mails from the program coach are helpful.</td>
<td>100% (16)</td>
<td>0% (0)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>There was enough interaction from the program coordinator during the program.</td>
<td>100% (16)</td>
<td>0% (0)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>The Web site is easy to access.</td>
<td>93.3% (15)</td>
<td>0% (0)</td>
<td>6.7% (1)</td>
</tr>
</tbody>
</table>
### Table 32

**Mentee Satisfaction Survey 2, Coaching (N=22)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
<th>Neither Agree or Disagree</th>
<th>Disagree or Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Web site is easy to access.</td>
<td>95.4% (20)</td>
<td>0% (0)</td>
<td>4.5% (2)</td>
</tr>
<tr>
<td>The Web site offers helpful information.</td>
<td>90.9% (19)</td>
<td>4.5% (1)</td>
<td>4.5% (1)</td>
</tr>
<tr>
<td>The e-mails from the program coach are helpful.</td>
<td>90.9% (19)</td>
<td>9.1% (2)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>There was enough interaction from the program coordinator during the program.</td>
<td>100% (22)</td>
<td>0% (0)</td>
<td>0% (0)</td>
</tr>
</tbody>
</table>

### Table 33

**Instructor Satisfaction Survey 2, Coaching (N = 2)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree or Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I receive information from the program coordinator.</td>
<td>100% (2)</td>
</tr>
<tr>
<td>I use the information provided on the Web site.</td>
<td>100% (2)</td>
</tr>
</tbody>
</table>

Overall, the mentors, mentees and instructors who responded to the survey were satisfied with the training component of the program. One mentor and two mentees responded that they did not find the Web site to be easy to access. During the first focus group session, the researcher asked the participants about the Web site. All participants responded that they found it helpful and easy to use at that time.
Community Building

When participants feel connected to each other and are able to share thoughts, ideas, and feelings, then a sense of community is created. The research indicates that since it does not happen automatically, it requires attention to detail by the program coordinator (Guy, 2002; Single & Single, 2004). During the planning stages of this study, community building was to be addressed through the use of blogs for both the mentors and mentees. Unfortunately, the school district firewalls did not allow for the blogs or discussion boards to be utilized as originally planned. Community building occurred during the focus group sessions with the mentors and mentees. The face-to-face meetings the researcher had with the mentees on a fairly regular basis created some sense of community. The community building was more informal than originally planned.

Using Survey 2, the mentors were asked if they felt connected to each other. Only 45.4%, 10 mentors, answered with strongly agree or agree. Six of the mentors, or 27.5% answered with disagree or strongly disagree. The other six, answered neither agree nor disagree. These answers were not surprising based on the problems with the firewalls and blogs. When the mentees were asked if they felt connected to each other, their responses were a bit different. Fifteen of them, or 68.2%, answered agree or strongly agree. Only two mentees, or 9% indicated that they disagreed or strongly disagreed while the remaining five, or 22.7% answered neither agree or disagree.

Summative Assessment

The third satisfaction survey was administered to the mentors, mentees, and instructors after the completion of the program. This survey provided the researcher
with a summative assessment of the program in its entirety. Cronbach’s alpha was run separately for the mentor’ survey and the mentee’s survey and the results are found in Table 34.

Table 34

*Cronbach’s Alpha Internal Consistency Reliability Estimates for Satisfaction Survey 3, Mentors (N = 19) and Mentees (N = 15)*

<table>
<thead>
<tr>
<th>Survey</th>
<th>Number of Items</th>
<th>Alpha</th>
<th>Range of Corrected Item-to-Total Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recruiting</td>
<td>2</td>
<td>.86</td>
<td>.76</td>
</tr>
<tr>
<td>Training</td>
<td>2</td>
<td>.53</td>
<td>.37</td>
</tr>
<tr>
<td>Coaching</td>
<td>6</td>
<td>.62</td>
<td>.13 to .61</td>
</tr>
<tr>
<td>Community Building</td>
<td>2</td>
<td>.40</td>
<td>.23</td>
</tr>
<tr>
<td>Mentee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recruiting</td>
<td>4</td>
<td>.89</td>
<td>.51 to .92</td>
</tr>
<tr>
<td>Training</td>
<td>1</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Coaching</td>
<td>6</td>
<td>.76</td>
<td>.25 to .86</td>
</tr>
<tr>
<td>Community Building</td>
<td>2</td>
<td>.59</td>
<td>.46</td>
</tr>
</tbody>
</table>

*Note.* For scales with two items, the item-to-total correlations are the same for each item.

Independent samples *t*-tests for the equality of means were run in order to compare the satisfaction of the mentor group versus the mentee group for the recruiting, training, coaching, and community building questions. Each component had a different number of questions, but the same Likert scale was used as for Surveys 1 and 2. The means and standard deviations, along with the minimum and maximum number of points available for the questions can be found in Table 35.
Table 35

*Descriptive Statistics for Satisfaction Survey 3, Mentors (N = 19) and Mentees (N = 15)*

<table>
<thead>
<tr>
<th>Component</th>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>Min. Points</th>
<th>Max. Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruiting Questions</td>
<td>Mentors</td>
<td>18.32</td>
<td>2.43</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Mentees</td>
<td>16.33</td>
<td>1.35</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Training Questions</td>
<td>Mentors</td>
<td>8.16</td>
<td>1.70</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Mentees</td>
<td>7.60</td>
<td>1.35</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Coaching Questions</td>
<td>Mentors</td>
<td>26.42</td>
<td>2.65</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Mentees</td>
<td>24.07</td>
<td>1.83</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>Community Building Questions</td>
<td>Mentors</td>
<td>6.84</td>
<td>1.17</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Mentees</td>
<td>5.87</td>
<td>1.13</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

The test, *t*(29) = 3.02, *p* < .05, indicated that the mentor group (*M* = 18.3, *SD* = 2.43) had a significantly higher level of satisfaction with the recruiting process than the mentee group (*M* = 16.33, *SD* = 1.35). For the coaching process, the independent *t*-test *t*(31) = 3.06, *p* < .05) indicated that the mentor group (*M* = 26.42, *SD* = 2.65) had a significantly higher level of satisfaction with the coaching process than the mentee group (*M* = 24.07, *SD* = 1.83). There was no statistically significant difference between the satisfaction levels for the community building or training component between the mentors and mentees.

The results of this third survey suggest that the working quality of each of the design components of the structured e-mentoring model for both the mentors and the mentors was positive with regard to the recruiting, managing expectations, training, and coaching components. The experience was less positive regarding the community
building component. This result was not surprising since there were problems implementing the blogs, one of the main community building features designed into the program.

Analyzing each question individually offered similar findings. For the planning phase, the mentors and mentees indicated they were satisfied with the planning phase of the model. Two of the three instructors were as well. For the program structure phase, which included training, coaching, and community building, 74% of the mentors felt that the online training component prepared them to be a mentor and 95% of the mentees responded positively when asked if the training material was helpful. Of the five mentors, or 26%, who did not answer positively, four of them answered this question with “neither agree nor disagree.” No specific questions were asked of the instructors about the training materials. The mentors and mentees felt very positive about the coaching component of the program. The only exception was regarding technology support. Only 53% of the mentors and 73% of the mentees felt there was technology support available. However, of the 47% of the mentors who responded to this question, 37% answered with “neither agree nor disagree.” It seems that the majority of the mentors were either positive about the technology support provided or perhaps had no reason to use it so answered “neither agree nor disagree.” All three instructors felt they received adequate communication from the program coordinator and knew how to help their students if they were asked indicating they felt comfortable with the operation of the mentoring program. Two of the three instructors indicated they were supportive of the program.
Since the community building component was more informal than originally planned, it was not surprising to find less positive satisfaction with this component than the others. Only 11% of the mentors responded positively when asked if they felt connected to the other mentors. However, the other 84% answered “neither agree nor disagree” so it appears they did not feel negative about the lack of connectedness. On the other hand, 87% of the mentees felt connected to the other mentees perhaps because they were in class together and had several group meetings with the program coordinator. The instructors were not asked questions regarding this component.

Ease of Use

When considering the criterion of “Ease of Use,” these results indicate that both the mentors and mentees answered either strongly agree or agree when asked whether or not the program was easy to use. The results were less positive regarding the ease of use for the e-mail program, Gaggle.Net. When asked specifically about the ease of completing the application, using the e-mail program, completing the online training and understanding the goals, the mentors and mentees generally responded positively. There was concern by both groups regarding the Gaggle.Net e-mail being “one more e-mail program to check each day.” Results from this section can be found in Table 36.
Table 36

*Ease of Use Questions Answered Strongly Agree or Agree by Mentors (N = 20) and Mentees (N = 16)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Mentor</th>
<th>Mentee</th>
</tr>
</thead>
<tbody>
<tr>
<td>The goals of the program were easy to understand.</td>
<td>100% (20)</td>
<td>100% (16)</td>
</tr>
<tr>
<td>The application was easy to complete.</td>
<td>89% (18)</td>
<td>100% (16)</td>
</tr>
<tr>
<td>The Web site is easy to access.</td>
<td>93% (19)</td>
<td>100% (16)</td>
</tr>
<tr>
<td>The online training material was easy to access.</td>
<td>93% (19)</td>
<td>100% (16)</td>
</tr>
<tr>
<td>The online training material was easy to understand.</td>
<td>93% (19)</td>
<td>95% (16)</td>
</tr>
<tr>
<td>The e-mail program is easy to use.</td>
<td>79% (16)</td>
<td>80% (13)</td>
</tr>
</tbody>
</table>

**Impact of Technology**

Since technology is integral to an online mentoring program, several key questions on the online surveys addressed this topic. Only 10 of the mentors, or 52% answered positively when asked, “There is technology support available if a problem occurs.” However, seven people, or 37% answered that question “neither agree nor disagree” indicating that perhaps they didn’t have a problem that required support. The mentees were asked the question, “If there is a problem with the technology, it gets fixed in a day or two.” Only 12 of the mentees, or 73% answered this question positively. One of the schools had network and server problems during the first three months of the program. Sometimes the computers worked and sometimes they did not which led to frustration by both mentors and mentees.
In addition, requests for specific technology assistance were tracked by the researcher. A form was created and placed on the Web site so that mentors or mentees could complete it and submit it to the help desk. No one used this form during the study. Instead, the mentors and mentees contacted the program coordinator directly via e-mail or phone calls. Requests for assistance were minimal. During the study, five requests were made directly to the program coordinator for assistance. All five requests occurred during the first two weeks of the program as the mentors were learning to access their e-mail account for the first time. No mentees or instructors requested specific assistance from the program coordinator. However, several mentees indicated on the online surveys and during the focus group discussions that the computer network at one of the schools did not work very well. Several requests to “please fix the computers” were made of the program coordinator. Unfortunately, the problems were a result of the construction at the school and were not able to be corrected until the construction was complete.

**Implications for Design Changes**

The third research question was: What are the implications for design changes needed to improve the model during the study and in subsequent studies? In order to answer this question, the involvement data, the data from the open-ended questions on the online surveys, and the focus group discussions with the mentors and mentees were managed in the following ways:

1. The number of e-mails sent and received by the mentee was recorded in an Excel spreadsheet each week.
2. As each survey was completed, the information provided in the open-ended questions was entered into a table based on the source, the problem, and any recommendations for change or improvement.

3. As each focus group was completed, the information provided by the mentors, mentees, and instructors was entered into the same table based on the same categories.

4. Data from surveys and the focus groups were reviewed by two independent people to validate the information in the table.

5. Since one of the basic tenants of the design experiment research method requires the participants to be involved as co-participants in the design and analysis of the project, the suggestions were implemented if possible. All possible design changes were discussed with the participants prior to implementing them.

6. Two additional columns were added to the table. The first was used to track the actual design change if it was implemented. The second column allowed the participants to make recommendations for future programs.

There were six design changes to the model during the course of the study. Each will be discussed in the following sections.

E-mail Software

The first change to the project came during the pilot phase. It was discovered that the Mentors Online software purchased for the e-mentoring program was not compatible with the school district’s firewalls and servers. After additional research, an online e-mail program called Gaggle.Net was selected for use. The school district had previous
experience with Gaggle.Net and allowed limited use of it for specific purposes. The researcher received approval from the school district to utilize this program. Since it was available through the Internet, no installation was necessary. Gaggle.Net offered similar security features as the Mentors Online software. The researcher was designated as the administrator of the software. This feature allowed for all the messages to be read by the researcher. The software also screened messages for foul language or sexually explicit language. By using Gaggle.Net, the mentors and the mentees did not have to share personal e-mail addresses thus preventing any problems that might develop regarding identity or future contact once the program was over.

**Student Accountability**

As the program began, some students would forget to check their e-mail each day. All the students were very excited as the program began, but some did not develop the habit of checking their e-mail each time they were in class to see if there was a message from their mentor. This problem was further verified by the researcher as the numbers of e-mails sent and received by the mentee were recorded each week. After further analysis and discussion with the students, two reasons surfaced that may have caused this problem. At one of the schools, an unexpected refurbishing and re-roofing project began almost the same time the e-mentoring program began. The construction caused the computer network to be up and down for several weeks at a time. The students who only had access to the e-mail at school became frustrated because they were not able to connect with their mentors. In addition, some students and mentors complained about having to use Gaggle.Net as it was “one more e-mail they had to check each day” and
wished they could have used their personal e-mail addresses. A recommendation by one of the instructors to develop a check sheet that would help remind the students to check their e-mail was implemented in late November in her classroom. By January, all the instructors were asked to incorporate this check sheet into their daily routine. In two of the three classrooms, this seemed to work well. The check sheet was placed next to the attendance sign-in document so that when students arrived, they could check both the e-mail check sheet and the attendance sign-in sheet. The third instructor did not implement this system and would only allow the students to check their e-mail when all their work was complete for the day.

In addition, the program coordinator immediately began e-mailing the mentees who were not sending at least two messages per week in order to remind them to do so. Sometimes, the coordinator made a personal phone call to the students who were not reading or sending messages or stopped by the classrooms in order to personalize the reminder.

*Gaggle.Net*

One of the biggest complaints by both the mentors and the mentees was of the e-mail software Gaggle.Net. Since most of the participants had their own personal e-mail accounts, having to check a second e-mail account seemed to be a burden to some. While the mentors complained about it during the focus group sessions, they also understood the necessity of using an e-mail program that provided security and safety for participants. Some of the mentees however, suggested that having to use this e-mail system was the reason they did not check their e-mail as often as the program required. In early January,
the mentors and mentees were provided instruction as to how to direct the Gaggle.Net messages to their personal e-mail account. While they still would not be able to receive or send a message through their personal accounts, this technique allowed them to be notified in their personal account that a message was waiting for them in their Gaggle.Net account. The mentors found this to be very helpful. The mentees continued to complain.

Communication between Mentors and Instructors

As the mentor and mentee relationship began to develop, many of the mentors requested the ability to contact the students’ instructors to find out how the student was actually progressing in preparation for the GED Tests. While the instructors had agreed to participate in the e-mentoring program by allowing their students to e-mail their mentors during class time, they were not by design, an integral part of the program. In January, the e-mail addresses of the instructors were provided, with permission, to the mentors. However, because of privacy concerns, the instructors did not provide specific information about the students’ academic progress to the mentors. Instead, they were able to provide general information about the GED Tests and specific areas that all students needed to work on so they would be able to pass. The mentors appreciated the ability to communicate with the instructors and 12 of the 32 mentors made contact with the instructors.

Community Building

After several failed attempts to utilize the blogs as the community building tool for both mentors and mentees, a different approach was implemented. The program coordinator began meeting face-to-face with the mentored classes. Beginning in
December, the researcher made at least two visits per month to each class. The mentees enjoyed talking with each other about their mentors. The sessions were informal, but allowed the students to feel a part of the community of mentees. In addition, some of the mentees discovered that they could e-mail the other mentees, either in their own school or in the other school, through Gaggle.Net. Their messages were closely monitored by the researcher and most of the messages reflected typical teenage communication.

Community building for the mentors was more difficult. While the mentors expressed a desire to communicate with the other mentors, face-to-face meetings were just too difficult for everyone’s busy schedules. When the blogs were working, several of the mentors had begun using them. However, they were not available on a consistent basis and so in early February, the researcher discontinued trying. The mentors felt a sense of community when they did come together for the focus group discussions.

*Information about GED Tests*

The first focus group of the mentors took place in early January, about one month before the students were to take the GED Tests. Some of the mentors were beginning to sense the stress that their mentees were under at this time. During the focus group discussion, several of the mentors requested specific information about the GED Tests and even wanted the opportunity to take a practice exam themselves. Although GED information was already on the mentor Web site, many of the mentors had not accessed it. The program coordinator sent the mentors several links to GED practice test Web sites and provided additional information about the academic concepts tested. In addition, the mentors were encouraged to communicate with the instructors about the test.
Based on the literature review and what has been discovered throughout this study, the researcher hoped to learn more about the quality of the structured e-mentoring model and its impact on at-risk high school students. The data collected for this dissertation carries with it implications for practice and future research within the emerging e-mentoring field. In Chapter 5, the results of this study are summarized and the conclusions, implications, and recommendations are highlighted.
Chapter 5

Summary, Conclusions, and Recommendations for Further Research

The purpose of this study was to determine the impact of an e-mentoring program on at-risk students’ self-esteem, career indecision, attendance, and academic achievement. The study also allowed the researcher to examine the working quality of each component of a structured e-mentoring program model and evaluate each one as it was being implemented in order to determine design changes that might be needed to improve the program. This chapter includes (a) a summary of the study, (b) conclusions of the study, (c) implications of the study findings, and (d) recommendations for further research.

During this study, the following research questions were addressed:

1. What is the impact of the structured e-mentoring model on at-risk students’ self-esteem, career indecision, attendance, and academic achievement?
2. What is the working quality of each of the design components of the structured e-mentoring model?
3. What are the implications for design changes needed to improve the model during the study and in subsequent studies?

Summary

This study involved the implementation of a structured e-mentoring model to determine its impact on at-risk students’ self-esteem, career indecision, attendance and
academic achievement. The study was conducted using a design experiment that allowed the researcher to study the implementation process in context and as it was underway. This fluid connection of research and practice allowed the researcher to make improvements to the e-mentoring program during the process and therefore improve the initial design through continuous revision.

Participants for the study were enrolled in six GED Exit Option classes at two technical centers in a large urban school district in Florida. Three of the classes were randomly selected as mentored classes and three were control classes. The students who were enrolled in the mentored classes could select whether or not they wanted to participate in the e-mentoring program. Of the 91 students enrolled in the six classes, 32 actually participated as mentees. Each mentee had a randomly assigned mentor. The e-mentoring program ran for approximately five months. A pilot study was conducted prior to the start of the program in order to test the e-mail software, online survey instruments, and focus group questions. Based on the results of the pilot study, a few minor modifications were made to the online survey and focus group questions.

To accomplish the goals of this study, the researcher collected data using a variety of tools. Online surveys and focus group discussions provided data that allowed the researcher to monitor each component of the structured e-mentoring model as it was implemented so as to allow for revisions as needed or recommendations for future revisions to be noted. Academic achievement was measured using scores from the GED Tests. The students’ attendance was tracked during the course of the study. The Rosenberg Self-Esteem Scale and the Career Decision Scale were administered in order
to collect the data that were used to measure changes in self-esteem and career indecision, respectively. All e-mail correspondence between the mentors and the mentees was reviewed by the researcher. After the analyses were complete, a variety of conclusions could be drawn from the results.

**Conclusions**

The results of this research study suggest a number of conclusions regarding the quality and impact of a structured e-mentoring program on at-risk high school students’ self-esteem, career indecision, attendance, and academic achievement. These conclusions offer a variety of implications for e-mentoring programs provided to high school students, as well as recommendations for further research on the quality and impact of an e-mentoring model.

**Impact on Self-Esteem and Career Decision**

The results indicated that there was no significant difference in the students’ self-esteem between those in the mentored group and those in the control group. Both groups posted similar scores on the pretest and improved to similarly distributed end results by the end of the program. From the beginning of the program until the end, it appears that e-mentoring did not have an impact on the students’ self-esteem. However, the control group of students displayed a higher overall self-esteem score at the end of the program than at the beginning. So, while both groups ended the school year in similar states of mind regarding their self-esteem, the control group had slightly more improvement to make to arrive in that state.
There are a variety of influences that impact a student’s self-esteem including parents, peers, employers, and teachers. By the very nature of the GED Exit Option program, students who had otherwise thought there would be no chance they would graduate from high school, now found a way to still walk across the stage and receive their diploma. The impact of the teacher and the actual GED Exit Option program on all the students, whether they were mentored or not, was a factor that could have also worked to increase the students’ feelings about themselves. Although e-mentoring did not seem to have a statistically significant impact on a student’s self-esteem, the anecdotal stories and e-mail conversations show that perhaps the e-mentoring program was meaningful for some of the students in ways that may never be known.

The results indicated that there was no impact on the control group or mentored group of students’ regarding career decision. Many students are unfocused and do not understand the reasons they are in school or the impact that education can have for their future. Many students do not connect what they are learning in school and what happens to them outside of school (Wakefield et al., 2003). Throughout the e-mentoring program, the mentors were encouraged to discuss the future, share career planning Web sites, and talk about the next steps after high school. Although the majority of the students had a part-time job after school, some of the students shared that they were unsure as to their plans after high school. One of the mentees, Tom, wrote to his mentor after being asked about life after high school,

I want to go to college somewhere around here and get my own place and start working… i really like working on my explorer and
doin custom car audio and custom stuff on cars but i only know
how to do so much and from what i hear there isn’t really a school
you can go to learn how to do all that stuff ive [sic] tried to get
jobs at some of these places where i always buy stuff for my car
but they say without experience they cant give me a job… but i
don’t see how i can get any experience…

Tom, like many of the students, had an interest in something but had no idea how to go
about finding the training he would need in order to get a job in this field. Another
mentee, Brianna, told her mentor that, “in 5 years I hope to be in cali(fornia) [sic] with
my vette meanwhile be enrolled into a college and working on my carrer [sic].” She had
no idea what that career would be.

Through the course of the program, the mentors were encouraged to continue
talking about careers and the future. An online career exploration software program was
available for the mentors to share with their mentees. This program offered an interest
inventory for the students to access. The students could share their results and generate
further discussion with their mentors, parents, teachers, or friends about career
possibilities and how to make decisions about those careers.

Impact on Academic Achievement and Attendance

The results indicated that there was no statistically significant difference
regarding academic achievement based on whether or not the students were mentored or
were in the control group. The results also indicated that there was no significant
difference in the number of absences between the mentored group and those in the
control group. It is interesting to note that out of the 58 students in the control group when the program started only 44 students or 76%, actually took the GED Tests and completed the school year. On the other hand, of the 31 students in the mentored group when the e-mentoring program began in October, 26 students or 84%, actually took the GED Tests and completed the school year. A total of 19 students dropped out before taking the GED Tests. According to information provided by school personnel, some of the students dropped out because they just did not believe they would pass the GED Tests. While the e-mentoring program did not have a statistically significant impact on the students’ academic achievement or school attendance, it might have had an impact on whether or not they stayed in school.

The Anecdotal Story

The quantitative measures used to determine the impact of the e-mentoring model on the student’s self-esteem, career decision, attendance, and academic achievement showed that in this study, e-mentoring did not have an impact. However, when the researcher drilled down by reading and listening to the students’ and mentors’ stories, a different conclusion was reached, at least for some of the students. The mentors often reported through the focus group discussions and online surveys that the students were very interested in talking about themselves, finding out about their mentors’ lives, and having what one mentor called, “casual conversations.” Each week, the researcher e-mailed a discussion starter to the mentors that usually revolved around self-esteem, career exploration, attendance or the GED Tests. The mentors would then start a discussion for the week with their mentees about the assigned discussion starter. What
seemed to happen quite often was that the mentees might briefly respond to the assigned discussion starter, but then move into another topic that was of interest to them, concerning them, or that perhaps they preferred to talk about. In the early focus group sessions with the mentors, this seemed to bother many of them. They would express concern that they were not “doing what they were supposed to be doing” or “the students did not seem to be focused.” As the program progressed, many of the mentors realized that building the relationship with the students was the important part of the program. At one of the final focus group with the mentors, a lengthy discussion ensued regarding how they would decide whether or not the e-mentoring program was a success. Sue, who had mentored the student named Karen and had made the call when Karen was suffering with severe emotional distress, made the comment, “If we saved this one student’s life, then the entire program was definitely a success.”

Working Quality of the E-Mentoring Model

There are three components to the structured e-mentoring model that were implemented in this research study (see Figure 2). As the components were implemented, the participants were surveyed to find out how well the program was implemented and whether or not there were any improvements that could be incorporated to make the program better. The working quality of the e-mentoring model was also measured using the three criteria of:

1. ease of implementation
2. impact of technology
3. ability for flexible design change
The first component, planning included recruiting, managing expectations, and matching. The mentors and the mentees reported that they had a positive experience with the recruiting process. Since most of the mentors were already business partners or connected to the technical center in some way, it was easy to recruit them to become a mentor. The recruiting process for the mentees was a bit more time consuming as it required parental meetings and numerous visits to the classrooms. Some of the students said they felt pressured by their parents or instructors to participate; others indicated that their instructor was very negative about the program. According to the surveys however, the students who did participate felt the recruiting process was positive. The participants felt the same way about the managing expectations phase of the e-mentoring model. They attributed part of this to the fact that the researcher, or program coach, kept in constant communication with them via e-mail, discussion starters, and the face-to-face conversations. The Web sites were created to help manage expectations and several participants mentioned utilizing information from the site in order to stay informed or be reminded about the purpose of the program.

The second component, program structure included training, coaching, and community building. The participants felt very positive about the training and coaching phases of the e-mentoring model. All but one mentor felt the online training materials were helpful. However, three of the mentors suggested that at least one face-to-face training session be made available. The students utilized the online training materials in a lab environment with the researcher as the facilitator. Coaching seemed to be the critical support provided by the program coordinator. Although a very resource intense feature
which included weekly discussion starters, e-mail and phone conversations as needed, updating of the Web sites weekly, and visiting classrooms, all participants felt they had a positive experience with the coaching that was conducted throughout the program. On the other hand, the results for the community building were neither positive nor negative. During the planning phase of the study, blogs and chat rooms were to be utilized as a way to build community. Although both worked during the initial pilot phase of the study, the school district policies changed during the implementation of the study and both the blogs and chat rooms were non-functional most of the time. The community building happened much more informally through the focus group sessions and the face-to-face sessions the researcher had with the students in their classroom than originally planned.

The third component, assessment, included involvement data, formative, and summative evaluation. Since assessment is an important component of any mentoring model, it occurred in a variety of ways during the e-mentoring program. The researcher utilized the administrative tool of Gaggle.Net and read and tracked each e-mail that was sent by the mentors and mentees. This was done to ensure that the students were not sending or receiving inappropriate e-mail messages. In addition, the researcher was able to coach the participants to send a message if they were not doing so. Formative evaluation took place via the involvement data, an online survey, and focus groups. The data gleaned allowed the researcher to make changes to the program while it was underway and make improvements as needed. The summative evaluation occurred at the end of the study and included online surveys and focus group data allowing for recommendations for future programs and further research.
When considering ease of use, the program participants responded positively about the e-mentoring program in general. However, the e-mail program Gaggle.Net was not rated as favorably. Although both the mentors and mentees described Gaggle.Net as an easy program to use, it was the fact that it was “one more e-mail program to check each day.” In the final focus group discussion with the students, they suggested getting “rid of it and letting us use our own e-mail.” The discussion with the mentors was similar; however, they understood the value of using an e-mail program that could be monitored by the program coordinator. The mentors recommended the continued use of Gaggle.Net in future programs.

When considering the impact of technology, several key points emerged. One of the technical centers experienced network and server problems during the first three months of the program. These problems were unanticipated due to a large construction project that was taking place on the campus. Unfortunately, some of the mentees lost interest in the program because more often than not the computers were unable to access the Internet. The importance of the students having access to the Internet was evident by the frustration that many of the mentees and mentors expressed when the network was not working for days at a time. Several students pleaded with the researcher to “fix the computers” and “do something about the broken computer system.” Once the construction was over, the computer system began working again on a consistent basis. However, aside from this major problem, there were very few requests for technology assistance.
When considering the ability for flexible design change, six design changes were made to the e-mentoring model during the course of the study including:

1. E-mail software was changed from a Unix-based system to a web-based system. The web-based software worked very well as long as the students had access to the Internet.

2. A checklist was created to remind the students to check their e-mail at least two times each week. This accountability was important, especially as the online relationships were just beginning to develop.

3. The mentors and mentees received instruction on how to direct Gaggle.Net to their personal e-mail account. This technique only notified them that there was a message waiting for them in their Gaggle.Net account. No security features of the Gaggle.Net program were compromised.

4. The mentors requested the ability to communicate with the instructors and communication developed between 12 of the 32 mentors and the instructors.

5. The program coordinator began to meet face-to-face with the mentored classes in an effort to encourage community building. This was done after it was determined that the blogs and chat rooms would not be working for the remainder of the program.

6. Information about the GED Tests was provided to the mentors so they would feel better prepared to assist the mentees with their preparation.
Implications for a Structured E-Mentoring Model

This research has provided additional information to the body of e-mentoring knowledge, specifically with regard to the structured e-mentoring model and the implementation process. Using this knowledge and combining it with suggestions provided by the mentors, mentees, and instructors during the program, the structured e-mentoring model framework implemented in a school-based program should include the following:

1. Each e-mentoring program must be structured and managed by a coordinator. This person should be in contact with both the mentors and the mentees throughout the program and be able to assist the program participants by providing technology support, monitoring the e-mail system, coaching as necessary, and handling other issues that may arise. The coach’s role of “jovial nag” as described by Harris and Figg (2000) is important in building and sustaining the online relationships.

2. Recruit mentors from the business community who already have a relationship with the school. Recruit students who want to be mentored. Some of the students involved in this study said they felt pressured to participate. The relationship will not be successful unless both parties are committed to the program. Sipe’s synthesis of the Public/Private Ventures research (1996) indicated that the most effective mentoring relationships occur when a trusting relationship develops over time and that the adult has to take the lead in keeping the relationship alive. A mentor must have a commitment to the program and to the mentee. Mentors who
understand the importance of being a friend to the youth instead of trying to change the youth, will be more successful in the mentoring relationship.

3. Consider creating a biography of potential mentors and allowing the students to select their mentor based on the information provided. Consider having the students and the mentors meet prior to beginning the program so they can connect before starting the online relationship. Bennett, et al. (1998) suggested that the more the mentors and mentees were involved in the matching process, the greater the level of commitment to the mentoring relationship and to the mentoring process.

4. Consider assigning two mentees to each mentor who would like to work with more than one student at a time. The online mentoring relationship is not as time consuming as face-to-face mentoring and working with two students is possible for many. Many of the mentors who participated in this study indicated that they would have been able to accommodate more than one mentee.

5. Consider assigning two mentors to one mentee. Having two mentors might allow for the students to feel even more cared for and supported. In addition, the mentors might offer different perspectives on topics of concern.

6. Use Gaggle.Net or some other secure e-mail program when connecting students with adults. Safety must be foremost when youth are involved in the online model. The National Mentoring Partnership recommends installing safety technology, including an archive system for e-mails. The Virtual Volunteer Project through the University of Texas recommends that the adult volunteers and
youth each have a special e-mail address that does not reveal personal
information, such as last names.

7. Training is the most important component of the e-mentoring model. Sipe (1996)
suggests that orientation and training helps the mentors understand their roles and
expectations. Training should include specifics on potential mentoring
interactions. Provide opportunities for both face-to-face training and online
training to the mentors. Web cams and other technology could be utilized. The
training provided to the students should be conducted face-to-face with an online
component used as a review.

8. During the training and throughout the program, remind the students that
responses to their e-mail messages will not be instant. In this world of text-
messaging and instant message, e-mail messaging is sometimes considered
archaic by the students. Offer the opportunity for text messaging, live chat rooms
and instant messaging in the e-mentoring program.

9. During the training, provide information to the mentors about online chat
acronyms and teenage text messaging language. Remind the mentors that while
they often have access to e-mail during the daytime at work, the students may
have limited access each day during school. Mentors usually have more online
access time and experience with the culture of e-mail and must be aware of
this when their mentees don’t respond as quickly as they think they should
(Bennett, et al., 1998).
10. During the training, make sure the mentors understand that if they are unable to communicate for a long period of time (due to sickness, out-of-town travel, or other emergency situations), they need to have a contingency plan in place, particularly for the mentee. Jekielek, et al. (2002) suggests that the most successful mentoring programs provide the participants with in-depth training opportunities allowing both the mentors and mentees to become comfortable with the concept of mentoring and any situations that might arise.

11. Provide an opportunity for the mentors to take the pre GED tests so they will be familiar with the academic content the students are studying during the program. Arrange tutoring sessions using chat rooms and webinars so that the mentors can assist with the academics in a more meaningful way.

12. The teacher must play an integral role in the program and be supportive of it. The teacher must be included in the e-mentoring relationship by dedicating classroom time each day so the students can check their e-mail. E-mentoring is very difficult to achieve, though, without purposeful orchestration (O’Neill & Gomez, 1998). Orchestration work can be conducted by the teacher or by a program coordinator. In addition, a check sheet or some type of reminder tool should be in place in the classroom to help the students remember to check their e-mail, especially at the beginning of the program when the e-mentoring relationships are just beginning to develop. Ideally, the teachers should keep in touch with each student’s mentor by providing a regular update on the progress of his or her mentee.
13. Community building is important for both the mentors and the mentees. Utilize chat rooms and blogs to encourage a sense of community among the mentors and mentees. If possible, provide face-to-face socials or other community building sessions where the mentors or mentees come together to discuss their e-mentoring relationships. Teachers could make known an exemplary e-mentoring relationship that develops so all students are aware they can develop. Incorporate the Web sites as another tool for community building. Include successful e-mentoring stories on the Web site for the students and mentors to read. Community building does not happen automatically and requires attention and focus on the needs of the participants (Guy, 2002; Single & Single, 2004).

14. Run the program for a minimum of one school year. It takes time for most e-mentoring relationships to develop and serve the purpose for which they are designed. In order for positive relationships to develop online, frequent communication of at least one or two times per week is necessary (Bennett et al., 1998; Emery, 1999; Harris et al., 1997). The key to creating the mentoring relationship seems to be the development of trust between two unfamiliar people which takes time and requires attention (Sipe, 1996).

15. Continuously monitor the e-mentoring program. Utilize online survey instruments for program evaluation. Random follow-up interviews could be conducted with the mentors and students to determine methods to improve the program and facilitate the e-mentoring relationships. Data should be collected throughout the
program (Boyle & Boyce, 1998; Single & Muller, 1999) so that modifications to the program can be made in a timely manner.

Recommendations and Theoretical Concepts

When one refers to the framework that was designed to guide this study, several connections to the theory, as limited as it may be, can be made. When the four concepts, relationship, environment, structure, and purpose are reviewed, all of the above recommendations make sense and seem to connect to one of the four concepts as shown in Figure 3. Table 37 presents the above recommendations as they are connected to the four concepts found in the theoretical framework for the study.
<table>
<thead>
<tr>
<th>Relationship</th>
<th>Environment</th>
<th>Structure</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both mentors and mentees must be committed to program.</td>
<td>Use secure e-mail program when connecting students with adults.</td>
<td>Mentoring program must be managed by a coordinator.</td>
<td>Provide opportunity for mentors to take pre GED tests in order to assist with the academic content.</td>
</tr>
<tr>
<td>Create a biography of potential mentors and allow students to select based on the information.</td>
<td>Include text messaging, live chats, and instant messaging along with e-mail.</td>
<td>Training is important. Provide face-to-face training for the mentors.</td>
<td>Develop tutoring sessions using chat rooms and webinars.</td>
</tr>
<tr>
<td>Allow students to meet prior to the start of the program.</td>
<td>Provide training on teen text messaging language.</td>
<td>Ask mentors to prepare contingency plans if they are planning to go out of town to avoid long periods of no communication.</td>
<td>Allow mentors and mentees to create a definition of success for the mentoring program and themselves as mentors and mentees.</td>
</tr>
<tr>
<td>The teacher should be an integral part of the mentoring relationship.</td>
<td>Teacher must allow class time so students can check e-mail.</td>
<td>Continuously monitor the program.</td>
<td>Conduct random follow up interviews to determine if program was a success.</td>
</tr>
<tr>
<td>Utilize chat rooms and blogs to develop a sense of community among mentors and mentees.</td>
<td>Reminder tool should be implemented so students will remember to check e-mail, especially at the beginning.</td>
<td>Run the program for at least one year.</td>
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<tr>
<td>Provide face-to-face socials with mentors and mentees.</td>
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</table>
Recommendations for Future Research

Throughout the literature, there are a number of studies and projects related to mentoring at-risk high school students. These studies and programs from around the country indicate that a relationship with a significant adult can make a difference in the lives of students who are at risk for educational failure, teen pregnancy, delinquency, and substance abuse. With 15 million young Americans waiting to be matched with a mentor (National Mentoring Partnership, n.d.), alternative methods of mentoring, like e-mentoring, should be explored. The literature is limited when it comes to e-mentoring projects and outcomes but considering the technological age in which we live, e-mentoring makes sense as one way to assist the millions of students who wish to have a caring adult involved with them throughout their tumultuous teenage years.

This study utilized one structured e-mentoring model and implemented it with a small number of participants so generalizability is limited. By expanding the number of participants and programs in more schools and school districts, generalizability might be increased and different results may occur.

Other research methods like using case studies or panel studies could be used to analyze the mentoring process in a different way. Using case studies would allow the researcher to follow particular students through the process from beginning to end. A panel study could also be utilized to follow the same students over time in order to note changes in the specific students and explore the reasons why these students changed or did not change. In addition, focusing on the actual development of the online mentoring
relationship might prove to be interesting in learning more about the e-mentoring model. Since e-mentoring is just emerging, more studies should be conducted on the development of the online relationship. By focusing on building and sustaining the relationship, one will be able to have a better idea if this concept will work.

Although there is research to indicate that matching mentors with their mentees based on race, gender, or occupation, might make a difference on whether or not the mentoring relationship is successful, this research is most often found in the literature surrounding face-to-face mentoring. In this study, a conscious decision was made to use a random matching approach since the participants would not be seeing each other during the program. Another research study might investigate whether or not matching e-mentors with their mentees based on race, gender, or occupation would have a significant impact the student and the development of the relationship.

It was interesting to consider the career decision component of this study. Since many young people do not have an idea of what they want to do after high school, perhaps matching students and mentors based on career interests would be a way to help the students focus and plan for their future. A career interest inventory could be given to the students prior to matching and then their mentors would be selected based on the career field.

Some of the mentees indicated that they felt “their mentors were too old.” Another research study might match the recent GED Exit Option graduates with the new class for the coming year. This idea was presented in one of the mentee focus groups, and the reaction by the other mentees was very enthusiastic. Another approach might be to
use the GED Exit Option students as online mentors for at-risk elementary students. The GED Exit Option students could tutor the elementary students and thereby strengthen their own academic skills. By serving as a mentor, the GED Exit Option students might feel as though they are role-models and their own self-esteem may improve.

The concept of defining a successful mentoring program surfaced several times during focus group discussions with the mentors. It seems obvious now that when speaking of success, the definition may vary from person to person. This researcher had hoped to measure success based on the measures of self-esteem, career decision, attendance, and academic achievement. However, there are many other ways to measure success. For the mentees, success might mean reaching a goal that was not in the parameters of the study or their program. For others, success might be measured in changes in youth behaviors and attitudes as reported by their parents, guardians, teachers, or friends. Program success can also be measured through reports of satisfaction by mentees and mentors. Success could also be defined as a successful implementation of the e-mentoring model. School-based mentoring, whether traditional or electronic, is usually just one intervention among several others, making it difficult to evaluate the power of the mentoring program on the students.

Other measures that might be used to determine whether or not an e-mentoring program is successful might include measuring the number of students who drop out of school, who enroll in postsecondary education, or who no longer use illegal drugs and alcohol. Still other measures might include focusing on improving the students’ attitude about school, improving their relationship with parents, increasing job success and work
ethic, or reducing delinquency or aggression in and out of school. Perhaps the program participants, the co-researchers in this design experiment, should be asked to define a successful mentoring program and how to measure it. The blueprints for the program could then be developed using this information.

Researcher’s Final Thoughts

My journey through this process overlapped as a researcher and practitioner. As I reflect upon this dissertation research, I was disappointed when the e-mentoring program did not show statistically significant results regarding the students’ self-esteem, career indecision, attendance, and academic achievement. However, what I learned about planning, implementing, and evaluating a structured e-mentoring model will allow me to run the program again and again, each time making modifications and improvements so that students will graduate from high school and go on to productive lives in our community.
References


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Retrieved February 22, 2005 from http://www.cepri.state.fl.us


Emissary Project: E-mentoring lessons and examples [Electronic version].


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United States Government, Department of Labor, (n.d.). Table A29 - Unemployed persons by marital status, race, Hispanic or Latino ethnicity, age, and sex (Data file). Retrieved June 2, 2006 from http://www.bls.gov

*Juvenile mentoring program: A 1998 report to Congress.* [Electronic version]

Retrieved May 28, 2006 from

http://www.ncjrs.gov/htmo/ojjdp/173424/index.html


Retrieved May 2, 2003 from

http://ftp.cac.psu.edu/pub/internexus/TELE.MENTOR
Appendices
Appendix A

The Rosenberg Self-Esteem Scale

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel that I am a person of worth, at least on an equal plane with others.</td>
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<td></td>
<td></td>
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<tr>
<td>2. I feel that I have a number of good qualities.</td>
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<td></td>
<td></td>
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<tr>
<td>3. All in all, I am inclined to feel that I am a failure.</td>
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<tr>
<td>4. I am able to do things as well as most people.</td>
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<tr>
<td>5. I feel I do not have much to be proud of.</td>
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<tr>
<td>6. I take a positive attitude toward myself.</td>
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<tr>
<td>7. On the whole, I am satisfied with myself.</td>
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<tr>
<td>8. I wish I could have more respect for myself.</td>
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<tr>
<td>9. I certainly feel useless at times.</td>
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</tr>
<tr>
<td>10. At times I think I am no good at all.</td>
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</tbody>
</table>


The Rosenberg Self-Esteem Scale is in the public domain.
Appendix B

The Career Decision Scale

The Career Decision Scale may not be reproduced in whole or in part or by any means even for dissertations. It is sold by the Psychological Assessment Resources, Inc. (PAR), 16204 N. Florida Avenue, Lutz, FL 33549.
## Appendix C

Measuring the Quality of Implementation Chart

<table>
<thead>
<tr>
<th>Mentors</th>
<th>Ease of Implementation</th>
<th>Impact of Technology</th>
<th>Flexible Design Revision/Implications for Design Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning</strong></td>
<td>Online Surveys B and H (Questions B16, B17, B18, B19, B20, B21, B22, B23, H19, H20, H21)</td>
<td>Online Surveys B and H (Questions B18, H19, H21)</td>
<td>Online Surveys B and H (Questions B23, H33, H34)</td>
</tr>
</tbody>
</table>
| **Assessment** | Number of messages sent through Gaggle.Net  
Online Surveys  
Focus Groups | Researcher able to track messages through Gaggle.Net. Inappropriate messages were sent directly to researcher’s mailbox instead of mentor or mentee.  
Researcher tracks technical difficulties – requests made by mentors via e-mail, the Web site or telephone. Actual assistance provided via e-mail or the telephone.  
Blogs | Pilot results.  
Some program improvement suggestions made by mentors may be implemented during the program; others will be implemented during future programs.  
First focus group data.  
Discussion via blogs  
E-mail messages from mentors to researcher |
### Appendix C (Continued)

<table>
<thead>
<tr>
<th>Mentees</th>
<th>Ease of Implementation</th>
<th>Impact of Technology</th>
<th>Flexible Design Revision/Implications for Design Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning</strong></td>
<td>Online Survey C and I (Questions C17, C18, C19, C20, C21, C22, I17, I18, I19)</td>
<td>None</td>
<td>Online Survey C (Question C25, I31, I32)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Focus group data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Focus group data</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>Number of messages sent through Gaggle.Net</td>
<td>Researcher able to track messages through Gaggle.Net. Inappropriate messages were sent directly to researcher’s mailbox.</td>
<td>Pilot results</td>
</tr>
<tr>
<td></td>
<td>Online Surveys</td>
<td></td>
<td>Some program improvement suggestions made by mentees may be implemented during the program; others will be implemented during future programs.</td>
</tr>
<tr>
<td></td>
<td>Focus Groups</td>
<td></td>
<td>Focus group data</td>
</tr>
<tr>
<td></td>
<td>Results of the impact of the program on the students (GED results, attendance, SE Scale, and CD Scale)</td>
<td>Blogs</td>
<td>Discussion via blogs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E-mail messages from mentors to researcher</td>
</tr>
</tbody>
</table>
Appendix D

National Mentoring Partnership Application

Mentors Online
The E-Mentoring Tool Kit™

Software License Agreement

This MENTORS ONLINE – THE E-MENTORING TOOL KIT SOFTWARE LICENSE AGREEMENT (this "Agreement"), effective on the date signed by Licensee (the "Effective Date"), is by and between MENTOR/National Mentoring Partnership, Inc. ("Licenser"), having its principal offices at 1600 Duke Street, Suite 300, Alexandria, VA, 22314, and the organization having its principal offices at the address stated on the last page of this Agreement ("Licensor"), (each individually a "Party"; collectively the "Parties").

WITNESSETH:

WHEREAS, Licenser owns all rights and interests in and to its Mentors Online – The E-Mentoring Tool Kit software, including any images incorporated in or generated by the software and electronic materials provided therewith (the "Software"), and the accompanying manuals and written materials (the "Related Documentation");

WHEREAS, Licensee desires to obtain, and Licenser desires to provide, a license to use the Software and Related Documentation upon the terms and conditions set forth in this Agreement;

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:
ARTICLE 1. LICENSE AND OBLIGATIONS.

1.01 Software.
Unless otherwise specified in this Agreement, Licensee hereby grants to Licensee a non-exclusive, personal and non-transferable license to install the Software on one (1) server in Licensee's organization and to use and display the Software only within Licensee's organization. Except as provided for in Sections 1.03 and 1.04 of this Agreement, these license restrictions shall apply to any screen, report, file, module, component or structural element of, or relating to the Software including any images incorporated in or generated by the Software and any modifications, upgrades or enhancements of or relating to the Software. Licensee shall not disassemble, reverse engineer, de-
1.08 National E-Mentoring Clearinghouse.
The National E-Mentoring Clearinghouse is a centralized repository of information, training resources, standards, best practices and technical assistance regarding the creation and maintenance of safe, responsible and effective online mentoring programs for young people and adults. Upon request of Licensor, Licensee shall provide copies of its publicly available information and materials regarding its e-mentoring program to Licensor for use by Licensor in developing and updating its best practices for e-mentoring. If such materials in the opinion of Licensor might be useful for other online mentoring programs, Licensor shall ask Licensee for permission to post and/or distribute such materials on a royalty-free basis. Licensor will not post or otherwise distribute such materials without the consent of Licensee, and will credit Licensee if such materials are distributed with permission.

1.09 Product Support.
Licensor does not provide any support in conjunction with the Software or Related Documentation. For information on where to obtain product support, e-mail lookthel@mentoring.org.

1.10 Third-Party Network Service Providers.
If Licensee uses a third-party internet service provider, network administrator or other entity ("Service Provider") to operate and maintain its computer network, such Service Provider shall be bound by all terms of this Agreement that restrict the use and operation of the Software. Licensee shall have an affirmative duty to provide its Service Provider with a copy of this Agreement and inform such Service Provider of their obligations.

ARTICLE 2. TERM AND TERMINATION.

2.01 Term.
The term of this Agreement shall commence on the Effective Date of this Agreement and shall continue for the period of one (1) year.

2.02 Automatic Renewal.
Each year, the Agreement shall automatically renew for a period of one (1) year, unless and until Licensor elects not to renew the Agreement on at least fourteen (14) days notice to Licensee before the end of the then-existing one-year period.

2.03 Termination for Convenience.
Either party may terminate this Agreement at any time upon thirty (30) days notice to the other party.

2.04 Termination for Cause.
If Licensee fails to perform any of its material obligations under this Agreement and steps are not taken to cure such failure within thirty (30) days after written notice is given to Licensee specifying the nature of the default, Licensor may, upon further notice to the Licensee, terminate this Agreement as of the date specified in such notice of termination.

2.05 Effect of Termination.
In the event of a termination of this Agreement for any reason, Licensee shall 1) return all copies of the Software and Related Documentation received from Licensor to Licensor; and 2) destroy all backup copies of the Software and Related Documentation; and 3) remove all copies of the Software from the server(s) hosting the Software. The terms of the Agreement shall remain in effect so long as Licensee has possession of a copy of the Software or the Related Documentation.
ARTICLE 3. PROPRIETARY RIGHTS.

3.01 Software.
All right, title and interest in and to the Software, including, but not limited to, any images, photographs or text incorporated in the Software, and all modifications, enhancements or revisions that Licensor makes thereto, are and shall remain vested in Licensor. Licensee shall not challenge the ownership or validity of Licensor’s rights, title or interest in the Software.

3.02 Derivative Works.
Except as provided for in Section 1.04 of this Agreement, Licensee shall not create derivative works or any other works that are based upon or derived from the Software in whole or in part. However, all right, title and interest in any content or data derived from use of the Software shall remain vested in Licensor.

3.03 Related Documentation.
All right, title and interest in and to the Related Documentation, including, but not limited to, any images, photographs or text incorporated in the Related Documentation and all modifications, enhancements or revisions thereto, are and shall remain vested in Licensor. Licensee shall not challenge the ownership or validity of Licensor’s rights, title or interest in the Related Documentation.

3.04 Intellectual Property.
The Licensor is the sole owner of the intellectual property in the Software, the Related Documentation, and all modifications, enhancements and revisions of the Software and Related Documentation by the Licensor, including, but not limited to copyrights, trademark, patents and trade secrets.

3.05 Disclosure; Security.
Licensee shall not disclose, provide or otherwise make available any intellectual property relating to the Software or Related Documentation, in any form to any third party without prior written consent of Licensor. Licensee shall implement reasonable security measures to protect such intellectual property.

ARTICLE 4. QUALITY STANDARDS AND MAINTENANCE PROCEDURES.

4.01 Implementation of the Software.
Licensee shall implement and operate the Software in accordance with the standards set by Licensor.

4.02 Quality Maintenance Procedures.
Licensee shall (1) at Licensor’s request, submit copies of then-current materials used by Licensee in connection with its e-mentoring program; (2) comply with all applicable laws and regulations and obtain all appropriate government approvals pertaining to the implementation, operation, marketing, promotion and advertising of services, materials and goods covered by this Agreement; and (3) cooperate and assist Licensor in its efforts to control the nature and quality of the services, materials and goods associated with the Software and Related Documentation.

ARTICLE 5. REPRESENTATIONS AND WARRANTIES; DISCLAIMER.

5.01 By Licensee.
Licensee represents and warrants that:

(1) Licensee is a non-profit 501(c)(3) corporation, public agency, governmental organization or corporation duly incorporated and organized, validly existing and in good standing; and

(2) Licensee is in compliance with all applicable Federal, state and local laws and regulations and shall obtain all applicable permits and licenses in connection with its obligations under this Agreement.
5.02 By Licensee.
Licensee represents and warrants that

(1) The CD ROM media on which the Software is recorded to be free from defects in materials and workmanship under normal use for a period of ninety (90) days from the Effective Date. Licensee's exclusive remedy shall be the replacement of the defective CD ROM containing the Software upon return of said CD ROM to Licensee. This warranty does not apply if the Software (a) has been altered, except by Licensor or a designee authorized by Licensor; (b) has not been installed, operated, repaired or maintained in accordance with instructions supplied by Licensor; or (c) has been subjected to abnormal physical or electrical stress, misuse, negligence or accident.

5.03 DISCLAIMER.
Licensor makes no representations or warranties, express or implied, regarding or relating to the Software or related documentation, including the effectiveness or effect of the e-mentoring clearinghouse. The Software and related documentation are provided "AS IS" and Licensor explicitly disclaims all other warranties, express or implied, including, but not limited to, non-infringement, the implied warranties of merchantability and fitness for a specific purpose, or arising from a course of dealing, usage or trade practice. In no event does Licensor warrant that the software or functions contained in the Software will be uninterrupted or error free, or that defects in the Software will be corrected.

ARTICLE 6. INFRINGEMENT PROCEEDINGS.
Licensee shall promptly notify Licensor of any unauthorized use of the Software and Related Documentation by others, as such use comes to Licensee's attention. Licensor shall have the sole right to take action against said unauthorized users, including the right to bring infringement or unfair competition proceedings involving the Software and the Related Documentation. Licensee shall cooperate in any such proceedings, at Licensor's expense.

ARTICLE 7. CONFIDENTIAL INFORMATION.

7.01 Confidentiality.
All information disclosed to, or obtained by, either Party as a result of the working relationship between Licensee and Licensor under this Agreement, or by operation of the Software, which information is not generally known in the trade or industry in which Licensee and Licensor operate, and which information relates to either party's past, present or future products, processes or services ("Confidential Information") shall be held in confidence by the recipient to the same extent, and in at least the same manner, as the recipient protects its own confidential or proprietary information. Neither Licensor nor Licensee shall disclose, publish, release, transfer or otherwise make available Confidential Information, or obtained from, the other in any form to, or for the use or benefit of, any person or entity without the disclosing Party's prior written consent.

7.02 Software Data.
All personal data and information collected by or generated in connection with the use of the Software, including email addresses, names of e-mentoring program participants, mentoring matches, and the content of any messages between program participants, is considered Confidential Information. Licensee agrees to keep such information confidential and shall not provide any such personal data and information to Licensor. Licensee may be asked, from time to time, to provide aggregated information regarding use of the Software that does not contain any personally identifiable data, such as, for example, participant usage information and the average ages of participants.
7.03 Allowed Disclosures.
Each of the Licensor and Licensee shall, however, be permitted to disclose relevant aspects of the other's Confidential Information to its officers, directors, agents, professional advisors and employees and to the officers, directors, agents, professional advisors and employees of its affiliates, to the extent that such disclosure is not restricted under this Agreement, and only to the extent that such disclosure is reasonably necessary for the performance of its duties and obligations under this Agreement; provided, however, that the recipient shall take all reasonable measures to ensure that Confidential Information of the disclosing Party is not disclosed or duplicated in contravention of the provisions of this Agreement by such officers, directors, agents, professional advisors or employees.

7.04 Disclosures Required By Law.
The obligations in this Section shall not restrict any disclosure pursuant to any applicable law or by order of any court or government agency (provided that the recipient shall give prompt notice to the disclosing Party of such order) and shall not apply with respect to information that (1) is independently developed by the recipient without violating the disclosing Party’s proprietary rights as shown by the recipient’s written records, (2) is or becomes publicly known (other than through unauthorized disclosure), (3) is disclosed by the owner of such information to a third party free of any obligation of confidentiality, (4) is already known to the recipient at the time of disclosure, as shown by the recipient’s written records, and the recipient has no obligation of confidentiality with respect thereto or (5) is rightfully received by a Party free of any obligation of confidentiality.

7.05 Equitable and Injunctive Relief. Licensee acknowledges and agrees that the disclosure of Confidential Information may give rise to irreparable injury to Licensor and that remedies other than equitable and injunctive relief may not be adequate. Accordingly, Licensor has the right to equitable and injunctive relief to prevent the unauthorized use or disclosure of any Confidential Information, as well as to damages or other relief as is occasioned by such unauthorized use or disclosure.

ARTICLE 8. INDEMNITY AND INSURANCE.

8.01 Indemnity.
Licensor shall indemnify Licensor and defend and hold Licensor harmless from all loss, actions, claims, liabilities and expenses, including reasonable attorneys’ fees and disbursements, arising out of or in connection with (1) the implementation, operation, marketing, promotion and advertising of the Software by Licensee or its employees or agents, (2) personal or property damage incurred by third parties, including participants in Licensee’s activities or recipients of Licensee’s services, as a result of Licensee’s implementation or operation of the Software, and (3) the efforts of Licensor to enforce its rights under this Section 8.01.

8.02 Insurance.
During the term of this Agreement, Licensee shall maintain, at its own expense, comprehensive general liability insurance, including personal injury insurance in the amount of not less than $500,000. All insurance policies obtained or maintained by Licensee pursuant to this Agreement shall name Licensor as an additional insured party. Upon request, Licensee shall provide Licensor with a copy of its insurance certificate and other proof of insurance acceptable to Licensor demonstrating compliance with this section.
ARTICLE 9. LIMITATION OF LIABILITY.
Licensee acknowledges and represents that it is implementing and operating the Software and related documentation at its own risk and assumes all responsibility for any liability arising out of or relating to the use and maintenance of the Software or related documentation. Under no circumstances, including negligence, shall Licensor be liable for any lost revenue, profit or data (or for indirect, incidental, special, consequential or punitive damages, however caused and however otherwise the theory of liability arising out of the use of, or inability to use the Software or related documentation, even if Licensor or its suppliers have been advised of the possibility of such damages. The foregoing limitations shall apply even if the above-stated provision fails of its essential purpose.

ARTICLE 10. MISCELLANEOUS.

10.01 Transferability. Licensee may not assign or otherwise transfer its rights and obligations under this Agreement, without the written consent of Licensor. Any transfer in contravention of this Section 10.01 shall be void.

10.02 Export Restrictions. Software, including technical data, is subject to U.S. export control laws, including the U.S. Export Administration Act and its associated regulations, and may be subject to export or import regulations in other countries. Licensee agrees to comply strictly with all such regulations and acknowledges that it has the responsibility to obtain licenses to export, re-export, or import Software.

10.03 Restricted Rights for Government Licensees. Restricted Rights – LICENSOR's software is provided to non-DOD agencies with RESTRICTED RIGHTS and its supporting documentation is provided with LIMITED RIGHTS. Use, duplication, or disclosure by the Government is subject to the restrictions as set forth in subparagraph "C" of the Commercial Computer Software – Restricted Rights clause at Federal Acquisition Regulations 52.227-7014. In the event the sale is to a DOD agency, the Government's rights in the software, supporting documentation, and technical data are governed by the restrictions in the Technical Data Commercial Items clause at Defense Federal Acquisition Regulations ("DFARs") 252.227-7015 and DFARs 227.7202.

10.04 Notices. All notices, requests, approvals, consents and other communications required or permitted under this Agreement shall be in writing and shall be sent by facsimile to the facsimile number specified below the signatures of the respective parties below. A copy of any such notice shall also be personally delivered or sent by (1) first class U.S. Mail, registered or certified, return receipt requested, postage pre-paid or (2) U.S. Express Mail, Federal Express, or other, similar overnight couriered mail delivery services. Either party may change its address or facsimile number for notification purposes by giving the other party notice of the new address or facsimile number and the date upon which it will become effective.

10.05 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, but all of which taken together shall constitute one single agreement between the parties.

10.06 Headings. The article and section headings are for reference and convenience only and shall not be considered in the interpretation of this Agreement.
10.07 Relationship.
The performance by Licensee of its duties and obligations under this Agreement shall be that of an independent contractor and nothing contained in this Agreement shall create or imply an agency relationship between Licensee and Licensor, nor shall this Agreement be deemed to constitute a joint venture or partnership between the parties. Neither Party shall have any right, power or authority, express or implied, to bind the other.

10.08 Severability.
If any provision of this Agreement is held by a court of competent jurisdiction to be contrary to law, then the remaining provisions of this Agreement, if capable of substantial performance, shall remain in full force and effect.

10.09 Waiver.
No delay or omission by either Party to exercise any right or power it has under this Agreement shall impair or be construed as a waiver of such right or power. A waiver by any Party of any breach or covenant shall not be construed to be a waiver of any succeeding breach or any other covenant. All waivers must be in writing and signed by the Party waiving its rights.

10.10 Publicity.
Until generally acceptable language is provided by Licensor, Licensee shall (1) submit to Licensor all advertising, written sales promotion, press releases and other publicity matters relating to this Agreement in which Licensor’s name or mark is mentioned or which contains language from which the connection of said name or mark may be inferred or implied and (2) not publish or use such advertising, sales promotion, press releases or publicity matters without the Licensor’s consent.

10.11 Entire Agreement.
This Agreement is the entire agreement between the Parties with respect to its subject matter, and there are no other representations, understandings or agreements between the Parties relative to such subject matter.

10.12 Amendments.
No amendment to, or change, waiver or discharge of, any provision of this Agreement shall be valid unless in writing and signed by an authorized representative of each of the Parties.

10.13 Governing Law.
This Agreement shall be governed by, and construed in accordance with, the laws of the Commonwealth of Virginia, without reference to the conflicts of laws principles thereof.

10.14 Survival.
The terms of Section 2.05, Article 3, Article 5, Article 7, Section 6.01, Article 9, Section 10.06, Section 10.11, this Section 10.12, Section 10.13, and Section 10.14 shall survive the termination of this Agreement for any reason.

10.15 Third Party Beneficiaries.
Each Party intends that this Agreement shall not benefit, or create any right or cause of action in or on behalf of, any person or entity other than the Parties.

10.16 Covenant of Further Assurances.
The Parties covenant and agree that, subsequent to the execution and delivery of this Agreement and without any additional consideration, each Party shall execute and deliver any further legal instruments and perform any acts which are or may become necessary to effectuate the purposes of this Agreement.
IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the day and year first above written.

MENTOR/NATIONAL MENTORING PARTNERSHIP, INC.

Date: 6/21/05
By: 
Title: CPO

MENTOR/National Mentoring Partnership, Inc.
1600 Duke Street
Suite 300
Alexandria, VA 22314
Attention: Jennifer Richter
Tel: (703) 224-2233
Fax: (703) 226-2681
E-Mail: jrichter@mentoring.org

LICENSEE

Date: 6/10/05
By: Diane Culpepper
Title: 

Name of Organization: 
Address: 362 Rockwell Circle
Lake Mary, FL 32746
Tel: (407) 366-6208
Fax: (407) 366-6208
Contact Person: Diane Culpepper

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## Appendix E

### Design Revisions

<table>
<thead>
<tr>
<th>Source</th>
<th>Problem</th>
<th>Design Revision Idea</th>
<th>Implemented? When?</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Researcher</strong></td>
<td><em>Mentors Online</em> did not work (once it was put on the district server) during pilot</td>
<td>Permission was granted through the OCPS school district to use Gaggle.net, a web-based e-mail software for this project.</td>
<td>August, 2006</td>
<td>Piloting the e-mail software is crucial to the success of the program.</td>
</tr>
<tr>
<td><strong>Teachers – Online survey, focus group</strong></td>
<td>Students forget to check their e-mail, especially at the beginning of the program</td>
<td>Create a check-in sheet to remind students to check their e-mail.</td>
<td>January, 2007</td>
<td>Use this check sheet or some other tool to help students remember to check their e-mail each day. This makes it easier for the teachers and helps them get into the habit until the relationship is developed.</td>
</tr>
<tr>
<td><strong>Teachers – Online survey, focus group</strong></td>
<td>Some mentors are not e-mailing the students. The students are disappointed and frustrated.</td>
<td>Additional coaching by the researcher to remind the mentors to e-mail their mentees.</td>
<td>Ongoing</td>
<td>Additional training needed to help the mentees understand e-mail mentoring is not like IM or text messaging. Additional training for the mentors so they understand how prompt communication is so important.</td>
</tr>
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### Appendix E (Continued)

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<td><strong>Mentees</strong> – Online survey</td>
<td>Computers at one of the technical centers had technical difficulties throughout the program. The school had unexpected construction and re-roofing during the fall semester which impacted the network wiring on campus.</td>
<td>Fix the computers.</td>
<td>By January 2007, all the computers were up and running again.</td>
<td>This is important especially when starting the program. Students are excited to check their e-mail and if they can’t, they often lose interest. Mentors might wonder why the students are not replying and become frustrated.</td>
</tr>
<tr>
<td><strong>Mentors</strong> – Online survey</td>
<td>No clipart available to add excitement or interest to the e-mail messages.</td>
<td>Add clipart to e-mails.</td>
<td>No.</td>
<td>Clipart could be blocked by the district firewall.</td>
</tr>
<tr>
<td><strong>Mentees</strong> – Online survey</td>
<td>Mentors are older than the students expected. Some students feel they can’t relate.</td>
<td>Younger mentors are needed.</td>
<td>No.</td>
<td>Consider trying online mentoring with mentors who are 20 – 30 years of age.</td>
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<tr>
<td><strong>Mentees/Mentors – Online survey, focus group</strong></td>
<td>Checking Gaggle.Net is just one more e-mail to remember to check. Most students and mentors had a personal e-mail account they could use.</td>
<td>Allow mentors and mentees to use their personal e-mail if they have one. Otherwise, Gaggle.Net could be provided.</td>
<td>No. However, in January, 2007 students and mentors were shown how to direct Gaggle.Net messages to their personal e-mail accounts.</td>
<td>Gaggle.Net provides a safety feature for both mentors and mentees. It also provides monitoring features for the teacher, coach, or administrator.</td>
</tr>
<tr>
<td><strong>Researcher – Review Gaggle.Net log</strong></td>
<td>Some participants not e-mailing two times per week as program requires.</td>
<td>Researcher provided additional coaching, e-mailing and phone calls to mentors and mentees.</td>
<td>Ongoing</td>
<td>Regular e-mailing is key to ensuring the relationship develops. Project coordinator must be a coach and “jovial nag.”</td>
</tr>
<tr>
<td><strong>Mentees – Online survey</strong></td>
<td>Mentors are older than the students expected. Some students feel they can’t relate.</td>
<td>Younger mentors are needed.</td>
<td>No</td>
<td>Consider trying online mentoring with an age group of mentors who are 20 – 30 years of age.</td>
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<tr>
<td><strong>Mentees</strong> – Online survey, focus group</td>
<td>Some mentors did not write to their mentees as often as required by the program.</td>
<td>Coaching sessions with mentors to encourage sending two messages per week. Mentors reminded to tell students when they would be going out of town. Mentees were reminded that the mentors could not necessarily respond as quickly as the mentees would like.</td>
<td>Ongoing.</td>
<td>Make sure mentors are committed up front. Be sure they know what they are committing to do. Part of the training should include knowing to access Gaggle.Net from out-of-town and if it is impossible to communicate with the student for a period of time, to be sure and let the mentee know why. Mentees need additional training to remind them that in this instant messaging and text messaging world, e-mailing is a little slower.</td>
</tr>
<tr>
<td><strong>Researcher</strong> – Involvement data</td>
<td>Many of the participants wondered what their mentor or mentee looked like. They felt knowing this would improve the mentoring relationship.</td>
<td>Meet the mentor before or during the program.</td>
<td>No</td>
<td>Consider having the students and mentors meet before the program begins in order to see if it makes a difference in the development of the relationship.</td>
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<tr>
<td>Mentors – Online survey</td>
<td>If smiley faces and graphics could be added to the e-mail messages, perhaps the students would respond in a positive manner.</td>
<td>Included a list of emoticons on the mentor Web site. Mentors were reminded to try some of the emoticons.</td>
<td>October, 2006 January, 2007. Coached the mentors to try some of the emoticons in their e-mail messages. No graphics introduced.</td>
<td>Include this in the training session. Provide a practice opportunity. Attachments are allowed in Gaggle.Net. However, sometimes they were due to the district firewall.</td>
</tr>
<tr>
<td>Mentors– Online survey, focus group</td>
<td>Did not have a complete understanding of who their mentees were and what life problems they were facing.</td>
<td>First three discussion starters allowed students and mentors to share information about themselves. Researcher provided specific questions to discuss.</td>
<td>October, 2006.</td>
<td>Include a bio sheet as a part of the mentee application packet to include information, strengths, weaknesses that the students have so that the mentors would know a little bit more about the student up-front. Make sure the mentees sign a release to provide this information to their mentor.</td>
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<tr>
<td><strong>Mentors</strong> – Focus group</td>
<td>Mentors did not have a clear understanding about the GED tests that the mentees would be taking.</td>
<td>Provided Web sites with information about the GED tests for the mentors to review.</td>
<td>January, 2007</td>
<td>During the initial training, allow mentors to take a practice GED tests so they have some idea of what it is all about.</td>
</tr>
<tr>
<td><strong>Mentors</strong> – Online survey</td>
<td>Some of the mentors never established a relationship with their mentee.</td>
<td>Mentors requested more than one mentee.</td>
<td>No</td>
<td>Most mentors felt they could handle more than one – perhaps make this option available next time.</td>
</tr>
<tr>
<td><strong>Mentees</strong> – Online survey, focus group</td>
<td>Blogs did not work most of the time.</td>
<td>Tried several times during the course of the study. Due to the volatile nature of the school district servers, the blog was up and down. In February 2007, the researcher decided not to continue pursuing it as part of this program.</td>
<td>Yes and No</td>
<td>Blogs would be a great way to develop the community relationship. Find a blog that will work! Seek other community building options such as weekly or monthly meetings or conference calls.</td>
</tr>
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<tr>
<td><strong>Mentees– Online Survey</strong></td>
<td>Concern about the safety of the program and e-mailing a stranger.</td>
<td>Coaching was ongoing via e-mail and face-to-face conversations with the students to help assure them. Reminded them to communicate with the researcher or teacher if an issue developed.</td>
<td>Ongoing.</td>
<td>Send additional e-mails to those concerned. In this study, all mentors were school district partners-in-education which provided a background check. Gaggle.Net allowed the researcher to read all e-mails from participants.</td>
</tr>
<tr>
<td><strong>Mentees– Online survey, focus group</strong></td>
<td>Mentees wanted to talk with other mentees who were participating in the program.</td>
<td>Researcher met with each group of students once per month.</td>
<td>December, 2006 until the program was complete.</td>
<td>Utilized for community building for students who really enjoyed being together and talking about their mentors. Maybe conduct these sessions every 2 – 3 weeks. Search for other ways to build community – via blogs, conference calls, and website.</td>
</tr>
<tr>
<td><strong>Mentee– Online survey, focus group</strong></td>
<td>One of the teachers was not enthusiastic about the program.</td>
<td>Sent all the teachers notes, books about mentoring; made personal visits and phone calls.</td>
<td>Ongoing.</td>
<td>Teachers must be a willing participant and interested in the program’s success.</td>
</tr>
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</tr>
<tr>
<td>Mentors – Focus group</td>
<td>Mentors would like to be able to communicate with the mentees’ teachers.</td>
<td>With the instructors’ permission, provided their e-mail addresses the mentors.</td>
<td>December, 2006</td>
<td>Connect teachers and mentors at the beginning. Have a meeting where the teachers and mentors can meet.</td>
</tr>
<tr>
<td>Mentors – Online survey</td>
<td>Mentees have no accountability for reading and replying to their e-mails.</td>
<td>Researcher sent messages to students and teachers.</td>
<td>Ongoing.</td>
<td>Implement check sheet at the beginning of the study.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>November, 2006 until finish, Teachers reminded January, 2007 Implemented check sheet in classroom</td>
<td>Ask the teacher to require it as part of the classroom grade/activity. Mentee needs to be committed – but sometimes just need to be reminded.</td>
</tr>
<tr>
<td>Mentors – Focus group</td>
<td>Some of the relationships were only just beginning when the program was ending.</td>
<td>Program needs to be longer.</td>
<td>No. Allowed those who wanted to continue to do so.</td>
<td>Since establishing a relationship online takes time, perhaps the program should be a minimum of one year in length</td>
</tr>
</tbody>
</table>

Appendix E (Continued)
*Appendix E (Continued)*

<table>
<thead>
<tr>
<th>Source</th>
<th>Problem</th>
<th>Design Revision Idea</th>
<th>Implemented? When?</th>
<th>Recommendation for Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentors – Online survey, focus group</td>
<td>Many of the participants wondered what their mentor or mentee looked like. They felt knowing this would help the mentoring relationship happen quicker.</td>
<td>Some mentors wanted to meet their mentees prior to beginning the program.</td>
<td>No.</td>
<td>Might want to consider having the students and mentors meet before the program begins in order to see if it makes a difference in the development of the relationship.</td>
</tr>
<tr>
<td>Mentors – Online survey</td>
<td>Some mentors wanted a face-to-face training in addition to or instead of the online training</td>
<td>Additional training options.</td>
<td>No.</td>
<td>Provide options for training including face-to-face training. Use web cams for those who are unavailable yet still want the more direct training.</td>
</tr>
<tr>
<td>Mentors – Online Survey</td>
<td>Mentors need to be thanked for participating in the program</td>
<td>Thank you cards, certificates, and pins were sent to the mentors.</td>
<td>Yes.</td>
<td>Offer a free tuition voucher for a class at the technical center as another thank-you.</td>
</tr>
<tr>
<td>Checklist for E-Mentoring Program</td>
<td>Anticipated Date</td>
<td>Comments</td>
<td></td>
<td></td>
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<tr>
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<tr>
<td><strong>Planning</strong></td>
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<tr>
<td><strong>Managing Expectations</strong></td>
<td></td>
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<tr>
<td>Statement of Purpose</td>
<td>June, 2005</td>
<td></td>
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<tr>
<td>Goals of Program</td>
<td>June, 2005</td>
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<tr>
<td>Resource Development</td>
<td>June, 2005</td>
<td></td>
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<tr>
<td>Staffing</td>
<td>June, 2005, June – September, 2006 Volunteers</td>
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<tr>
<td>Technology Implementation</td>
<td>April, 2006</td>
<td>Pilot</td>
<td></td>
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<tr>
<td>Communications system</td>
<td>July – September, 2006</td>
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<td></td>
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<tr>
<td>Safety and security issues addressed</td>
<td>April – September, 2006</td>
<td></td>
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<tr>
<td>Technology requirements</td>
<td>April – September, 2006</td>
<td></td>
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<tr>
<td>Policies regarding privacy and security</td>
<td>April – September, 2006</td>
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<tr>
<td>Method for archiving e-mails</td>
<td>April – September, 2006</td>
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<tr>
<td>Safety Measures for Students and Mentors</td>
<td>July – September, 2006</td>
<td></td>
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<tr>
<td>Adherence to rules and laws that apply</td>
<td>July – September, 2006</td>
<td></td>
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<tr>
<td>Establishment of guidelines and permissions</td>
<td>July – September, 2006</td>
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<tr>
<td>Background checks of mentors</td>
<td>July – September, 2006</td>
<td></td>
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<tr>
<td>Confidentiality of program participants’ personal info</td>
<td>July – September, 2006 On Application</td>
<td></td>
<td></td>
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<tr>
<td>Regular oversight of program participants</td>
<td>July – September, 2006</td>
<td></td>
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<tr>
<td>Process for addressing concerns as they develop</td>
<td>July – September, 2006</td>
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<tr>
<td><strong>Recruiting</strong></td>
<td></td>
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<tr>
<td>Strategies that reflect accurate expectations and benefits</td>
<td>March – September, 2006 On application, during training</td>
<td></td>
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<tr>
<td>Marketing</td>
<td>March – September, 2006 On application, during training</td>
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<tr>
<td>Topic</td>
<td>Time</td>
<td>Location</td>
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<td>----------------------------------------------------------------------</td>
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<tr>
<td>Basis in program statement of purpose</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
<td></td>
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<tr>
<td>Program overview including mission and goals</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectations and restrictions</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
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</tr>
<tr>
<td>Descriptions of eligibility and screening process</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
<td></td>
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<tr>
<td>Description of how technology works</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
<td></td>
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<tr>
<td>Level of commitment expected</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
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<tr>
<td>Benefits and rewards</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
<td></td>
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<tr>
<td>Summary of program policies including privacy</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety and security when using Internet</td>
<td>March – September, 2006</td>
<td>On application, during training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orientation Program for Mentees</td>
<td>August, 2006</td>
<td>In person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program overview including mission and goals</td>
<td>September, 2006</td>
<td>In person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectations and restrictions</td>
<td>September, 2006</td>
<td>In person</td>
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<tr>
<td>Descriptions of eligibility and screening process</td>
<td>September, 2006</td>
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<tr>
<td>Description of how technology works</td>
<td>September, 2006</td>
<td>In person</td>
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<tr>
<td>Level of commitment expected</td>
<td>September, 2006</td>
<td>In person</td>
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<tr>
<td>Benefits and rewards</td>
<td>September, 2006</td>
<td>In person</td>
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<tr>
<td>Summary of program policies including privacy</td>
<td>September, 2006</td>
<td>In person</td>
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<tr>
<td>Safety and security when using Internet</td>
<td>September, 2006</td>
<td>In person</td>
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<tr>
<td><strong>Matching</strong></td>
<td></td>
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<tr>
<td>Application process and review</td>
<td>September, 2006</td>
<td>School district volunteer application</td>
<td></td>
<td></td>
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<tr>
<td>Reference checks for mentors (school district volunteer )</td>
<td>May – August, 2006</td>
<td>During training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to and experience with technology</td>
<td>August, 2006</td>
<td>Random</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matching of Mentors and Mentees</td>
<td>August – September, 2006</td>
<td>Random</td>
<td></td>
<td></td>
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<tr>
<td><strong>Continual assessment of planning phase</strong></td>
<td></td>
<td>Ongoing</td>
<td></td>
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</tr>
</tbody>
</table>
Appendix F (Continued)

Program Structure

Training Curriculum
- Orientation to the program and available resources: August – October, 2006, Online
- Completion of online training program: August – October, 2006, Online
- Skills and competency development for communications: August – October, 2006, Online
- GED XO Program Goals: August – October, 2006, Online
- Adolescent behavior training: August – October, 2006, Online
- Guidelines on how to get the most out of relationship: August – October, 2006, Online
- Do's and Don'ts: August – October, 2006, Online
- Job and role descriptions: August – October, 2006, Online
- Crisis management and problem solving resources: August – October, 2006, Online
- Support materials and ongoing sessions: August – October, 2006, Online
- Suggestions on how to get started: August – October, 2006, Online

Coaching/Facilitating
- Consistent and regular communication with coach: October, 2006 until end of program, Ongoing
- Tracking system for ongoing assessment: October, 2006 until end of program, Ongoing
- Written records: October, 2006 until end of program, Ongoing
- Input from participants: October, 2006 until end of program, Ongoing
- Ongoing training and development – Web sites: October, 2006 until end of program, Ongoing

Community Building
- Electronic Discussion Lists: October, 2006 until end of program, Ongoing
- Chat Rooms: October, 2006 until end of program, Ongoing
- Blogs: October, 2006 until end of program, Ongoing

Ongoing assessment of program structure phase: Ongoing
Appendix F (Continued)

**Assessment**

**Involvement**
Participants are complying with program guidelines
October, 2006 until end of program Ongoing

**Formative**
Surveys, focus groups, chat room discussions throughout program
Design changes as program progresses
October, 2006 until end of program Ongoing

**Summative**
Outcomes at end of program
GED pass rate March – April, 2007 Test Results
Attendance measures March, 2007 Attendance Registers
Self-esteem October 2006 and April, 2007 Rosenberg Self-Esteem Scale
Career Indecision October 2006 and April, 2007 Career Decision Scale
Implications for design changes of the program October 2006 through March, 2007 Ongoing
Appendix G

Mentor Application Form

<table>
<thead>
<tr>
<th>Applicant’s Name</th>
</tr>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Work Address</th>
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<table>
<thead>
<tr>
<th>Home Address</th>
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<td></td>
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<table>
<thead>
<tr>
<th>Home Phone</th>
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<tbody>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Work Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Cell Phone</th>
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<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Fax Number</th>
</tr>
</thead>
<tbody>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>E-Mail Address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Why have you decided to apply to become an e-mentor?

I understand that while serving as an e-mentor, I will:

- Become an Orange County Public School’s ADDition volunteer. By doing so, I agree to a background check and to abide by the rules and regulations of the school system volunteer program.

- Make a six month commitment to the e-mentoring program.

- Complete the online training session.

- Engage in the mentoring relationships with an open mind.

- Keep discussions with my mentees confidential (except where youth’s safety or well-being is at-risk).

- Ask for help when needed.

- Accept guidance from the program coordinator or the mentees’ teacher.

- Notify the program coordinator if I am having difficulty in the mentoring relationship.

- Notify the program coordinator of any changes in my employment, address, telephone number, or e-mail address, or any event that may call into question my
suitability to be a mentor including any arrest or conviction, moving violation, or allegation of child abuse or mistreatment.

- Refrain from communicating with the mentee outside of the established parameters of the program.

- Participate in online evaluation surveys during the course of the e-mentoring program.

- Participate in two focus groups during the course of the e-mentoring program.

- Notify in person or in writing to the program coordinator of your desire to end the relationship with the mentees.

Signature and Date _________________________
Appendix H

Mentee Application Form

<table>
<thead>
<tr>
<th>Student’s Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Address</td>
<td></td>
</tr>
<tr>
<td>Work Address</td>
<td></td>
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<tr>
<td>Home Phone</td>
<td></td>
</tr>
<tr>
<td>Work Phone</td>
<td></td>
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<tr>
<td>Cell Phone</td>
<td></td>
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</tbody>
</table>

1. What special interests do you have that you would want to share with your mentor?
2. What are your future education plans?
2. What are your future career plans?

I understand while participating in the e-mentoring program, I will:

- Make a six month commitment to the e-mentoring program.
- Complete the online training session.
- Engage in the relationships with an open mind.
- Ask for help when needed.
- Accept guidance from the program coordinator or the teacher.
- Notify the program coordinator or teacher if I am having difficulty in the mentoring relationship.
- Refrain from communicating with the mentor outside of the established parameters of the program.
- Participate in online evaluation surveys during the course of the e-mentoring program.
- Participate in two focus groups during the course of the e-mentoring program.
- Notify in person or in writing of your desire to end the relationship with the mentor.

Signature of Student ________________________ Date __________________

Signature of Parent ________________________ Date __________________
Appendix I
Informed Consent for an Adult

Social and Behavioral Sciences
University of South Florida

Information for People Who Take Part in Research Studies

Researchers at the University of South Florida (USF) study many topics. We want to learn more
about e-mentoring. To do this, we need the help of people who agree to take part in a research
study.

Title of research study:  Determining the Quality and Impact of An E-Mentoring Model on At-
Risk Youth

Person in charge of study:  Diane Culpepper

Study staff who can act on behalf of the person in charge:  Classroom instructors and
district personnel

Where the study will be done:  In the GED Exit Option classrooms at

Should you take part in this study?

This form tells you about this research study. You can decide if you want to take part in it. You
do not have to take part. Reading this form can help you decide.

Before you decide:

- Read this form.
- Talk about this study with the person in charge of the study or the person explaining the
  study. You can have someone with you when you talk about the study.
- Find out what the study is about.

You can ask questions:

- You may have questions this form does not answer. If you do, ask the person in charge
  of the study or study staff as you go along.
- You don't have to guess at things you don't understand. Ask the people doing the study
to explain things in a way you can understand.

After you read this form, you can:

- Take your time to think about it.
- Have a friend or family member read it.
- Talk it over with someone you trust.

It's up to you. If you choose to be in the study, then you can sign the form. If you do not want
to take part in this study, do not sign the form.

Why is this research being done?

IRB Form: IGadult-SBv17
The purpose of this study is to learn more about e-mentoring and how an e-mentoring program works. E-mentoring is short for electronic mentoring. It can also be called online mentoring because the main way the mentors and mentees communicate is by using e-mail. The study will also focus on the impact e-mentoring has on academic achievement, attendance, self-esteem, and career decision of students enrolled in the GED Exit Option program.

Why are you being asked to take part?
We are asking you to take part in this study because you are enrolled in the GED Exit Option program and we want to know if e-mentoring can help students be more successful while enrolled in the program and after graduation.

How long will you be asked to stay in the study?
You will be asked to spend about six months in this study. The study will begin about the time school starts (August, 2006) and end when you take the GED exam in March, 2007.

How much time will it take each week to participate in the study?
You will randomly be assigned a mentor from a list of pre-approved mentors. Each mentor's name will be drawn from a hat and assigned to a student who is interested in participating in the program.

The students who participate will be asked to:

- Complete an online training component so they will understand what it means to have a mentor. The training component will also provide the students with the opportunity to learn about e-mentoring and what will be expected of them as mentees. The training component was created by the National Mentoring Partnership and can be found at www.mentoring.org/e-mentee. The students will complete the training online in their classrooms and will have access to it anytime during the study. The training component will take approximately 2-3 hours to complete.

- E-mail their mentor at least two times per week.

- Participate in online discussion, blogs, and message boards with the researcher. This communication will provide an opportunity for the students to discuss any issues or concerns they may be having with the technology and will allow the researcher to learn more about how the e-mentoring program is working. In addition, the online discussion and blogs will provide a place for the students to discuss any concerns they may be having with their mentors.

- Complete online questionnaires three times during the study.

- Participate in two focus groups with other students during the study.

- Allow their attendance records, GED pre-test scores and GED test scores to be reviewed as part of this research study.

You will not meet with your mentor face-to-face during this study. They will however, be allowed to e-mail their mentors from school, home, the library, work, or any other location where they have access to a computer and e-mail.
It is anticipated that you will spend approximately 30 – 45 minutes per week participating in the project. Time will be available during class. However you may, if you choose, e-mail your mentors outside of class.

The online questionnaires and focus group questions will help the researcher improve the e-mentoring program. Questions about the technology being used, the training component, the discussions with the researcher, and the perceived impact of the program will be asked in order to make adjustments and improvements to the program. All the information will be kept confidential.

How many other people will take part?
About 160 students and 90 mentors will take part in this study at three technical centers that offer the GED Exit Option program.

What other choices do you have if you decide not to take part?
If you decide not to take part in this study, that is okay.

How do you get started?
If you decide to take part in this study, you will need to sign this consent form.

The next step will be for you to complete the online training component which will be completed during class. The component is available online at www.mentoring.org/e-mentee and you will have access to anytime throughout the study via the Internet.

What will happen during this study?
You will be assigned a mentor from the business community. The mentors are adults who will have completed an Orange County Public School ADDitions volunteer application and screened through the Orange County Public School process. This screening process requires that the mentor, who is a volunteer, sign a statement agreeing to abide by all school board rules, regulations and policies, either published or in effect by usage and all rules, regulations and laws of the State of Florida as may be required by Florida Statutes, Florida State Board of Education, and the School Board of Orange County Florida. It is the policy of Orange County Public Schools to conduct criminal history background checks for individuals who participate in volunteer activities. Additionally, as an applicant to become an ADDitions school volunteer, he or she may be randomly selected to submit to be fingerprinted by Orange County Public Schools.

You will be assigned an e-mail account as will your mentor. The e-mail messages sent by both the students and mentors will be archived and can be accessed by the researcher as part of the study. This is a security feature of the program.

During the course of the study, your attendance records, GED pre-test scores and GED test scores will be reviewed as part of the research.

During the study, you will be asked to e-mail your mentor at least two times each week. In addition, participation in the focus groups and completing the online questionnaires will be required.
Here is what you will need to do during this study:
E-mail your mentor two times each week
Complete the online questionnaires
Participate in the focus groups

Will you be paid for taking part in this study?
We will not pay you for the time you volunteer in this study. However, at the end of the study, a celebration will take place and you will have a chance to meet your mentor.

What will it cost you to take part in this study?
It will not cost you anything to take part in the study.

What are the potential benefits if you take part in this study?
We don't know if you will get any benefits by taking part in this study. As a result of conducting the study, we do hope that we will gain further knowledge about how an e-mentoring program works and whether or not e-mentoring will have an impact on students' academic achievement, school attendance, self-esteem, and career decision.

What are the risks if you take part in this study?
There are no known risks to those who take part in this study.

What will we do to keep your study records private?
Federal law requires us to keep your study records private.
However, certain people may need to see your study records. By law, anyone who looks at your records must keep them confidential. The only people who will be allowed to see these records are:
- The study staff.
- People who make sure that we are doing the study in the right way. They also make sure that we protect your rights and safety:
  - The USF Institutional Review Board (IRB) and its staff, and any other individuals acting on behalf of the University of South Florida
  - The United States Department of Health and Human Services (DHHS)

We may publish what we find out from this study. If we do, we will not use your name or anything else that would let people know who you are.
While we cannot ensure absolute confidentiality during the focus group sessions, we will specify to you and to the students participating in the group sessions, to keep what is said during that time within the group and that it is not to be discussed with others outside of the group setting.

What happens if you decide not to take part in this study?
You should only take part in this study if you want to take part.
If you decide not to take part:
- You won’t be in trouble or lose any rights you normally have.
- You will still get the same services you would normally have.
Your decision to take part in this study (or not take part in this study) will in no way affect your status at school.

What if you join the study and then later decide you want to stop?
If you decide you want to stop taking part in the study, tell the study staff as soon as you can.

You can get the answers to your questions.
If you have any questions about this study, call Diane Culpepper at 407-622-2915.
If you have questions about your rights as a person who is taking part in a study, call USF Research Compliance at (813) 974-5638.
Consent to Take Part in this Research Study

It's up to you. You can decide if you want to take part in this study.

I freely give my consent to take part in this study. I understand that this is research. I have received a copy of this consent form.

Signature of Person taking part in study  Printed Name of Person taking part in study  Date

Statement of Person Obtaining Informed Consent

I have carefully explained to the person taking part in the study what he or she can expect.

The person who is giving consent to take part in this study

- Understands the language that is used.
- Reads well enough to understand this form. Or is able to hear and understand when the form is read to him or her.
- Does not have any problems that could make it hard to understand what it means to take part in this study.
- Is not taking drugs that make it hard to understand what is being explained.

To the best of my knowledge, when this person signs this form, he or she understands:

- What the study is about.
- What needs to be done.
- What the potential benefits might be.
- What the known risks might be.
- That taking part in the study is voluntary.

Signature of Investigator or authorized research investigator designated by the Principal Investigator  Printed Name of Investigator  Date
Appendix J
Parental Informed Consent

Parental Informed Consent
Social and Behavioral Sciences
University of South Florida

Information for Parents
Who are being asked to allow their child to take part in a research study

Researchers at the University of South Florida (USF) study many topics. (We want to learn more about e-mentoring). To do this, we need the help of people who agree to take part in a research study.

Title of research study: Determining the Quality and Impact of An E-Mentoring Model on At-Risk Youth

Person in charge of study: Diane Culpepper

Study staff who can act on behalf of the person in charge: Classroom instructors, district personnel

Where the study will be done: In the GED Exit Option classrooms at [redacted]

Should your child take part in this study?
This form tells you about this research study. You can decide if you want your child to take part in it. They do not have to take part. Reading this form can help you decide.

Before you decide:
- Read this form.
- Talk about this study with the person in charge of the study or the person explaining the study.
- You can have someone with you when you talk about the study. Find out what the study is about.

You can ask questions:
- You may have questions this form does not answer. If you do, ask the person in charge of the study or study staff as you go along.
- You don’t have to guess at things you don’t understand. Ask the people doing the study to explain things in a way you can understand.

After you read this form, you can:
- Take your time to think about it.
- Have a friend or family member read it.
- Talk it over with someone you trust.

It’s up to you. If you choose to let your child be in the study, then you can sign the form. If you

IRB Form: ICparent-SBv17
do not want your child to take part in this study, do not sign the form.

Why is this research being done?
The purpose of this research study is to learn more about e-mentoring and how an e-mentoring program works. E-mentoring is short for electronic mentoring. It can also be called online mentoring because the main way that the mentors and mentees communicate is by using e-mail. The study will also focus on the impact e-mentoring has on academic achievement, attendance, self-esteem, and career decision of students enrolled in the GED Exit Option program.

Why is your child being asked to take part?
We are asking your child to take part in this study because we want to know if e-mentoring can help students be more successful while enrolled in the GED Exit Option program and beyond.

How long will your child be asked to stay in the study?
Your child will be asked to spend about six months in this study. The study will begin about the time school starts (August, 2006) and end when they take the GED exam in March, 2007.

How much time will it take each week to participate in the study?
Students will randomly be assigned a mentor from a list of pre-approved mentors. Each mentor's name will be drawn from a hat and assigned to a student who is interested in participating in the program.
The students who participate will be asked to:
- Complete an online training component so they will understand what it means to have a mentor. The training component will also provide the students with the opportunity to learn about e-mentoring and what will be expected of them as mentees. The training component was created by the National Mentoring Partnership and can be found at www.mentoring.org/e-mentee. The students will complete the training online in their classrooms and will have access to it anytime during the study. The training component will take approximately 2-3 hours to complete.
- E-mail their mentor at least two times per week.
- Participate in online discussion, blogs, and message boards with the researcher. This communication will provide an opportunity for the students to discuss any issues or concerns they may be having with the technology and will allow the researcher to learn more about how the e-mentoring program is working. In addition, the online discussion and blogs will provide a place for the students to discuss any concerns they may be having with their mentors.
- Complete online questionnaires three times during the study.
- Participate in two focus groups with other students during the study.
• Allow their attendance records, GED pre-test scores and GED test scores to be reviewed as part of this research study.

The students will not meet with their mentor face-to-face during this study. They will however, be allowed to e-mail their mentors from school, home, the library, work, or any other location where they have access to a computer and e-mail.

It is anticipated that the students will spend approximately 30 – 45 minutes per week participating in the project. Time will be available during class. However, the students may, if they choose, to e-mail their mentors outside of class.

The online questionnaires and focus group questions will help the researcher improve the e-mentoring program. Questions about the technology being used, the training component, the discussions with the researcher, and the perceived impact of the program will be asked in order to make adjustments and improvements to the program. All the information will be kept confidential.

**How many other people will take part?**

About 180 students and 90 mentors will take part in this study at three technical centers that offer the GED Exit Option program.

**What other choices do you have if you decide not let your child to take part?**

If you decide not to let your child take part in this study, that is okay.

**How do you get started?**

If you decide to let your child take part in this study, you will need to sign this consent form. The next step will be for your child to complete the online training component which will be completed during class. The component is available online at [www.mentoring.org/e-mentee](http://www.mentoring.org/e-mentee) and you will have access to it if you would like to review it.

**What will happen during this study?**

Your student will be assigned a mentor from the business community. The mentors are adults who will have completed an Orange County Public School ADDitions volunteer application and screened through the Orange County Public School process. This screening process requires that the mentor, who is a volunteer, sign a statement agreeing to abide by all school board rules, regulations and policies, either published or in effect by usage and all rules, regulations and laws of the State of Florida as may be required by Florida Statutes, Florida State Board of Education, and the School Board of Orange County Florida. It is the policy of Orange County Public Schools to conduct criminal history background checks for individuals who participate in volunteer activities. Additionally, as an applicant to become an ADDitions school volunteer, he or she may be randomly selected to be fingerprinted by Orange County Public Schools.
Your child will be assigned an e-mail account as will the mentor. The e-mail messages sent by both the students and mentors will be archived and can be accessed by the researcher as part of the study. This is a security feature of the program.

During the course of the study, the student’s attendance records, GED pre-test scores and GED test scores will be reviewed as part of the research.

During the study, your child will be asked to e-mail his or her mentor at least two times each week. In addition, participation in the focus groups and completing the online questionnaires will be required.

Here is what your child will need to do during this study:
- E-mail his or her mentor two times each week
- Complete the online questionnaires
- Participate in the focus groups

Will you or your child be paid for taking part in this study?

We are not able to pay you or your child for the time your child volunteers in this study. However, at the end of the study, a celebration will take place and your child will have a chance to meet his/her mentor.

What will it cost you to let your child take part in this study?

It will not cost you anything to take part in the study.

What are the potential benefits to your child if you let him/her take part in this study?

We don’t know if your child will get any benefits by taking part in this study. As a result of conducting this study, we do hope that we will gain further knowledge about how an e-mentoring program works and whether or not e-mentoring will have an impact on students’ academic achievement, school attendance, self-esteem, and career decision.

What are the risks if your child takes part in this study?

There are no known risks to those who take part in this study.

What will we do to keep your child’s study records from being seen by others?

Federal law requires us to keep your child’s study records private.

However, certain people may need to see your child’s study records. By law, anyone who looks at your child’s records must keep them confidential. The only people who will be allowed to see
these records are:

- The study staff.
- People who make sure that we are doing the study in the right way. They also make
  sure that we protect your rights and safety:
  - The USF Institutional Review Board (IRB) and its staff, and any other individuals
    acting on behalf of the University of South Florida.
  - The United States Department of Health and Human Services (DHHS)
- We may publish what we find out from this study. If we do, we will not use your name or
  anything else that would let people know who you are.
- While we cannot ensure absolute confidentiality within the focus group setting, we will
  specify to you and the other students participating in the group session, to keep what is
  said during that time within the group and not discussed with others outside the group
  setting.

What happens if you decide not to let your child take part in this study?
You should only let your child take part in this study if both of you want to take part.

If you decide not to let your child take part:
- You and your child won't be in trouble or lose any rights either of you normally have.
- You and your child will still get the same services you would normally have.
Your decision to allow your child to take part in this study (or not to take part in this study) will in
no way affect his/her status at school.

What if you let your child join the study and then later decide you want to stop?
If you decide you want to stop taking part in the study, tell the study staff as soon as you can.

You can get the answers to your questions.
If you have any questions about this study, call Diane Culpepper at 407-622-2915
If you have questions about your rights as a person who is taking part in a study, call USF
Research Compliance at (813) 974-5638.
Consent for Child to Take Part in this Research Study

It's up to you. You can decide if you want to your child take part in this study.
I freely give my consent to let my child take part in this study. I understand that this is research. I have received a copy of this consent form.

Signature of Parent of child taking part in study

Printed Name of Parent

Date

Statement of Person Obtaining Informed Consent

I have carefully explained to the person taking part in the study what he or she can expect.

The person who is giving consent to take part in this study

- Understands the language that is used.
- Reads well enough to understand this form. Or is able to hear and understand when the form is read to him or her.
- Does not have any problems that could make it hard to understand what it means to take part in this study.
- Is not taking drugs that make it hard to understand what is being explained.

To the best of my knowledge, when this person signs this form, he or she understands:

- What the study is about.
- What needs to be done.
- What the potential benefits might be.
- What the known risks might be.
- That taking part in the study is voluntary.

Signature of Investigator

Or authorized research investigator designated by the Principal Investigator

Printed Name of Investigator

Date

Signature of Witness

Printed Name of Witness

Date
Appendix K
Assent to Participate in Research

Assent to Participate in Research
University of South Florida
Information for Individuals under the Age of 18 Who Are Being Asked To Take Part in Research Studies

Determining the Quality and impact of An E-Mentoring Model on At-Risk Youth

WHY AM I BEING ASKED TO TAKE PART IN THIS RESEARCH?
You are being asked to take part in a research study about E-mentoring. E-mentoring is short for Electronic Mentoring. It can also be called Online Mentoring because the main way the mentors and mentees communicate is by using e-mail. If you take part in this study, you will be one of about 180 students and 90 mentors included in this study.

WHO IS DOING THE STUDY?
The person in charge of this study is Diane Culpepper (PI) of the University of South Florida. She is being guided in this research by Dr. William Blank.

WHAT IS THE PURPOSE OF THIS STUDY?
By doing this study, we hope to learn more about e-mentoring and how an e-mentoring program works. The study will also focus on the impact e-mentoring might have on students’ academic achievement, attendance, self-esteem, and career decision.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?
The study will be take place at your school. You will be asked to e-mail your mentor at for approximately six months during the study. You will also be asked to complete a training component (online) and answer questions about the mentoring model several times during the study. The total amount of time you will be asked to volunteer for this study is 30 – 45 minutes per week over the next six months.

The online training component will help you understand what it means to have a mentor. It will also help you learn about e-mentoring and what will be expected of you as a mentee. The training component was created by the National Mentoring Partnership and can be found at www.mentoring.org/e-mentee. You will complete the training in your classroom and you will have access to it anytime during the study. The training component will take approximately 2-3 hours to complete.

With your permission, your school records including attendance records, GED pre-test scores, and GED test scores will be reviewed as part of this study.
Two times during the study you will be asked to participate in a focus group with other students and asked questions about how you think the e-mentoring program is working. Each focus group session will be held on your campus and will last a maximum of one hour.

WHAT WILL I BE ASKED TO DO?

The first thing you will be asked to do is to complete an online training component so you will learn what it means to have a mentor. This training will be done in your classroom at school during class time. Your instructor and the researcher will be available to help you. This online component will be available via the Internet at www.mentoring.org/e-mentee so that you can review it at home and show your parents or guardian if you like.

Next, you will be randomly assigned a mentor from a list of pre-approved mentors. Each mentor’s name will be drawn from a hat and assigned to a student who is interested in participating. Once this takes place, you and your mentor will be asked to e-mail each other at least two times per week. You may e-mail from school, home, the library, work, or anywhere that you have access to a computer.

Three times during the study you will be asked to answer questions about the e-mentoring program and how you think it is working. These questions will be available online and you will be able to answer them during class time.

Two times during the study you will be asked to participate in a focus group with other students and asked questions about how you think the e-mentoring program is working. Each focus group session will be held on your campus and will last a maximum of one hour.

WHAT THINGS MIGHT HAPPEN THAT ARE NOT PLEASANT?

To the best of our knowledge, the things you will be doing will not harm you or cause you any additional unpleasant experience.

WILL SOMETHING GOOD HAPPEN IF I TAKE PART IN THIS STUDY?

We cannot promise you that anything good will happen if you decide to take part in this study.

DO I HAVE TO TAKE PART IN THE STUDY?

You should talk with your parents or anyone else that you trust about taking part in this study. If you do not want to take part in the study, that is your decision. You should take part in this study because you really want to volunteer.

IF I DON’T WANT TO TAKE PART IN THE STUDY, WHAT WILL HAPPEN?

If you do not want to be in the study, nothing else will happen. Your decision to take part in this study (or not to take part in this study) will in no way affect your status at school.
WILL I RECEIVE ANY REWARDS FOR TAKING PART IN THE STUDY?

You will not receive any reward for taking part in this study. However, at the end of the study, a celebration will take place and you will have a chance to meet your mentor.

WHO WILL SEE THE INFORMATION I GIVE?

Your information will be added to the information from other people taking part in the study so no one will know who you are.

While we cannot ensure absolute confidentiality during the focus group sessions, we will specify to you and to the students participating in the group sessions, to keep what is said during that time within the group and that it is not to be discussed with others outside of the group setting.

CAN I CHANGE MY MIND AND QUIT?

If you decide to take part in the study you still have the right to change your mind later. No one will think badly of you if you decide to quit.
Appendix L

Discussion Starters

<table>
<thead>
<tr>
<th>Week</th>
<th>Discussion Starters</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Now that you have been assigned a mentee, it is time to think through your first message. What are some things you could tell your mentee that would help you get to know each other a little bit? What about you and your life story might be interesting to your mentee? Ask some questions but be careful not to pry. As the trust builds, so will the relationship. Ask questions that your mentee cannot answer with a yes or a no.</td>
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<tr>
<td>2</td>
<td>Ask your mentee’s opinion about one or all of these topics. The students may want to know your opinion as well! Remember, don’t pass judgment… your mentee will feel good knowing that an adult cares enough to ask his or her opinion. Topics: The Future, Clothes, The Environment, Gossip, Heroes, Responsibility.</td>
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<tr>
<td>3</td>
<td>Compare your favorites! As your mentee for their favorite song, movie, TV show, color, season, movie star, car, game, sport to play, or sport to watch. Then share yours! See if you have any in common and discuss what they are!</td>
</tr>
<tr>
<td>4</td>
<td>Many of our students have school attendance issues. We certainly know that students who attend school regularly are more successful than those who do not. This week, talk to your student about school attendance. Find out how he or she is doing and if there is an attendance problem; see what you might be able to offer by way of advice. Perhaps you might want to relate how school attendance and work attendance are connected. Remember to be an encourager and not to pass judgment. Your role is to be a guide, a friend, a coach, a significant adult your student can trust. This relationship and trust takes some time to develop online. Be sure to communicate as often as possible. If your mentee is not communicating with you, please let me know so I can encourage him or her to do so.</td>
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<tr>
<td>5</td>
<td>This week, let’s focus on academics. Ask your mentees how they are doing in school – both in their GED prep classes and their technical classes. Some of the students go to work instead of taking a technical class. You might want to ask about a favorite subject and why it is a favorite. Or, you might want to ask about a difficult subject and offer some assistance. Most of the students will have taken some practice GED tests in the past week or two to see how they are doing in preparation for the GED Tests in March. Remember to offer encouragement, advice if they ask for it, and support.</td>
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<tr>
<td>6</td>
<td>Since Thursday is Thanksgiving, I thought our discussion starter this week might focus on being thankful. Ask your mentee what it means to be thankful. Find out if they have something they are thankful for that they would like to share. You might want to tell them about something that you are thankful for – perhaps thankful that you have a mentee!</td>
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</tbody>
</table>
This week, let’s focus on career decision making. Ask your mentees what they might like to do after high school. Find out what career interests or goals your mentees have set for themselves. Suggest they go to the Career Explorer Web site, take the interest inventory and share their results with you.

This week as we focus on self-esteem, talk about relationships. Ask your mentees who they consider to be role model for them. Ask them how they think your relationship is developing and what you might do to improve communication.

Remember, your mentees might be more interested in talking about clothes, football, parties, or shopping than about their future and accepting practical advice from you! Use this week to talk about something personal to them – their hobbies, what they do for fun, or their plans for winter break. Keep the conversation light and remember not to ask questions that can be answered with a yes or no!

This is the last week of school before the winter holidays. Please have a conversation with your mentee about whether or not you will be communicating during the two week break. Perhaps your mentee does not have access to a computer from home and if that is the case, you might not hear from him or her. Or, you might be planning to be out of town over the holidays. If that is the case, you will need to let your mentee know not to expect an e-mail until school resumes. Just be sure you are both clear on whether or not you will be able to touch base over the holiday time.

This week, let’s focus once again on attendance. Ask them to describe how they stay motivated to come to school every day. Share with them how you stay motivated to go to work each morning! Find out if you have any similarities or differences. Then, ask them how you might be able to make a difference for them so that they can stay on track to finish their GED Exit Option program.

Ask your mentees these questions, “What is your creative side like? Do you like art, music, drawing, fashion, or computer graphics?” Depending on their answers, you can discuss how special they are because of their creative talent! Share your creative side with them and see if you have any creativity in common.

This week, focus on the future. Continue your discussion from Week 7 to help them begin thinking about what comes next after they earn their GED. Ask them what they think their lives might be like in 3 years, 5 years, and 10 years. Share your own career development process with them.

Ask your mentee to describe their number one strength and number one weakness. This might be difficult for your mentee to come up with – so be ready to share yours as a way to spark the discussion. See if you can connect their strength to their being involved in the GED Exit Option program.
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<td>15</td>
<td>As the countdown begins for the actual GED Tests, you might want to have a discussion with the students about stress. Let them know that you know this will be a very stressful period for them and that you are there for them. You might want to generate a discussion about ways you cope with stress and how they might be able to apply one or more of the same techniques.</td>
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<td>16</td>
<td>Ask your mentees this question, “How do you study?” What works for you? What doesn’t work for you? Use their answers to discuss ideas and ways they may be able to more effectively study and prepare for the GED Tests. You might even want to review this Web site <a href="http://www.studyguidezone.com/gedtest.htm">http://www.studyguidezone.com/gedtest.htm</a> for ideas to share with your mentee.</td>
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<tr>
<td>17</td>
<td>Since self-esteem and confidence often seem to be linked, discuss with your mentees the importance of having confidence as they get ready to take the GED Tests. Ask them to describe a time when they really felt confident. Then, suggest they use that time to visualize how it is going to feel on testing day!</td>
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<tr>
<td>18</td>
<td>Some of the students will be taking the GED Tests this week. Encourage them, cheer them on, and tell them that you are pulling for them. Let this week’s discussion be all about them – as most are probably very worried and nervous about the upcoming test.</td>
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<tr>
<td>19</td>
<td>Now that all the students have taken the Exam, we often have trouble hanging on to them! They see themselves as finished and ready to fly! Part of the GED Exit Option program requirements include the students finishing the school year at the tech center. Tell them there are only two more months of school and you are certain they will make it to the end! Your encouraging words mean a lot to them.</td>
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<td>20</td>
<td>This is the last official week for the program. Ending the relationship is often more difficult than beginning it. You have three options at this point to discuss with your mentee. Option 1: You may both agree that the program is over and that this week will be the last week to communicate. Be sure to tell your mentees how much you enjoyed working with them and wish them luck for the future. Option 2: You may both agree to continue communicating via Gaggle.Net for as long as you like until the school year is over. Gaggle.Net will be available to you for that time period. Whenever you decide to stop communicating, be sure to have a discussion about that so your mentees don’t feel abandoned. Option 3: You might like to meet each other. If you both agree to this option, let me know and I will arrange for it to happen.</td>
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Appendix M
Mentor Survey 1

We would like your feedback about the mentoring program in which you are involved. This information will help us understand your perceptions of the program, the benefits to you and your mentee, and suggestions for improving it. All of the data reported on this survey will be kept anonymous.

Section A: Perceptions of the Effects of the Mentoring Relationship on the Mentee

We are interested in your perceptions of the impact on your mentee in the following areas that you think might result because of your mentoring relationship. Please check one response for each item using the following codes for your answers:

SA: Strongly Agree  A: Agree  N: Neither Agree or Disagree  D: Disagree  SD: Strongly Disagree

<table>
<thead>
<tr>
<th>Because of our relationship, I think my mentee will ...</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
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<tr>
<td><strong>Support</strong></td>
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<tr>
<td>1. feel like there are more adults who care about him/her.</td>
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<td>2. feel like there are more people who will help him/her.</td>
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<td><strong>Commitment to Learning</strong></td>
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<td>3. have a better attitude about school.</td>
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<td>4. have better school work and test scores.</td>
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<td>5. come to school better prepared (on time, homework done, etc.).</td>
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<td>6. have better classroom behavior (such as paying attention and not being disruptive).</td>
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<td>7. have better attendance in school.</td>
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<td><strong>Boundaries and Expectations</strong></td>
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<td>8. feel others see him/her as more responsible.</td>
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<td>9. feel s/he has a number of good qualities.</td>
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<td>10. have higher expectations of him/herself.</td>
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<td><strong>Empowerment</strong></td>
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<td>11. feel s/he has more future options.</td>
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<td>12. feel s/he is a more confident person.</td>
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<td>13. think s/he is a better person.</td>
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</tbody>
</table>
14. What do you think your mentee will gain or learn through your relationship?

15. What do you think you will gain or learn through your relationship?

**Section B: Perceptions of the Quality of the Mentoring Program**

We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
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<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
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<tr>
<td>16. The goals of the e-mentoring program were clearly stated.</td>
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<td>17. The goals of the e-mentoring program were easy to understand.</td>
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<td>18. The application was easy to complete.</td>
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<tr>
<td>19. If I had questions about completing the application, I knew who to ask for assistance.</td>
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<tr>
<td>20. When you asked questions about the program, they were answered to your satisfaction.</td>
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</tbody>
</table>

21. How did you learn about the e-mentoring program?

22. Why did you decide to become an e-mentor?

23. Are there any changes you would make to improve the program so far?

This survey was adapted with permission from *What’s Working? Tools for Evaluating Your Mentoring Program*, by Rebecca N. Saito, copyright @ 2001.
Appendix N
Mentee Survey 1

We would like your feedback about the e-mentoring program in which you are involved. This information will help us understand what you think of the program, how it might affect you, and what you think we can do to make it better. All of the information reported on this survey will be kept anonymous.

Section A: Perceptions of the Effects of the Mentoring Relationship on the Mentee

We are interested in how you think you might change, or not change, because of your mentoring relationship. Please check one response for each item using the following coes for your answers:

SA:  Strongly Agree  A:  Agree  N:  Neither Agree or Disagree
D:  Disagree  SD:  Strongly Disagree

<table>
<thead>
<tr>
<th>Because of my relationship with my mentor, I think I will...</th>
<th>SA</th>
<th>A</th>
<th>N</th>
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<th>SD</th>
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<tbody>
<tr>
<td><strong>Support</strong></td>
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<tr>
<td>1. feel like there are adults who care about me.</td>
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<tr>
<td>2. feel like there are people who will help me.</td>
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<tr>
<td><strong>Commitment to Learning</strong></td>
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<td>3. have a better attitude about school.</td>
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<td>4. have better school work and test scores.</td>
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<tr>
<td>5. come to school better prepared (on time, homework done, etc.).</td>
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<tr>
<td>6. have better classroom behavior (such as paying attention and not being disruptive).</td>
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<td>7. have better attendance in school.</td>
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<tr>
<td><strong>Boundaries and Expectations</strong></td>
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<tr>
<td>8. feel others will see me as more responsible.</td>
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<tr>
<td>9. feel that I have a number of good qualities.</td>
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</tbody>
</table>
10. have higher expectations of myself.

**Empowerment**
11. feel like I have more options for my future.
12. feel more confident in myself.
13. feel I am a better person.
14. have a better idea of what I want to do after I graduate.

15. What do you think you will learn through your relationship with your mentor?
16. What do you think your mentor will learn through your relationship with you?

**Section B: Perceptions of the Quality of the Mentoring Program**
We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
<thead>
<tr>
<th>Question</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>17. The goals of the e-mentoring program were clearly stated.</td>
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<tr>
<td>18. The goals of the e-mentoring program were easy to understand.</td>
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<tr>
<td>19. The application was easy to complete.</td>
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<tr>
<td>20. If I had questions about completing the application, I knew who to ask for assistance.</td>
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<tr>
<td>21. When you asked questions about the program, they were answered to your satisfaction.</td>
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<tr>
<td>22. My teacher is supportive of the program.</td>
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</tbody>
</table>

23. How did you learn about the e-mentoring program?
24. Why did you decide to participate in the program?
25. Are there any changes you would make to improve the program so far?

This survey was adapted with permission from *What’s Working? Tools for Evaluating Your Mentoring Program*, by Rebecca N. Saito, copyright @ 2001.
Appendix O
Instructor Survey 1

We would like your feedback about the mentoring program in which your class is involved. This information will help us understand your perceptions of the program, the benefits to you and your students, and suggestions for improving it. All of the data reported on this survey will be kept anonymous.

Section A: Perceptions of the Effects of the Mentoring Relationship on the Mentee

We are interested in your perceptions of the impact on your students in the following areas that you think might result because of your mentoring relationship. Please check one response for each item using the following codes for your answers:

SA: Strongly Agree  A: Agree  N: Neither Agree or Disagree  D: Disagree  SD: Strongly Disagree

<table>
<thead>
<tr>
<th>Because of the mentoring relationship think my students will…</th>
<th>SA</th>
<th>A</th>
<th>N</th>
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<th>SD</th>
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<tbody>
<tr>
<td><strong>Support</strong></td>
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<tr>
<td>1. feel like there are more adults who care about him/her.</td>
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<tr>
<td>2. feel like there are more people who will help him/her.</td>
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<tr>
<td><strong>Commitment to Learning</strong></td>
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<tr>
<td>3. have a better attitude about school.</td>
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<td>4. have better school work and test scores.</td>
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<td>5. come to school better prepared (on time, homework done, etc.).</td>
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<tr>
<td>6. have better classroom behavior (such as paying attention and not being disruptive).</td>
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<td>7. have better attendance in school.</td>
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<tr>
<td><strong>Boundaries and Expectations</strong></td>
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<tr>
<td>8. feel others see him/her as more responsible.</td>
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<tr>
<td>9. feel s/he has a number of good qualities.</td>
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</tbody>
</table>
10. have higher expectations of him/herself.

**Empowerment**
11. feel s/he has more future options.
12. feel s/he is a more confident person.
13. think s/he is a better person.

14. What do you think your students will gain or learn through their mentoring relationship?

15. What do you think you will gain or learn through the mentoring program?

**Section B: Perceptions of the Quality of the Mentoring Program**

We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>16. The goals of the e-mentoring program were clearly stated.</td>
<td></td>
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<tr>
<td>17. The goals of the e-mentoring program were easy to understand.</td>
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<tr>
<td>18. When I asked questions about the program, they were answered to my satisfaction.</td>
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<tr>
<td>19. If my students had questions about completing the application, I could help them.</td>
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<tr>
<td>20. If my students had questions about the program, I could answer them.</td>
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<tr>
<td>21. I am supportive of the program.</td>
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</tbody>
</table>

22. How did you learn about the e-mentoring program?
23. Are there any changes you would make to improve the program so far?

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Appendix P
Mentor Survey 2

We would like your feedback about the mentoring program in which you are involved. This information will help us understand your perceptions of the program, the benefits to you and your mentee, and suggestions for improving it. All of the data reported on this survey will be kept anonymous.

Section A: Background Information

On average, how many times per week do you e-mail your mentee? ____

On average, how many times per week does your mentee-mail you? ____

Section B:  Perceptions of the Effects of the Mentoring Relationship on the Mentee

We are interested in your perceptions of the impact on your mentee in the following areas that you think might result because of your mentoring relationship. Please check one response for each item using the following codes for your answers:

SA:  Strongly Agree  A:  Agree  N:  Neither Agree or Disagree  D: Disagree  SD:  Strongly Disagree

<table>
<thead>
<tr>
<th>Because of our relationship, I think my mentee …</th>
<th>SA</th>
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<th>SD</th>
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<tbody>
<tr>
<td>Support</td>
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<tr>
<td>1. feels like there are more adults who care about him/her.</td>
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<tr>
<td>2. feels like there are more people who will help him/her.</td>
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<td>Commitment to Learning</td>
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<tr>
<td>3. has a better attitude about school.</td>
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<td>4. has better school work and test scores.</td>
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<tr>
<td>5. comes to school better prepared (on time, homework done, etc.).</td>
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<td>6. has better classroom behavior (such as paying attention and not being disruptive).</td>
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<td>7. has better attendance in school.</td>
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<tr>
<td>Boundaries and Expectations</td>
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<tr>
<td>8. feels others see him/her as more responsible.</td>
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</tbody>
</table>
9. feels s/he has a number of good qualities.
10. has higher expectations of him/herself.

**Empowerment**
11. feels s/he has more future options.
12. feels s/he is a more confident person.
13. thinks s/he is a better person.

14. What do you think your mentee has gained or learned through your relationship?

15. What do you think you have gained or learned through your relationship?

**Section C: Perceptions of the Quality of the Mentoring Program**
We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
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<th>D</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>16. The online training material was easy to access.</td>
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<tr>
<td>17. The online training material was easy to understand.</td>
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<tr>
<td>18. The online training material was helpful.</td>
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<tr>
<td>19. The website is easy to access.</td>
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<tr>
<td>20. The website offers helpful information.</td>
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<tr>
<td>21. I understand my role as a mentor.</td>
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<tr>
<td>22. The e-mail program is easy to use.</td>
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<tr>
<td>23. There is technology support available if a problem occurs.</td>
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<tr>
<td>24. There is support from the program coach to help me meet the challenges of online mentoring.</td>
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<td>25. I feel connected to the other mentors.</td>
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<tr>
<td>26. If I have questions, I know who to ask in order to find the answers.</td>
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<tr>
<td>27. The e-mails from the program coach are helpful.</td>
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</tbody>
</table>
28. How long did it take you to complete the online training?
29. Do you feel the training was adequate? Explain.
30. How often do you refer to the online training materials?
31. How often do you refer to the website?
32. Which sections of the website do you access?
33. Do you participate in the discussion groups? Why or why not?
34. Do you participate in the blogs? Why or why not?
35. Are there any changes you would make to the program so far?
36. Is there anything else you want us to know about this program?

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Appendix Q
Mentee Survey 2

We would like your feedback about the mentoring program in which you are involved. This information will help us what you think about the program, how it has affected you, and what you think we should do to make it better. You will remain anonymous when completing this survey.

Section A: Background Information

On average, how many times per week do you e-mail your mentor? ____

On average, how many times per week does your mentor-mail you? ____

Section B: Perceptions of the Effects of the Mentoring Relationship on You

We want to know how you think you have changed, or not changed, because of your mentoring relationship. Please check one answer for each of the following statements using the following codes:

SA: Strongly Agree A: Agree N: Neither Agree or Disagree D: Disagree SD: Strongly Disagree

<table>
<thead>
<tr>
<th>Because of my relationship with my mentor, I …</th>
<th>SA</th>
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<tr>
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<tr>
<td>1. feel like there are adults who care about me.</td>
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<td>2. feel like there are people who will help me.</td>
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<td>Commitment to Learning</td>
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<td>3. have a better attitude about school.</td>
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<td>6. have better classroom behavior (such as paying attention and not being disruptive).</td>
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<td>7. have better attendance in school.</td>
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<td>Boundaries and Expectations</td>
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<tr>
<td>8. feel others see me as more responsible.</td>
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</tbody>
</table>
9. feel I have a number of good qualities.
10. have higher expectations of myself.

**Empowerment**
11. feel I have more options about my future.
12. feel more confident in myself.
13. think I am a better person.
14. have a better idea of what I want to do after I graduate.

15. What do you think you have learned through your relationship?

16. What do you think your mentor has learned through your relationship?

**Section C: Perceptions of the Quality of the Mentoring Program**

We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
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</thead>
<tbody>
<tr>
<td>17. The online training material was easy to access.</td>
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<td>18. The online training material was easy to understand.</td>
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<td>19. The online training material was helpful.</td>
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<tr>
<td>20. If I have questions, I can access the online training materials.</td>
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<tr>
<td>21. The website is easy to access.</td>
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<tr>
<td>22. The website offers helpful information.</td>
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<tr>
<td>23. I understand my role as a mentee.</td>
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<tr>
<td>24. The e-mail program is easy to use.</td>
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<tr>
<td>25. I am able to check my e-mail during my school day.</td>
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<td>26. I am able to check my e-mail outside of school.</td>
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<td>27. If there is a problem with the technology, it gets fixed in a day or two.</td>
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<td>28. I feel my personal information is kept confidential.</td>
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<tr>
<td>29. If I have questions about the e-mail software, I can ask my teacher.</td>
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<td>30. My teacher allows me to e-mail my</td>
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<tr>
<td>31. Do you feel connected to the other mentees?</td>
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<td>32. The e-mails from the program coach are helpful.</td>
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</tbody>
</table>

33. How long did it take you to complete the online training?
34. Do you feel the training was helpful? Explain.
35. How often do you refer to the online training materials?
36. How often do you refer to the website?
37. Which sections of the Web site do you access?
39. Did you participate in the blogs? Why or why not?
40. Are there any changes you would make to the program so far?
41. Is there anything else you want us to know about this program?

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Appendix R
Instructor Survey 2

We would like your feedback about the mentoring program in which your class is involved. This information will help us understand your perceptions of the program, the benefits to you and your students, and suggestions for improving it. All of the data reported on this survey will be kept anonymous.

Section A: Perceptions of the Effects of the Mentoring Relationship on the Mentee
We are interested in your perceptions of the impact on your students in the following areas that you think might result because of your mentoring relationship. Please check one response for each item using the following codes for your answers:

<table>
<thead>
<tr>
<th>SA: Strongly Agree</th>
<th>A: Agree</th>
<th>N: Neither Agree or Disagree</th>
<th>D: Disagree</th>
<th>SD: Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td><strong>Because of the mentoring relationship, my students ...</strong></td>
<td>SA</td>
<td>A</td>
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<tr>
<td><strong>Support</strong></td>
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<tr>
<td>1. feel like there are more adults who care about him/her.</td>
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<td>2. feel like there are more people who will help him/her.</td>
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<tr>
<td><strong>Commitment to Learning</strong></td>
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<tr>
<td>3. have a better attitude about school.</td>
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<td>4. have better school work and test scores.</td>
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<td>5. come to school better prepared (on time, homework done, etc.).</td>
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<td>6. have better classroom behavior (such as paying attention and not being disruptive).</td>
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<td>7. have better attendance in school.</td>
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<tr>
<td><strong>Boundaries and Expectations</strong></td>
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<td>8. feel others see him/her as more responsible.</td>
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<tr>
<td>9. feel s/he has a number of good qualities.</td>
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<td>10. have higher expectations of him/herself.</td>
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<tr>
<td><strong>Empowerment</strong></td>
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<tr>
<td>11. feel s/he has more future options.</td>
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</table>
12. feel s/he is a more confident person.

13. think s/he is a better person.

14. What do you think your students have gained or learned through their mentoring relationship?

15. What do you think you have gained or learned through the mentoring program?

Section B: Perceptions of the Quality of the Mentoring Program

We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
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<tbody>
<tr>
<td>16. I am able to answer my students’ questions regarding the mentoring program.</td>
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<tr>
<td>17. I am able to answer my students’ questions regarding the e-mail software.</td>
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<td>18. I am able to ask questions of the program coordinator.</td>
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<td>19. I receive information from the program coordinator.</td>
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<td>20. I use the information provided on the Web sitesite.</td>
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<td>21. I am supportive of the program.</td>
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</table>

22. Do you allow your students to check their e-mail during class? (If the answer is no, skip to question 25)

23. Do you allow your students to send e-mail messages to their mentors during class?

24. Are there specific times during class that you allow your students to send messages to their mentors or receive messages from their mentors?
25. Do you allow your students to access the Web site during the school day?

26. Is the communication between you and the program coordinator adequate? Why or why not?

27. What changes could we make to the program so far?

28. Is there anything else you want us to know about this program or your students who are participating in the program?

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Appendix S
Mentor Survey 3

We would like your feedback about the mentoring program in which you are involved. This information will help us understand your perceptions of the program, the benefits to you and your mentee, and suggestions for improving it. All of the data reported on this survey will be kept anonymous.

Section A: Background Information

On average, how many times per week did you e-mail your mentee? ____
On average, how many times per week did your mentee e-mail you? ____

Section B: Perceptions of the Effects of the Mentoring Relationship on the Mentee

We are interested in your perceptions of the impact on your mentee in the following areas that you think might result because of your mentoring relationship. Please check one response for each item using the following codes for your answers:

SA: Strongly Agree    A: Agree    N: Neither Agree or Disagree    D: Disagree    SD: Strongly Disagree

<table>
<thead>
<tr>
<th>Because of our relationship, I think my mentee …</th>
<th>SA</th>
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<td><strong>Support</strong></td>
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<tr>
<td>1. feels like there are more adults who care about him/her.</td>
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<td>2. feels like there are more people who will help him/her.</td>
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<td><strong>Commitment to Learning</strong></td>
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<td>3. has a better attitude about school.</td>
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<td>4. has better school work and test scores.</td>
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<tr>
<td>5. comes to school better prepared (on time, homework done, etc.).</td>
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<td>6. has better classroom behavior (such as paying attention and not being disruptive).</td>
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<td>7. has better attendance in school.</td>
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<td><strong>Boundaries and Expectations</strong></td>
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<td>8. feels others see him/her as more responsible.</td>
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</table>
9. feels s/he has a number of good qualities.

10. has higher expectations of him/herself.

**Empowerment**

11. feel s/he has more future options.

12. feel s/he is a more confident person.

13. think s/he is a better person.

14. What do you think your mentee has gained or learned through your relationship?

15. What do you think you have gained or learned through your relationship?

16. Has your relationship changed your attitudes, values, and understanding of young people today and the realities facing them? If so, in what ways?

17. What is easy about having a mentee?

18. What is hard about having a mentee?

**Section C: Perceptions of the Quality of the Mentoring Program**

We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
<th>A</th>
<th>N</th>
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<th>SD</th>
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<tbody>
<tr>
<td>19. I had enough information about the program before I began.</td>
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<td>20. The goals of the program were clearly identified.</td>
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<td>21. The application process was easy to follow.</td>
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<tr>
<td>22. The online training prepared me for becoming a mentor.</td>
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<td>23. I had enough interaction with the program coordinator during the program.</td>
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<tr>
<td>24. When I had questions, I could get answers.</td>
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</table>
25. Communicating with other mentors was helpful.

26. The Web site provided additional information that helped me meet the goals of the program.

27. The e-mail program was easy to use.

28. There was technology support available if a problem occurred.

29. There was support from the program coach to help me meet the challenges of online mentoring.

30. The blogs helped me feel connected to the other mentors.

31. If I had questions, I know who to ask in order to find the answers.

32. The e-mails from the program coach were helpful.

33. What changes do you think would improve this program?

34. Is there anything else you want us to know about the program, your experience in it, or your mentee? If so, what?

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Appendix T
Mentee Survey 3

We would like your feedback about the mentoring program you are involved in. This information will help us understand what you think about the program, how it has affected you, and what you think we can do to make it better. The things you tell us will not be shared with your mentor and will be kept anonymous.

Section A: Background Information

On average, how many times per week did you e-mail your mentor? ____

On average, how many times per week did your mentor e-mail you? ____

Section B: Perceptions of the Effects of the Mentoring Relationship on You

We want to know how you think you have changed, or not changed, because of your mentoring relationship. Please check one answer for each of the following statements using the following codes:
SA: Strongly Agree    A: Agree    N: Neither Agree or Disagree
D: Disagree    SD: Strongly Disagree

<table>
<thead>
<tr>
<th>Because of my relationship with my mentor, I …</th>
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<tr>
<td><strong>Support</strong></td>
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<tr>
<td>1. feel like there are adults who care about me.</td>
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<tr>
<td>2. feel like there are people who will help me.</td>
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<td><strong>Commitment to Learning</strong></td>
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<td>3. have a better attitude about school.</td>
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<td>4. have better school work and test scores.</td>
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<td>5. come to school better prepared (on time, homework done, etc.).</td>
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<tr>
<td>6. have better classroom behavior (such as paying attention and not being disruptive).</td>
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<tr>
<td>7. have better attendance in school.</td>
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</table>
Boundaries and Expectations
8 feel others see me as more responsible.
9 feel I have a number of good qualities.
10 have higher expectations of myself.

Empowerment
11 feel I have more options about my future.
12 feel more confident in myself.
13 think I am a better person.
14 have a better idea of what I want to do after I graduate.

15 What do you think you have learned through your relationship?

16. What do you think your mentor has learned through your relationship?

Section C: Perceptions of the Quality of the Mentoring Program

We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
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<tr>
<th></th>
<th>SA</th>
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<tr>
<td>17 I had enough information about the program before I began.</td>
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<td>18. The goals of the program were clearly identified.</td>
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<td>19. The application process was easy to follow.</td>
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<td>21. I had enough interaction with the program coordinator during the program.</td>
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<tr>
<td>22. When I had questions, I could get answers.</td>
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<tr>
<td>23. Blogging with other mentees was helpful.</td>
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<tr>
<td>24. The Web site provided additional information that helped</td>
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</table>
me during the mentoring program.

25. The e-mail program was easy to use.

26. If there was a problem with the technology, it was fixed in a day or two.

27. There was support from my teacher during the program.

28. I felt connected to the other mentees involved in the program.

29. If I had questions, I knew who to ask in order to find the answers.

30. The e-mails from the program coach were helpful.

31. What changes do you think we could make to improve the program?

32. Is there anything else you want to tell us about the program, your experience in it, or your mentor? If so, what?

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We would like your feedback about the mentoring program in which your class is involved. This information will help us understand your perceptions of the program, the benefits to you and your students, and suggestions for improving it. All of the data reported on this survey will be kept anonymous.

**Section A: Perceptions of the Effects of the Mentoring Relationship on the Mentee**

We are interested in your perceptions of the impact on your students in the following areas that you think might result because of your mentoring relationship. Please check one response for each item using the following codes for your answers:

- **SA:** Strongly Agree
- **A:** Agree
- **N:** Neither Agree or Disagree
- **D:** Disagree
- **SD:** Strongly Disagree

<table>
<thead>
<tr>
<th>Because of the mentoring relationship, my students …</th>
<th>SA</th>
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<th>N</th>
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<tbody>
<tr>
<td><strong>Support</strong></td>
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<tr>
<td>1. feel like there are more adults who care about him/her.</td>
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<td>2. feel like there are more people who will help him/her.</td>
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<td><strong>Commitment to Learning</strong></td>
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<tr>
<td>3. have a better attitude about school.</td>
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<td>4. have better school work and test scores.</td>
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<td>5. come to school better prepared (on time, homework done, etc.).</td>
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<tr>
<td>6. have better classroom behavior (such as paying attention and not being disruptive).</td>
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<td>8. feel others see him/her as more responsible.</td>
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<tr>
<td>9. feel s/he has a number of good qualities.</td>
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<tr>
<td>10. have higher expectations of him/herself.</td>
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</table>
### Empowerment

11. feel s/he has more future options.
12. feel s/he is a more confident person.
13. think s/he is a better person.

14. What do you think your students have gained or learned through their mentoring relationship?
15. What do you think you have gained or learned through the mentoring program?

### Section B: Perceptions of the Quality of the Mentoring Program

We are always seeking ways to improve our e-mentoring program. Please choose one answer for each item pertaining to the quality of the program up to this point.

<table>
<thead>
<tr>
<th></th>
<th>SA</th>
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<tbody>
<tr>
<td>16. The goals of the e-mentoring program were clearly stated.</td>
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<tr>
<td>17. If I had questions, I knew how to find the answers.</td>
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<td>18. If my students had questions about the program, I knew how to help them.</td>
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<tr>
<td>19. I was able to answer my students’ questions regarding the e-mail software.</td>
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<tr>
<td>20. I received adequate communication from the program coordinator.</td>
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<tr>
<td>21. I used the information provided on the Web sitesite.</td>
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<tr>
<td>22. I am supportive of the program.</td>
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<tr>
<td>23. In general, I believe this program helped my students.</td>
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</table>

24. Did you allow your students to access the computers during class to check their e-mail? (If the answer is no, skip question 25).
25. Did any problems arise when your students accessed their e-mail during class?

26. What changes could we make to the program?

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Appendix V
Mentor Focus Group Questions

Introduction

“Hello, my name is Diane Culpepper and I am the program coordinator for the e-mentoring program. We are currently in the process of evaluating the mentoring program that you are involved in. We want to hear from you about your perceptions of what is going well, what needs improvement, and any feedback you might have about whether the process, the technology, and the support you receive assists you in being an effective mentor. We also want to know if you think you are having an impact on your mentee. This information will not be shared directly with your mentee. It will be used to help the us improve the program.”

Background
1. How often do you e-mail your mentee?
2. How often does your mentee e-mail you?
3. Where did you do your e-mentoring?
4. Why did you decide to become a mentor?
5. Have you helped your mentee in any way?
6. Has what you learned through this program changed your attitudes, values, and understanding of young people today and the realities facing them? If so, what?

Ease of Implementation
7. What do you think the goals of this program are? (P – Managing Expectations)
8. How were you recruited to become a mentor? (P- Recruiting)
9. Was the application easy to complete? (P – Recruiting)
10. As you know, we randomly matched you with your mentee. Should we have matched you with your mentee using a different method? (P - Matching)
11. Is there something you should have known up front that would have better prepared you for this mentoring experience? (P- Managing Expectations)
12. Was the information provided in the online training material appropriate and useful? (PS - Training)
13. Did you ever refer to the online training material if you had a question about mentoring? If so, how often? What questions did you have? Did you find the answer in the material? (PS – Training)

14. Do you think it would have been beneficial to have a face-to-face training? If so, would it be an option? Would it be in lieu of the online training? (PS - Training)

15. Were the coaching sessions helpful? Is there anything I could do to improve them? (PS - Coaching)

16. Were the discussion starters helpful? Is there anything I could do to improve them? (PS - Coaching)

17. Do you feel connected to the other mentors? (PS – Community Building)

**Impact of Technology**
18. Was the online training material easy to access? (PS - Training)

19. Was Gaggle.Net easy to use? Did you have any problems using it? (PS - Training)

20. Did you receive support with the technology when you needed it? (PS - Coaching)

21. Did you access the Web site? If so, what information did you find useful? If not, why not? (PS – Training, Coaching)

22. Did you feel connected to the program coach via e-mail? Why or why not? (PS - Coaching)
Flexible Design Revisions/Implications for Design Changes
23. How many e-mentees do you think you could handle at one time?
24. What other type of information would you like to see on the Web site? (A – Formative, Summative)
25. What changes could we make to improve the program? (A – Formative, Summative)
26. Is there anything else we should know about the program? (A – Formative, Summative)
27. Would you try e-mentoring again? (A – Formative, Summative)
28. What advice would you give next year’s e-mentors? (A – Formative, Summative)

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Appendix W
Mentee Focus Group Questions

Introduction

“Hello, my name is Diane Culpepper and as you know, I am the program coordinator for the e-mentoring program. We are currently in the process of evaluating the mentoring program that you are involved in. We want to hear from you about your perceptions of what is going well, what needs improvement, and any feedback you might have about whether the process, the technology, and the support you receive assists you in being an effective mentor. We also want to know if you think you are having an impact on your mentor. This information will not be shared directly with your mentor. It will be used to help us improve the program.”

Background

1. How often do you e-mail your mentor?
2. How often does your mentor e-mail you?
3. What do you like about having an e-mentor?
4. What don’t you like about having an e-mentor?
5. What does your family think about you having an e-mentor?
6. If a friend asked you about what it is like to have an e-mentor, what would you say?

Ease of Implementation

7. What do you think the goals of this e-mentoring program are? (P – Managing Expectations)
8. Was the application easy to complete? (P – Recruiting)
9. As you know, we randomly matched you with your mentor. Should we have matched you with your mentor using a different method? (P - Matching)
10. Was the information provided in the online training material easy to understand and useful? (PS - Training)
11. Did you ever refer to the online training material if you had a question about mentoring? If so, how often? What questions did you have? Did you find the answer in the material? (PS – Training)

12. Do you think it would have been beneficial to have a face-to-face training? If so, would it be an option? Would it be in lieu of the online training? (PS - Training)

13. Do you feel like your teacher supports the program? How do you know? (PS – Coaching)

14. If you had to ask for assistance (regarding filing out the application, accessing the Web site, using the e-mail program, etc.) during the e-mentoring program, who did you ask? (PS – Coaching)

15. Were the coaching sessions helpful? Is there anything I could do to improve them? (PS - Coaching)

16. Do you feel connected to the other mentees? (PS – Community Building)

17. Is it important to feel connected to the other mentees? (PS – Community Building)

**Impact of Technology**

18. Was the online training material easy to access? (PS - Training)

19. Was Gaggle.Net easy to use? Did you have any problems using it? (PS - Training)

20. Did you receive support with the technology when you needed it? (PS - Coaching)

21. Did you access the Web site? If so, what information did you find useful? If not, why not? (PS – Training, Coaching)

22. Did you feel connected to the program coach via e-mail? Why or why not? (PS - Coaching)

**Flexible Design Revisions/Implications for Design Changes**

23. Has your mentor helped you in any way so far? If so, how? If not, is there anything he or she could do that would be helpful?
24. What other type of information would you like to see on the Web site? (A – Formative, Summative)

25. What changes could we make to improve the program? (A – Formative, Summative)

26. Is there anything else we should know about the program? (A – Formative, Summative)

27. What advice would you give next year’s e-mentees? (A – Formative, Summative)

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Appendix X
Instructor Focus Group Questions

Introduction

“Hello, my name is Diane Culpepper and I am the program coordinator for the e-mentoring program. We are currently in the process of evaluating the mentoring program that your students are involved in. We want to hear from you about your perceptions of what is going well, what needs improvement, and any feedback you might have about whether, and in what ways, your students are benefiting from their e-mentoring relationship. We will use this information we gather to improve the program. This information will not be shared directly with the mentees or the mentors.

Background

1. How many of your students have mentors?
2. Do you allow your students to e-mail their mentors during class? When and how often?
3. How much time do you allow your students to e-mail their mentors during class time?
4. Do your students tell you about their mentors or their experiences they were having with their mentors?
5. Has there been any disruption to the classroom when students are e-mailing their mentors?

Ease of Implementation

6. What do you think the goals of this e-mentoring program are? (P – Managing Expectations)
7. Was the application easy for your students to complete? (P – Recruiting)
8. Do you feel you had enough information about the program to assist your students when they had questions? Why or why not? (P – Managing Expectations)
9. Has the communication and interaction with the program coordinator been adequate? If not, why? (PS - Coaching)

Impact of Technology
10. Did your students have any technology issues when accessing the online training materials? (PS - Training)

11. Was Gaggle.Net easy for your students to use? Did you have any problems with it? (PS - Training)

12. Did you receive support with the technology when you needed it? (PS - Coaching)

13. Did you access the Web site? If so, what information did you find useful? If not, why not? (PS – Training, Coaching)

14. Did you feel connected to the program coach via e-mail? Why or why not? (PS - Coaching)

Flexible Design Revisions/Implications for Design Changes

15. Are there any changes you would make in the level or type of communication you received from the program coach? (A – Formative, Summative)

16. Is there any other information you think you should have had about the program before it began or during the course of the program? (A – Formative, Summative)

17. What other type of information would you like to see on the Web site? (A – Formative, Summative)

18. What changes could we make to improve the program? (A – Formative, Summative)

19. Is there anything else we should know about the program? (A – Formative, Summative)

20. Would you recommend e-mentoring be available to other teachers who are considering it for their students? Why or why not?

21. Is there anything else you want to share with me about your students, their mentors, or the program itself? (A – Formative, Summative)

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About the Author

Diane Walsh Culpepper earned her Bachelor of Science degree at the University of Central Florida in Business Administration. After a period of time in the business world, she began teaching business technology education classes at the high school level. After earning her Master’s of Education in Vocational Education from the University of Central Florida, Diane served as a district level administrator in the department of career and technical education for Orange County Public Schools. For the past six years, she has been the director of a technical center and loves working with students and teachers!