First-Generation, Income-Eligible Peer Mentor Study

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FIRST-GENERATION, INCOME-ELIGIBLE PEER MENTOR STUDY

by

Charlotte L. Giscombe

A Dissertation Submitted to the Faculty of The Graduate College in partial fulfillment of the requirements for the Degree of Doctor of Philosophy Department of Educational Leadership, Research and Technology Advisor: Richard Zinser, Ed.D.

Western Michigan University Kalamazoo, Michigan December 2008
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Charlotte Giscombe

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS .............................................................................................................. ii
LIST OF TABLES ....................................................................................................................... ix
LIST OF FIGURES ..................................................................................................................... xi

CHAPTER

I. INTRODUCTION ....................................................................................................................... 1

   A First-Generation, Income-Eligible Peer Mentor Study .................................................. 1
   Statement of the Problem ...................................................................................................... 4
   Significance of Research ....................................................................................................... 5

Definitions .................................................................................................................................. 7

   SSS-Eligible Criteria ................................................................................................................. 7

   Research Question .................................................................................................................. 10

   Literature Review .................................................................................................................. 11

   Theoretical Framework ......................................................................................................... 12

   Quantitative Research Method .............................................................................................. 15

   Qualitative Research Method ............................................................................................... 16

   Delimitation and Limitations ................................................................................................. 18

II. LITERATURE REVIEW .......................................................................................................... 19

   Indicators for Success of At-Risk Students ............................................................................ 20

   Factors That Lend to Retention ............................................................................................. 22

   Institutional Programs .......................................................................................................... 22
Table of Contents—Continued

CHAPTER

Connecting to the University ................................................................. 23

Examples of Retention Programs ............................................................ 29

Midwestern University SSS Model—Another Retention Example... 33

Definition of Mentoring and Examples of Mentoring Programs and their
Outcomes .................................................................................................. 34

Benefits to the Tutor in a Tutoring Relationship .................................... 38

Progress in Student Achievement ......................................................... 40

Shift in Attitude Toward the Subject ...................................................... 41

Positive Change in Self-Concept .......................................................... 41

Mentoring Programs and Studies that Demonstrate Benefits to the
Mentor ...................................................................................................... 44

Reason for Mentoring Others ................................................................. 49

Organization Factors That Influence Mentoring ................................. 49

Protégé Attraction .................................................................................. 50

Outcomes Associated with Mentoring for the Mentor ....................... 50

Peer Mentoring Programs and Research that Demonstrate Benefits to the
Peer Mentor ........................................................................................... 51

Closing Comment to the Literature Review ........................................... 57

Educational and Occupational Attainment Model .............................. 59

III. METHODS ....................................................................................... 62

Rationale for Research Design ............................................................... 62
CHAPTER

Quantitative Analysis ................................................................. 63
Hypotheses ........................................................................ 63
Population Sample and Participants ........................................... 64
Independent Variables ............................................................. 65
Dependent Variables ............................................................... 66
Procedure ............................................................................ 67

Qualitative Research Design ..................................................... 70
Selecting the Participants—Focus Group ..................................... 71
Pilot Test .............................................................................. 72
Selecting the Participants—Structured Interviews ....................... 73

IV. QUANTITATIVE RESULTS AND ANALYSIS ............................... 77
Part I: Description of the Quantitative Sample .............................. 77
Model One—Three-Group One-Way Generalized ANOVA .......... 84
Model One Summarized ............................................................. 91
Model Two—Five-Group, One-Way, Generalized ANOVA .......... 91
Model Two Summarized ............................................................. 99
Model Three—Five-Group, Two-Way, Generalized ANOVA ....... 100
Model Three Summarized .......................................................... 109

Quantitative Research Summary ............................................... 111
Table of Contents—Continued

CHAPTER

Part II: Qualitative Research ................................................................. 112

Pilot Test .................................................................................................. 112

Description of the Focus Group and the Structured Interview
Participants .......................................................................................... 113

Selection of the Participants—Focus Group (Current Mentors) .... 114

Selection of the Participants—Structured Interview
Graduated Mentors ............................................................................... 115

Qualitative Analysis ............................................................................... 116

Leadership .............................................................................................. 117

Self-esteem ............................................................................................. 120

Self-worth ............................................................................................... 122

Self-confidence ....................................................................................... 123

Qualitative Summary ............................................................................ 125

V. DISCUSSION ...................................................................................... 127

Research Question Part A ................................................................. 127

Quantitative Discussion Section ......................................................... 127

Research Question Part B ................................................................. 128

Qualitative Discussion Section .......................................................... 129

Leadership .............................................................................................. 129

Self-esteem ............................................................................................. 129

Self-worth ............................................................................................... 129
Table of Contents—Continued

CHAPTER

Self-confidence ................................................................. 130

One Word to Describe the SSS Peer Mentoring Experience .......... 130

Limitations ........................................................................ 131

Recommendations for Further Research ............................... 131

Conclusion .......................................................................... 132

REFERENCES ...................................................................... 133

APPENDICES

A. Approval Letter from the Human Subject Institutional
   Review Board .................................................................. 138

B. Informed Consent for Structured Interview .......................... 140

C. Informed Consent for the Focus Group .............................. 142

D. Interview Protocol .......................................................... 145

E. Initial Email to Potential Participants Who Are Current Peer Mentors in
   the SSS Program ............................................................. 152

F. Initial Letter to Potential Participants Who Have Graduated and Served as
   SSS Peer Mentors ............................................................. 155

G. Letter to the Director of the Trio Student Success Program .... 158

H. Letter to the Director of the Alumni Office .......................... 160

I. Letter to the Alumni Office ............................................... 162

J. Interview and Focus Group Coding Sheet ........................... 164

K. Distribution and Comparison of Interview and Focus Group Questions .. 170
APPENDICES

L. Independent Review of Distribution and Comparison of Interview and Focus Group Questions.................................................................173
LIST OF TABLES

1. Population Chart by Starting Cohort Year .................................................. 78
2. Replication of Group Levels by Starting Cohort Years ................................. 80
3. Group Level by Starting Cohort Years ......................................................... 81
4. Gender and Grouping Cross Tabulation ....................................................... 81
5. Group Level Report by Age ........................................................................ 81
6. University Race by Grouping Level ............................................................ 83
7. College * Grouping Level Cross Tabulation ............................................... 84
8. Test of Model Effects .................................................................................. 85
9. Descriptive Statistics of Graduation Rate ..................................................... 87
10. Test of Model Effects Years to Graduate ..................................................... 87
11. Descriptive Statistics for Years to Graduate ................................................. 88
12. Test of Model Effects .................................................................................. 89
13. Descriptive Statistics of Cumulative GPA ................................................... 89
14. Planned Comparison using Simple Contrasts .............................................. 91
15. Tests of Model Effects ............................................................................... 93
16. Descriptive Statistics for Graduation Rate .................................................. 93
17. Planned Comparison of the Mentor Group to the Other Four Levels using Simple Contrasts ................................................................. 94
18. Test of Model Effects ............................................................................... 96
19. Descriptive Statistics for Years Taken to Graduate ..................................... 97
List of Tables—Continued

20. Test of Model Effects for Cumulative GPA .........................................................97
21. Planned Comparison of the Mentor Group to the Other Four Levels using Simple Contrasts .................................................................99
22. Descriptive Statistics for Cumulative GPA .........................................................99
23. Test of Model Effects ....................................................................................102
24. Planned Comparison of the Mentor Group to the Other Four Levels using Simple Contrasts .................................................................104
25. Descriptive Statistics ....................................................................................105
26. Test of Model Effects ....................................................................................105
27. Descriptive Statistics ....................................................................................107
28. Tests of Model Effects ...................................................................................107
29. Planned Comparison using Simple Contrast ...................................................108
30. Descriptive Statistics ....................................................................................110
31. Characteristics of the Current Peer Mentors ..................................................113
32. Characteristics of the Graduated Peer Mentors ..............................................114
33. One Word that Describes the Mentoring Experience ..................................126
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Student Population</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>Theoretical Framework</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>Mean of Graduation Rate (Proportion of Graduates or Graduation Rate)</td>
<td>86</td>
</tr>
<tr>
<td>4</td>
<td>Mean of Years to Graduate</td>
<td>88</td>
</tr>
<tr>
<td>5</td>
<td>Mean of Cumulative GPA</td>
<td>90</td>
</tr>
<tr>
<td>6</td>
<td>Mean of Graduation Rate</td>
<td>95</td>
</tr>
<tr>
<td>7</td>
<td>Mean Years to Graduate</td>
<td>96</td>
</tr>
<tr>
<td>8</td>
<td>Mean Cumulative GPA</td>
<td>98</td>
</tr>
<tr>
<td>9</td>
<td>Graduation Rate for Group by Cohort Year (Main-Effects-Only Model)</td>
<td>103</td>
</tr>
<tr>
<td>10</td>
<td>Years to Graduate by Group and Cohort Year (Main-Effects-Only Model)</td>
<td>106</td>
</tr>
<tr>
<td>11</td>
<td>Cumulative GPA at Graduation by Group and Cohort Year (Main-Effects-Only Model)</td>
<td>109</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

A First-Generation, Income-Eligible Peer Mentor Study

In 1965, the U.S. Department of Education passed legislation that identified first-generation, income-eligible college students as an at-risk population (Martin, 1999). By "first-generation, income-eligible," the U.S. Department of Education meant students who would be the first in their family to graduate from a four-year college or university, and who had family incomes that were under 150% of the poverty level. The taxable income for a family of four should not exceed $31,800 in 2008 to be eligible.

Research indicates that a first-generation, income-eligible student may feel isolated and have difficulty adjusting to the college environment. In addition, the student may not be as well prepared academically, and is more likely to drop out by the beginning of the third semester than his or her peers whose parents have graduated from a four-year college (Choy 2001; Pascarella, Pierson, Wolniak, & Terenzini, 2004). The individuals in a student population who are statistically unsuccessful at the university level and who attrite from their undergraduate programs will, on average, end up with jobs that have a lower salary range than those who have graduated. In addition, those who flounder at the university level may become parents of other first-generation students who will face challenges similar to those that caused their parents to be unsuccessful at college. Society also suffers when first-generation students fail at college: the United States loses potential tax dollars from the higher-paying jobs the
students could have secured upon graduation, and society must deal with a less-educated workforce.

Retention programs have been implemented at colleges and universities across the country to support first-generation, income eligible college students’ quest for academic success. For more than 40 years the U.S. Department of Education has funded programs to work with this at-risk population. The effectiveness of retention programs for this at-risk group of college students is well documented in terms of their ability to combat student dropout and poor academic performance (Burris, 1990; Thomas, Farrow, & Martinez, 1998; Walsh, 2000).

Every day, college and university administrators, professors, advisors, and program managers strive for creative ways to address the dropout problem. Hammer (2003) explained how the Michigan State University Summer University Program—Excellence Required (SUPER) designed a retention program that is both creative and successful. First-generation, income-eligible college freshmen, who are mostly minorities, become part of a learning community that starts in the summer prior to the fall semester. Students receive pre-schedule programs and are housed in the same residence hall. The students are provided laptop computers, summer tuition, books, and room and board, and they must also attend fall and spring retreats. The students create a strong bond over the summer and, when possible, are also placed in some fall classes together. As a result of student and staff efforts in SUPER, retention rates from first to second year increased to 85%, which almost equals university-wide retention rates.

Hammer (2003) also described the San Diego Office of Academic Support and Instructional Services’ (OASIS) Summer Bridge Program, which serves at-risk students
from high schools who are minority status, low-income, and first-generation, and who have scored below average on their SAT exams. These students must enroll in math and science courses, live for one month on campus, and interact with trained peer advisors. The peer advisors introduce students to resources such as the library and provide individual and group counseling. In 2001, the college freshmen’s first-to-second-year retention rate was four percentage points higher than that of non-participants. Their grade point (GPA) average was also higher than non-participants’ (Hammer, 2003). Student relationships with peers, staff, and professors can create strong learning communities, which improve persistence for students and increase retention rates for universities (Astin, 1975; Thomas 2003; and Tinto 1993). This program has an element in common with many first-year initiative programs with its peer mentoring component. It is clear that being mentored by peers has positive effects on at-risk student retention.

Most studies examine peer advising and mentoring from the perspective of the students who are mentored. This study, however, is designed to determine specifically how mentoring affects the peer mentors’ GPA, retention, graduation rates, and the development of such attitudes as self-esteem, self-confidence, self-worth, and leadership ability. Since GPA, retention, graduation, and attitudes such as self-confidence and leadership ability have been linked with student success, a study that impacts these variables is of importance to administrators of Student Support Services (SSS) and other development programs. Linking students’ abilities and attitudes provides administrators with greater opportunities to interact with students in a holistic manner and to develop a broad understanding of these individuals, thereby helping them to achieve their goals of graduation and life success.
Statement of the Problem

Mentoring is the process of guiding, teaching, and opening doors for apprentices or novices so they can learn and develop a skill or move in a different direction. This process has been utilized for thousands of years as a way to help initiate individuals into new fields of knowledge or new experiences. Despite the long history of mentoring in academic environments, little research to support its effectiveness exists (Blackwell, 1996). The research that has been done focuses mainly on the impact of the mentoring relationship on the mentee; it considers mentoring as a positive experience because of the growth and development the mentees enjoy (Good, Halpin & Halpin, 2000). Perhaps such a focus on mentees seems reasonable in programs that employ professional mentors to initiate novices or students, but many educational mentoring programs that have been implemented with the idea of helping mentees attain a certain skill or reach a goal have included peer mentors, individuals who are themselves students or participants in the educational program in which they mentor. Despite the proliferation of peer mentoring programs, little research has been conducted to consider the peer mentor and his or her role in a mentoring relationship. Mentoring administrators who consider a mentoring relationship only from the perspective of the mentee fail to recognize that mentoring can also benefit the peer mentor. Failure to acknowledge this concept implies that administrators are not utilizing mentoring to its full potential. When administrators recognize mentoring relationships as reciprocal, mentoring can be used more efficiently as a developmental, retention, and recruiting strategy, which also would be more cost-effective.
Good, Halpin, and Halpin (2000) discussed how 75% of the peer mentors in an engineering mentoring program had improved critical thinking, study strategies, and GPAs, and 90% of the mentors commented in their journals that they were aware of improved communication, confidence, and identity. O'Donnell, Michalak, and Ames (1997) discussed how the peer mentors in their study saw themselves as role models. Finally, Good, Halpin, and Halpin (2000) suggested that further research should be done to determine quantitatively the impact of retention and GPA to the peer mentor. They also suggested that further research be done using focus groups to understand the peer mentors' experience.

Recognition of the concept that peer mentors also benefit from the mentoring experience allows administrators of developmental programs and SSS to design and implement effective mentoring programs for students.

This study focuses on at-risk peer mentors in a mentoring program and examines to what extent their GPA, retention, graduation rate, and leadership abilities are affected by interacting in a mentoring relationship. Since this study demonstrates positive effects, then administrators in mentoring and student development programs may be able to use this information as they develop their programs and the long-term goals for the programs, mentees, and peer mentors.

Significance of Research

For the last 11 years, a midwestern university's Student Support Services (SSS) has maintained a peer mentoring program. This is a federally funded program that helps first-generation college and university students who meet a lower-income eligibility
criterion navigate their way through the academic pipeline and earn a bachelor’s degree. The SSS peer mentors provide friendship and academic- and college-success tutoring, facilitate small learning sessions in classes, and serve as positive role models to the mentees.

The hypothesis is that these are reciprocal relationships that also benefit the mentors. In short, the mentors appear to enjoy many opportunities to grow in an academic environment, develop skills and competencies, and practice leadership. This study documents the impact the mentoring experience has on the mentors. By demonstrating quantitative and qualitative aspects of mentors’ experiences, this research provides insights into an aspect of the peer mentoring relationship that is not well described in mentoring literature. Those working in programs utilizing peer mentors may begin to re-conceptualize their program goals for mentors, moving mentoring from the view of an opportunity to help mentees to the view of an opportunity to encourage mentees to become mentors and leaders, which changes their destiny and gives them a more active voice in society. For example, many administrators of developmental and mentoring programs look outside of their at-risk population for tutoring and mentoring support. Recognizing and creating opportunities for at-risk students to become mentors is a concept that is not implemented in many programs today. A model where mentees have an opportunity to become leaders, receive leadership training, and see themselves through the eyes of others could have far-reaching implications toward student success. Gartner and Riessman (1993) stated that developmental programs have been recognized as ... “peripheral and remedial activity” (p. 2). The process of students (mentees) becoming leaders is a concept that could be built into programs. In addition, the
development of students (mentees) becoming leaders could be used as a retention and recruitment strategy since the research has proven successful. In view of the fact that SSS is a national program, the results of this research will be shared with other SSS and developmental programs across the country, thereby encouraging more programs to utilize mentoring as a tool to develop leaders.

Definitions

SSS-Eligible Criteria

The criteria the participants must meet are the following. The participants must complete UNIV 1010: Freshman Seminar and UNIV 1020: Career Exploration and Development courses with a grade of BA or better. They must also have a GPA of 2.5 or better and pass the interview process. The interview process consists of a meeting with the Program Services Coordinator. The students must bring their resume and references, and answer questions about themselves and SSS. The successful candidates will be enthusiastic about both SSS and the mentoring program. They will be caring, good communicators, and understand the goals of SSS.

See Figure 1 for definition terms (01-08).

1. Non-Eligible Students are regularly admitted Western Michigan University (WMU) students who are not classified as part of an at-risk population according to SSS criteria.

2. Eligible Students are WMU students who are eligible for the SSS program.
3. **SSS-Eligible Non-Participants** are WMU students who are eligible for the SSS program but have chosen not to be a part of the program, or were not selected because the program has reached its capacity.

4. **SSS Participants** are WMU eligible students who have been admitted to the SSS program.

5. **SSS Participants: Mentor Ineligible** are SSS participants who have not met the criteria to become mentors.

6. **SSS-Eligible Mentors** are SSS participants who have met all the criteria to become mentors, and the interview opportunity still exists.

7. **SSS-Eligible Non-Mentors** are SSS participants who have met all the criteria, but have decided not to apply for the position of SSS peer mentor.

8. **SSS Peer Mentors** are SSS participants who meet the criteria and are selected to be peer mentors in the SSS program.

9. **Peer** used in this study simply means student. Articles referred to in this study used peer to refer to students who are on the same level but have more knowledge or information to help mentees reach their goals and objectives.

10. **At-Risk Students** for this study are people who have to overcome social and cultural barriers. According to Wallace and Abel (1997), “We believe that [at-risk] high risk students are people of color, women, persons from low social-economic backgrounds, the physically challenged, first-generation college students and others who exist in the margins of society” (p. 6). The at-risk student in many instances may have the following
characteristics according to (Vivian, 2005). “[They] may be educationally underprepared, have greater financial constraints, and have less social and familial support than other students” (p. 338).

11. **Graduation** is the completion of a baccalaureate curriculum.

12. **Persistence**: According to Hu and St. John (2001) “Students who enroll in the fall semester and then reenrolled or graduated in the spring semester were counted as persisters” (p.267). Note that SSS programs measure persistence in the third and ninth semester for a six-year graduation.

13. **Retention** is the college or university’s strategy to help students persist until graduation. According to Hagedorn (2006), “The words ‘persistence’ and ‘retention’ are often used interchangeably. The National Center for Education Statistics, however, differentiates the terms by using ‘retention’ as an institutional measure and ‘persistence’ as a student measure” (p. 6).

14. **Student success** comprises the following elements:
   - Remaining in good academic standing (a GPA of 2.0 or better out of 4.0).
   - Remaining academically and socially connected to the college or university.
   - Developing good self-esteem and having confidence in their ability to persist until graduation.

15. **Peer Tutor** is a student who teaches or guides a tutee so he or she can learn a topic or subject (Robinson, Schofield & Steers-Wentzell, 2005).
16. **Tuttee** is someone who receives guidance or instruction in a particular topic or subject.

17. **Zero-Order Correlation**: “These are essentially the correlations between a particular predictor and Y. These correlations, however, are very inadequate representations of the variable’s unique ability to predict Y.”

(Part VII, 2006)

Research Question

The questions guiding this research are as follows:

A. In what ways and to what extent do SSS peer mentors’ grade point averages, retention, and graduation rates differ from the following:

1. Non-Eligible students
2. SSS-Eligible Non-Participants
3. SSS-Participants: Mentor Ineligible
4. SSS-Eligible Non-Mentors

B. And, in what ways does SSS peer mentoring affect peer mentors’ development of such attitudes and skills as self-esteem, self confidence, self worth, and leadership ability?
Figure 1. Student Population

Literature Review

1. Critical Studies that Discuss Indicators for Success of At-Risk Students

2. Critical Studies that Discuss Factors that Lend to Retention

3. Critical Studies that Discuss Examples of Retention Programs

4. Critical Studies that Discuss Definition of Mentoring and Examples of Mentoring Programs and Their Outcomes

5. Critical Studies that Discuss Benefits to the Tutor in a Tutoring Relationship
6. Critical Studies that Discuss Mentoring Programs and Studies that Demonstrate Benefit to the Mentor

7. Critical Studies that Discuss Peer Mentoring Programs and Research that Demonstrate Benefit to the Peer Mentor

Theoretical Framework

The major theoretical underpinning of this study is the social psychological theory of educational attainment, which can be traced to Blau and Duncan’s (1967) theory of status attainment. This theory states that there are four factors that help determine a man’s occupational successes, which are the father’s education and occupation and the son’s education and first job. Blau and Duncan (1967) stated that, “The zero order correlations with occupational status are .32 for father’s education, .40 for father’s occupation, .60 for education and .54 for first job” (p. 402). In another words, social background (father’s education and occupation) determine the son’s social economical status (rich, middle, or poor class) and how the family feels about subjects such as education and success. A father’s job will determine how his son enters the job market. For example, professional-salaried sons have a 2:1 chance of their first job being a salaried position. Once in a salaried position, if the son develops roots and makes social connections, chances are very strong that he will stay in a salaried position.

In addition, social background can also impact future career choices. Blau and Duncan (1967) stated:

Father’s occupational status … not only influences son’s career achievements by affecting his education and first job, but it also has a delayed effect on achievements that persists when differences in schooling and early career experience are statistically controlled.
Social origins have a continuing impact on careers that is independent of the two variables pertaining to career preparation.... These three attributes [social origin, education, and career beginning] of young men have nearly as much impact on their subsequent careers as all other factors combined... (p. 403).

In other words, social origin, education, and first career choice can play a strong role in determining the occupational success or failure of someone. For example, it is assumed that poor minorities will experience a “vicious circle of poverty.” According to Blau and Duncan (1967):

Children who grow up in the lower strata tend to have not only poorer but also less educated parents, receive less education themselves, and must start work early in undesirable jobs.... Thus a man’s career is adversely affected if his father had little education, if his father’s occupation status was low, and if he himself has little education. (P. 403-404)

Blau and Duncan do not specifically use the word “first-generation,” but the term “less educated” in the above quote implies that there is a connection between Blau and Duncan’s study and the first-generation population. It is clear based on the research that first-generation children may have a more difficult time achieving success since their parents did not attend or finish college. The U.S. Department of Education (2001) stated the following:

Among 1992 high school graduates, 27 percent were from families in which neither parent had any postsecondary education (Figure 1). Compared with their peers whose parents held bachelor’s or advanced degrees, these graduates were more likely to be black or Hispanic and to be from families in the lowest income quartile (Figure 2). Thus, policies or programs that increase access for students whose parents did not go to college may also do the same for low-income and minority students. (p. 1)
In the final analysis, social background can depress occupational chances for success, but it cannot eliminate them when other elements such as education, mental ability, and expectations of others are part of the equation.

Researchers such as Sewell, Haller, and Portes (1969) expounded on Blau and Duncan's (1967) theory by developing one of the well-known studies called the "Wisconsin model." This model broadened the definition of social economical status and added social psychological variables such as mental ability and significant others to explain the variation in the different levels of educational attainment.

Kerckhoff (1989) explained educational attainment by stating the following: "...Significant others project onto students a set of aspirations (or expectations) for the future, and those future orientations affect the performance of the students" (p. 20). Kerckhoff clearly indicates that significant others can play a strong role in the educational choices that students make.

The educational attainment theory is one of the variables being offered as a hypothesis to explain why the SSS peer mentors’ GPA, retention and graduation rate, attitudes, and leadership ability will exceed the other SSS students’. This researcher suggests that there are three variables that impact the SSS peer mentors and create a transformation. First, the SSS peer mentor receives ongoing training that consists of topics such as leadership, team building, communication, and the weekly class content (GPA calculations, time management, personal mastery). Secondly, the SSS peer mentor interacts with the SSS student (mentee), which consists of facilitating activities inside and outside the classroom, heading volunteer activities, and befriending the SSS student (mentee). In short, the SSS peer mentors are role models to the SSS students.
The researcher hypothesized that when the SSS peer mentor receives training and interacts with mentees, and when significant others such as the SSS supervisor, SSS staff, and SSS students (mentees) have high expectations for the SSS peer mentor, the SSS peer mentor undergoes a transformation and begins to see him- or herself through the eyes of the significant others. The SSS peer mentors’ goals become the goals of their significant others, which are academic success, persistence, and graduation. See Figure 2.

An additional convincing argument regarding why the peer mentor continues to grow and develop both sociologically and academically beyond his or her other classmates is that the peer mentor is just approaching young adulthood, which Erikson (1997) has identified as the ages from 19–40. In this developmental stage, the individual chooses intimacy over isolation. One of the effects of choosing intimacy is a desire to develop strong relationships. Because of where the peer mentor is in his or her developmental stage, the impact of the relationship contributes toward the way the mentor sees and feels about himself or herself. In this study several authors such as Good, Halpin, & Halpin (2000); and O’Donnell, Michalak, and Ames (1997) spoke about the development of self-esteem, self-confidence, communication, and leadership growth.

Quantitative Research Method

The research model and design for this study involved use of both quantitative and qualitative methods. The quantitative longitudinal study utilized data from the 1998–99 through 2005–06 academic years, which will be referred to by the end-of-year dates (1999–2006). The data collected for this research were taken from the midwestern university’s student information storage and processing system and from computer
printouts compiled by the Department of Admissions and Financial Aid as a requirement to maintain the U.S. Department of Education's grant requirements for SSS. SSS attendance records were also used. The data provided by the above-mentioned reports and systems consist of student names, addresses, social security numbers, and end-of-year CGPAs. GPA and retention and graduation rates are computed at the end of each academic year by determining the total number of students graduated or remaining versus the total number of students who started as freshmen at the university, starting with the 1998 cohort. This study compares Peer Mentors and four other student groups: Non-Eligible, SSS Non-Participants; SSS Participants: Mentor Ineligible; and SSS-Eligible Non-Mentors.

Qualitative Research Method

The qualitative part of the study used a structured interview and a focus group format. The participants were selected based on a purposeful sampling procedure from the group of SSS peer mentors who have graduated or are currently working. According to McMillian (2004) a purpose study is a selection process that allows the researcher to select participants based on knowledge and logic that will help provide the most reliable information about the topic being studied. The interviewer elicited views and opinions from the participants. Krueger (2002) recommended using an "if-then" logical model, which is a step-by-step approach that says, "If this happens, then this is the consequence" (p. 6). This model helped determine if the mentoring experience impacted the attitudes and leadership ability of the SSS peer mentors. Krueger (2002) said that by using a logical model, the interviewer can eliminate gaps and clarify and identify outcomes.
Theoretical Framework

Interaction with mentees

Training:
Leadership
Team building
Communication

Peer Mentor

Peer mentor sees himself or herself through the eyes of others.

Goals:
Academic Success
Persistence
Graduation

Educational Attainment Theory
High Expectations from SSP Staff and Mentees

Figure 2. Theoretical Framework
Delimitation and Limitations

Although SSS is a national program, this study observed and analyzed the relationships and interactions of one midwestern university's SSS peer mentors, SSS students, and the general student population. Additionally, the research design used a small, unequal sample size for the peer mentors. The small size raises some concern regarding statistical power. Equalizing group sample sizes would have resulted in too few subjects to draw meaningful conclusions. However, despite the limitations, the information that can be gleaned from the study should prove valuable to administrators of SSS and developmental programs. Administrators will be able to use the study as a model to provide opportunities for mentees to become leaders within their programs.

"Chapter IV: Quantitative and Qualitative Results and Analysis" presents the results of the elements of this mixed-methods investigation. The research question and accompanying hypotheses are examined.

"Chapter V: Discussion" presents the summary and conclusions drawn from the data to address the research questions, and to identify to what extent the study was successful in answering those questions. Chapter Five also discusses implications for current practice, and delineated recommendations for further research and how specifically the results of this study can be used by SSS and other developmental programs.
CHAPTER II

LITERATURE REVIEW

It is the intent of this literature review to examine critical studies that address what variables constitute the following:

1. Critical Studies that Discuss Indicators for Success of At-Risk Students

2. Critical Studies that Discuss Factors that Lend to Retention
   a. Institutional programs—Presence of retention strategies, programs, systems
   b. Connecting to the university
      1. Student commitment to success
      2. Pre-college characteristics
      3. Campus climate
      4. At-risk, diverse students
      5. The “student-centered” campus

3. Critical Studies that Discuss Examples of Retention Programs
   a. Muraskin case studies
   b. Midwestern university SSS model

4. Critical Studies that Discuss Definition of Mentoring and Examples of Mentoring Programs and Their Outcomes

5. Critical Studies that Discuss Benefits to the Tutor in a Tutoring Relationship

6. Critical Studies that Discuss Mentoring Programs and Studies that Demonstrate Benefit to the Mentor
7. Critical Studies that Discuss Peer Mentoring Programs and Research that Demonstrate Benefit to the Peer Mentor

While mentoring advocates have written at length about the impact of mentoring relationships on the mentee, very little research has been done to uncover the effect of mentoring on the peer mentor. Therefore, the main focus of this literature review will be to uncover what the experts understand about this relationship and how the mentoring relationship affects the peer mentor.

Indicators for Success of At-Risk Students

Astin (1975) and Thomas (2003) suggested a course of actions that need to happen before students can be successful at a college or a university. First, the students must have intentions and be committed to reaching their goal of graduation. Second, the educational institution must be committed to the students and help them achieve their goals. When these two elements are in place, not only will the general student population be able to accomplish their goals, but a model is in place that has the potential to be effective for the general student population as well as the at-risk students. Kelly (2006) stated that there is an increasing number of underprepared students going to college.

Given this reality, colleges and universities can no longer allow students to sink or swim on their own. Instead, they must organize the first college year in a way that provides all students with the opportunity to achieve success. Many institutions have accepted this reality and have begun to initiate comprehensive first-year experience programs on their campuses (p. 1).
Kelly’s statement provides a good example that both at-risk students and the general population can benefit from the same kinds of programs when college institutions are proactive and committed to students.

At-risk students’ background, environment, and work efforts can be different from the general population’s. Tinto (1993) stated that a student’s background and environment contribute to his or her goals and commitments. Pace (1982) stated that while a student’s background and characteristics are important to achieving success and graduation, a willingness to exert effort is of even greater importance. Pace (1982) stated:

The conclusion is this: granted the importance of all the elements that influence who goes where to college, once the students get there what counts most is not who they are or where they are but what they do. Prior research has not included what turns out to be the most influential variable—the quality of effort that students themselves invest in using the facilities and opportunities for learning and development that exist in the college setting. Now that ‘quality of effort’ has been included, better explanations and new conclusions emerge. (p. 20).

Universities that are willing to recognize factors that differentiate the at-risk student from the general population, and provide support and solutions to those factors will be closer to increasing the success of at-risk students.

While the success of all at-risk students is a concern to society, a great deal of the information gathered here will focus on first-generation, income-eligible students. Because first-generation, income-eligible students are the first in their families seeking to graduate from a four-year college or university, they will, in many instances, need to seek help outside the home as they plan their academic strategies. At-risk students are most successful at accomplishing their goal of graduation when systems that provide retention strategies are in place (Student retention at NVCC, 2001).
Factors that Lend to Retention

Institutional Programs

Presence of Retention Strategies, Programs, Systems

Retention strategies involve putting systems and procedures in place to help maintain the student body of a college or university. Other authors, such as Perez and Swail, and publications such as Student Retention at NVCC expound on Tinto's work, who are also convinced that when students drop out it may be because they cannot find ways to connect socially and academically with the institution. Retention strategies are so important because they identify and provide services for the individual needs of students.

Swail (2003) included in his appendix several examples of colleges that used successful retention programs and strategies. American River College Beacon Program, which is located in Sacramento, California, is a retention program where students achieved math and science success within the math and science program. Students who had successfully completed classes in math and science were trained and paid to tutor and interact with students who were currently taking those classes. The tutors met with both the students and the course instructor weekly. The data were gathered over seven semesters. Eighty-five percent of the students participating in the program received grades of A, B, or C. Fifty-seven percent of the non-participants received grades of A, B, or C. Only 7% of the Beacon students dropped classes in comparison to their counterparts, who had a dropout rate of 27%. This program received exemplary awards from the California Community Colleges Board of Governors in 2001.
Saint Xavier University’s Student Success Program (SSP) in Chicago, Illinois, is another good example of a successful retention program mentioned in Swail’s appendix. The program provided academic and career advising, peer mentoring, freshmen orientation, and volunteering. The outcome was that the graduate retention rates for the 1997 cohort of SSP students was 58.9% in comparison to a 1997 non-SSP cohort group of 53.7% after seven semesters.

West Virginia University’s EXCEL Program is also a good example of a successful retention program. EXCEL worked with freshmen whose high school GPA was 2.0–2.6. Students attended an orientation class, participated in a freshmen seminar class for a semester, and received academic support. The outcome was that the EXCEL students’ retention rate was 96% in comparison to 84.5% for the control group. Swail and other aforementioned authors clearly have indicated that well-planned retention programs and strategies that identify student needs can make a difference and play an instrumental role in students’ graduation success.

Connecting to the University

Student Commitment to Success

A successful at-risk student will be a student who exhibits commitment to the university, a desire to graduate, and the ability to persist until graduation becomes a reality. Certain components, such as academic preparedness, having career goals, and a positive attitude must be in place before the at-risk student becomes academically and socially connected to the university (Astin, 1975; Perez, 1999; Swail, 2003; Tinto, 1993).
Furthermore, when a student has a poor attitude, it is manifested in a lack of academic confidence and in his or her ability to persist until graduation. According to Temby (2002), "Many targeted [at-risk] students simply lack confidence in their scholastic ability and thus experience a concomitant lack of motivation and interest" (p. 3). Committed administrators, counselors, and mentors can help students develop a positive attitude by believing in their ability to be successful and make available support systems and strategies. For example, administrators can provide tutoring/mentoring programs, counselors can offer holistic and developmental advising, and mentors can be dedicated and helpful role models.

**Pre-college Characteristics**

Pre-college characteristics are important for college success as measured by persistence until graduation (Astin, 1975; Perez, 1999; Swail 2003; Tinto 1993). Pre-college characteristics include a student’s family background, attitude, and how well he or she is academically prepared for college.

**Family Background.** The at-risk student’s family background can contribute to his or her college unpreparedness. Lack of family support, finances, and inexperience regarding college life can create a poor beginning for the at-risk student. The first-generation student, for example, may never have been expected to go to college, or understand that college is not the same as high school. The first-generation student’s parents in many instances cannot afford to help with college finances. Colleges and universities must be ready to turn negatives into positives. Hsiao (1992) stated that “…colleges must provide a range of programs and services to counteract the weaknesses
many of them [at-risk students] bring to higher education and help them overcome the obstacles they face once enrolled” (p. 4). Tinto (1987) said, “It is for this reason that researchers generally agree that what happens following entry, in most cases, is more important to the process of departure than what occurs prior to entry” (p. 47). Colleges that provide outreach programs to both the student and their family, and colleges that provide communication, financial support, and understanding will have a direct impact on student success and retention.

Academic Preparedness. Swail (2003) indicated that at-risk students traditionally are not placed in high school classes that will help them to be intellectually successful in college. At-risk students need more math, science, reading, and writing classes in high school so they can be better prepared for academic success at colleges and universities. Students who are placed in vocational non-college preparation classes such as home economics and auto mechanics may not be challenged and are not prepared for college. These students may find themselves without the self-confidence they need to complete high school or enter college.

In many instances at-risk students’ high school GPAs and/or SAT scores may be below the national average. Low grades and scores make it challenging but not impossible for these students to be successful. Many universities provide remedial help for these students. According to Choy (2001), at-risk students who are first-generation are twice as likely as the general student population not to remain beyond the first year. Students who can remain beyond the first year have a greater chance of obtaining their undergraduate degree within five years Choy (2001). Therefore, at-risk students who
overcome poor pre-college preparation and persist beyond the first year have a better chance of graduating.

At-risk students who will be successful must be academically prepared or seek academic help, have a positive attitude about their chances of success, and be committed to persisting until graduation. When these characteristics are not in place, the at-risk student must be proactive and look for universities or programs within universities that will supply the elements he or she needs for success.

Campus Climate

Another important area that needs to be addressed in order for students to be successful is a supportive campus environment. Acclimating to college life can be very challenging for the at-risk student when the university lacks ethnic and cultural organizations, a nurturing campus, and culturally diverse and caring staff and faculty (Swail, 2003). A campus that has personnel and systems in place that treat students as individuals, support diversity, and encourage pride and self-confidence will have students who experience academic success and feel connected to the university (Swail, 2003).

At-risk, Diverse Students

Many minority at-risk students may have difficulty dealing with a campus climate that does not support cultural, customs, and racial differences (Filkins & Doyle, 2002; Hsiao, 1992; McNairy, 1996; Swail, 2003). Some students will even face cultural shock (Hsio, 1992). For example, when minority students face majority white campuses, they may have a great deal of difficulty adjusting. Swail (2003) said a campus must be prepared to support students and their differences. Campuses can be supportive when
they have diverse staff and faculty, encourage collaborative learning communities within
the classroom, and support ethnic and cultural programs and organizations on campus.

Students who will be successful must investigate, question, and visit campuses to
determine if universities have policies that will reach out to them and celebrate their
differences (Filkins & Doyle, 2002; Hsiao, 1992; McNairy, 1996; Swail, 2003).

When a university puts students at the center of its programs and services,
students have a better chance to be successful. Astin’s (1977) research indicated that
there was a definite correlation between students who have career goals and students who
persist. Astin (1975), Swail (2003), and Tinto (1993) all stated that students who came to
the university with career goals and a commitment to persist until graduation had a very
good chance of accomplishing their goals. Many at-risk students are undecided regarding
their curriculum and career goals. In order for students to be successful, universities need
to have orientation counselors and advisors to address individual needs, such as
curriculum and career decisions (Filkins & Doyle, 2002; Hsiao, 1992; McNairy, 1996;
Swail, 2003).

The “Student-centered” Campus

Moxley, Major-Durack, and Dumbrigue (2001) and Swail (2003) said they believe
that the university needs to be student centered. Moxley et al. stated that for a university
to be student centered, it must have three components. It must have “…1) ease of use, 2)
[be] personalized and 3) [have] dedicated relationships and outcome orientation” (p. 54).
A student must have easy access to social, personal, and support services. It is important,
especially in large universities, that each student forms one-on-one personal relationships
with faculty, staff, and other students so that he or she feels it is possible to be successful.
It is also important that staff, peer groups, and professors make themselves available to students. The feeling of being connected needs to be established during the first few weeks before the student starts to feel confused, lost, and isolated. A student’s ultimate goal is to have successful academic and personal outcomes; therefore, during this process of integration, students should learn more about their values, likes and dislikes, career choices, and which academic path will help them persist. Furthermore, Astin (1975), Swail (2003), and Tinto (1993) also indicated when a student’s educational goals are in agreement with the mission of the university, this agreement of goals and mission helps create persistence and success.

Moxley et al. (2001) said it is important to make retention a formal and informal part of the university’s mission. This means that retention strategies should be written in the university mission statement as well as articulated by administrators and staff through policy and campus climate, and demonstrated in the classroom by instructors who will make themselves available and see each student as an individual with specific needs. Universities that are serious about retention will have troubleshooting retention committees that report to the retention coordinators, and retention coordinators that report to the president. Universities will also have first-year programs; retention-related workshops for advisors, faculty, and staff; and workshops for non-traditional students. Universities that are serious about retention will have innovative professors who create collaborative learning communities in the classroom and mentor relationships outside of the classroom with their students. Retention strategies are the universities’ policies and procedures for student persistence. A university that cares about its at-risk-students will have policies and procedures in place to work with students who are academically
unprepared, undecided regarding their curriculum, and very diverse. The university’s retention policy is one of the most important components because it may determine whether or not all students, including at-risks students, become academically and socially connected to the university. Once the students are connected, they will be on the path to success.

Examples of Retention Programs

For over 40 years, federally funded TRIO Student Support Services (SSS) have been instrumental in helping at-risk, first-generation, income-eligible students be connected and successful in both colleges and universities across the country. The commonality among these programs is that they have dedicated staff who care about helping and wanting students to have successful, holistic outcomes. However, the strategies and procedures these programs use to accomplish their goals may be very different from each other.

Rutgers University in New Brunswick, New Jersey, Livingston campus is the home of the TRIO Student Support Services Program (RSSSP). RSSSP, like other TRIO programs, works with first-generation, income-eligible students. The goal of RSSSP is to provide a supportive environment so students can persist and graduate. To accomplish these goals, students are provided with summer programs, development courses, academic advising, counseling, and tutoring.

Thomas, Farrow, and Martinez (1998) wanted to investigate if RSSSP was meeting its graduate goals. As a result, a study was completed to examine cohorts from 1980–1992 to determine if the program was meeting its goal of 50% graduate rate. The
study included 979 participants (first-time, full-time freshman cohorts). Below are the results of the study.

The goal of the RSSSP is to graduate at least 50% of first-time, full-time freshmen. Between 1980 and 1992 the program achieved that goal for 11 of the 13 freshmen cohorts it enrolled. The specific-year graduate rates ranged from a low of 46.9% in 1984 to a high of 66.3% in 1988. The mean graduation rate for the entire cohort was 56.2 % with a standard deviation of 5.3%.

Rutgers University has a unique collaborative program through which the institution receives money from student services, the state, and the federal government to help support its first-generation, low-income students. For example, the students receive career planning that helps them make choices about curriculum and careers. Early assistance and academic strategies for pre-freshmen who score low on university placement tests are just a few of the retention policies utilized at Rutgers for its RSSSP. The data on the average Livingston College students from 1980 – 1992 mean was only four percentage points higher at 60.6 percent. The graduation rate ranged from 47.4% to 69.7%. The support services that were initially made available to RSSSP students are now made available to all students at the Livingston campus. For example, Livingston has an American Language Center, Writing Center, and Psychological Counseling Center. The most effective retention strategy is Livingston’s collaborative commitment to help all students succeed. This study was a strong indication that RSSSP and Rutgers have a program that is effective with both retention as well as graduation.

Muraskin (1997) selected case studies from the National Studies Longitudinal Examination, which were extracted from a population of 30 SSS projects and which
represented best practices. Muraskin identified some of these as exemplary retention practices, which have measurable results, creative processes, and procedures that can be duplicated. For example, many of the programs provided time-intensive counseling, advising, and a requirement that students meet with their advisors on a regular basis. One example of a very successful program is called the Bridge. The Bridge is a fictitious name used to protect the identity of the institution. The Bridge is located at a large, relatively selective public institution. The Bridge works with students who, under regular admission circumstances, would not be admitted to the university. Once accepted for admission by the university staff, these students must join the Bridge. Students start in the summer during which time they are required to take 6-10 credits. All tuition, room, and board are paid, and SSS provides the students with advising, counseling, study skills, and tutoring. Students are required to take English, reading, and study skills classes. Both professionals and peer staff serve in the capacity of tutors.

The basis of these programs, according to Muraskin (1997), is that students are monitored very closely. As students move into their first semester, they are required to see both university and SSS advisors. The SSS advisors must be seen at least three times a semester. As students move into their second year, they are required to meet with SSS advisors twice a semester. Students who do not keep advising and tutoring appointments may face suspension. The Bridge program focuses most of its time, finances, and efforts on its summer program with intense holistic advising and tutoring during the students’ remaining college life, which means the adviser will address all of the students’ needs and concerns on a regular basis to develop a good balance between academics and the students’ social and personal life.
Project Support is a fictitious name used to protect the identity of the institution of another SSS program that is located at a historically black college and is also included on Muraskin’s (1997) list of best practices for SSS. The students in the program are regularly admitted to the college. Students join the program because they want tutoring. The program’s peer tutoring offers small and one-on-one sessions in math, writing, science, business, economics, and language. The students participate in academic, financial aid, and personal counseling on an as-needed basis and are required to take small group development sessions on using the library and writing research papers. The program also offers three career exploration classes and two workshops in the fall.

Although statistics were not available for Project Support and the Bridge, national statistics about SSS programs were provided. However, this research strives to move in a new direction—one that assesses direct outcomes of initiatives. Measurement and evaluation of outcomes inspire continuous process improvement and help to validate the usefulness of these initiatives that certainly have student success as a main objective.

Muraskin (1997) stated:

Findings from the National Study of Student Support Services show that SSS achieves improvements in educational outcomes for typical participants. In relation to comparable nonparticipants, freshman-year SSS participants increase their grade point averages by 0.15 in the first year and 0.11 in the second year of college. SSS participation also increases retention to the second year of college at the same institution by 7 percent and retention to the third year in any institution by 3 percent... (p. 1).
Midwestern University SSS Model—Another Retention Example

While SSS programs may be somewhat different in how they connect with the students, they continue to make a difference in student retention and academic achievement.

Although the midwestern university’s SSS is not included on Muraskin’s list because it is also a service-intensive program and will be the basis for the research of this study, it should be mentioned. The midwestern university’s SSS provides services for regularly admitted students. The program provides success seminars that cover such topics as financial aid, scholarships, and learning styles. One-on-one tutoring is provided in math and other subjects, as needed. Students are also given an opportunity to work as peer tutors and mentors and in clerical positions. Scholarships, computer labs, and a laptop loan program are some of the other services that are offered to the SSS students. The professional staff teaches two career-exploration classes and an anthropology class that satisfy a general education requirement. One of the unique components of this program is the use of its first-generation, income-eligible students, who are encouraged to become leaders, mentors, and tutors in the program. SSS peer mentors facilitate many of the in-class and out-of-class activities. Students must also take a first-initiative seminar, which allows them admittance to the program. The first-initiative seminar is a two-credit class, which can be applied toward graduation, and the cost is incurred by the provost’s office. The first-initiative seminar is taught by peer tutors and professional staff.

All three of these aforementioned SSS programs have a dedicated and caring staff. In addition, they help students become academically, emotionally, and socially connected to the universities. These programs provide services that help students feel
empowered regarding their futures. Helping, guiding, and empowering students are important elements of many of the SSS and other retention programs. To aid them in these goals, many retention and national SSS programs also have mentoring or mentoring components.

Definition of Mentoring and Examples of Mentoring Programs and their Outcomes

Bond (1999) said the term “mentor” was described by Homer in *The Odyssey* as a wise friend and counselor. Mentoring was originally considered a one-on-one relationship, but over the years mentoring dynamics have changed to encompass such relationships as triads and groups (Bond, 1999). The mentoring relationship can be both formal and informal. On an informal basis the mentor may interact with others on an elementary level, providing insight and information about a variety of topics. On a formal basis the mentor may be assigned or matched to someone with the goal of helping that person reach a defined objective or accomplish a certain task. In the process of striving for that objective a bond, friendship, or relationship is formed (Bond, 1999).

Mentoring experts say that the role of the mentor is very diversified. Mentors can be professionals helping other professionals acquire new and challenging positions; teachers helping other teachers learn how to manage their classrooms and become effective teachers; or peer mentors helping other students learn how to read, study, and become connected to the college or university. Bond (1999) further defined mentoring by saying:

...[F]undamental to each of these [mentoring] activities is the facilitation of change through encouragement, support, belief in others’ potential, pushing, challenging, questioning, guiding, listening, advising, training, providing opportunities and
alternative views, opening doors, leading by example, inspiring a vision, empowering and being non-judgmental. (p. 1)

Bond delineates a traditional definition of mentoring and identifies many of the attributes the mentoring relationship provides to the mentee. Authors often describe mentors as guides and helpers to the mentee (Bond, 1999; Parkay, 1988; Wallace & Abel, 1997). But this definition, like much of the research on mentoring, fails to describe mentoring as a reciprocal relationship that has an effect on both the mentor and the mentee. This research, therefore, moves into uncharted waters and provides an analysis of the ways in which assessment can be used to clarify the effect upon the mentor, the factor currently not addressed by the literature.

According to Bond (1999), Gaston and Jackson (1998), and Good, Halpin, and Halpin (2000), both the mentor and the mentee benefit from the mentoring relationship. The mentee learns skills and accomplishes goals and objectives. The mentor may feel a heightened sense of satisfaction and confidence and improve his or her listening and interpersonal skills. In addition to teaching and empowering the mentee, many mentoring programs have varied goals and objectives, such as having a positive impact on retention, academics, self-actualization, and behavior, successful outcomes that result in increased self-awareness and social and academic success.

Bond’s research (1999) asked whether mentoring programs have the right components to promote high achievement and low attrition in learning. Bond selected 10 case studies where mentoring was used for “practical benefit in structured learning” (Bond, 2000, p. 17). A representative sample of three cases was selected from Bond’s research, which reviews peer mentoring and/or at-risk students in an educational environment. The other seven cases were not discussed in this study because they
represented a corporate environment or did not provide enough specific information. Bond explained that structured learning and/or structured mentoring involves having a clear, concise plan where there is training-organization involvement, as well as selection and assessment of the mentors, mentees, and the program. 

Midland College of Technical and Further Education (TAFE) in Perth, Western Australia, provides the “Read-Write-Now” program, which provides one-to-one tutoring in both reading and math to educationally disadvantaged students from 18–24 years of age who have been receiving unemployment benefits for six months or more. The volunteer tutor will spend one to two hours with his or her student each week. The tutor-student pair is overseen by a coordinator and each student-tutor pair has an individual innovative plan designed just for that student. The student also receives career counseling. The outcome of the program is that students develop self-esteem and self-confidence. According to Bond, “They [students] want to break out of a self-perpetuating cycle” (p. 23).

A second example from Bond (1999) is from the University of Western Australia. A mentoring program was developed for agricultural students who were about to graduate, which would prepare them for the world of work. During the first year, students were provided with an opportunity to mentor children who were involved in extension and academic-challenge programs. First-year students were also matched with upper-class students. In their second year, students were matched with postgraduate students and faculty. Finally, in their third year, students were matched with professionals working in the field. The outcome of this program was that students were
involved in a collaborative learning community where both the mentor and mentee were exposed to networking, feedback, and an opportunity to learn.

A third example from Bond (1999) looked at peer mentoring at the Torrens Valley Institute of TAFE in Adelaide, South Australia. The main objective of this institute was to use the peer mentor to help part-time students who had full-time jobs achieve success in technical areas. Although Bond’s report on the statistical outcomes of the colleges was not included in the studies, Bond indicated that the outcomes of the programs included an increase in student pass rates, self-confidence, and retention. It is interesting to note that Bond made no mention of graduation in his discussion of outcomes, a critically important component addressed by this dissertation research. Bond also concluded from his study that mentoring was effective when dealing with retention and student learning. However, both the mentor and the mentee must be willing to invest time in the relationship. Informal mentoring must be in place before formal mentoring can be successful. Informal mentoring, according to Bond (1999), just happens without a plan through the act of giving and helping. Examples of informal mentoring are study buddies in the classroom, professors and staff who give advice to students outside of office hours, and students and staff who collaborate on volunteer activities. Program administrators must understand that successful mentoring is about the growth and development of the mentee. Bond implied that these concepts must be understood before any mentoring program can be successful.

Another study of effective mentoring programs was researched by Wallace and Abel (1997). In this study 20 first-generation, income-eligible students were interviewed. The goals of the study were to obtain information about how successful the program was
from the students' point of view, and to match retention theory with actual practice. Wallace and Abel concluded that formal mentoring can be an effective tool to foster retention, increase self-esteem, and facilitate student success and participation. While the Wallace and Abel study investigated retention and self-esteem, their study did not measure graduation as a measurement of program success. This research, *The First-Generation, Income-Eligible Peer Mentor Study* picks up in a new direction and includes graduation as a key measurement of program success.

One of the limitations of this study is that the interviewees were selected by the program administrators. The program administrators may have chosen students who were successful in the program, which might have created bias. Also, the selection and size of the sample makes it impossible to generalize. Further empirical studies need to be done before researchers can report on the effectiveness of mentoring.

Benefits to the Tutor in a Tutoring Relationship

The effectiveness of mentoring programs has been a topic of conversation and research for quite some time. However, before there were studies on mentoring programs, there were studies on tutoring programs. Research on tutoring programs that indicate a reciprocal benefit to both the tutor and the tutee may provide some insight about how the mentoring relationship works. Devin-Sheeham, Feldom, and Allen (1976) completed a critical review of tutoring programs that used children for tutors. The goal of the review was to examine field research on long-term programs operating in schools. To be included in the critical review the tutoring program must have been at least eight weeks long, concerned mainly with academics, and used student tutors. Occasionally adult tutors were used if the findings were significant. The tutoring programs were
supplemental to classroom teaching, and the age of the tutors ranged from elementary school to adults. The critical review examined structured and programmed tutoring and inner-city projects. These programs also included goals to improve the students' attitude and self-concept.

Structured tutoring, according to Devin-Sheehan, Feldom, and Allen (1976), includes "...instructional goals based on pre-testing of the students, validated tutoring techniques, regular assessment of progress, systematic review and careful recordkeeping" (p. 357). According to the critical review, programmed tutoring is a one-to-one individually structured reading program based on principles of learning, and also teaches paraprofessionals how to teach reading skills in daily 15-minute sessions. Finally, the review looked at inner-city projects, which were programs started in large cities to help under-achieving students ranging from elementary to high school improve their academics and self-concept. An example of an inner-city tutoring project is a 26-week program where tenth- and eleventh-grade student tutors worked with fourth- and fifth-grade children who were reading below their grade level. Students who received four hours of tutoring a week improved significantly over the control group, and student tutors showed a 3.4 years reading gain. The overall findings for these types of programs were that tutoring generally improved academic skills for both the tutor and the tutee in terms of improved reading and spelling skills and a more positive attitude toward the teachers.

The overall findings for these programs were that tutoring generally helped improve academic skills for both the tutor and the tutee. However, the results on attitude and self-confidence were inconclusive. Only three of the studies reviewed indicated an improvement in self-concept for the tutors, and only one showed a statistically significant
improvement. While Devin-Sheeham, Feldom, and Allen spoke to the benefits of the tutoring regarding academic improvement and self-concept, their study failed to address graduation/persistence. This study, *The First-Generation, Income-Eligible Peer Mentor Study*, brings in graduation rates as a central variable and creates a sustained argument that supports the research.

Cohen, Kulik, and Kulik (1982) were also interested in learning more information about the benefits of tutoring programs. As a result, they reviewed 65 studies to complete a meta-analysis. The studies that were included had to report on quantitative outcomes that consisted of groups that were tutored and untutored and had to take place in elementary or secondary school environments. The following three categories were used to report findings: student achievement, attitude toward the subject, and self-concept.

**Progress in Student Achievement**

From the 65 studies used in the analysis, 38 examined “achievement effect” (academic performance) on the student tutors. In 33 of the 38 cases, student tutors performed better on examination than students in the control groups. In 5 of the 38 studies, the examination scores were better for students who did not perform as tutors. According to Cohen, Kulik, and Kulik (1982), “To quantify the effects of tutoring programs... we used the Effect Size (ES), defined as the difference between the means of two groups divided by the standard deviation of the control group” (Glass, 1976) (p. 240). Glass noted, “On the 38 comparisons 10 reported statistically significant results [p
<.01], and in each case the difference favored students serving as tutors. The average ES in the 38 studies was .33; the standard error was .09" (p. 244).

**Shift in Attitude Toward the Subject**

From the 38 studies used in the analysis, 5 studies investigated how students felt about subjects such as math and reading. In four of the five studies, student tutors had a more positive attitude than students who did not serve as tutors. In one study, the student who did not serve as a tutor had a more positive attitude. Only one study showed a statistically significant difference \([p < .05]\), and that study favored student tutors’ attitude toward the subject. The ES was .42 and the standard error was .46.

**Positive Change in Self-Concept**

From the 38 studies, 16 reported on the self-concept of student tutors. Self-concept was higher for student tutors than for students who did not serve as tutors in 12 studies. Four of the 16 studies revealed that self-concept was higher for students who did not serve as tutors. Four of the 16 studies reported a statistical significance difference that favored the tutors.

Another study also continued to show the reciprocal benefit of peer tutoring. Mathes and Fuchs (1994) wondered if peer tutoring could be beneficial to disabled students regarding their reading comprehension. Using a best-evidence synthesis, the authors discovered that both the tutor and the tutee’s reading ability improved, indicating that a reciprocal benefit existed for both the tutor and the tutee. Mathes and Fuchs explained that, “Best-evidence synthesis (Slavin, 1986) methodology incorporates
features of both meta-analysis (Glass, 1976) and traditional narrative review” (p. 62).

Mathes and Fuchs further explained, “In a meta-analysis, all studies on a given topic are reported in terms of effect sizes, which reduce study findings into terms of standard deviation units. An effect size indicates how many standard deviation units higher the experimental group performed in comparison to the control group function” (p. 61).

Several different reading and comprehensive tests were used in Mathes and Fuchs’ review of peer tutoring reading comprehension programs: SLOSSON Oral Reading Test, Peabody Individual Achievement Test (PIAT), and Woodcock-Johnson Psycho-Educational Battery reading subtest (WJPB).

To be included in the best-evidence synthesis, the studies needed to evaluate peer tutoring programs designed to address reading problems in students having mild disabilities in grades 1 through 12. The duration of the studies reviewed needed to be a minimum of 12 weeks or 18 sessions, and the participants had to meet a minimum of twice a week with their tutor for at least 10 minutes per session. The studies also had to have control groups, and the experimental and control groups needed to be equivalent before testing began. The authors computed an effect size for each of the 11 studies that were included with an overall effect size of .36 and a statistical significance of (p< .01). Mathes and Fuchs (1994) explained how the effect size was computed for their review:

As defined by Glass et al. (1981), effect size is the difference between the mean final status scores of the experimental group and control divided by the standard deviation of the control group. The basic effect size formula was adopted as recommended by Hedges (1981) to yield an unbiased estimate of the underlying population effect when sample sizes are small. (p. 64)
The results from the best-evidence synthesis indicated that peer tutoring could be an effective means of improving the reading ability of both the mildly disabled tutor and the tutee in comparison to typical reading instructions (non-tutored control groups.) When the mildly disabled student spent part of his or her time as both the tutee and the tutor, there was an even greater gain in reading ability in comparison to non-tutored control groups. For example, fourth- through sixth-grade special education tutors tutored first-grade students. Both the tutor and the student reading group made improvements in their reading scores, but for this study only the score for the tutor was reported. The students’ reading growth was measured with the WJPB. The WJPB average effect size = .48. This score “reflects the WJPB letter-word identification, word-attack, and passage comprehension subtest.” The tutors’ best result was on the WJPB word attack score = (F_{1,77} = 49.75, p < .01, ES = .96). This score indicated a significant difference and a major improvement in the tutors’ effect size after the mildly disabled student tutors tutored their students.

Mathes and Fuchs cited an example comparing four learning disabled (LD) peer tutoring groups to a “teacher-led no-research-treatment control “(A teacher-led no research-treatment control group is a control group in which the teacher provides reading instruction without any intervention from the research staff.) The four groups used in the study are the following:

Group 1: Kansas model (ongoing oral reading practice followed by tutored-generated questions)—Students served as both tutors and tutees.

Group 2: Kansas model—Students served as tutors.
Group 3: Peabody model (repeat reading and paragraph restatement)—Students served as tutors and tutees.

Group 4: Peabody model—Students served as tutors.

The Comprehensive Reading Achievement Assessment Battery (CRAB) $= (F_{4,102} = 3.26, p < .05)$. An analysis of variance was used to compare the mean difference between the five independent groups. A probability of .05 indicated that there was a significant difference between the groups. All four groups outperformed the teacher-led control on words understood and read correctly.

The Peabody groups also exceeded the teacher-led control on questions answered correctly. The effective sizes on the groups were the following: Group 1: .76, Group 2: .07, Group 3: .65, and group 4: .25.

Mathis and Fuchs (1994) cautioned, “The effectiveness of peer tutoring in reading is dependent on the specific treatment and the needs of the learner” (p. 76). While the success of every tutoring program is dependent on many factors, such as tutors, tutees, training, and environment, Mathis and Fuchs have demonstrated that reciprocal benefits do exist for both the tutor and the tutee.

Mentoring Programs and Studies that Demonstrate Benefits to the Mentor

Cohen, Kulik, and Kulik (1982), Mathes and Fuchs (1994), and Devin-Sheeham, Feldom, and Allen (1976) are all authors who recognized and reported on the reciprocal benefits that exist in a tutoring relationship. After examining several tutoring programs and mentoring programs, this researcher noticed that tutoring relationships are very similar to mentoring relationships, and therefore made a comparison between the two.
For example, usually the goal of a tutoring program is to help the tutee improve academically. In many instances, the tutoring is provided in an educational environment, although tutoring can be work related or provided for personal reasons. In many instances, the tutor and the tutee will develop a bond or friendship.

Mentoring goals can also be academic, although mentoring can extend beyond academics to a variety of goals and objectives, such as learning life or job skills. Mentoring can be found in an educational environment, but it has also been used successfully in business and private environments. In mentoring relationships, a bond and friendship are also developed. The one major difference between tutoring and a formal mentoring program is the intentional development of the mentor-mentee relationship and bond. Because of these similarities between the mentoring and tutoring relationships, it may be reasonable to assume that both the mentor and the peer mentor may also benefit more than or as much from the mentoring relationship as the tutor in a tutoring relationship.

While comparisons can be drawn from tutoring relationships, it is also very important to find and investigate studies that discuss mentoring relations from the mentor's perspective.

Martin and Trueax (1997) discussed a qualitative study to determine what mentoring meant to the mentor and the mentee who were early childhood teachers who tended to have high attrition rates. Mentoring is being used more frequently to recruit and maintain novice teachers, and at the same time, help senior teachers to be revitalized regarding their work. The research consisted of a three-way interviewing process (mentor, mentee, researcher) in which 10 participants from the Early Childhood Mentor
Teacher Program were interviewed. Both the mentors and the mentees spoke of a transformation that took place as a result of the mentoring process. According to Martin and Trueax, (1997):

Findings revealed that mentors and protégés gained increased self-confidence and self-esteem and improved their practice. Each mentor and protégé recommitted to remain in the field of early childhood, renewed their professional interest, sought higher professional goals, and became more career-directed with interests in the areas of advocacy and leadership. (p. 49)

The Martin and Trueax (1997) study conveyed the importance of a mentoring relationship that not only benefitted both the mentor and the mentee through self-actualization, but was used as a tool to help the mentee investigate and learn, while the senior mentors gained a new perspective on teaching.

Twelve mentors were interviewed by Murphy (1995), from university professors, to business executives, to police officers. He clearly indicated both the benefits and negative outcomes of mentoring from the mentor’s perspective. Murphy’s dissertation on mentoring from the perspective of the mentor, using a qualitative grounded theory design, also discussed the reciprocal benefits to the mentor and mentee. Twelve middle-aged men were selected and asked if they fit the following criteria for a mentor, which included available time and a willingness to participate. Murphy (1995) stated:

For the purpose of this study a mentor is defined as a male who is older than his protégés, is at least 50 years of age, and has fulfilled all of the nine mentoring relationship functions defined by Kram (1985), during a mentoring relationship of at least one year duration. (p.9)

Kram’s nine mentoring functions were sponsorship, exposure and visibility, coaching, protection, challenging assignments, role modeling, acceptance and
confirmation, counseling, and friendship. Murphy (1995) explained how Kram defined the nine functions:

1. **Sponsorship**: nominating your mentee so they can progress laterally or vertically up the upper management path.

2. **Exposure and visibility**: helping your mentee make connections with a variety of upper management personnel.

3. **Coaching**: providing constructive strategies that will help your mentee accomplish their long-term and short-term career goals.

4. **Protection**: supporting and advocating for your mentee so that problems can be resolved.

5. **Challenging Assignments**: helping your mentee receive challenging assignments and providing feedback.

6. **Role modeling**: setting a good example that the mentees can follow.

7. **Acceptance and confirmation**: letting your mentees know you trust them, and that it is all right to take risks.

8. **Counseling**: listening and being available as your mentee deals with personal and work-related concerns.

9. **Friendship**: bonding and developing an informal relationship inside and outside the work environment.

Murphy (1995) found four areas where the mentor benefits from the relationship. They are self-image, personal benefit, continuity in their lives, and task-related benefits. Regarding self-image, the mentor sees himself through the eyes of the mentee, who
respects and may even love the mentor. The study revealed an example of a personal benefit the mentor gains—the gratification that the mentee will continue on with the mentor’s values, goals, and dreams. Regarding continuity in their lives, the mentor can continue to participate in activities that he or she enjoyed, such as collaborating, helping, learning, and being involved in a meaningful way. Finally, the mentor receives task-related benefits, such as helping with getting specific jobs done and doing them in a new, innovative, and possibly more efficient way.

Murphy (1995) also talked about the three disadvantages he discovered as a result of interviewing the mentors. The disadvantages are fractured trust, the pain of letting go, and the pain of disappointment. Murphy said fractured trust refers to the vulnerability of the mentor who trusts and believes in his or her mentee only to find that the mentee may have alternative motives for the relationship such as only using the mentor as a tool to move up the corporate ladder. When the author discussed the pain of letting go, he was referring to the very challenging but changing relationship between the mentor and the mentee. The mentee starts out wanting and needing a great deal of guidance. As the mentee learns and develops, the mentor must be prepared to recognize the mentee as a colleague and equal. This can be very difficult for some mentors. Lastly, Murphy talked about the pain of disappointment. He explained that a failure of setting expectations for each other can result in misunderstanding and disappointment.

Mentoring has also been used in the business world to help employees with management potential navigate their way through the corporate world. Allen, Poteet, and Burroughs (1997) completed a study in which mentors whose experience came from the business world shared their perspective on mentoring.
Allen, Poteet, and Burroughs (1997) interviewed 27 managers from 5 different organizations. The important requirement for these mentors was they must have been involved in a mentoring relationship. The goal of the research was to determine the reason why mentors mentor others. To explore this question four areas were investigated:

1. Reason for mentoring others
2. Organizational factors that influence mentoring
3. Protégé attraction
4. Outcomes associated with mentoring for the mentor

Reason for Mentoring Others

There are many personal and professional reasons why a person chooses mentoring as their way of contributing to society. By choosing to help others, the mentor may make a better work environment, expand networking capabilities, and simply reap the joy of helping.

Organization Factors that Influence Mentoring

Organizational factors that influence mentoring are employee learning, training, and betterment programs and policies, which management has put in place to encourage upward and lateral growth by the employee.
**Protégé Attraction**

Protégé attractiveness explains why mentors are attracted to protégés who are similar to themselves and who have potential to be successful. Interestingly, mentors are also attracted to mentees who obviously need help.

**Outcomes Associated with Mentoring for the Mentor**

Allen, Poteet, and Burroughs suggested that mentoring is a reciprocal relationship through which mentees grow and accomplish specific goals and new insights, create networking connections, and increase levels of self-worth and self-satisfaction. In the business environment, many companies are downsizing and mentors are finding it more and more difficult to find the time to mentor others. However, the benefits of helping, whether because the mentors enjoy helping others, or because the mentors feel they will receive personal recognition for their efforts, far outweigh the cost of time invested.

Allen, Poteet, Burroughs (1997), Martin and Trueax (1997), and Murphy (1995) all discussed mentoring studies where it was demonstrated that both the mentor and the mentee benefited from the relationship. However, these were studies where the mentor was older and wiser than the mentee. As a result, the benefits, the developmental stages, the reasons for becoming a mentor, and the effects the relationship has on the mentor may be different for a peer mentor. Because the current study specifically looks at a peer mentoring program and how the program and the relationship impacts the peer mentor, it is critical that this researcher investigate the literature on peer mentoring programs and discuss the differences and similarities.
Peer Mentoring Programs and Research that Demonstrate Benefits to the Peer Mentor

Two studies, one by Good, Halpin, and Halpin (2000) and one by Rhyan (1995), that discussed the mentoring experience and identified the benefits to the mentee, mentioned in their conclusions and summaries that the mentors also benefited from the mentoring relationship. Good, Halpin, and Halpin discussed a study that was completed at a large southeastern university with freshmen engineering minority students who had peer mentors. Acting as both mentors and academic tutors, the peer mentors helped the freshmen with math and study skills, shared experiences about their own freshman year, and attended movies and bowling outings with the freshmen. The intent of the program was to increase retention for minority engineering students. To gather information about the program’s intent, administrators asked the peer mentors to keep journals. Entries in the mentors’ journals disclosed that the mentors recognized their own academic growth, improved study skills, critical thinking, and a better understanding of engineering concepts. Mentors also wrote in their journals that they had developed good communication and leadership skills and had developed more self-confidence and self-satisfaction. It should be noted that the findings regarding the benefits to the mentors were an accidental discovery. The purpose of the journals was to respond to weekly program evaluation prompts, which focused on program development. While reading through the journals, the program coordinator observed mentor comments on personal and academic growth.

Good, Halpin, and Halpin (2000) continued their inquiries of the minority freshmen engineering students by reviewing the journals of 19 upper-class engineering mentors (4 females and 15 males). The timeframe for this qualitative study was over one
academic year. Students' GPAs and retention trends were compared to the general student body. Seventy percent of the mentors indicated increased academic growth, which they recorded in their journals, and 50% indicated improvement of study skills. Twenty-seven percent acknowledged growth in critical thinking. Finally, 90% noticed an improvement in communication, confidence, and identity.

The researchers did not have a cohort group, but they were able to look at trends. The mentors’ mean GPA increased from 2.62 to 2.76, and 80% of the students persisted and graduated. Previous studies indicated that minority engineering student retention for the first year was 35.6 percent. The Good, Halpin, and Halpin (2000) study is very convincing because the mentors’ comments were unsolicited. Although Good, Halpin, and Halpin concentrated on the benefits to the mentors in their study, they did state that mentoring relationships provided an “exchange of benefits” (Good, Halpin, and Halpin, 2000, Conclusion section, ¶ 3), which is a good indication that they believed the relationship to be reciprocal.

Another good example of a study that identified a reciprocal relationship is Rhyan’s (1995) 12-week qualitative study of a peer mentoring program for nine fifth-grade students that was developed to observe their discipline problems and behavior in an art environment. The goal of the study was to see if the mentoring reduced unacceptable behavior and developed positive interaction and behavior among the mentees by 80%. Mentors were required to keep weekly log entries. Rhyan discovered from reviewing entries in weekly logs that the peer mentors felt important, useful, and helpful and had learned new skills. Ryan also noted that the goals of the study were accomplished.
Again, this study inadvertently discovered that both the mentee and the mentor benefited from a mentoring relationship.

As previously noted, some studies inadvertently discovered the reciprocal benefits of a peer mentoring program, O’Donnell, Michalak, and Ames (1997) discussed a program that was formed understanding that peer mentors can benefit as they assume the role of mentor, tutor, and role model, and make healthy choices that help them, the mentee, and the community. This behavior from the peer mentor encourages healthy, safe choices from the mentee who lives in an inner-city at-risk environment.

O’Donnell, Michalak, and Ames (1997) described this phenomenon as the social development model (SDM). The SDM says that at-risk children may make unsafe choices because of their exposure to crime, drugs, and poverty. However, they will make healthy safe choices if they are exposed to the right factors. One of the important factors of SDM is bonding. O’Donnell, Michalak, and Ames said:

This research-supported model emphasizes bonding as a key protective factor in children’s resistance to problem behaviors. Bonding is a sense of belonging and contributing to family, school, peer, or community. The components of bonding are attachment, defined as positive relationship with others and commitment, defined as investment in the future. (p 232)

Throughout this research the mentors also alluded to this feeling of bonding and commitment through their comments that they felt useful and helpful and wanted to make a difference. This is another example of how both the mentors and mentees reacted to the same factors and supports the concept that mentoring is a reciprocal relationship.

In the Collaborative After-School Prevention Program, children who were struggling to make the right choices had an opportunity to select a healthy alternative that allowed them to strive for academic success, commitment to community involvement,
and work toward economic advancement. O’Donnell, Michalak, and Ames (1997) continued their description of the program by explaining that the peer mentors and mentees were selected from the same troubled inner-city community. This selection process allowed the relationship to begin with a commonality. Both the mentor and the mentee were low-income minorities who lived in poor inner-city neighborhoods. The mentees ranged from second to eighth graders. There were 584 children enrolled in the program, with 54 mentors who ranged in age from high school to college. The college students acted as the site directors who supervised the mentors. There were four school sites. The Collaborative After-School Prevention Program was about reducing crime, providing tutoring and extra-curricular activities, and promoting self-awareness.

The governing committee, which was comprised of representatives from public, community, and governmental agencies, employed a research team, which designed a survey and interviewed 86% of the 54 peer mentors. From the peer mentors’ perspective, the mentors discussed the impact of the program on both the mentee and the mentors. The survey determined that the mentors felt that the program was good for the mentees because the mentees could continue being children in an environment where childhood was quickly lost. They felt the program was good for the mentees because they could also be safe. The mentors talked about attitude changes. They felt as if they were more conscientious regarding their schoolwork and their behavior. They also recognized that they were role models and their mentees were looking to them to decide how they should behave. This after-school program was successful in helping children make safe, healthy choices, and peer mentors played a special role helping this project become a reality.
Programs that utilize mentors can benefit both the peer mentor and the student mentee. Sawyer (2001) discussed a study where three African Americans and four Latino high school students were invited to an elementary school to act as peer mentors. The goal of the program was to encourage minority students to learn more about teaching with the hope that they would pursue teaching careers. The mentors were assigned to work in three regular classes and a movement class (math, reading, writing, and chess). Sawyer wanted the peer mentors very involved in the research and asked them to help compose some of the interview questions. Sawyer evaluated the peer mentors, the elementary school teachers, and the program’s administrators, and collected data via classroom observation and individual interviews. Focus groups were used when interviewing parents, teachers, and project staff, and end-of-year documents and minutes from meetings were also reviewed.

The outcome of the study revealed that none of the peer mentors decided to pursue teaching as a career. The author mentioned that they were young and those feelings may change. By involving the mentors in the research process, Sawyer made the mentors feel connected, but he attributed the mentors’ lack of interest in teaching to the failure of the teachers and the administrators to help the peer mentors feel connected to the school by involving them in conversations about the mentoring program. The peer mentors suggested that they felt like they were treated like outsiders by the very people who asked them to be a part of the program.

Sawyer’s research project took place in the third year of the mentoring program, and although the staff and administrators felt that the current mentors were doing a good job, they were less than satisfied with the mentors from the previous two years. Teachers
felt that previous mentors had poor training and said it was like having an older child in the classroom that they had to look after. In the previous two years there were expectations for mentors to attend seminars and curriculum planning sessions, but a high percentage of the mentors failed to attend. Many of the elementary teachers indicated it was difficult both socially and developmentally working with mentors who were at-risk high school students. As a result, Sawyer (2001) stated:

These broad problems—a marginalization school culture, a lack of staff preparation, and a lack of institutional acceptance—intensified two interrelational situations which discouraged the mentor from entering teaching. One situation... was their perceived complexity of the reality of teaching. The other... was a mixture of very traditional structural constrains: isolation, lack of collegiality, and lack of staff and school inclusion.... The mentors may be described as experiencing a sense of nonchalant isolation from the larger community—even while holding a sense of satisfaction in working with the younger children (p. 54-55).

The outcome of the study from the peer mentors’ perspective was threefold. The student mentors became very dedicated, caring mentors; their altruistic nature increased considerably; and they had a higher sense of self-esteem because they saw themselves through the children they were mentoring. Sawyer (2001) noted how much the student mentors valued the mentees and their relationship by their response to the following questions: “What did they [the student mentors] get out of the program?” Their responses were “working with kids,” “teaching them what they did not know” and “making new friends” (p. 47).

Sawyer’s study is clearly another good example of the reciprocal benefits that exist in peer mentoring relationships. When programs utilize mentoring, both parties improve in their skills and their increased abilities to form caring relationships.

56
The literature review has examined the success of at-risk students and revealed that student success is tied to good retention strategies. These strategies are evident when university staff, faculty, and administrators who reach out to at-risk students identify their needs and make students feel that they are academically and socially connected to the university. The literature review has also revealed that mentoring can be one of the most effective ways of helping achieve retention and student success.

Closing Comment to the Literature Review

Through the literature review, it was discovered that other researchers have presented empirical evidence supporting the existence of a reciprocal benefit to both the mentor and the mentee, and because the goals and objectives of the mentoring programs used in this study were very diversified (Mathis and Fuchs study, and Murphy), it may be difficult to see the relevance to at-risk students in this research; however, the reason the studies was selected is that they all demonstrated a benefit to the mentor and in many instances spoke from the mentor’s perspective.

The literature review was also used to reveal the differences and similarities between the traditional mentor and the peer mentor. Both mentors strive to help the mentee accomplish his or her goals and objectives while offering friendship and guidance.

First, one of the main differences observed between the peer mentor and the traditional mentor is they assume the mentoring role at different developmental stages of life. Second, the reasons the mentors choose to mentor are different based on whether they are peer or traditional mentors, and third, the mentoring relationship affects the peer and traditional mentor very differently. In the traditional mentoring relationship, the
mentor is a senior experienced in his or her career and life. According to Erickson (1997), in the developmental stages of life the adult must decide between being involvement or stagnation. When the mentor chooses generatively (development of productivity and creativity), he or she wants to help and leave something behind that will impact on society or the mentee. Some of the mentor’s rewards are revitalization toward his or her work, personal recognition, and the altruistic joy of helping others.

The authors in the literature review have suggested that peer mentors usually are in an earlier stage of life and prefer to be useful and helpful while they themselves are developing attitudes and characteristics.

O’Donnell, Michalak, and Ames (1997) discussed the social development model, which says at-risk mentees can make healthy choices if they have the right role model, and that at-risk mentors make the right choices because they are role models trying to help and set good examples for their mentees. First-generation, income-eligible mentors and mentees may also be responding to each other in a similar way. As the mentees acclimate themselves to university life, the experienced first-generation, income-eligible peer mentor chooses to make good choices as the mentor and role model.

The theoretical concept used in this proposal is the *education attainment model*, which suggests that significant others influence educational decisions. The influence of significant others, training, and interacting with the student mentees help the SSS peer mentors to see themselves as academically successful students who will persist and graduate.
Educational and Occupational Attainment Model

The Educational and Occupational Attainment Model (Wisconsin model) takes Blau and Duncan's Status Attainment Model one step further. Blau and Duncan's model discusses how social mobility is affected by educational and occupational factors. The Wisconsin model states that there are other factors (social psychological factors) that should be considered when trying to determine why people reach different levels of education and occupation. These factors are the following as suggested by Sewell, Haller, and Portes (1969):

1. Occupational attainment—the occupational level that an adult attains.
2. Educational attainment—measurement of those who went to college and those who did not.
3. Level of occupational aspiration—what occupation does the subject hope to attain in the future?
4. Level of educational aspiration—what level of education does the subject hope to attain?
5. Significant others—specific persons who, by their expectations, help the subject formulate his or her aspirations and future goals (Woelfel, 1967).
6. Academic performance—a value that was determined by how well the subject performed in high school.
7. Socioeconomic status—this status was determined by parents' education, father's occupation, and annual income.
8. Mental Ability—standardized tests (Henmon-Nelson Test Index) that were done in high school.

The educational and occupational process proposes a linear causal sequence that starts with parents' socioeconomic status and the mental ability of the subject. These two variables are linked to the subject's performance in school, which is influenced by significant others. Significant others have an influence on the level of educational and occupational aspiration, which influences the level of education and occupation attained. Sewell, Haller, and Portes (1969) stated, "We have concluded that the key variable here is significant others' influence" (p. 84). "We hypothesize that the major effect of significant others' influence (SOI) on attainment is mediated by its effect on levels of aspiration....It is not inconsistent with this to suspect the possibility that SOI might have a direct influence on later educational attainment" (p. 86).

In other words, a key variable of the educational and occupational model is significant others. Significant others are the core underpinning of this study.

In conclusion, it is important that SSS and mentoring administrators recognize mentoring as a reciprocal relationship. Therefore, as programs are being implemented and maintained, the mentee must have a pathway leading from mentee to mentor, which will open the door for additional training and place the mentor in an environment of support and expectations creating social and academic success. It is through this lens and by this research that the researcher has discovered in what ways and to what extent SSS peer mentors’ GPAs, retention, and graduation rates differ from 1. Non-Eligible Students, 2. SSS Non-Participants, 3. SSS Participants: Mentor-Ineligible, and 4. SSS-Eligible Non-Mentors. And, in what ways does SSS peer mentoring affect the peer mentors’
development of such attitudes and skills as self-esteem, self-confidence, self-worth, and leadership ability?
CHAPTER III

METHODS

A mixed-methods design was developed that included both quantitative and qualitative components. A random matched-comparison technique was employed, creating a reasonably balanced design. A database was created from the design that allowed for a comparison between the peer mentor and four other comparative groups in terms of mean differences in CGPA, retention, and grad rate. Structured interviews and a focus group were conducted to collect qualitative data, which resulted in findings that allowed for thick, rich descriptions and a clear understanding of the change that occurs when at-risk students are given an opportunity to mentor and interact in a supportive and educational environment.

This mixed-methods longitudinal study examined the quantitative effects of mentoring on the at-risk peer mentor in a midwestern university’s SSS program on GPA and on retention and graduation rate. Expectations were that the peer mentors would have higher GPAs and better retention and graduation rates than other comparison groups in the study. In addition, intangible outcomes of mentoring such as self-confidence, self-esteem, self-worth, and leadership were explored through qualitative structured interviews and a focus group.

Rationale for Research Design

Creswell (2003) reported that a mixed-methods study captures the best of both worlds. On one hand, this design allows the researcher to collect quantitative data where outcomes can be predicted. On the other hand, it allows an opportunity to glean a
A longitudinal study allows the researcher to observe academic progress and patterns of retention and graduation over time and to make comparisons between different groups of students. Tinto (1993) suggested that longitudinal studies can help the researcher acquire a more accurate understanding of persistence/retention.

Quantitative Analysis

This chapter first provides details regarding the hypotheses, data sources, and analytical methods associated with the quantitative research questions. In addition, it discusses the sample and methods used to explore the qualitative questions. To complete the analysis and to test the hypotheses, a multi-cohort analysis of variance (ANOVA) design was employed to analyze the differences between the peer mentors and the other four groups in terms of GPA, retention, and graduation rate. The level of significance in this study was set at alpha = .05.

Hypotheses

The following hypotheses question whether the peer mentor group will be equal to or greater than the other comparative groups.

H1: The peer mentors’ mean GPA will be greater than that of the Non-Eligible Students, SSS-Eligible Non-Participants, SSS Participants: Mentor Ineligible, and SSS-Eligible Non-Mentors.
HO: The peer mentors’ mean GPA will equal that of Non-Eligible Students, SSS-Eligible Non-Participants, SSS Participants: Mentor Ineligible, and SSS-Eligible Non-Mentors.

H2: The peer mentors’ mean retention rate will be greater than that of Non-Eligible Students, SSS-Eligible Non-Participants, SSS Participants: Mentor Ineligible, and SSS-Eligible Non-Mentors.

H0: The peer mentors’ mean retention rate will be equal to that of the Non-Eligible Students, SSS-Eligible Non-Participants, SSS Participants: Mentor Ineligible, and SSS Eligible Non-Mentors.

H3: The peer mentors’ mean graduation rate will be greater than that of Non-Eligible students, SSS-Eligible Non-Participants, SSS Participants: Mentor Ineligible, and SSS Eligible Non-Mentors.

H0: The peer mentors’ mean graduation rate will be equal to that of Non-Eligible Students, SSS-Eligible Non-Participants, SSS Participants: Mentor Ineligible, and SSS Eligible Non-Mentors.

Population Sample and Participants

Eligible and ineligible student data were obtained from university records. SSS participants are the students recruited by SSS every fall semester from 1998 to 2005. The researcher also reviewed SSS attendance records for the same period of time to verify SSS participants’ identity.

Every year SSS recruits approximately 60 students for its UNIV 1010: Freshmen Seminar classes. These are the threshold classes for students entering into the SSS
program. Two-thirds of SSS participants must be first-generation and income-eligible. One third of the students may be first-generation, income-eligible, or disabled. All SSS-eligible students must have one of the following academic needs:

1. High school GPA below a 3.0
2. ACT score lower than or equal to 21
3. Remedial course placement
4. Transfer GPA of less than 3.0

From the SSS participants, approximately 30 become SSS Participants: Mentor Ineligible; 25 historically become SSS-Eligible Mentors: Non-Participants, and 5 meet the criteria to become SSS Peer Mentors.

Independent Variables

McMillan (2004) argued that it is important to know and understand the independent variables in a study and how they can affect the dependent variables. The independent variable in this study is group membership. A second independent variable is cohort year. Group is a categorical variable that takes on one of several values (1, 2, 3, 4, or 5 corresponding to the five student groups) as follows:

1. Non-Eligible Students
2. SSS-Eligible Non-Participants SSS Participants (students who are eligible for the program and receive services)
3. SSS Participants: Mentor Ineligible (participants who do not qualify to be mentors)
4. SSS-Eligible Non-Mentors (students who are eligible for the program and receive services or who are not selected)

5. SSS Peer Mentors

Six levels (from 1998 through 2003) define the factor cohort year. Descriptive statistics by group and cohort year are provided for gender, age, race, and college choice.

Dependent Variables

McMillan (2004) also stated that a researcher must understand what the dependent variables are and how they can be affected by the independent variables. The dependent variables in this study are GPA, retention, and graduation rate. The researcher noted that most universities compute GPA as follows: a GPA is calculated by dividing the total number of honor points earned by the total number of semester hours in which the student is enrolled during a semester. The number of honor points equals the credit hours assigned to each course multiplied by the grade that a student earns for that particular course. The grades are based on a 4-point scale where A = 4.0, BA = 3.5, B = 3.0, = CB = 2.5, C = 2.0, DC = 1.5, D = 1.0, E = 0, X = 0. For example, a student who registered for 4 credits and received a grade of "B" would earn 12 honor points and have a GPA of 3.0 (i.e., 4 credits attempted x 3.0 grade points earned or 12 honor points/ 4 credits attempted resulting in a 3.0 GPA). The dependent variable in this study is CGPA at graduation, calculated by summing all honor points earned divided by all credits attempted from entry until award of a bachelor's degree.

The retention/persistence dependent variable is represented by the number of years to graduate (Yrs To Grad). This is a good measure of institutional effectiveness as
well as persistence and retention. Start dates were identified for all participants within the five categories and six cohorts. As each participant graduated, the years from start date to end date were calculated. No consideration was given to semesters in this calculation. For example, students starting in fall 1999 who graduated in summer 2004 did so in 4 years instead of 11 semesters.

Another component of retention tracking involves graduation rate. At the end of each academic year, the researcher flagged students who had graduated. Thus every student in the study had a start date, and every student either had or had not graduated by 2008.

Procedure

The SSS participants were identified from the SSS attendance records. The entire population was used, approximately 60 students who were recruited as freshmen from each cohort year. A data file of SSS non-participants was created, which was extracted from computer print-outs from the Department of Admissions and Financial Aid. These reports are used to gather recruitment information for the SSS population and to meet a requirement for U.S. Department of Education grant reporting. Once it was established who qualified for SSS but did not receive services (SSS non-participants) in any cohort year (1998–2005), those students were extracted from the university’s freshmen population, leaving remaining students who did not qualify for SSS to form the non-eligible student population. Student records are housed in the university's student information system. From the population of students who did not qualify for SSS, five small randomly matched samples of the non-eligible student groups and three small
randomly matched samples of the SSS non-participants student group were drawn from the students who did qualify for SSS. The replication of the sample groups was done so that the sample sizes would be similar, thereby maintaining a reasonable balance of the design. All the random sampling was done using a matched-comparison technique (software), which was created by Dr. Edward Applegate and Dr. Warren Lacefield. Both Dr. Applegate and Dr. Lacefield are professors at Western Michigan University in the Department of Education Leadership, Research, and Technology.

A random-matching algorithm program (written using the SAS statistical programming language) was designed so that the study's demographic variables of ethnicity, gender, age, and college could be evenly matched in all the comparative groups using the mentor group as the control. As a result, random-matched samples were drawn from each group-level population, thereby creating a reasonably balanced design and controlling potential demographic variation effects through random selection. For example, if there are 10 African-American females in the SSS mentor group who are 18 years old and enrolled in the college of business, there will be 10 African American females, age 18, who are in the college of business in the other comparative groups. The data were placed into an SPSS database, which was used to generate descriptive statistics and to run analyses of variance based on generalized linear and logistic ANOVA models.

The research design included three separate models of increasing sophistication: Model One was based on a Three-Group, One-Way, Generalized Linear or Logistic ANOVA. Model Two involved a Five-Group, One-way, Generalized Linear or Logistic ANOVA. Model Three employed a Five-Group, Two-Way, Generalized Linear or
Logistic ANOVA. (The linear-normal model was used to analyze Yrs To Grad and CGPA at graduation. A binary-logistic model was used to analyze Grad Status.)

**Model One**

Model One was developed to analyze the dependent variables Grad Status, Yrs To Grad, and CGPA as a function of the independent variable Group with three levels (Non-Eligible, SSS-Eligible Non-Participant, and SSS Participant). This model illustrated that when SSS Participants are compared with the SSS-Eligible Non-Participants (students who are eligible for the program, but not receiving services), the SSS Participants perform better. It was important to demonstrate this typical behavior of the groups because the variable SSS Participant group was divided into sub-groups in Model Two and Three to explore other hypotheses.

**Model Two**

Model Two examined effects on the dependent variables Grad Status, Yrs To Grad, and CGPA also as a function of the independent variable Group, which this time was divided into five levels (Non-Eligible, SSS-Eligible Non-Participant, SSS Participant Non-Mentor Eligible, SSS Mentor-Eligible Non-Participating, and SSS Mentor). This model provided opportunity to examine mentor effects.

**Model Three**

Model Three was developed to analyze the dependent variables Grad Status, Yrs To Grad, and CGPA as functions of two independent variables: Group and Cohort Year.
Again, there were five Group levels (Non-Eligible, SSS-Eligible Non-Participant, SSS Participant Non-Mentor Eligible, SSS Mentor-Eligible Non-Participating, and SSS Mentor) fully crossed with six levels of Cohort Year. Model Three allowed consideration of variation from one cohort group to the next and possible interactions between Group and Cohort Year.

Qualitative Research Design

Because the study involved human subjects, the first task was to file proper papers and obtain permission to proceed from a midwestern university’s Human Subjects Institutional Review Board (HSIRB). (See Appendix A).

Current and graduated mentors were invited to participate in a structured interview and focus group. In the interview with the participants, the interviewer solicited answers from a list of questions (a "structured interview protocol"), listened to and recorded responses on a tape recorder, and answered any questions the participants had. This interview format was chosen because, according to Thomas (2003), the interview method allows the interviewer more flexibility to clarify questions and the interviewees can elaborate in response. Finally, the interview format can be more effective than an impersonal questionnaire because the interviewer can see and/or hear how the interviewees couch their responses.

Because the researcher currently works for SSS, and has access to rooms, equipment, files, and peer mentors, the researcher used the contact information in SSS’s files to mail, e-mail, or telephone potential participants. The researcher also asked the assistance of the midwestern university’s alumni office to help locate students who graduated. The researcher explained that she was working on her dissertation and that
another trained interviewer (student interviewer) would conduct, record, and transcribe the interviews. As a result, the researcher would not, herself, be able to connect individual participants to particular answers. The student interviewer asked follow-up questions in a second telephone or e-mail communication to clarify any unclear answers. The current SSS peer mentors (participants) were offered $10 for their participation in the study. The graduated peer mentors’ names were placed in a raffle with a chance to win $25. It was explained to the participants that their responses would be kept anonymous, but information from the study could be shared with others as a way to broaden knowledge about mentors and mentoring.

The focus groups and structured interview sessions took place in one of two tutoring rooms on the campus of the midwestern university, an arrangement familiar to participants who often used these rooms in SSS student functions. In instances where students could not come to the campus, a phone interview was conducted by the interviewer. Phone interviews were taped.

**Selecting the Participants—Focus Group**

There were 12 students who had not graduated and who served as peer mentors. All 12 peer mentors were invited to participate in the focus group. Participants in the study were either SSS peer mentors who were currently members of the SSS, or had graduated from the program. A purposeful sample of participants was selected for the focus group. According to McMillian (2004), this method allows the researcher to select participants based on location, knowledge, and logic that should help provide the most reliable information about the topic being studied. A minimum of five mentors were
required to participate in both the structured interviews and focus group. Peer mentors who participated in the structured interviews did not participate in the focus group.

The current peer mentors were given information about the dissertation topic and sent consent forms (Appendix C) by e-mail and placed in their on-campus mailbox at the midwestern university. Peer mentors could direct questions by e-mail or by phone to the researcher. Signed consent forms were given to the student interviewer. Since the researcher is a professional staff member of SSS and since the peer mentors work for the researcher, the interviewer, a doctoral student, facilitated both the focus group and the structured interviews. The student interviewer was paid a fee of $25 per hour. The student interviewer determined a day and time that accommodated the first five mentors who responded. The next two mentors who sent consent forms were asked to participate in a structured interview (pilot test). The peer mentors who were interested in participating in the structured interview were given an opportunity to direct questions via e-mail or phone only to the student interviewer. The peer mentors were instructed to send the signed consent forms to the student interviewer by fax or interoffice mail. The focus group took place after the pilot test so that the protocol questions could be reviewed and discussed with the researcher and resubmitted, if necessary, to HSIRB.

Pilot Test

Questions for the pilot test were compiled by the researcher after careful consideration was given to selecting questions that would allow the participants to feel comfortable yet lead the interviewer to uncover whether or not any change had taken place after participating in the mentoring program. Two of the current peer mentors were
invited to participate in a pilot test to help validate the process. The participants had to have at least one year of experience. The protocol was tested on them for clarity and completion time. McMillian (2004) and Rudestam and Newton (2001) stated that pilot tests are necessary procedures because questions can be misinterpreted and pilot tests help to clarify questions and establish a more accurate length of time for the protocol. The first five selected current peer mentors were asked to participate in the focus group. After completing the focus group, the protocol was again reviewed for clarity. There were no changes made, and the same protocol was used for the structured interviews.

Selecting the Participants—Structured Interviews

Approximately 30 peer mentors had graduated from the midwestern university. A random sample of 12 of these individuals was selected. There were eight peer mentors who participated in the structured interview (two current and six graduated). Two peer mentors were chosen from among the current peer mentors as part of a pilot test. The remaining six were chosen randomly. Twelve information letters, consent forms, and protocol questions were sent to the graduated peer mentors. The letter explained that they could ask questions through e-mail or phone to the student interviewer. They were also asked to indicate if they preferred to be interviewed in person or by phone.

Preparing the Interview

A script was developed based on the HSIRB protocol and used during the focus group and the structured interviews. The structured interviews were conducted by phone. On average, these interviews lasted approximately 60 minutes. The subsequent focus
The interview followed logic suggested by Thomas (2003): the questions were arranged so that the interview began with an informational question. Such a question helped establish "set" by introducing each person to other group members and reduced the kinds of conflicts personal opinions might cause, or in the case of the structured interview, put the interviewee at ease. Because open-ended personal opinion questions were needed, however, the interviewer asked several. The interviewer followed an "if-then" logical step-by-step approach, which included confirming "No" responses and giving examples to "Yes" responses. Please see Appendix B. The interviewer concluded by thanking the participants for taking time to participate in the study.

To make sure all interview questions were answered thoughtfully and accurately, the questions were structured in such a way as not to be biased or to stress positive experiences or beliefs. Questions were chosen primarily that elicited themes and patterns dealing with self-worth and patterns of words or phrases that demonstrated self-confidence and that helped the researcher to understand what the SSS mentoring experience was like for each participant and whether or not the participant’s experience created a transformation or strengthened academic and social connection to the university. A sample of the protocol appears in Appendix C.

**Conducting the Interview**

Because the researcher had been the participants’ supervisor, the doctoral student interviewer, who is knowledgeable in qualitative analysis, conducted the interviews. Having someone else conduct the interviews eliminated any appearance of bias. The
student interviewer memorized the prepared interview script, which began with the
student interviewer thanking the participants and briefly telling them what the study was
about. The student interviewer asked participants to sign permission slips approved by
the midwestern university’s HSIRB and asked participants for permission to tape-record
the session. The student interviewer took notes during the face-to-face or phone
interviews. The student interviewer recorded written notes on any ideas that the
interviewees prompted the student interviewer to think about, which could not be tape-
recorded.

During the face-to-face or phone interviews, participants were able to ask
questions, and the student interviewer was able to clarify anything for them that they did
not understand. The student interviewer was instructed to redirect the conversation only
if participants wandered completely off topic or if the interviewer needed to ask other
questions.

Recording and Analyzing the Results

The recorded interviews were transcribed verbatim, and the student interviewer
revised any notes taken during the sessions so that the information was clear. The
transcription was printed out on different-colored paper for each of the different attitudes
and leadership ability headings. The researcher used large sheets of paper, and a
definition was typed on the top of each paper. The paper was divided into columns for
each question and sub-question. Relevant quotes were cut and pasted at appropriate
places on the large sheets of paper. The researcher searched for quotes that captured the
point of view of the participant. A coding letter was used to trace the source of the quote
in case later examination of the source or context of a particular discussion proved necessary. The researcher studied the responses to each question and sub-question. An overview statement or summary was created to identify interesting or unusual responses and commonalities. This process was also followed for both the structured interview and the focus group. Some responses or response characteristics or categories could be quantified, but most results were of a narrative variety.

The researcher read the transcriptions and the notes looking for common themes and patterns that could be quantifiable. For example, participants may have offered the same or similar one-word answers to the final question or discussed similar reasons for why their communication skills had changed. The researcher counted and kept score of how many times participants used the same or similar words to describe their experiences, translated participants' ideas into metaphors, and identified key quotes. This process was the basis for the researcher to discover the ways and to what extent SSS peer mentoring affected mentor development of such attitudes and skills as self-confidence, self-esteem, self-worth, and the ability to lead. A trusted colleague helped perform an inter-rater reliability procedure. The independent coding was within 98% of the original coding. (See Appendix K.) According to Thomas (2003), this kind of process is an efficient means of determining the scoring and coding accuracy of a document.
CHAPTER IV

QUANTITATIVE RESULTS AND ANALYSIS

This chapter presents the results of the quantitative and qualitative elements of this mixed-methods investigation. Each of the quantitative and qualitative research questions and accompanying hypotheses are examined.

Part I: Description of the Quantitative Sample

As indicated in the methods chapter, the population for this study was selected to determine specifically how mentoring affects the peer mentors’ GPA, retention, and graduation rate. The university student population was divided into Non-Eligible and Eligible students as explained in Chapter Three. The SSS Participants were selected from the Eligible population through the attendance records of SSS from the 1999–2005 academic years. The SSS Participant group was divided into three separate categories based on selection criteria explained in Chapter One. Five small randomly matched samples were drawn from the Non-Eligible group, each containing about 50 subjects matched in terms of demographic variables with the mentor group for each cohort year in the study. In addition, three small random samples also matched with the mentor group were drawn from the SSS Non-Participant group for each of the cohort years. This procedure was done to keep the samples similar in size while providing an opportunity to examine the effect of group replication. Table 1 is the population chart, which shows the size of the populations from which the samples were selected.

Table 2 displays the random sample selection chart divided into the five comparative groups for each of the six starting cohort years. Data were collected on the
participants from fall 1998 through the summer of 2008. A filter (< 2004) was used in the SPSS program to drop students who started in 2004 and subsequent academic years. These students were eliminated from all computations because they did not have a full four years to graduate before the close of the study. On the other hand, this process allowed students who were retained to have a minimum of five years to graduate. CGPA and years to graduate (Yrs To Grad) for all retained students who graduated were calculated. Table 3 below illustrates the comparative groups by starting cohort year from 1998–2003 (2004 and 2005 have been filtered out).

Table 1. Population Chart by Starting Cohort Year

<table>
<thead>
<tr>
<th>Group</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-eligible</td>
<td>2292</td>
<td>2600</td>
<td>2565</td>
<td>2691</td>
<td>3041</td>
<td>3000</td>
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<tr>
<td>Non-participant</td>
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<td>1095</td>
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<td>1885</td>
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<td>50</td>
<td>51</td>
<td>65</td>
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</tr>
<tr>
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<td>4006</td>
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<td>4318</td>
<td>4409</td>
<td>4151</td>
<td>3716</td>
<td>4770</td>
<td>33192</td>
</tr>
</tbody>
</table>

Female participants made up 66% and male participants 34% of the study (primarily because this happened to be the ratio in the mentor groups that were used for matching). Table 4 describes the gender distributions in the five group levels.

The participants in this study exhibited an age range from 18 to 19. The average ages of the participant groups are reported in Table 5.

Five ethnicities were represented by the participants in this study. Caucasian is represented at 85.4%. African American is represented at 10.3 %. Hispanic is represented at 2.4 %. Asian is represented at 1.5 %, and American Indian/Pacific
Islander is represented at .4 %. The distribution of the ethnicities in the five different groups is illustrated in Table 6.

Again, this artifact demonstrated the pattern expected from the random matching algorithm.

The university in this study has seven colleges; however, five colleges and an “other” category were used to describe the career paths that the participants selected when they entered the university. Participants may have changed major and college, but that information was not considered in this study.

The College of Engineering is represented at 6%; Business at 23%; Education at 11%; Arts and Sciences at 15%; and other and non-degree programs at 45%. The distribution of the colleges selected initially by participants in the five groups is shown in Table 7. This particular pattern resulted primarily because these were the ratios in the mentor groups that were used for matching.

The primary research question to be considered for the quantitative component of this study is:

In what ways and to what extent do SSS peer mentors’ grade point average, retention, and graduation rate differ from:

1. Non-Eligible Students
2. SSS-Eligible Non-Participants
3. SSS Participants: Mentor Ineligible
4. SSS-Eligible Non-Mentors
Table 2. Replication of Group Levels by Starting Cohort Years

<table>
<thead>
<tr>
<th>Count</th>
<th>Grouping Level</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
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Table 3. Group Level by Starting Cohort Years

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<th>2001</th>
<th>2002</th>
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<td>Non-eligible</td>
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<td>217</td>
<td>297</td>
<td>273</td>
<td>1365</td>
</tr>
<tr>
<td>Eligible Non-part</td>
<td>97</td>
<td>111</td>
<td>129</td>
<td>123</td>
<td>176</td>
<td>161</td>
<td>797</td>
</tr>
<tr>
<td>Participant</td>
<td>27</td>
<td>38</td>
<td>39</td>
<td>26</td>
<td>49</td>
<td>42</td>
<td>221</td>
</tr>
<tr>
<td>Eligible Non-mentor</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>16</td>
<td>11</td>
<td>8</td>
<td>48</td>
</tr>
<tr>
<td>Mentor</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>306</td>
<td>354</td>
<td>388</td>
<td>389</td>
<td>536</td>
<td>490</td>
<td>2463</td>
</tr>
</tbody>
</table>

Table 4. Gender and Grouping Cross Tabulation

<table>
<thead>
<tr>
<th>Gender</th>
<th>Grouping Level</th>
<th>Non-eligible</th>
<th>Eligible Non-part</th>
<th>Participant</th>
<th>Eligible Non-mentor</th>
<th>Mentor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>% within Grouping Level</td>
<td>66.0</td>
<td>66.0</td>
<td>63.0</td>
<td>77.0</td>
<td>78.0</td>
<td>66.0</td>
</tr>
<tr>
<td>Male</td>
<td>Count</td>
<td>465</td>
<td>271</td>
<td>81</td>
<td>11</td>
<td>7</td>
<td>835</td>
</tr>
<tr>
<td></td>
<td>% within Grouping Level</td>
<td>34.0</td>
<td>34.0</td>
<td>37.0</td>
<td>23</td>
<td>22.0</td>
<td>34.0</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>1365</td>
<td>797</td>
<td>221</td>
<td>48</td>
<td>32</td>
<td>2463</td>
</tr>
<tr>
<td></td>
<td>% within Grouping Level</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 5. Group Level Report by Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Grouping Level</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-eligible</td>
<td>18.26</td>
<td>1365</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>Eligible Non-part</td>
<td>18.26</td>
<td>797</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>Participant</td>
<td>18.27</td>
<td>221</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>Eligible Non-mentor</td>
<td>18.27</td>
<td>48</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>Mentor</td>
<td>18.25</td>
<td>32</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>18.26</td>
<td>2463</td>
<td>0.44</td>
</tr>
</tbody>
</table>
The dependent variables chosen for this research are: (1) Graduation Status (Grad Rate), (2) Years to graduate (Yrs To Grad) and (3) Cumulative Grade Point Average (CGPA).

Three models are used to illustrate this study. Model One—Three-Group One-Way Generalized Linear ANOVA is a simple comparison between three groups (Non-Eligible Students, SSS-Eligible Non-Participants, SSS Participants). Model Two—Five-Group One-Way Generalized Linear ANOVA compared five groups (SSS-Eligible Non-Participants, SSS Participants: Mentor Ineligible, SSS-Eligible Non-Mentors, and Mentors). Model Three—Five-Group Two-Way Generalized Linear ANOVA used the same five groups as Model Two, but also included cohort and replication effects. (A binary-logistic model was used to examine Grad Status and group proportions graduating.)

Historically SSS programs have compared SSS participants to SSS-eligible students not receiving services. This research seeks to go beyond that comparison by analyzing and comparing the SSS peer mentor to four distinct groups. However, Model One makes the simple and traditional comparison between the Non-Eligible Students (not-at-risk population), SSS-Eligible Non-Participants (students eligible for SSS but not receiving services), and SSS Participants (students eligible and receiving services). Although no statistically significant difference was noted between Participants and Eligible Non-Participating students, it was clear that there is a positive trend that indicates SSS Participants do appear to do somewhat better regarding graduation rate, years to graduate, and CGPA.
Table 6. University Race by Grouping Level

<table>
<thead>
<tr>
<th>Race</th>
<th>Grouping Level</th>
<th>Non-eligible</th>
<th>Eligible</th>
<th>Participant</th>
<th>Eligible</th>
<th>Mentor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td></td>
<td>1170</td>
<td>700</td>
<td>166</td>
<td>41</td>
<td>27</td>
<td>2104</td>
</tr>
<tr>
<td>% within Grouping Level</td>
<td></td>
<td>85.7</td>
<td>87.8</td>
<td>75.1</td>
<td>85.4</td>
<td>84.4</td>
<td>85.4</td>
</tr>
<tr>
<td>African American</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td></td>
<td>140</td>
<td>71</td>
<td>34</td>
<td>5</td>
<td>4</td>
<td>254</td>
</tr>
<tr>
<td>% within Grouping Level</td>
<td></td>
<td>10.3</td>
<td>8.9</td>
<td>15.3</td>
<td>10.4</td>
<td>12.5</td>
<td>10.3</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td></td>
<td>28</td>
<td>17</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>58</td>
</tr>
<tr>
<td>% within Grouping Level</td>
<td></td>
<td>2.0</td>
<td>2.1</td>
<td>5.0</td>
<td>2.1</td>
<td>3.1</td>
<td>2.4</td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td></td>
<td>23</td>
<td>6</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>% within Grouping Level</td>
<td></td>
<td>1.7</td>
<td>0.8</td>
<td>3.2</td>
<td>2.1</td>
<td>0.0</td>
<td>1.5</td>
</tr>
<tr>
<td>American Indian / Pacific Islander</td>
<td></td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>% within Grouping Level</td>
<td></td>
<td>0.3</td>
<td>0.4</td>
<td>1.4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>1365</td>
<td>797</td>
<td>221</td>
<td>48</td>
<td>32</td>
<td>2463</td>
</tr>
<tr>
<td>% within Grouping Level</td>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 7. College * Grouping Level Cross Tabulation

<table>
<thead>
<tr>
<th>College</th>
<th>Grouping Level</th>
<th>Non-eligible</th>
<th>Eligible Non-part</th>
<th>Participant</th>
<th>Eligible Non-mentor</th>
<th>Mentor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>Count</td>
<td>76</td>
<td>49</td>
<td>15</td>
<td>3</td>
<td>0</td>
<td>143</td>
</tr>
<tr>
<td></td>
<td>% within Grouping Level</td>
<td>6.0</td>
<td>6.0</td>
<td>7.0</td>
<td>6.0</td>
<td>0.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Business</td>
<td>Count</td>
<td>319</td>
<td>183</td>
<td>61</td>
<td>7</td>
<td>4</td>
<td>574</td>
</tr>
<tr>
<td></td>
<td>% within Grouping Level</td>
<td>23.0</td>
<td>23.0</td>
<td>28.0</td>
<td>15.0</td>
<td>13.0</td>
<td>23.0</td>
</tr>
<tr>
<td>Education</td>
<td>Count</td>
<td>143</td>
<td>87</td>
<td>24</td>
<td>4</td>
<td>4</td>
<td>262</td>
</tr>
<tr>
<td></td>
<td>% within Grouping Level</td>
<td>11.0</td>
<td>11.0</td>
<td>11.0</td>
<td>8.0</td>
<td>13.0</td>
<td>11.0</td>
</tr>
<tr>
<td>Arts and Science</td>
<td>Count</td>
<td>203</td>
<td>119</td>
<td>30</td>
<td>6</td>
<td>8</td>
<td>366</td>
</tr>
<tr>
<td></td>
<td>% within Grouping Level</td>
<td>15.0</td>
<td>15.0</td>
<td>13.0</td>
<td>13.0</td>
<td>25.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Other: Non-degree</td>
<td>Count</td>
<td>624</td>
<td>359</td>
<td>91</td>
<td>28</td>
<td>16</td>
<td>1118</td>
</tr>
<tr>
<td></td>
<td>% within Grouping Level</td>
<td>45.0</td>
<td>45.0</td>
<td>41.0</td>
<td>58.0</td>
<td>50.0</td>
<td>45.0</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>1365</td>
<td>797</td>
<td>221</td>
<td>48</td>
<td>32</td>
<td>2463</td>
</tr>
<tr>
<td></td>
<td>% within Grouping Level</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Model One—Three-Group One-Way Generalized ANOVA

The first illustration is the three-group model using Grad Status, Yrs To Grad, and CGPA as univariate dependent variables. A binary-logistic ANOVA model was used for the binary variable Grad Status, and a linear-normal ANOVA model was used for the
ratio variables. For most study purposes, the level for statistical significance was set at alpha = .05. (All research hypotheses are considered directional hypotheses favoring the mentor groups. Thus, "one-tail" directional hypothesis tests are used when the observed trend is as hypothesized.) All participants were given start dates and placed in cohort groups within each of the five categories. By 2008 (last data-collecting date) a student either had or had not graduated. Thus, the latter two univariate analyses (for Yrs to Grad and CGPA) were based on the number of students who had graduated, while the former analysis (for Grad Rate) involved all students in the samples.

Table 8 displays a Wald Chi-Square Test. This test showed no statistically significant difference between the three groups when analyzing Grad Rate. However, this is not a very powerful test and there does appear to be a positive trend in favor of the SSS participant group, which is noted in Figure 3. The chart below does show a favorable trend when comparing the SSS Participant group to the Eligible Non-Participant group, who did not receive services. Table 9 displays the descriptive statistics.

The main finding from this binary-logistic ANOVA was that there was no significant difference between the three groups in relation to Grad Rate. This is a chi-sq variable with dfs=2: ($X^2_{(df=2)} = 3.485, p < .175$). The null hypothesis cannot be rejected.

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wald Chi-Square</td>
<td>df</td>
</tr>
<tr>
<td>(Intercept)</td>
<td>9.088</td>
<td>1</td>
</tr>
<tr>
<td>GRPS3</td>
<td>3.485</td>
<td>2</td>
</tr>
</tbody>
</table>

**Table 8. Test of Model Effects**

Dependent Variable: Graduation status
Model: (Intercept), GRPS3

85
Yrs To Grad was computed only on the students who had graduated. A linear-normal ANOVA was used for this analysis. All participants were given start dates and placed in cohort groups within each of the five categories. When each participant graduated, the years from start date to end date were computed by subtraction. There was no consideration given to semesters in this calculation. The Wald Chi-Square Test was used to determine if there was a significant difference between the three groups regarding Yrs To Grad.

Figure 3. Mean of Graduation Rate (Proportion of Graduates or Graduation Rate)
Table 9. Descriptive Statistics of Graduation Rate

<table>
<thead>
<tr>
<th>Graduation Rate</th>
<th>Least Sq Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just Three Groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-eligible</td>
<td>0.55</td>
<td>1365</td>
<td>0.50</td>
</tr>
<tr>
<td>Eligible Non-part</td>
<td>0.51</td>
<td>797</td>
<td>0.50</td>
</tr>
<tr>
<td>SSS Participant</td>
<td>0.54</td>
<td>301</td>
<td>0.50</td>
</tr>
<tr>
<td>Total</td>
<td>0.54</td>
<td>2463</td>
<td>0.50</td>
</tr>
</tbody>
</table>

The main finding \( \chi^2_{(df=2)} = 1.867, p < .393 \) indicated that there was no significant difference between the three groups when analyzing Yrs To Grad. The null hypothesis cannot be rejected. This is illustrated in Table 10. However, again there was a positive trend in favor of the SSS participant group, which is noted in Figure 4 below, and in the descriptive statistics presented in Table 11.

Table 10. Test of Model Effects Years to Graduate

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wald Chi-Square</td>
</tr>
<tr>
<td>(Intercept)</td>
<td>28159.394</td>
</tr>
<tr>
<td>GRPS3</td>
<td>1.867</td>
</tr>
</tbody>
</table>

Dependent Variable: Years taken to graduate Model: (Intercept), GRPS3
To calculate a CGPA for each student in each of the three comparative groups, the sum of all honor points each student earned between start and graduation was divided by the sum of all the credits hours attempted between start and graduation. A linear-normal
ANOVA model was used for this dependent variable. The Wald Chi-Square Test was used to determine if there was a significant difference between the three groups regarding CGPA. This time a highly significant statistical difference between the three groups was noted when comparing CGPA. This is a strong indication that the SSS Participants performed better academically than the other groups. Tables 12 and 13 below illustrate the significant difference and descriptive statistics. These data are also displayed in Figure 5 below.

The main finding here was there was a significant difference between the three groups in relation to CGPA ($X^2_{(df=2)} = 15.038, p < .001$) and the null hypothesis can be rejected.

Table 12. Test of Model Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wald Chi-Square</td>
<td>df</td>
</tr>
<tr>
<td>Intercept</td>
<td>51120.059</td>
<td>1</td>
</tr>
<tr>
<td>GRPS3</td>
<td>15.038</td>
<td>2</td>
</tr>
</tbody>
</table>

Dependent Variable: Cumm GPA at graduation Model: (Intercept), GRPS3

Table 13. Descriptive Statistics of Cumulative GPA

<table>
<thead>
<tr>
<th>Report</th>
<th>Least_Sq Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative GPA at graduation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Just three groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Eligible</td>
<td>3.08</td>
<td>755</td>
<td>0.43</td>
</tr>
<tr>
<td>Eligible Non-Part</td>
<td>3.02</td>
<td>408</td>
<td>0.39</td>
</tr>
<tr>
<td>SSS Participant</td>
<td>3.16</td>
<td>164</td>
<td>0.41</td>
</tr>
<tr>
<td>Total</td>
<td>3.07</td>
<td>1327</td>
<td>0.42</td>
</tr>
</tbody>
</table>
To identify the source of this significance difference, individual group contrasts were calculated. These show that when comparing the SSS Participants to the Non-Eligible group, there was a significant difference ($X^2_{(df=1)} = 5.721$, $p < .017$ two-tail and $p < .0085$ one tail). Since the alternative hypothesis is directional and the observed trend was as predicted, the 2-tail significance can become a 1-tail significance by dividing it by 2. There was an even greater significant difference ($X^2_{(df=1)} = 14.402$, $p < .000$ two-tail and $p < .0001$ one tail) when comparing the SSS Participants to the SSS-Eligible Non-Participants. This is shown in Table 14.
Table 14. Planned Comparison using Simple Contrasts

<table>
<thead>
<tr>
<th>Individual Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just Three Groups Simple Contrast</td>
</tr>
<tr>
<td>Level Non-eligible vs. Level SSS Participant</td>
</tr>
<tr>
<td>Level Eligible Non-part vs. Level SSS Participant</td>
</tr>
</tbody>
</table>

Model One Summarized

When analyzing the three levels (Non-Eligible Students, Eligible Non-Participants, and SSS Participants), no significant difference was noted between the three group levels regarding Grad Status and Yrs To Grad. However, there was a significant difference when analyzing CGPA. There was a significant difference between SSS Participants and Non-Eligible students (p<.0085), i.e., students who were at-risk and receiving services and those students who were not considered at-risk. There was also a significant difference between SSS Participants and Eligible Non-Participants (X² (df=1) =14.402, p<.0001), i.e., students who were at-risk and received services and students who were at-risk but did not receive services.

Model Two—Five-Group, One-Way, Generalized ANOVA

The second model, which is the main model to support the hypothesis for this study, is illustrated below. This model looks at the five comparative groups and analyzes the mentor effect. A binary-logistic ANOVA is used for Grad Status, and a linear-normal model is used for the other two dependent variables. In a few instances, the Non-Eligible
Participants slightly out-performed the SSS Participants. The cause of this unusual result lies in the fact that the SSS Participant group was divided into three separate categories, SSS Participants: Mentor Ineligible, SSS-Eligible Non-Mentors, and Mentors. Dividing the SSS Participants into three different categories separated the strongest performing students from the Participant, Non-Eligible group, creating an expected but somewhat artificial result.

Model One shows that when all the participant groups were combined, eligible students receiving services performed better than students who did not receive services. This was the main reason that the first model was included and presented in just the three comparative groups. Note also that group level, which is identified in the tables and charts in Models Two and Three as SSS Participants, represents the sub-group SSS Participant: Mentor Ineligible.

For Model Two, the null hypothesis put forward to operationally define the graduation rate was stated as follows: \( H_0: \) The peer mentors' Graduation Rate will equal that of the Non-Eligible Students, SSS Non-Participants, SSS Participants: Mentor Ineligible, and SSS-Eligible Non-Mentors. All participants were given start dates and placed in cohort groups within each of the five categories. By 2008 (last data-collecting date) either the student had or had not graduated. The chart below illustrates the graduation rate of the SSS Peer Mentor group when compared to the other groups. The mentors' graduation rate surpassed all other groups, including the Non-Eligible (not at-risk) student group. The Wald Chi-Square Test was used to compare the behavior of the five groups when analyzing graduation rates. There was a significant difference \( (X^2_{(df=4)} = 11.831, p < .019) \) between the five groups, indicating that the null hypothesis can be
rejected. Table 15 illustrates that significant difference, and table 16 presents the descriptive statistics.

<table>
<thead>
<tr>
<th>Table 15. Tests of Model Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source</strong></td>
</tr>
<tr>
<td>(Intercept)</td>
</tr>
<tr>
<td>GrpLvl</td>
</tr>
</tbody>
</table>

Dependent Variable: Graduation status Model: (Intercept), GrpLvl

<table>
<thead>
<tr>
<th>Table 16. Descriptive Statistics for Graduation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Report</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

To further investigate the significant difference between the Mentor group and the other groups, a series of one-degree-of-freedom, simple orthogonal contrasts was run. These comparisons were important because a significant difference would indicate that the mentors as a group experienced a higher graduation rate than the other specific comparative groups. Table 17 shows a significant difference between the Mentor and the Non-Eligible groups (p < .0021 two-tail and p < .0010 one-tail). Since the alternative
hypothesis is directional, the two-tail significance test for the $X^2$ becomes a one-tail significance test (equivalent to a directional t-test) and can be divided by 2. There was also a significant difference when comparing Mentors to Non-Participants ($p < .0003$ two-tail and $p < .0001$ one-tail). There were also significant differences when comparing Mentors to Participants: Mentor Ineligible ($p < .0005$ two-tail and $p < .0003$ one-tail), and Mentors to Eligible Non-Mentors ($p < .0523$ two-tail and $p < .0260$ one-tail). The figure below illustrates the difference in the comparative groups.

Table 17. Planned Comparison of the Mentor Group to the Other Four Levels using Simple Contrasts

<table>
<thead>
<tr>
<th>Grouping Level Simple Contrast</th>
<th>Contrast Estimate</th>
<th>Std. Error</th>
<th>Wald Chi-Square</th>
<th>df</th>
<th>2-Tail Sig.</th>
<th>1-Tail Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Non-eligible vs. Level Mentor</td>
<td>-0.228</td>
<td>0.074</td>
<td>9.426</td>
<td>1</td>
<td>0.0021</td>
<td>0.0010</td>
</tr>
<tr>
<td>Level Eligible Non-part vs. Level Mentor</td>
<td>-0.269</td>
<td>0.075</td>
<td>12.829</td>
<td>1</td>
<td>0.0003</td>
<td>0.0001</td>
</tr>
<tr>
<td>Level Participant vs. Level Mentor</td>
<td>-0.279</td>
<td>0.080</td>
<td>12.027</td>
<td>1</td>
<td>0.0005</td>
<td>0.0003</td>
</tr>
<tr>
<td>Level Eligible Non-mentor vs. Level Mentor</td>
<td>-0.198</td>
<td>0.102</td>
<td>3.765</td>
<td>1</td>
<td>0.0523</td>
<td>0.0260</td>
</tr>
</tbody>
</table>
The Wald Chi-Square Test was used to test mean differences among the five groups when analyzing Yrs To Grad. There was no significant difference ($X^2_{(d.f. = 4)} = 2.997, p < .558$) between the five groups, indicating that the null hypothesis cannot be rejected. Table 18 displays this significant difference. There was, however, a positive trend between the mentors and the other groups that could be seen in the chart below. This difference indicated that the mentors tended to graduate sooner than did other groups. Table 19 displays the descriptive statistics.
Table 18. Test of Model Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wald Chi-Square</td>
</tr>
<tr>
<td>(Intercept)</td>
<td>8742.336</td>
</tr>
<tr>
<td>GrpLvl</td>
<td>2.997</td>
</tr>
</tbody>
</table>

Dependent Variable: Years Taken to Graduate
Model:(Intercept), GrpLvl

Figure 7. Mean Years to Graduate

The third null hypothesis concerning CGPA is: \( H_0: \) The peer mentors’ mean grade point average will equal that of the Non-Eligible Students, SSS-Eligible Non-Participants, SSS-Participants: Mentor Ineligible, and SSS-Eligible Non-Mentors. A linear-normal ANOVA was used to test this hypothesis. A CGPA was computed only for students who graduated. Figure 8 and Table 21 illustrate the success of the SSS Peer Mentors when compared to the other groups. The mentors’ mean CGPA was higher than all other groups including the Non-Eligible student group. The Wald Chi-Square Test
was used to compare differences between the five groups when analyzing CGPA. There was a significant difference \( \chi^2(\text{df}=4) = 18.359, p<0.001 \) between the five groups, indicating that the null hypothesis cannot be rejected. This information is illustrated in Table 20.

### Table 19. Descriptive Statistics for Years Taken to Graduate

<table>
<thead>
<tr>
<th>Grouping Level</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Eligible</td>
<td>4.55</td>
<td>755</td>
<td>0.81</td>
</tr>
<tr>
<td>Eligible Non-Part</td>
<td>4.61</td>
<td>408</td>
<td>0.88</td>
</tr>
<tr>
<td>Participant</td>
<td>4.64</td>
<td>111</td>
<td>0.80</td>
</tr>
<tr>
<td>Eligible Non-Mentor</td>
<td>4.71</td>
<td>28</td>
<td>0.76</td>
</tr>
<tr>
<td>Mentor</td>
<td>4.48</td>
<td>25</td>
<td>0.71</td>
</tr>
<tr>
<td>Total</td>
<td>4.58</td>
<td>1327</td>
<td>0.83</td>
</tr>
</tbody>
</table>

### Table 20. Test of Model Effects for Cumulative GPA

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III</th>
<th>Wald Chi-Square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td></td>
<td>16417.086</td>
<td>1</td>
<td>0.000</td>
</tr>
<tr>
<td>GrpLvl</td>
<td></td>
<td>18.359</td>
<td>4</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Dependent Variable: Cumm GPA at Graduation

To identify the source of the significance difference in CGP, simple 1-df pairwise contrasts were performed. These comparisons were important because they indicated that the mentors did better academically than other specific comparative groups. Table 21 shows a significant difference between the Mentor and the Non-Eligible group \( p < 0.0087 \) two-tail and \( p<0.0045 \) one-tail). There is a significant difference when comparing
Mentors to Non-Participants (p < .0010 two-tail and p < .0005 one-tail). There is also a significant difference when comparing Mentors to Participants: Mentor Ineligible (p < .0700 two-tail and p < .0350 one-tail). However, the comparison of Mentors to Eligible Non-Mentors was not significant (p < .2405 two-tail and p < .1200 one-tail) although trending in the hypothesized direction. Table 22 displays the descriptive statistics, and the chart below shows the comparative differences.

Figure 8. Mean Cumulative GPA
Table 21. Planned Comparison of the Mentor Group to the Other Four Levels using Simple Contrasts

<table>
<thead>
<tr>
<th>Grouping Level Simple Contrast</th>
<th>Contrast Estimate</th>
<th>Std. Error</th>
<th>Wald Chi-Square</th>
<th>df</th>
<th>2-Tail Sig.</th>
<th>1-Tail Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Non-eligible vs. Level Mentor</td>
<td>-0.219</td>
<td>0.084</td>
<td>6.874</td>
<td>1</td>
<td>0.0087</td>
<td>0.0045</td>
</tr>
<tr>
<td>Level Eligible Non-part vs. Level Mentor</td>
<td>-0.279</td>
<td>0.085</td>
<td>10.827</td>
<td>1</td>
<td>0.0010</td>
<td>0.0005</td>
</tr>
<tr>
<td>Level Participant vs. Level Mentor</td>
<td>-0.165</td>
<td>0.091</td>
<td>3.283</td>
<td>1</td>
<td>0.0700</td>
<td>0.0350</td>
</tr>
<tr>
<td>Level Eligible Non-mentor vs. Level Mentor</td>
<td>-0.133</td>
<td>0.113</td>
<td>1.378</td>
<td>1</td>
<td>0.2405</td>
<td>0.1200</td>
</tr>
</tbody>
</table>

Table 22. Descriptive Statistics for Cumulative GPA

<table>
<thead>
<tr>
<th>Grouping Level</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Eligible</td>
<td>3.08</td>
<td>755</td>
<td>0.43</td>
</tr>
<tr>
<td>Eligible Non-Part</td>
<td>3.02</td>
<td>408</td>
<td>0.39</td>
</tr>
<tr>
<td>Participant</td>
<td>3.13</td>
<td>111</td>
<td>0.43</td>
</tr>
<tr>
<td>Eligible Non-Mentor</td>
<td>3.16</td>
<td>28</td>
<td>0.42</td>
</tr>
<tr>
<td>Mentor</td>
<td>3.30</td>
<td>25</td>
<td>0.26</td>
</tr>
<tr>
<td>Total</td>
<td>3.07</td>
<td>1327</td>
<td>0.42</td>
</tr>
</tbody>
</table>

Model Two Summarized

This second model was the main model to support the hypothesis and analyze the mentor effect. Analyzing mean differences among the five group levels (Non-Eligible,
Eligible Non-Participant, Participant: Mentor Ineligible, Eligible Non-Mentor, and Mentor) revealed significant differences in Grad Rate. A significant difference existed between the Mentor and Non-Eligible groups (p < .001). A significant difference existed between at-risk mentors and Eligible Non-Participants (p < .0001). A significant difference existed between the at-risk mentor and Participant: Mentor Ineligible groups (p < .0003). Finally, a significant difference existed between the at-risk mentors and the Eligible Non-Mentors (p < .026). Analyzing the five group levels in regards to Yrs to Grad showed no significant difference (p < .558). However, when examining CGPA, significant differences were noted among most of the five group levels. A significant difference existed between the Mentor and Non-Eligible groups (p < .0045), at-risk mentors compared to students who are not at-risk. A significant difference existed between at-risk mentors and Eligible Non-Participants, who were at-risk students who did not receive services (p < .0005). A significant difference appeared between at-risk mentors and Participants: Mentor Ineligible, who were at-risk students who did receive services, but did not qualify to be mentors (p < .035). The difference between the at-risk mentors and Eligible Non-Mentors was not found to be significant (p < .120). The latter group were at-risk students receiving services and qualified to be mentors, but who chose not to be mentors.

Model Three—Five-Group, Two-Way, Generalized ANOVA

The third model, another approach to examine the hypotheses for this study, is illustrated below. This model was more complex and involved cohort and replication effects in addition to the five comparative group levels. In general, effects involving
replication were not significant. Likewise, it was found that interaction effects involving starting cohort year were also not significant. (Some cells with small sample sizes exhibited little or no variance: e.g., all mentors who started in years 2002 and 2003 graduated. This interferes with the "fit" of a full-rank model.) As a result, a main-effects model of reduced rank was employed for this analysis.

Main-effect differences across cohort years were significant. This means the student population cohort differed slightly from year to year in terms of the "success" variables examined in this study. Nevertheless, these effects could be studied using a two-way factorial model of reduced rank, ignoring non-significant replication variance, and involving only main effects for group level and cohort years. A binary-logistic ANOVA was used for Grad Rate and a linear-normal model was used for the other two dependent variables.

The null hypothesis put forward to examine graduation rate was stated as follows:

\[ H_0: \text{The peer mentors' Graduation Rate will equal that of the Non-Eligible students, SSS Non-Participants, SSS-Participants: Mentor Ineligible, and SSS-Eligible Non-Mentors.} \]

Figure 9 below illustrates the success of the SSS Peer Mentor group when compared to the other groups across cohort years. The mentors' graduation rate surpassed all other groups including the Non-Eligible student group.

The Wald Chi-Square Test, shown in Table 23, was used to test mean differences in graduation rate between the five groups controlling for variation due to cohort year. There was no significant difference due to cohort year, but there was a significant difference \( \chi^2_{(df=4)} = 11.83, p<.019 \) between the five groups, indicating that the null hypothesis can be rejected.
To identify the source of the significance difference in CGPA, 1-df simple contrasts were performed. This comparison was important because there was a significant difference indicating that the mentors did better in terms of graduation rate than did the other specific comparative groups. Table 24 indicates a significant difference between the Mentor and the Non-Eligible groups (p < .0024 two-tail and p < .0012 one-tail). Since the alternative hypothesis is directional, the 2-tailed significance level for the \( X^2 \) becomes 1-tail significance for an equivalent t-test and can be divided by 2. There was a significant difference when comparing the Mentors to Non-Participants (p < .0004 two-tail and p < .0002 one-tail). There were also significant differences when comparing Mentors and Participants: Mentor Ineligible (p < .0006 two-tail and p < .0003 one-tail), and Mentors and Eligible Non-Mentors (p < .0618 two-tail and p < .0309 one-tail). Table 25 illustrates the descriptive statistics.

The null hypothesis involving the dependent variable Yrs To Grad was stated as follows: \( H_0: \) The peer mentors’ retention (or time to graduation) will equal that of the Non-Eligible Students, SSS Non-Participants, SSS-Participants: Mentor Ineligible, and SSS-Eligible Non-Mentors. Yrs To Grad was used as the retention factor. A linear-normal ANOVA was used for this computation. Yrs To Grad was only computed for the students who had graduated. Figure 10 illustrates the success of the SSS Peer Mentors when compared to the other groups by cohort year. The mentors’ mean Yrs To Grad
were lower than all other groups including the Non-Eligible student group, but this trend was not statistically significant.

![Graduation Rate for Group by Cohort Year](image)

Figure 9. Graduation Rate for Group by Cohort Year (Main-Effects-Only Model)

The Wald Chi-Square statistic was used to test mean differences between the five groups by six cohort years when analyzing Yrs To Grad. There was a significant difference across cohort years (which is not relevant to this study per se). The main finding was that when comparing the five groups, controlling for cohort variation, there was no significant difference ($X^2_{(df=2)} = 2.177, p < .7033$) regarding Yrs To Grad. As a result, the null hypothesis cannot be rejected. Table 26 displays the model effects, and Table 27 presents the descriptive statistics. In Figure 10, a positive trend can be observed.
noting that the mentors enjoyed the shortest mean number of years to graduate. Further
investigation will be necessary to determine if this positive trend can become significant.
Nevertheless, these results show that the peer mentors were in no way delayed due to
serving as mentors in terms of time required for graduation.

Table 24. Planned Comparison of the Mentor Group to the Other Four Levels using
Simple Contrasts

<table>
<thead>
<tr>
<th>Grouping Level Simple Contrast</th>
<th>Contrast Estimate</th>
<th>Std. Error</th>
<th>Wald Chi-Square</th>
<th>df</th>
<th>2-Tail Sig.</th>
<th>1-Tail Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Non-eligible vs. Level Mentor</td>
<td>-0.23</td>
<td>0.07</td>
<td>9.20</td>
<td>1</td>
<td>0.0024</td>
<td>0.0012</td>
</tr>
<tr>
<td>Level Eligible Non-part vs. Level Mentor</td>
<td>-0.27</td>
<td>0.08</td>
<td>12.56</td>
<td>1</td>
<td>0.0004</td>
<td>0.0002</td>
</tr>
<tr>
<td>Level Participant vs. Level Mentor</td>
<td>-0.28</td>
<td>0.08</td>
<td>11.90</td>
<td>1</td>
<td>0.0006</td>
<td>0.0003</td>
</tr>
<tr>
<td>Level Eligible Non-mentor vs. Level Mentor</td>
<td>-0.19</td>
<td>0.10</td>
<td>3.49</td>
<td>1</td>
<td>0.0618</td>
<td>0.0309</td>
</tr>
</tbody>
</table>

The third null hypothesis concerned GPA and was stated as follows: H₀: The Peer
Mentors' mean grade point average will equal those of the Non-Eligible students, SSS-
Eligible Non-Participants, SSS-Participants: Mentor Ineligible, and SSS-Eligible Non-
Mentors. To test this hypothesis, a CGPA was computed for each student in each of the
five comparative groups. A linear-normal ANOVA was used for the analysis. CGPA was
computed only for the students who graduated. Figure 11 illustrates the relative success
of the SSS Peer Mentor groups when compared to the other groups by cohort years. The
mentors' CGPA was significantly higher than all other groups including the Non-Eligible
student group.
Table 25. Descriptive Statistics

<table>
<thead>
<tr>
<th>Group by Cohort Year: Descriptive Statistics for Graduation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Non-eligible</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Eligible Non-part</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Participant</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Eligible Non-mentor</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Mentor</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Column Total</td>
</tr>
<tr>
<td>N</td>
</tr>
</tbody>
</table>

Table 26. Test of Model Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Wald Chi-Square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GrpLvl</td>
<td>2.177</td>
<td>4</td>
<td>0.7033</td>
</tr>
<tr>
<td>SYR</td>
<td>22.860</td>
<td>5</td>
<td>0.0004</td>
</tr>
</tbody>
</table>

Dependent Variable: Yrs To Grad □ Model: GrpLvl, SYR
The Wald Chi-Square was used to test mean differences between the five groups by six cohort years when analyzing CGPA. Although there was a significant difference with cohort years, it is not relevant to this study. However, there was a significant difference ($X^2_{(df=2)} = 18.292, p<.0011$) between the five groups, when controlling for cohort-year variation, indicating that the null hypothesis can be rejected. This significant difference is shown in Table 28.
## Table 27. Descriptive Statistics

| Group by Cohort Year: Descriptive Statistics for Years to Graduate |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | Row Total |
| Non-eligible                    | SD    | 1.017 | 0.841 | 0.916 | 0.826 | 0.647 | 0.581 | 0.808 |
|                                 | N     | 107   | 110  | 123  | 117  | 154  | 144  | 755  |
| Mean                            | 4.981 | 4.537 | 4.703 | 4.746 | 4.526 | 4.325 | 4.610 |
| Eligible Non-part               | SD    | 1.500 | 0.794 | 0.830 | 0.822 | 0.647 | 0.572 | 0.883 |
|                                 | N     | 53    | 54   | 64   | 63   | 97   | 77   | 408  |
| Mean                            | 4.545 | 4.885 | 4.500 | 5.091 | 4.524 | 4.409 | 4.640 |
| Participant                     | SD    | 1.036 | 0.766 | 0.607 | 1.044 | 0.873 | 0.503 | 0.795 |
|                                 | N     | 11    | 26   | 20   | 11   | 21   | 22   | 111  |
| Mean                            | 4.500 | 6.500 | 4.667 | 4.667 | 4.400 | 4.600 | 4.714 |
| Eligible Non-mentor             | SD    | 0.577 | 0.707 | 0.577 | 0.707 | 0.548 | 0.548 | 0.763 |
|                                 | N     | 4     | 2    | 3    | 9    | 5    | 5    | 28   |
| Mean                            | 4.333 | 5.000 | 4.000 | 4.400 | 4.667 | 4.500 | 4.480 |
| Mentor                          | SD    | 1.155 | 0.000 | 0.816 | 0.548 | 0.577 | 0.837 | 0.714 |
|                                 | N     | 3     | 4    | 4    | 5    | 3    | 6    | 25   |
| Column Total                    | SD    | 1.177 | 0.835 | 0.861 | 0.835 | 0.660 | 0.576 | 0.828 |
|                                 | N     | 178   | 196  | 214  | 205  | 280  | 254  | 1327 |

## Table 28. Tests of Model Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Wald Chi-Square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GrpLvl</td>
<td>18.292</td>
<td>4</td>
<td>0.0011</td>
</tr>
<tr>
<td>SYR</td>
<td>12.848</td>
<td>5</td>
<td>0.0248</td>
</tr>
</tbody>
</table>

Dependent Variable: CGPA
Model: GrpLvl, SYR
To identify the source of the significance difference in CGPA, 1-df simple contrasts were performed. These comparisons were important because they indicated that the mentors did better academically as a group than did the other specific comparative groups. Table 29 indicates a significant difference between the Mentor and the Non-Eligible groups (p < .0101 two-tail and p < .0050 one-tail). There was a significant difference when comparing Mentors to Non-Participants (p < .0011 two-tail and p < .0006 one-tail). There was also a significant difference when comparing Mentors Participants: Mentor Ineligible (p < .0802 two-tail and p < .0401 one-tail). However, the comparison of Mentors to Eligible Non-Mentors was not significant (p < .2254 two-tail and p <= .1127 one-tail). Table 30 presents the descriptive statistics.

Table 29. Planned Comparison using Simple Contrast

<table>
<thead>
<tr>
<th>Grouping Level Simple Contrast</th>
<th>Contrast Estimate</th>
<th>Std. Error</th>
<th>Wald Chi-Square</th>
<th>df</th>
<th>2-Tail Sig.</th>
<th>1-Tail Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Non-eligible vs. Level Mentor</td>
<td>-0.21</td>
<td>0.08</td>
<td>6.62</td>
<td>1</td>
<td>0.0101</td>
<td>0.0050</td>
</tr>
<tr>
<td>Level Eligible Non-part vs. Level Mentor</td>
<td>-0.28</td>
<td>0.08</td>
<td>10.62</td>
<td>1</td>
<td>0.0011</td>
<td>0.0006</td>
</tr>
<tr>
<td>Level Participant vs. Level Mentor</td>
<td>-0.16</td>
<td>0.09</td>
<td>3.06</td>
<td>1</td>
<td>0.0802</td>
<td>0.0401</td>
</tr>
<tr>
<td>Level Eligible Non-mentor vs. Level Mentor</td>
<td>-0.14</td>
<td>0.11</td>
<td>1.47</td>
<td>1</td>
<td>0.2254</td>
<td>0.1127</td>
</tr>
</tbody>
</table>
Figure 11. Cumulative GPA at Graduation by Group and Cohort Year (Main-Effects-Only Model)

Model Three Summarized

The third and most complex model involves cohort and replication effects in addition to the five group levels. A significant difference in Grad Rate was noted, favoring the peer mentor group. When the at-risk Mentor group level was compared to the not at-risk Non-Eligible group, there was a significant difference in favor of the mentors (p< .0012). When comparing the at-risk mentor group to Eligible Non-Participants, who were at-risk students who did not receive services, there was a positive difference in favor of the mentors (p< .0002). When the at-risk mentor group level was compared to the Participants: Mentor Ineligible, who were at-risk students who received services but did not qualify to be mentors, there was a significant difference in favor of
the mentors (p<.0003). Finally, when the at-risk mentor group was compared to the Eligible Non-Mentor group, which was comprised of at-risk students who received services and qualified to be mentors but chose not to become mentors, there was still a significant difference in favor of the mentors (p<.0309).

Table 30. Descriptive Statistics

<table>
<thead>
<tr>
<th>Group by Cohort Starting Year: Descriptive Statistics for Cumulative GPA</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Eligible Mean</td>
<td>3.02</td>
<td>3.07</td>
<td>3.03</td>
<td>3.12</td>
<td>3.09</td>
<td>3.13</td>
<td>3.08</td>
</tr>
<tr>
<td>SD</td>
<td>0.41</td>
<td>0.45</td>
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<td>0.44</td>
<td>0.40</td>
<td>0.41</td>
<td>0.43</td>
</tr>
<tr>
<td>N</td>
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<td>144</td>
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<tr>
<td>Mean</td>
<td>2.96</td>
<td>3.00</td>
<td>2.97</td>
<td>3.05</td>
<td>3.02</td>
<td>3.07</td>
<td>3.02</td>
</tr>
<tr>
<td>Eligible Non-Part Mean</td>
<td>3.08</td>
<td>3.12</td>
<td>3.09</td>
<td>3.17</td>
<td>3.14</td>
<td>3.19</td>
<td>3.13</td>
</tr>
<tr>
<td>SD</td>
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<td>0.34</td>
<td>0.40</td>
<td>0.37</td>
<td>0.39</td>
<td>0.40</td>
<td>0.39</td>
</tr>
<tr>
<td>N</td>
<td>53</td>
<td>54</td>
<td>64</td>
<td>63</td>
<td>97</td>
<td>77</td>
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</tr>
<tr>
<td>Participant Mean</td>
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<td>SD</td>
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</tr>
<tr>
<td>N</td>
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<td>11</td>
<td>21</td>
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<td>111</td>
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<tr>
<td>Mean</td>
<td>3.10</td>
<td>3.14</td>
<td>3.11</td>
<td>3.19</td>
<td>3.16</td>
<td>3.21</td>
<td>3.17</td>
</tr>
<tr>
<td>Eligible Non-Mentor Mean</td>
<td>3.24</td>
<td>3.28</td>
<td>3.25</td>
<td>3.33</td>
<td>3.30</td>
<td>3.35</td>
<td>3.30</td>
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<tr>
<td>SD</td>
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<td>0.45</td>
<td>0.43</td>
<td>0.44</td>
<td>0.40</td>
<td>0.41</td>
<td>0.42</td>
</tr>
<tr>
<td>N</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>28</td>
</tr>
<tr>
<td>Mean</td>
<td>3.01</td>
<td>3.06</td>
<td>3.02</td>
<td>3.11</td>
<td>3.07</td>
<td>3.13</td>
<td>3.07</td>
</tr>
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<td>Mentor SD</td>
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<td>0.41</td>
<td>0.35</td>
<td>0.15</td>
<td>0.19</td>
<td>0.24</td>
<td>0.26</td>
</tr>
<tr>
<td>N</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>Mean</td>
<td>3.01</td>
<td>3.06</td>
<td>3.02</td>
<td>3.11</td>
<td>3.07</td>
<td>3.13</td>
<td>3.07</td>
</tr>
<tr>
<td>Column Total SD</td>
<td>0.42</td>
<td>0.41</td>
<td>0.42</td>
<td>0.43</td>
<td>0.40</td>
<td>0.41</td>
<td>0.42</td>
</tr>
<tr>
<td>N</td>
<td>178</td>
<td>196</td>
<td>214</td>
<td>205</td>
<td>280</td>
<td>254</td>
<td>1327</td>
</tr>
</tbody>
</table>

After the data were examined, it was determined that the Yrs To Grad factor did not show a significant difference between the five group levels (although the Mentor
group level tended to graduate sooner). In other words, peer mentors were in no way delayed due to serving as mentors in terms of time required for graduation. When CGPA was examined, a highly significant difference was noted. That difference was observed when the at-risk Mentor group level was compared to not at-risk Non-Eligible group level. There was a significant difference in favor of the mentors (p< .0050). When comparing the at-risk mentor group level to Eligible Non-Participants, who were at-risk students who did not receive services, there was a positive difference in favor of the mentors (p< .0006). When the at-risk mentor group was compared to the Participants: Mentor Ineligible, who were at-risk students who received service, but did not qualify to be mentors, there was a significant difference in favor of the mentors (p<.0401). Finally, when the at-risk mentors were compared to the Eligible Non-Mentors, who received services and qualified to be mentors, but chose not to become mentors, there was no significant difference (p< .1127). In this case, students who qualified and served did no poorer in school than other students who also qualified but did not choose to serve.

Quantitative Research Summary

In summary, three models were used in this quantitative analysis.

All three models examined the impact of the group levels on the three dependent variables. Model One illustrated a significant difference between the SSS Participants and the other group levels when examining CGPA. Both Models Two and Three displayed significant differences between the mentors and the other group levels when analyzing the Grad Rate and CGPA. These results suggested that students receiving support services did better than students who did not receive services, and mentors did better than the other groups in terms of average graduation rates and academic success.
In every case, either the mentors outperformed the other groups (a good thing) or else they performed equivalently (no harm done).

**Part II: Qualitative Research**

The purpose of this research was to investigate the impact of mentoring on the peer mentor. The methodology used to conduct the qualitative study included eight structured interviews, which consisted of interviewing two current peer mentors and six graduated peer mentors. A focus group was also administered, which consisted of five current peer mentors. All of the structured interviews were done by phone, and the focus group took place on the campus of the midwestern university in a location that was very familiar and comfortable to all the current peer mentors.

The structured interviews lasted approximately 45 minutes, and the focus group lasted about an hour. An interview protocol was utilized to ensure the research questions were adequately covered while allowing for free conversation within a topic area. Because the peer mentors were currently working for or had worked for the researcher, an interviewer was hired to conduct both the focus group and structured interviews.

**Pilot Test**

A pilot test (structured interview) was done with two of the current peer mentors. This was an opportunity to: (1) test the interview questions, (2) determine the time requirements, and (3) practice using the digital voice recorder. There were no changes made to the original questions.
Description of the Focus Group and the Structured Interview Participants

There were 13 participants in the entire study (5 focus group participants and 8 structured interview participants). Eighty-five percent of the participants were female (n = 11), and 15% were male (n = 3). Thirty-one percent of the participants (n = 4) were African American, and 69% (n = 9) were Caucasian. The class level for the participants ranged from sophomore to senior. The average length of time a participant served in the SSS program as a mentor was 2.92 years. Thirty-one percent (n = 4) were in the College of Business, 46% (n = 6) in Education, 15% (n = 2) in Health and Human Services, and 8% (n = 1) were in the College of Arts and Sciences. The graduated mentors had been graduated from the university for an average period of 4.83 years from the time of the interviews. Table 31 below illustrates the characteristics of the current mentors, and Table 32 illustrates the characteristics of the graduated mentors.

Table 31. Characteristics of the Current Peer Mentors

<table>
<thead>
<tr>
<th>ID</th>
<th>Class Level</th>
<th>Age</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>College</th>
<th>Length of Time as a Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Senior</td>
<td>22</td>
<td>Female</td>
<td>White</td>
<td>Business</td>
<td>3 Yrs</td>
</tr>
<tr>
<td>20</td>
<td>Junior</td>
<td>21</td>
<td>Female</td>
<td>Black</td>
<td>Education</td>
<td>2 Yrs</td>
</tr>
<tr>
<td>30</td>
<td>Senior</td>
<td>23</td>
<td>Female</td>
<td>White</td>
<td>Business</td>
<td>4 Yrs</td>
</tr>
<tr>
<td>40</td>
<td>Junior</td>
<td>21</td>
<td>Male</td>
<td>White</td>
<td>Business</td>
<td>3 Yrs</td>
</tr>
<tr>
<td>50</td>
<td>Sophomore</td>
<td>21</td>
<td>Female</td>
<td>White</td>
<td>Health</td>
<td>2 Yrs</td>
</tr>
<tr>
<td>60</td>
<td>Senior</td>
<td>22</td>
<td>Female</td>
<td>White</td>
<td>Education</td>
<td>2 Yrs</td>
</tr>
<tr>
<td>70</td>
<td>Sophomore</td>
<td>20</td>
<td>Male</td>
<td>Black</td>
<td>Business</td>
<td>1 Yrs</td>
</tr>
</tbody>
</table>
Table 32. Characteristics of the Graduated Peer Mentors

<table>
<thead>
<tr>
<th>ID</th>
<th>Graduation Year</th>
<th>Age</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>College</th>
<th>Length of Time as a Mentor</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>2004</td>
<td>27</td>
<td>Male</td>
<td>White</td>
<td>Education</td>
<td>3 Yrs</td>
</tr>
<tr>
<td>2</td>
<td>2004</td>
<td>26</td>
<td>Female</td>
<td>White</td>
<td>Education</td>
<td>3 Yrs</td>
</tr>
<tr>
<td>3</td>
<td>2000</td>
<td>30</td>
<td>Female</td>
<td>White</td>
<td>Arts &amp; Sciences</td>
<td>3 Yrs</td>
</tr>
<tr>
<td>4</td>
<td>2003</td>
<td>28</td>
<td>Female</td>
<td>White</td>
<td>Education</td>
<td>5 Yrs</td>
</tr>
<tr>
<td>5</td>
<td>2001</td>
<td>30</td>
<td>Female</td>
<td>Black</td>
<td>Education</td>
<td>2 Yrs</td>
</tr>
<tr>
<td>6</td>
<td>2001</td>
<td>29</td>
<td>Female</td>
<td>Black</td>
<td>Health</td>
<td>5 Yrs</td>
</tr>
</tbody>
</table>

Selection of the Participants—Focus Group (Current Mentors)

Twelve current mentors were invited to participate in the focus group, but only five actually participated in the focus group. This was done to keep the identity unknown to the researcher. All 12 were given information about the dissertation topic and sent consent forms. Initial questions were addressed to the researcher. Once a current mentor decided to participate, all further questions were addressed to the student interviewer.

This was done to keep the mentors' identity from the researcher since the mentors worked for the researcher. The first five mentors were selected to participate in the focus group, and the next two were asked to participate in the structured interviews, which were to serve as a pilot test.

The student interviewer arranged a day and time that was convenient for the mentors. The pilot test was first arranged so that questions and responses could be reviewed. The researcher and the student interviewer did not feel the need to change any
of the questions. The current mentors requested that their structured interviews (pilot tests) be done by phone.

The focus group took place on the campus of the midwestern university in a location that was familiar and comfortable to the mentors. Mentors were paid $10 each at the beginning of the session and told they could leave at any time they felt uncomfortable. They could also ask questions to clarify any information that was presented to them, and their identity would not be disclosed to the researcher. They were also informed that the session was being taped with a voice recorder.

The student interviewer presented four topic areas: leadership, self-worth, self-esteem, self-confidence, and a one-word catch-all response at the end of the session. The group was given a definition of each topic area and than presented with several questions about the topic to ascertain if the mentors felt that participation as a mentor had an impact on them regarding the previously mentioned topics. The session lasted for an hour. The questions were open-ended, and the student interviewer made sure that everyone participated and responded to each question.

**Selection of the Participants—Structured Interview Graduated Mentors**

Approximately 30 mentors graduated from the midwestern university. A random sample was selected by placing all the mentors’ names in a container and selecting 12. All 12 were sent information letters and consent forms, but only 5 actually participated in the focus group. This was done to keep the identity unknown to the researcher. It was explained that the interviews could be done in person or by phone. They could show their interest and willingness to participate by sending the consent forms and all questions
to the student interviewer. Six graduated mentors confirmed by sending consent forms to the student interviewer. The student interviewer made contact with the graduated mentors to arrange a day and time when the interview could take place. All the structured interviews were done by phone including the two current mentors' structured interviews (pilot test).

At the designated day and time the student interviewer placed a call to the participant. The student interviewer identified herself, and took a few minutes to explain that the interview was being taped and that the participant could stop the interview at any time. She explained that she would read the definition of the topic area followed by questions. The student interviewer asked if the participant had any questions, and then the questioning started. The same protocol was used for both the focus group and the structured interviews. Open-ended questions were used and the participants had plenty of time to ask questions and respond. Once the focus group and structured interviews were concluded, the audio files were transcribed for accurate recording of the interviews.

This chapter presents the results of the qualitative elements of this mixed-methods investigation. Each of the qualitative research questions and accompanying hypotheses are examined.

**Qualitative Analysis**

Once the participant interviews were finished and the transcripts prepared, the coding sheets were created to code qualitative data in such a way as to efficiently interpret and analyze the interview results. Creswell (2003) suggested that researchers analyze the qualitative data to produce codes that address issues readers expect, and find
Research Question B refers to the qualitative component of the study: In what ways does SSS peer mentoring affect peer mentors’ development of such attitudes and skills as self-esteem, self-confidence, self-worth, and leadership ability? The data analysis for the qualitative interviews and focus group was framed around the interview questions and identified the emergent themes. The remainder of this section will follow this format.

Leadership

Leadership is the ability to make decisions, or have an impact on others. Leadership is also the ability to communicate a vision. (Definition provided to interviewees during the interviews and focus group.)

Did you have mentoring or leadership experience before becoming a SSS peer mentor? The researcher was trying to determine if the students who chose to be leaders had a tendency for leadership. The majority of the students who became leaders had previous leadership experience (85%, n = 11) said yes and (15%, n = 2) said no. In general, the mentors indicated that they had been involved in student government, sports, helping their friends, and volunteering.
How was the SSS mentoring experience different from your previous mentoring or leadership experience? The researcher was trying to ascertain how the mentors felt about the mentoring experience in relationship to other experiences. The mentors pointed out that the SSS mentoring experience was more structured, and they felt that they needed to be more responsible. One of the mentors expressed her feeling by the following comment, “It was a much more organized leadership experience. I felt like other people counted on me” (ID #2).

Have your decision-making abilities changed since becoming an SSS peer mentor? The researcher’s experience indicated that decision-making was an essential part of developing good leadership skills, so the researcher wanted to explore the idea that the SSS mentoring program had the potential for developing cognitive abilities. The majority of the mentors (85% n = 11) said yes, and (15% n = 2) said no.

The mentors felt that the leadership training played an important part in their development. The training and experience as leaders made them more careful and thoughtful and better problem solvers. They also felt their decision-making ability had become quicker and more precise. One of the mentors was cited as saying, “I need to make appropriate decisions for myself and think about how it affects others” (ID #4).

Since becoming a SSS peer mentor, how have your communication skills changed? The researcher was trying to determine the importance of communication and felt that communication was a necessary skill in the process of developing good leadership attributes. A good leader understands that communication involves interpreting verbal, as well as nonverbal, language.
The majority of the mentors (92%, n = 12) said yes, and (8%, n = 1) said no. The mentors said that the training and experience helped to make them better mentors. The mentoring experience allowed them to overcome their fear of public speaking, to transcend negativity and doubt generated by others, and to communicate precisely with individuals from diverse backgrounds. One leader did express that the mentoring experience was only one of the things that contributed to improved communication skills. For example, one mentor said, “I had to be able to, you know, be an example in front of a room of a handful of people, which I wasn’t necessarily accustomed to or especially good at” (ID #3). “The leadership role that was set up allowed me to step up a little bit more to be able to communicate with others more clearly and be confident in what I was communicating with other students” (ID #4). “I was still a peer, like a fellow classmate, but I felt like I had to take my kind of professionalism skills to the next level” (ID #5).

Since becoming a SSS peer mentor, has your ability to influence others changed? The researcher used her ability to influence and direct others toward a particular goal or a certain behavior. As a result, the researcher understands the power of leadership ability. Fifty-four percent (n = 7) said yes, and 46% (n = 6) said no. Many of the mentors felt that their position as a mentor gave them an edge on influencing students because students trusted them and saw them as role models. Also some students wanted to become peer mentors, and so they followed the mentors’ example. There were a few mentors who expressed doubt about why they were influential. Some mentors felt their campus involvement was the reason why they could influence others. For example, some mentors had become orientation leaders and residence-hall assistants. Some of the mentors revealed what they thought about influencing others. “...I felt I was able to
influence her in a more of a positive way of making positive changes in her life” (ID #4). “I realize that I do influence others... They [students] trust us because we are more their age” (ID #40).

Self-esteem

Self-esteem is an evaluation of a person’s perception of their self-image.

(Definition provided to interviewees during the interviews and focus group.)

*Since becoming an SSS peer mentor, have your views changed on how you feel about yourself?* The researcher suggested that seeing themselves in a positive or negative way could have an impact on everything they did. Their self-image would help determine their success and failure. Sixty-nine percent (n = 9) said yes, and (31%, n = 4) said no. The mentors that said “no” revealed that they had always felt positive about themselves and the mentoring program hadn’t increased or changed that feeling. Other mentors indicated that they were proud to be a mentor and a role model. They felt that they set even higher expectations for themselves. The mentors spoke about the following: “I definitely think they [SSS students] raise my self-esteem and everyone else’s too” (ID #10). “I am a mentor; I do have people always looking up to me, so I have to, like be responsible and, like acknowledge my actions” (ID #40). “I felt like the people around and the program really helped me build and strengthen myself, self-image and self-esteem” (ID #4). “I definitely saw myself more, you know, as a role model, as someone who not only to the two or three people who I was mentoring but others could look up to, and so it made me kind of hold myself at a higher level of accountability....” (ID #5). “Yeah, I think, you know when you set the higher expectations, you get to them,
or you get near them, and I think going above and beyond in the program, I, I think has transferred over into my, my life” (ID #1).

Since becoming an SSS peer mentor, has the way the SSS students interact with you changed? The researcher noticed that taking on a changing role in a learning community can have a positive or negative effect or no change at all on self-esteem because of how peers respond. The mentors were moving from SSS participants to SSS leaders/mentors. Seventy-seven percent (n = 10) said yes, and 23% (n = 3) said no. Students recognized that the mentors were now an important component of SSS, and students would make eye contact and say hello. They were now seen by SSS students as both an authority figure and friend. Mentors who said “no” felt that SSS students just continued to be friendly.

Since becoming a SSS peer mentor, how has the way the SSS staff interacts with you changed? Taking on a changing role in a learning community can have a positive, or negative effect, or no change at all on self-esteem because of how people in authority (professional staff, instructors) respond. The mentors were moving from SSS participants to SSS leaders/mentors. Fifty-four percent (n = 7) said yes, and 46% (n = 6) said no. The mentors felt they were being treated more like professionals because the staff asked for their opinion, and expectations were higher regarding reliability and responsibility. The mentors who said “no” said that the staff didn’t change toward them. They had always been warm and supportive and continued to do so. An example of the responses from the mentors is the following: “You know that the door is always open to walk through should you need any assistance” (ID #5).
Self-worth

Self-worth is the perception that a person has value to others. (Definition provided to interviewees during the interviews and focus group.)

*Since becoming an SSS peer mentor, do you feel that you provide SSS students with useful information?* The research says seeing themselves through the eyes of others is a benchmark used in society to help give value to self. The mentors were asked if their services to the SSS population were useful. One hundred percent (n = 13) of the mentors agreed. Because the mentors had been freshmen, they knew that the information regarding study habits and how to adapt to the university was useful information that the freshmen valued, and many of the students thanked them and told them the information was beneficial.

*Since becoming an SSS peer mentor, do you model procedures that SSS students can follow?* Seeing themselves as role models can be important yet stressful. Keeping it all in perspective can make a difference in how they see themselves. One hundred percent (n = 13) of the mentors said yes. The mentors felt that they gave the students nuggets of wisdom that the students could follow, such as participate in a study abroad program; volunteer to help the less fortunate and follow healthy habits regarding drugs and alcohol. Some of the mentors felt that they didn’t talk about doing drugs and alcohol, but they always modeled good behavior regarding those topics.

*Since becoming an SSS peer mentor, do SSS students ask your advice?* Advice is asked of those who are trusted and valued. When students asked advice of mentors, it was an opportunity for the mentors to improve their self-worth. One hundred percent (n = 13) of the mentors said yes. The staff encouraged students to go to the mentors with
questions. Mentors felt that the students found them knowledgeable, experienced, and non-judgmental, and they were comfortable interacting with them. The mentors revealed the following, “I think overall it was a mutual respect. They knew that I respected them and therefore, and I was there to help them, and so therefore they respected me back” (ID #1).

Self-confidence

Self-confidence is trust in a person’s ability to understand, learn, choose, and make decisions. (Definition provided to interviewees during the interviews and focus group.)

Since becoming an SSS peer mentor, have your feelings about trusting yourself to lead others changed? Self-confidence allows people to believe in themselves, and it gives them endless possibilities to achieve. Ninety-two percent (n = 12) said yes, and 8% (n = 1) said no. The mentors felt, because of their growth as leaders/mentors, that they were able to handle indecisive groups and trusted themselves to make fair and unbiased decisions as they effectively communicated with SSS students. One mentor shared these feelings: “I think that I progressively was able to learn more about working with others, and trust came along with it” (ID #4).

Since becoming an SSS peer mentor, has the way you make choices changed? The researcher thinks that choices are like steps; making one allows a person to move forward. Seventy-seven percent (n = 10) said yes, and (23%, n = 3) said no. In many instances mentors wanted input from staff members before making decisions. Most of the mentors said they considered both the SSS students and program before making
decisions because they were aware of how their decisions could impact SSS. Some of the mentors shared their feelings. “I’m a senior graduating and they always tell me that, you know, we’ll use you as an example...so I guess just like, making good choices and always, um, being a role model and kind of being the person they [SSS staff] want you to be can really pay off” (ID #40). “…you have to be a good student and be on the right track. You can conquer your weaknesses and also turn your weaknesses into strengths” (ID #2).

*Since becoming an SSS peer mentor, has your comfort level for interacting with different types of people changed?* The researcher’s experience has taught her that in the global society today, it is so important to be able to be comfortable interacting with many different people and be able to celebrate their differences. Ninety-two percent (n = 12) said yes, and (8%, n= 1) said no. The mentors felt that SSS had given them the opportunity to work and interact with all kinds of people. This opportunity had taught them about customs and cultures and made them more comfortable while preparing for other life experiences. The mentors shared the following thoughts, “I think that’s one of the messages that I got out of it [mentoring program]. It is, uh, working with people from different backgrounds and understanding that everyone’s life isn’t the same as yours and how to deal with situations like that where, you know, be careful what you say because of someone’s background…” (ID #40). “You do leave feeling, you know a lot more confident about future relationships that you would build and hopefully sustain” (ID #5). “I became more comfortable as a mentor, so, and being involved with other students, it was a natural thing” (ID #4).
If you could choose one word to describe your SSS peer mentoring experience, what would it be? To better understand the mentor experience, the researcher asked if mentors could capture three years of learning, growing, and coming of age in one word. The following table is what the mentors had to say and why they said it.

Qualitative Summary

The mentors' rich responses throughout the structured interviews and focus group paint a clear picture of student success, pride, and self-confidence. These students were strongly motivated because there was an expectation that as mentors they would strive to be good role models for the SSS program and the university.

This chapter has presented the results of qualitative components of the research study. In this analysis, five themes were identified and addressed. Many quotes were included to convey the voice of the mentors who experienced the mentoring program at SSS in a university environment.

The final chapter presents the summary and conclusions drawn from the data to address the research questions, and to identify to what extent the study was successful in answering those questions. Chapter 5 will also discuss implications for current practice, and delineate recommendations for further research and how specifically the results of this study can be used by SSS and other developmental programs.
Table 33. One Word that Describes the Mentoring Experience

<table>
<thead>
<tr>
<th>Descriptive Word</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realization</td>
<td>&quot;They [SSS staff] help everyone whether it’s someone in the class or anything, you know, their support and everything just makes me realize that that’s how I want to be as a person, you know I want to be someone that people can come to and talk to and ask for advice and everything like that...&quot; (ID #10).</td>
</tr>
<tr>
<td>Fun</td>
<td>&quot;I just enjoy working with students and the other mentors&quot; (ID# 40).</td>
</tr>
<tr>
<td>Valuable</td>
<td>&quot;Um, just the whole experience was valuable. It was a lot of...life lessons. Getting involved in the mentoring program was a good way to kind of give back to the [SSS] program&quot; (ID #3).</td>
</tr>
<tr>
<td>Empowering</td>
<td>&quot;It helped me to step out of my world and learn about a lot of things that I was not confident and comfortable in, as far as leadership roles and gaining my communication skills&quot; (ID #4).</td>
</tr>
<tr>
<td>Pretty Cool</td>
<td>&quot;I would have to say that it was pretty cool, like, to... you know, go through the program and to, you know, come back, you know, as a mentor and connect with students as well as continue to learn and be supported, supported by, you know, the staff...You know, it’s, you know, great to have an opportunity to have an influence and, like, help young people who are, you know, coming into school, to help them be successful because, you know, it’s really important and yes, I think it was really cool...&quot; (ID #5).</td>
</tr>
<tr>
<td>Meaningful</td>
<td>&quot;I think it was meaningful in that it taught me how to work well with others. It taught me to communicate better. Everything we did in the class and in the mentoring program helps me prepare, and it helps me to become a better person for the real world&quot; (ID #1).</td>
</tr>
<tr>
<td>Awesome</td>
<td>&quot;I learned how to put my foot through the door and shoot for what I want and, and get it&quot; (ID #6).</td>
</tr>
<tr>
<td>Life-Changing</td>
<td>&quot;I came in, into the university with a horrible experience and almost was done with college, and through the support of them the SSP [SSS] program, it made me become a very successful college student, and now a successful person in life and my career&quot; (ID #2).</td>
</tr>
<tr>
<td>Diversity</td>
<td>&quot;We have a diverse population of students, and we work with a diverse population of students, which is a good thing, and that is where it came from&quot; (ID# 50).</td>
</tr>
<tr>
<td>Eye-Opening</td>
<td>&quot;I guess, just through the whole mentoring thing you get to meet so many different people and learn about them and experience their experiences, and you just get a different view of the world.... Just going through, hearing about their stories and learning a mentor every, or mentee every year and meeting the new, the different mentors every year opens your world&quot; (ID #30).</td>
</tr>
<tr>
<td>Enlightening</td>
<td>&quot;...I’ve learn so much that’s really broaden my horizon of different people’s views and about people and working with people, communication, um...yeah&quot; (ID #60).</td>
</tr>
<tr>
<td>Learning Experience</td>
<td>&quot;When you, when you’re learning something you’re experiencing something; when you’re experiencing something, you’re learning something, so they go hand in hand&quot; (ID #70).</td>
</tr>
<tr>
<td>Leadership</td>
<td>&quot;I’m a leader. See, like I’m a leader, okay, that’s it&quot; (ID #20).</td>
</tr>
</tbody>
</table>
CHAPTER V

DISCUSSION

This chapter will start with a review of the research questions followed by a
discussion of the findings using the research data and the current literature to explain and
elaborate on the research questions. Chapter 5 will continue with a discussion of the
implications of the study and limitations that may impact the findings.
Recommendations for the future research will then be explored, and the chapter will end
with a conclusion and closing comments.

Research Question Part A

To better understand the discussion and the implications of the quantitative part of
this study, the research question part “A” is repeated below:

A. In what ways and to what extent do SSS peer mentors’ grade point
averages, retention, and graduation rates differ from the following:
1. Non-Eligible Students
2. SSS Non-Participants
3. SSS-Participants: Mentor Ineligible
4. SSS-Eligible Non-Mentors

Quantitative Discussion Section

The purpose of this study was to ascertain how mentoring impacts the at-risk peer
mentor in an educational environment, and to determine if the mentoring relationship
should be viewed as reciprocal. To determine if the mentoring relationship should be viewed as reciprocal, several authors’ studies were reviewed. Allen, Poteet, and Burroughs (1997), Good, Halpin, and Halpin (2000), and Rhyan (1995) were reviewed. All stated instances where the mentoring relationships had a profound and positive impact on both the mentor and the mentee. This current study also revealed to the researcher that while the peer mentor grew and developed both academically and as a role model and leader, it was done in an environment where the mentors were providing support, guidance, and direction to the mentees. This observation suggests again that the mentoring relationship is reciprocal.

This study also revealed that at-risk students involved in leadership/mentoring programs attained goals of graduation and did not take any longer to graduate than the other comparative groups in the study. The research suggests that this mentoring model can be a prototype for other developmental and TRIO programs. This model can give at-risk students an opportunity to become mentors and leaders within their program and can create a cycle of success giving at-risk students a voice in their future and in their community.

Research Question Part B

To better understand the discussion and the implications of the qualitative part of this study, the research question part “B” is repeated below:

B. In what ways does SSS peer mentoring affect peer mentors’ development of such attitudes and skills as self-esteem, self-confidence, self-worth, and leadership ability?
Qualitative Discussion Section

Leadership

The implications here are that the SSS peer mentors' leadership abilities improved in a very positive way, but in addition, while they were developing mentoring and leadership skills they were also finding ways that would connect them to the university. Researchers have suggested that extracurricular activities and interacting with other students can have a positive impact on intellectual and personal development (Pascarella, Palmer, Moye, & Pierson, 2001). Other authors such as Perez and Swail expounded on Tinto’s work, and were convinced that when students drop out it may be because they cannot find ways to connect socially and academically with the institution. This study suggests that these students are connecting and becoming successful through mentoring by being leaders/mentors.

Self-esteem

O’Donnell, Michalak, and Ames (1997) and Good, Halpin, and Halpin (2000) all discussed how mentoring helped peer mentors improve their self-image. The implication here is that mentoring affects self-esteem in a positive way. Students who become mentors and role models will have an opportunity to help themselves as well as others.

Self-worth

The mentors felt that they were continually being helpful and useful to students. They felt that both they and the students benefitted, because they had an opportunity to
help others, and the students gained from their willingness to help. It is suggested from the research that mentoring has a positive impact on self-worth and that it is reciprocal because it benefits both the SSS peer mentor and mentee.

**Self-confidence**

The implication is that the SSS peer mentors increased their self-confidence in themselves. They now felt more comfortable making choices, leading, and interacting with all kinds of people. Hsiao (1992) talked about how important it is for colleges to provide services and programs to counteract the weaknesses at-risk students bring to colleges. The SSS mentoring program may be just the kind of program that Hsiao was alluding to.

**One Word to Describe the SSS Peer Mentoring Experience**

Realization, Fun, Valuable, Empowering, Pretty Cool, Meaningful, Awesome, Life-Changing, Diversity, Eye-Opening, Enlightening, Learning Experience, Leadership were the words the SSS peer mentors used to describe their experience as mentors in the SSS program. Undoubtedly this was a life-changing experience for these students. They were thankful for the experience. They grew, learned, and gave back to the program and to themselves. This was truly a reciprocal experience for the mentors, the students, and the SSS program.
Limitations

Even though this study is about a national program, only one site was investigated. The SSS program at a midwestern university was used because the researcher felt that the SSS Peer Mentoring Program was a unique model, even though peer mentoring is widely used in other settings. This study observed and analyzed the relationships and interactions of the SSS peer mentors, SSS students, and the students of a midwestern university in general. Additionally, the research design relied on relatively small and somewhat unequal sample sizes for the peer mentors. The small size raises some concern regarding statistical power when no significant differences are noted. However, equalizing the sample sizes would have resulted in numbers too small for meaningful conclusions. Finally, the 2004 and 2005 cohort group did not have a minimum of 5 years to analyze their performance, which was allowed for the other cohort years. These groups were not included in this study but will be examined in future follow-ups.

Recommendations for Further Research

More data will be compared and analyzed when it becomes available for the 2004 and 2005 cohort years. It will be interesting to see if the positive trends turn into significant differences. Larger and possibly equal sample sizes would be desirable for future research. Finally, analyzing future data that look at the peer mentors from the male/female perspective could also be very informative to see, for example, if female mentors do better regarding retention, CGPA, and Grad Status.
Conclusion

This study was used to determine whether or not mentoring was beneficial to the at-risk SSS peer mentor and if it made a difference in the mentor’s attitude. Does mentoring have reciprocal benefits, and can this program model be used by other developmental programs? The answer is “Yes” to all inquiries. The research strongly indicates both quantitatively and qualitatively that mentoring is a positive experience. The mentoring program does no harm, and mentors have a rich college experience filled with success, self-confidence, self-worth, and self-esteem.
REFERENCES


Appendix A

Approval Letter from the Human Subjects Institutional Review Board
Date: February 6, 2007

To: Richard Zinser, Principal Investigator
   Charlotte Giscombe, Student Investigator for dissertation
   Bonnie Benson, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number: 06-11-14

This letter will serve as confirmation that your research project entitled “The First-Generation, Income-Eligible Peer Mentor Study” has been approved under the expedited category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: February 6, 2008
Appendix B

Informed Consent for Structured Interview
All of the quantitative data (grade point average, credits, honor points, etc) collected will be confidential. Your name will not appear anywhere in the final report. The principal investigator will keep a separate master list with names of participants and corresponding code numbers. Once the data is collected and analyzed, the master list will be destroyed.

You may refuse to participate or quit at any time during the study without penalty. If you have questions or concerns about the study, you may contact either me at 269-387-4450 or Dr. Zinser, at 269-387-3007. You may also contact the Chair of Human Subjects Institutional Review Board at 269-387-8293 or the Vice President for Research at 269-387-8289 with any concerns.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the Board Chair in the upper right corner. Do not participate in this study if the stamped date is more than one year old.

Your signature below indicates that you have read and/or had explained to you the purpose and requirements of the study and that you agree to participate.

**Signature**

**Date**

Consent obtained by:

Initials of researcher

Date

Time of interview:

Date:

Place:

Interviewer:
Appendix C

Informed Consent for the Focus Group
Western Michigan University
Department of Education
Principal Investigator: Dr. Richard Zinser
Student Investigator: Charlotte Giscombe

You have been invited to participate in a research project titled "A First-Generation, Income-Eligible Peer Mentor Study." This research is intended to study the Student Support Services (SSS) peer mentors who are currently called the TRiO Student Success Program (TRiO SSP) peer mentors. This project is Charlotte Giscombe's dissertation project. The topic is the impact of mentoring on the SSS peer mentor. The question is, in what ways and to what extent do SSS peer mentors' grade point averages, retention and graduation rates differ from the following: 1. Non-Eligible students, 2. SSS Non-Participants, 3. SSS Participant Mentors-Ineligible, 4. SSS Eligible Mentors: Non-Participating. And, in what ways does SSS peer mentoring affect peer mentor's development of such attitudes and skills as self-esteem, self confidence, self worth and leadership abilities.

You will be asked to attend a focus group session with an interviewer, which will be held in one of two TRiO Student Support Services (SSS) tutoring rooms in Moore Hall on the Western Michigan University campus. The session will last no longer than two hours. The session will consist of answering several questions in a focus group setting. You will then be contacted by phone or e-mail to clarify and verify findings from the session. To participate in the sessions, you must be a current member of TRiO SSP, and must have held the position of peer mentor. To set up session times, I will have someone contact you by phone or e-mail or both. The interview will be recorded and transcribed verbatim (word for word). The information will be coded for themes, patterns and categories. You will remain anonymous, but the results of the interview may be shared with other programs across the country. Quantitative data will also be collected from the 1996 – 2005 academic years consisting of grade point average, credits, honor points, contact hours graduation and retention rates. This information will all be reported in the aggregate and not tied to a particular person. To thank you for your time and effort, you will receive ten dollars for your participation. You may also enjoy interacting with other mentors and hearing their impression of the mentoring program.

You might experience discomfort associated with being interviewed in groups or sharing feelings with others. All of the usual measures will be taken so participants are made comfortable. In all research, there is a possibility of some unforeseen risks to the participant. Please note all of the information collected will be confidential. Your names will not appear anywhere in the final report. The principal investigator will keep a separate master list with names of participants and the corresponding code numbers. Once the data are collected and analyzed, the master list will be destroyed. All forms will be retained for three years in the principal investigator's office.
All of the quantitative data (grade point average, credits, honor points, etc) collected will be confidential. Your name will not appear anywhere in the final report. The principal investigator will keep a separate master list with names of participants and corresponding code numbers. Once the data is collected and analyzed, the master list will be destroyed.

You may refuse to participate or quit at any time during the study without penalty. If you have questions or concerns about the study, you may contact either me at 269-387-4450 or Dr. Zinser, at 269-387-3007. You may also contact the Chair of Human Subjects Institutional Review Board at 269-387-8293 or the Vice President for Research at 269-387-8289 with any concerns.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the Board Chair in the upper right corner. Do not participate in this study if the stamped date is more than one year old.

Your signature below indicates that you have read and/or had explained to you the purpose and requirements of the study and that you agree to participate.

Signature

Date

Consent obtained by:

Initials of researcher

Date

Time of interview:

Date:

Place:

Interviewer:
Appendix D

Interview Protocol
Interview Protocol

Thank you for taking time from your busy schedules to speak with me. I have asked you here today because you worked or are currently working as an SSS peer mentor for the Student Support Services (SSS) currently referred to as the TRIO Student Success Program. The research and the questions I will ask are about the SSS’s peer mentoring program. I am going to ask you a series of questions and record your answers. I will also take notes as you talk. Please feel free to interrupt me and ask questions at any time if you need clarification on anything. We should finish this process in no more than one hour. Everything we say today is confidential, and your name will not appear anywhere in the study.

Questions and Definitions

Leadership is the ability to make decisions, influence, or have an impact on others.

Leadership is also the ability to communicate a vision.

1. Did you have any mentoring or leadership experience before becoming a SSS peer mentor?
   a. If the answer is no, confirm with an example. You were never the captain or leader of a team?
   b. You never helped a friend or classmate study for an exam?
   c. Tell me about your previous experience?
   d. How is the SSS mentoring experience different from your previous mentoring or Leadership experience?
e. Was the SSS mentoring more structured?

f. Did you feel more responsible as an SSS peer mentor?

2. Has your decision-making abilities changed since becoming a SSS peer mentor?
   a. If the answer is no, confirm. There has been no change in your ability to make decisions?
   b. How has your decision-making abilities changed since becoming a SSS peer mentor?
   c. Are you able to resolve more problems for yourself as well as others since becoming a SSS peer mentor?
   d. Is your decision-making ability more decisive since becoming a SSS peer mentor?

3. Since becoming a SSS peer mentor have your communication skills changed?
   a. If the answer is no, confirm. So there has been no change in your ability to communicate?
   b. How have your communication skills changed?
   c. Since becoming a SSS peer mentor, do you feel you are able to articulate clearly what you want to say?
   d. Since becoming a SSS peer mentor, do you think people are able to understand you better than before you were a mentor?

4. Since becoming a SSS peer mentor, has your ability to influence others changed?
   a. If the answer is no, confirm; so there has been no change in your ability to influence others?
   b. How have your ability to influence others changed?
c. Since becoming a SSS peer mentor, do you feel that you have made a difference in other students’ lives?

d. Since becoming a SSS peer mentor, are you able to convince more people to follow your lead (regarding volunteering, being involved in university activities, etc)

**Self-esteem is an evaluation of your perception of your self image.**

1. Since becoming a SSS peer mentor, have your views changed about how you feel about yourself?
   
a. If the answer is no, confirm. So your views about how you feel about yourself have not changed since becoming a mentor?
   
b. How have your feelings about yourself changed since becoming a SSS peer mentor?
   
c. Since becoming a SSS peer mentor, do you feel more prideful about yourself?
   
d. Since becoming a SSS peer mentor, are your expectations for yourself higher than they were before you became a mentor?

2. Since becoming a SSS peer mentor, has the way the SSS students interact with you changed?
   
a. If the answer is no, confirm. So since becoming a SSS peer mentor, do the SSS students treat you the same way?
   
b. Please explain how the SSS students’ interaction with you has changed?
   
c. Since becoming a SSS peer mentor, are you recognized by SSS students as being part of an important group or component of SSS?
d. Since becoming a SSS peer mentor, are more SSS students making eye contact and greeting you?

3. Since becoming a SSS peer mentor, has the way the SSS staff interacts with you changed?
   a. If the answer is no, confirm. So since becoming a SSS peer mentor, the SSS staff treats you the same way?
   b. Please explain how the SSS staff interaction with you has changed?
   c. Since becoming a SSS peer mentor, does the SSS staff ask for your opinion (regarding events, needs, etc)?
   d. Since becoming a SSS peer mentor, does the SSS staff treat you like a professional or colleague when they interact with you?

**Self-worth is the perception that you have value to others.**

1. Since becoming a SSS peer mentor, do you feel that you provide SSS students with useful information?
   a. If the answer is no, confirm. So you don’t feel that you provided useful information to SSS students?
   b. Please explain how you know that you have provided useful information to SSS students.
   c. Does SSS student feedback indicate that the information was useful?
   d. Do SSS students thank you for your helpful information?

2. Since becoming a SSS peer mentor, do you feel that you model procedures that SSS students can follow?
1. If the answer is no, confirm. So you don’t feel that you model procedures that SSS students can follow?

b. Please explain how you have provided procedures that SSS students can model?

c. Do you tell students about successful study habits

d. Do you tell SSS students about the dangers of drugs and alcohol, and does your behavior model a positive example?

3. Since becoming a SSS peer mentor, do SSS students ask your advise?

a. If the answer is no, confirm. So SSS students never ask you for advise?

b. Please explain why you think SSS students ask for advice from you?

c. Do you think SSS students think you are knowledgeable?

d. Do you think SSS students respect your opinion?

**Self-confidence is a trust in your ability to understand, learn, choose and make decisions.**

1. Since becoming a SSS peer mentor, has your feelings about trusting yourself to lead others changed?

a. If the answer is no, confirm. So your feelings about trusting yourself to lead others have not changed?

b. Since becoming a SSS peer mentor, how have your feelings about trusting yourself to lead others changed?

c. Since becoming a SSS peer mentor, do you trust yourself to take charge of an indecisive group?
2. Since becoming a SSS peer mentor has the way you make choices changed?
   a. If the answer is no, confirm. So you do not feel that the way you make choices has changed?
   b. Please explain how becoming a mentor has changed the way you make choices?
   c. Since becoming a SSS peer mentor, do you find yourself thinking about how your choice will impact the SSS TRIO program?
   d. Since becoming a SSS peer mentor, do you think about the way your choices will impact on other SSS students?

3. Since becoming a SSS peer mentor, has your comfort level for interacting with different types of people changed?
   a. If the answer is no, confirm. So your comfort level has not changed when interacting with different kinds of people?
   b. Since becoming a SSS peer mentor how has your comfort level changed when interacting with different nationalities and races?
   c. Since becoming a SSS peer mentor, do you find it easier to converse with different kinds of people?
   d. Since becoming a SSS peer mentor, have you learned to appreciate different kinds of food, music, and cultures?

1. If you could choose one word to describe your SSS peer mentoring experience, what would it be? Please explain.
Appendix E

Initial Email to Potential Participants Who Are Current Peer Mentors in the SSS Program
Greetings TRIO SSP Students,

I would like to invite you to participate in a focus group that will be used as part of my dissertation research. I am currently working on research for my dissertation. My topic is the impact of mentoring on the SSS peer mentor. My question is, in what ways and to what extent do SSS peer mentors' grade point averages, retention and graduation rates different from the following: 1. Non-Eligible students, 2. SSS Non-Participants, 3. SSS Participant Mentors-Ineligible, 4. SSS-Eligible Mentors: Non-Participating. And, in what ways does SSS peer mentoring affect peer mentor's development of such attitudes and skills as self-esteem, self confidence, self worth and leadership abilities.

To qualify you must be a peer mentor in the Student Support Services currently referred to as the TRIO Student Success Program (SSP). Participants must be prepared to participate in a one hour structured interview or a two hour focus group. You also may be contacted after the structured interview or focus group by email or phone to clarify any of your answers. There are only eight students required for the focus group so please respond as soon as possible. If you have any concerns or questions, please fill free to contact me by e-mail or phone. Quantitative data will also be collected from the 1996 – 2005 academic year consisting of grade point average, credits, honor points, contact hours graduation and retention rates. This information will all be reported in the aggregate and not tied to a particular person.

The actual interview will be conducted by someone other than myself who is a respected colleague. A sum of ten dollars will be paid to you for your time; however, you would be part of a project that will help SSS learn more about the mentoring experience. A consent form and a general interview outline are attached and also will be
placed in your employee mailbox at WMU to enable you to think about your responses in
advance. Please send all signed consent forms to my trusted colleague B.Benson by fax
or interoffice mail. B. Benson’s fax number and interoffice address at listed below, and
Please know that you are under no obligation to participate in this research, and you can
change your mind and withdraw from the interview process at any time without
consequence.

Once B. Benson has your signed consent form, she will be e-mailing you to
arrange a day and time that is convenient for the focus group. Please contact me by
phone at 269-387-4450 or by email at Charlotte.giscombe@wmich.edu. B. Benson’s
phone number is 269-387-1850 fax number is 269-387-1884, and her interoffice mailing
address is Bonnie Benson, Counseling and Testing, Mail stop

Thank you in advance for your help.

Yours Sincerely,
Appendix F

Initial Letter to Potential Participants Who Have Graduated and Served as SSS Peer Mentors
Greetings Former SSS Students,

I am contacting you because you had the unique experience of being a Student Support Services mentor (SSS) currently referred to as the TRIO Student Success program.

I am currently working on research for my dissertation. My topic is the impact of mentoring on the SSS peer mentor. My question is, in what ways and to what extent do SSS peer mentors' grade point averages, retention and graduation rates different from the following: 1. Non-Eligible students, 2. SSS Non-Participants, 3. SSS Participant Mentors-Ineligible, 4. SSS-Eligible Mentors: Non-Participating. And, in what ways does SSS peer mentoring affect peer mentor’s development of such attitudes and skills as self-esteem, self confidence, self worth and leadership abilities.

I am asking you to participate in either a structured (person-to-person) interview or a phone interview that would last no longer than one hour. The actual interview will be conducted by someone other than myself who is a respected colleague. The graduated peer mentors’ names will be placed in a drawing with a chance to win twenty-five dollars to thank you for your participation. By participating in this project, you will help SSS learn more about the mentoring experience. A general interview outline will be provided for you ahead of time to enable you to think about your responses in advance. Please know that you are under no obligation to participate in this research, and you can change your mind at any time in the process without consequence.

Please contact B. Benson, my colleague, if you have questions. I have also included a letter of consent. Please return the signed letter of consent to B. Benson either
by fax or mail if you want to participate in the study. Once B. Benson has your signed consent form, she will e-mail or calling you to arrange a day and time that is convenient for the interview, and also to determine your preference for a phone or in-person interview.

Please contact B. Benson by phone at (269-387-1850) or by email at bensonb@chartemi.net.

Thank you in advance for your help.

Yours Sincerely,

Charlotte Giscombe

P.S. Please include your phone number if you decide that you want to be a part of the research and want to be interviewed by phone.
Appendix G

Letter to the Director of the Trio Student Success Program
Dear Laura Ciccantell,

As you know, in addition to being an employee of the TRIO Student Success Program referred to in my study as Student Support Services (SSS), I am also a student in Western Michigan University’s (WMU) Department of Education in the Education Leadership Program. As you are well aware, part of the requirement is research for the dissertation.

My research topic concerns the impact of mentoring on the SSS peer mentor and involves comparing the SSS peer mentor to other SSS and WMU students, and also questions how mentoring affects the SSS peer mentor’s self-confidence, self-esteem, self-worth, and leadership abilities.

My research is a mixed study. As a result, I am requesting permission to review your orientation and attendance records from the 1998 to 2006 academic years. I would like to track the grade point average, graduation, retention and contact hours of the SSS students. I would also like to request permission to review your data base to obtain addresses of SSS peer mentors who have graduated. Finally, I would like permission to send e-mails to current SSS peer mentors and letters to former peer mentors who have graduated and invite them to be a part of a structured interview and/or a focus group.

If you have any questions, please feel free to contact me by phone at 269-387-4450 or by e-mail at Charlotte.giscombe@wmich.edu.

Thank you in advance for your help and cooperation.

Sincerely,

Charlotte Giscombe
Appendix H

Letter to the Director of the Alumni Office
To the Director:

My name is Charlotte Giscombe, and I am the Program Services Coordinator for Western Michigan University’s TRIO Student Success Program (TRIO SSP). I am also a doctoral student here at Western Michigan University in the Education Leadership program. In that role, I am conducting research for my dissertation on the impact of mentoring on the TRIO SSP’s peer mentor.

My research will involve interviewing students in my program who were peer mentors and who have now graduated. I am asking for your help in locating them with your most recent contact information. I can supply you with a list of student names and WIN/SS numbers.

The students will simply be asked if they would like to participate in a structured interview either in person or by phone.

Pleases let me know if your department is willing or able to help me. Please also let me know if you have any questions. I look forward to hearing from you.

Charlotte Giscombe

Charlotte.giscombe@wmich.edu
Program Services Coordinator
TRIO Student Success Program
269-387-4450
Appendix I

Letter to the Alumni Office
To the Director:

My name is Charlotte Giscombe, and I am the Program Services Coordinator for Western Michigan University’s TRIO Student Success Program (TRIO SSP). I am also a doctoral student here at Western Michigan University in the Education Leadership program. In that role, I am conducting research for my dissertation on the impact of mentoring on the TRIO SSP’s peer mentor.

My research will involve interviewing students in my program who were peer mentors and who have now graduated. I am asking for your help in locating them with your most recent contact information. I can supply you with a list of student names and WIN/SS numbers.

The students will simply be asked if they would like to participate in a structured interview either in person or by phone.

Pleases let me know if your department is willing or able to help me. Please also let me know if you have any questions. I look forward to hearing from you.

Sincerely,

Charlotte Giscombe
Charlotte.giscombe@wmich.edu
Program Services Coordinator
TRIO Student Success Program
269-387-4450
Appendix J

Interview and Focus Group Coding Sheet
Leadership is the ability to make decision, or have an impact on others. Leadership is also the ability to communicate a vision.

1. Did you have any mentoring or leadership experience before becoming a SSS peer mentor?
   1a. Tell me about your experience?
   Quote
   1b. How is the SSS mentoring experience different from your previous mentoring or leadership experience?

2. Has your decision-making abilities changed since becoming a SSS peer mentor?
   2a. How has your decision-making abilities changed since becoming a SSS peer mentor?
   Quote
   Summary/Notes

3. Since becoming a SSS peer mentor have your communication skills changed?
   3a. How have your communication skills changed?
   Quote
   Summary/Notes
<p>| | | |</p>
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</thead>
<tbody>
<tr>
<td>4. Since becoming a SSS peer mentor, has your ability to influence others changed?</td>
<td>4a. How has your ability to influence others changed?</td>
<td>Quote</td>
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<td>Summary/Notes</td>
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<tr>
<td>Self-esteem is an evaluation of your perception of your self image</td>
<td>1a. How has your feelings about yourself changed since becoming a SSS peer mentor?</td>
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<tr>
<td>2. Since becoming a SSS peer mentor, has the way the SSS students interact with you changed?</td>
<td>2a. Please explain how the SSS students’ interaction with you has changed?</td>
<td>Quote</td>
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<td>Summary/Notes</td>
</tr>
</tbody>
</table>
3. Since becoming a SSS peer mentor, has the way the SSS staff interacts with you changed?

3a. Please explain how the SSS staff interaction has changed?

1. Since becoming a SSS peer mentor, do you feel that you provide SSS students with useful information?

1a. Please explain how you know you provide useful information to SSS students?

2. Since becoming a SSS peer mentor, do you model procedures that SSS students can follow?

2a. Please explain how you have provided procedures that SSS students can follow?

Self-worth is the perception that you have value to others.
3. Since becoming an SSS peer mentor, do SSS students ask your advice?

3a. Please explain why you think SSS students ask for advice from you?

Self-confidence is trust in your ability to understand, learn, choose, and make decisions.

1. Since becoming a SSS peer mentor, has your feelings about trusting yourself to lead others changed?

1a. Please explain how becoming a mentor has changed the way you make choices?

2. Since becoming a SSS peer mentor, has the way you make choices changed?

2a. Please explain how becoming a mentor has changed the way you make choices?
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<tr>
<th>3. Since becoming a SSS peer mentor has your comfort level for interacting with different types of people changed?</th>
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</thead>
<tbody>
<tr>
<td>3a. Since becoming a SSS peer mentor, how has your comfort level when interacting with different nationalities and races changed?</td>
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</table>

<table>
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<th>1. If you could choose one word to describe your mentoring experience, what would it be?</th>
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<td>1a. Please explain why you thought that particular word represented your experience?</td>
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Appendix K

Distribution and Comparison of Interview and Focus Group Questions
### Distribution and Comparison of Focus Group and Interview Questions

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<th>Ability/Attitudes</th>
<th>Jane</th>
<th>Tucker</th>
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Questions from the Coding Sheet (Appendix G)

- Leadership question 1-4
- Self-Esteem Questions 1-3
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<th>Self-Worth Questions</th>
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<td>Self-Confidence Questions</td>
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Pilot Test = Jane and Tucker
The Alumni participants = A1-A6
Focus group participants = F1-F5
No Response = n/r

Yes | No
---|---
Y | N

Researcher's Total Percentage = 84%
Appendix L

Independent Review of Distribution and Comparison of Interview and Focus Group Questions
Independent Review Of
Distribution and Comparison of Focus Group and Interview Questions

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<th>Ability/Attitudes</th>
<th>Jane</th>
<th>Tucker</th>
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Questions from the Coding Sheet (Appendix)
Leadership question 1-4
Self-Esteem Questions 1-3
Self-Worth Questions 1-3
Self-Confidence Questions 1-3
Pilot Test = Jane and Tucker
The Alumni participants A1-A6
Focus group participants F1-F5
No Response n/r
Yes Y
No N
Independent Review = 82%
Researcher Analysis = 84% = 98% correlation between two separate analysis