A Dissertation

entitled

The Effect of The Enhanced Summer College Readiness Program on
Academic Self-Efficacy

by

Donna Gruber

Submitted as partial fulfillment of the requirements for
The Doctor of Philosophy degree in
Higher Education

_________________________________
Dr. David Meabon, Committee Chair

_________________________________
Dr. Cynthia Beekley, Committee Member

_________________________________
Dr. Svetlana Beltyukova, Committee Member

_________________________________
Dr. Thomas Dunn, Committee Member

_________________________________
Dr. Patricia Komuniecki, Dean, College of
Graduate Studies

The University of Toledo

August 2011
The problem of the lack of academic readiness of high school students for college is a critical one. In today’s economy it is becoming increasingly difficult to compete in the job market, and positions that might have been given to people with little experience are being passed to those who hold college degrees. The possession of a college degree communicates something to employers that may not be said for candidates who have not gone to college. Therefore, being prepared for college is essential, and a high school diploma does not guarantee that a student is prepared to undertake postsecondary level courses. In fact, many students are not prepared for college-level work and are required to first complete remedial or developmental courses before starting to accumulate credits towards postsecondary degree.
The purpose of this study was to examine the effect of an Enhanced Summer College Readiness Program on students’ academic self-efficacy scores. The intended goal was to determine whether or not college readiness programs increase or improve high school juniors’ academic self-efficacy. Two research questions were examined: (1) Is there was a difference between high school juniors that complete the new Enhanced Summer College Readiness Program and those who completed the regular Summer College Prep Workshop in academic self-efficacy scores; and (2) If academic self-efficacy scores were significantly different for students who participated in the new Enhanced Summer College Readiness Program, to what extent this significance could be attributed to the program.

Academic self-efficacy data were gathered from high school juniors prior to participation in and again at the completion of the program. The participants were high school juniors who had identified interest in a summer college readiness workshop at a private Midwestern university. The College Academic Self-Efficacy Scale (CASES) was the instrument used (See Appendix A).

The study used a Solomon Four-Group experimental design. There were two experimental and two comparison groups. One experimental and one comparison group were pre-tested and all four groups were post-tested. The results from quantitative and qualitative data showed that the new Enhanced Summer College Readiness Program improved academic self-efficacy better than the current Summer College Prep Workshop.
# TABLE OF CONTENTS

Abstract iii  
Table of Contents v  
List of Tables viii  

1 Introduction 1  
1.1 Problem Statement and Purpose of Study 1  
1.2 Description of College Readiness Program 4  
1.3 Challenges for Underprepared Students 7  
1.4 Research Questions 10  
1.5 Definition of Terms 11  

2 Literature Review and Theoretical Framework 13  
2.1 Student Academic Readiness 13  
2.2 Prediction, Persistence, and Retention 20  
2.3 Private Postsecondary Persistence 23  
2.4 High School to College Transition Programs 24  
2.5 Theoretical Framework 27  
2.5.1 Social Cognitive Theory 27  
2.5.2 Self-Efficacy Theory 30  
2.5.3 Academic Self-Efficacy Beliefs 33  
2.6 Strengthening Self-Efficacy 35  
2.7 Measuring Self-Efficacy 37  

3 Methodology 40  
3.1 Purpose, Research Questions, Research Hypotheses 40
3.2 Study Variables 41
3.3 Study Participants 42
3.4 Research Site 43
3.5 Research Design 44
  3.5.1 Intervention 47
    3.5.1.1 New Enhanced Summer College Readiness Program 48
    3.5.1.2 Current Summer College Prep Workshop 55
3.6 Instrumentation 56
3.7 Procedures 58
  3.7.1 Facilitator Training 58
  3.7.2 Intervention Procedures 59
  3.7.3 Data Collection Procedures 60
3.8 Data Analysis 62
  3.8.1 Quantitative Data Analysis 62
    3.8.1.1 Random Assignment Effectiveness 63
    3.8.1.2 Pre-test Sensitization 63
    3.8.1.3 Treatment Existence 63
  3.8.2 Qualitative Data Analysis 64
3.9 Limitations 64
  3.9.1 Internal Validity Threats 65
    3.9.1.1 Controlled Threats 66
    3.9.1.2 Minimized Threats 67
### 3.9.2 External Validity Threats

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.9.2.1 Minimized Threats</td>
<td>69</td>
</tr>
</tbody>
</table>

### 4 Results

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Research Questions and Hypotheses</td>
<td>71</td>
</tr>
<tr>
<td>4.2 Quantitative Results</td>
<td>72</td>
</tr>
<tr>
<td>4.2.1 Quantitative Statistics</td>
<td>72</td>
</tr>
<tr>
<td>4.2.2 Random Assignment Effectiveness</td>
<td>74</td>
</tr>
<tr>
<td>4.2.2.1 Random Assignment Effectiveness</td>
<td>74</td>
</tr>
<tr>
<td>4.2.2.2 Pre-test Sensitization</td>
<td>74</td>
</tr>
<tr>
<td>4.2.2.3 Treatment Effectiveness</td>
<td>75</td>
</tr>
<tr>
<td>4.3 Qualitative Results</td>
<td>76</td>
</tr>
</tbody>
</table>

### 5 Summary, Implications, and Recommendations

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Summary and Discussion of Findings</td>
<td>83</td>
</tr>
<tr>
<td>5.2 Implications for Practice</td>
<td>84</td>
</tr>
<tr>
<td>5.3 Recommendations or Future Research</td>
<td>87</td>
</tr>
</tbody>
</table>

### References

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>91</td>
</tr>
</tbody>
</table>

### Appendices

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A- CASES Instrumentation</td>
<td>113</td>
</tr>
<tr>
<td>B- The Current Summer Prep Readiness Agenda</td>
<td>114</td>
</tr>
<tr>
<td>C- The New Enhanced Summer College Readiness Agenda</td>
<td>115</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Research Design</td>
<td>44</td>
</tr>
<tr>
<td>3.2 College Prep Workshop and</td>
<td></td>
</tr>
<tr>
<td>Enhanced Summer College Readiness Program</td>
<td></td>
</tr>
<tr>
<td>Similarities and Differences</td>
<td>56</td>
</tr>
<tr>
<td>4.1 Descriptive Statistics of Pre-test and</td>
<td></td>
</tr>
<tr>
<td>Post-test Academic Self-efficacy Scores</td>
<td>76</td>
</tr>
<tr>
<td>4.2 Cross-Case Analysis – Note-takers Feedback</td>
<td>79</td>
</tr>
<tr>
<td>4.3 Cross-Case Analysis – Faculty Feedback</td>
<td>80</td>
</tr>
<tr>
<td>4.4 Cross-case Analysis – Student Participant Feedback</td>
<td>82</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

The purpose of this study was to determine whether participation in the new Enhanced Summer College Readiness Program would have a positive effect on academic self-efficacy scores. The intended goal was to provide recommendations and strategies to higher education administrators for improving high school students’ academic self-efficacy through implementing a college readiness program, which in turn will increase postsecondary retention and academic success.

Problem Statement and Purpose of Study

The problem of the lack of academic preparation of high school students for college is a critical one. As technology advances and society becomes more complex, the necessity for holding a college degree is increasingly important. Many jobs across a wide variety of industries require some form of degree, whether it is a two-year degree, four-year bachelor’s degree, or an advanced degree at the graduate or doctorate level. According to the 2007 U.S. Census Bureau data (US Census Bureau, 2007), the average college graduate earns $27,800 more per year, adjusted for inflation, than the average high school graduate, adding up to over a million dollars in the average lifetime. The average income for a four-year bachelor’s degree holder is approximately double that of a high school graduate and workers with college education have lower risks of
unemployment, better health, greater civic involvement, better ability to cope with stressful situations, and an increased sense of job satisfaction (US Census Bureau, 2007). Therefore success in college is vital to the economic health of both an individual and society. A high school diploma does not guarantee that a student is prepared to undertake postsecondary level courses. In fact, many students are not prepared for college-level work, and are required to first complete remedial or developmental courses before starting to accumulate credits towards postsecondary degree.

Over half of high school graduates who enter college take at least one remedial course (McCabe, 2003). Students who require remedial coursework prior to their college level coursework end up spending more time in college, paying more in tuition, and accumulating more debt. Nearly two-thirds of students attending four-year colleges leave with educational debt, but without the credentials that lead to employment and higher wages (NCES, 2004). These issues are risk factors that affect student retention and completion at the college level because students who cannot afford or who cannot see the value of higher education opt not to pursue it.

Research indicates that students are less likely to graduate from college if they are academically underprepared (OBR, 2005; Adelman, 2006). Nationally the United States has a 75% public high school graduation rate, yet when transcripts are reviewed only 36% of those have taken college preparatory coursework (Greene & Forster, 2003). There is also a disconnect between what high schools require for successful academic achievement and what colleges require for success (Venezia, Kirst, & Antonio, 2004; McCabe, 2005). Therefore, the United States is graduating many students who are not
prepared for postsecondary education. This is disturbing because when surveyed, 79% of high school students said they planned on attending college after high school (Axelrod & Markow, 2000).

Attrition rates among college students are especially high during their freshman year, with one in four college freshmen at four-year institutions not returning for their sophomore year (Jacobs & Archie, 2008). Students, as well as postsecondary institutions, endure enormous cost when students are admitted and then discontinue their studies prior to degree completion. This cost is then absorbed by taxpayers, postsecondary institutions, and future students whose tuition and fees rise to meet the costs associated with students who were not retained. This high attrition rate among freshmen indicates, in part, that postsecondary institutions are failing to prepare high school students for the rigors and life changes needed to be successful in higher education.

High school graduates’ lack of preparation for college may be due to many factors. One of the largest is a student’s academic self-efficacy, or a student’s belief in his or her ability to organize and execute the courses of action required to produce a desired educational outcome (Bandura, 1997). For instance, people with positive self-efficacy perceptions tend to become involved in challenging activities, to be more resolute in the pursuit of their goals, and show both cognitive and affective resilience in the face of setbacks (Bandura, 1986, 1997). In contrast to this, those with negative self-efficacy perceptions are characterized by traits that undermine performance (Steyn, 2001). In other words a student’s confidence in his or her academic ability has a large impact on whether he or she will be successful in college or not. These self-realizations can influence many factors which impact college preparation, such as whether the student
enrolls in challenging courses in high school or is confident in applying to selective postsecondary institutions.

The main purpose of this study was to empirically determine if participation in an enhanced college readiness program with curriculum created by Student Paths increases academic self-efficacy scores. One benefit of this study is to assist in offsetting the energy, time, and money that unprepared students waste in college by beginning and failing to complete their degree because they are not confident in their ability to be successful. Admissions officers will benefit from understanding which students are confident in their ability to adapt to college life and be academically successful. Another benefit of this study is to provide support for utilizing the limited financial resources offered by institutions of higher education to prepare high school students for postsecondary education. By initiating a college readiness program for high school students, institutions of higher education may be able to increase academic self-efficacy, which will help retain students until they have successfully completed all requirements for graduation.

**Description of College Readiness Programs**

There were two programs that were compared in this study - the current Summer College Prep Workshop and the new Enhanced Summer College Readiness Program. The current Summer College Prep Workshop, developed by undergraduate admissions staff, had been facilitated by the Office of Undergraduate Admissions for several years and was aimed at serving high school juniors and seniors. The current Summer College Prep Workshop began in 2000 as an institutional effort to improve student preparation for
college and to acclimate students to campus. The program’s primary focus has been high school seniors who are sought as freshmen for undergraduate admission. The primary goal of the program then and now is to assist students in preparing for the many social and academic challenges that arise in their transition from high school to college. The program attempts to assist students with issues related to academics, social situations, residential living, and personal issues affecting students’ ability to complete their college coursework. The program originally began as a two-day event held during the summer and has since been modified to one day. The program offers sessions on topics such as the importance of higher education, academic planning, applying to college, and ACT test preparation. In addition, a campus tour, presentations from faculty, and lunch in the dining hall are provided.

The new Enhanced Summer College Readiness Program differs from the current Summer College Prep Workshop previously described in that it not only includes an introduction to college concepts such as college terms and vocabulary, campus resources, time management, study skills, financial and career planning, and ACT preparation, but also strengthens academic skills through hands-on activities in Science, Math, Writing, History, and Business. In addition to the academic sessions, an extended campus tour, interaction with faculty, and presentations from current students were included in the program. The students were also provided with an overnight in a residence hall, dining hall privileges, and a college peer mentor. The curriculum for this program was developed by The Office of Undergraduate Admissions and Student Paths, a company headquartered in Minnesota that provides material and curriculum to high schools across
the United States to prepare students for the transition to postsecondary education. Student Paths is interested in the results to determine if their modules are in fact responsible for improving college readiness.

For the purposes of the present research, the target population was high school students entering their junior year. These students were targeted because academic planning for the junior year is vital for college admission, and most college planning begins in the junior year. The junior year of high school is a pivotal planning year for all the elements that enable a successful college search. “In the junior year of high school students make critical decisions that could have a major impact on the next five years of their life (and beyond) as they start narrowing lists of colleges and career paths” (Hansen, 2007, p. 1). This is the point in high school where classes and grades are especially important because admission counselors review types of coursework taken and grades from the 9th through 11th high school year. Guidance counselors and college admissions representatives encourage standardized test taking in the junior year in order to provide students the opportunity for re-test, if needed. College planning and career searches are also stressed to juniors by high school guidance counselors and admissions officers.

Most college readiness programs focus on standardized test preparation, the importance of a college degree, understanding college requirements, and application preparation. Some programs are more academically based in nature and are targeted towards students who are struggling in high school. These programs are tasked with improving academic skills for students deemed academically deficient. In fact many college readiness programs are designed for at-risk students and/or students of color
Historically most colleges and universities have committed their institutional monies to establishing programs and services by which at-risk populations can improve their preparation for college. However, students across races, genders, and socio-economic status have been shown to struggle with the same academic self-efficacy issues (Graham, 1994). In fact, Graham found that academic self-efficacy beliefs of African American students are as similar, and sometimes stronger, than those of their white peers. Similar findings have been found with Hispanic students (Stevenson, Chen & Uttal, 1990). The relationship between gender and self-efficacy has also been a center of self-efficacy research. In general, researchers have found that male students tend to be more confident than female students in the academic areas of math, science, and technology (Pajares & Miller, 1994). Conversely, females tend to be more confident in language arts areas (Pajares, 1997). These findings suggest that targeting college readiness programs towards minorities does not address the entire student population at need. Hence, the present research was not targeted towards any minority group, thereby allowing for a better view of the effect of a college readiness program on academic self-efficacy.

**Challenges for Underprepared Students**

Underprepared students face many challenges, such as adjusting socially and intellectually to postsecondary education. “Most persons, even the most able and socially mature, experience some difficulty in making that adjustment” (Tinto, 1993). Tinto (1993) further argues that physical, financial, and social needs become a problem when students determine that their college experience is unrewarding. When students begin to
have needs or face obstacles outside of their education, they become consumed with
meeting those needs, and their education, which they have not been prepared to handle
effectively, begins to be viewed as unimportant. Typically, high school students are cared
for by their parents or guardians when living at home, and the majority of their issues are
resolved by people who have more life experiences than they do. Transitioning to college
exposes students to situations where they need to make many decisions on their own.
These new situations and decisions can be even more overwhelming for students who are
not prepared or for those who are not confident in their ability, than for those who have
had preparation for college.

Students who are academically underprepared often have no idea how to go about
earning a degree. These students do not know what steps they must take to be successful
or the particulars of what institutions expect of them. Underprepared students often have
unrealistic concepts of the importance of their academic background skills and
knowledge. In fact, academically underprepared students frequently experience the
following issues within the first year of college: difficulty discerning important from
unimportant information in lectures, misunderstanding assignments, poor note-taking
skills, over dependence upon others, and a sense of bewilderment (Casazza, 1999).

There is no one predictor of determining who will or who will not succeed in
postsecondary education. College admissions have focused almost exclusively on student
intelligence as measured by standardized tests. Standardized tests have historically been
used to predict students’ readiness for college, even though there has been no proof that
they predict that. In fact, research has shown that “there is little to no relationships
between test scores and student performance” (Armstrong, 1999, p.4). This echoes the research of Irvine (1966) who found that although high school grade point average was the single best predictor of college success, 88% of variance was left unaccounted for. Therefore, the question of what does predict college readiness and success still needs to be answered.

Being prepared for college involves many behaviors and characteristics, including personality factors. Many students fail to understand college culture or lack the skills required to navigate college life successfully, such as attending class regularly, using course materials properly, and collaborating with classmates. Students’ ability to master these skills and behaviors has been researched and is attributed to the success of underprepared students in college (Pajares & Valiante, 1997; Pajares & Cheong, 2003). Previous studies have also shown that self-efficacy is an important predictor of academic success in college (Ochroch & Dugan, 1986; Findley & Cooper, 1983; Kernis, 1984; Zimmerman & Bandura, 1994; Niemiec, Skorski, and Walberg, 1996; Cook, 1997; Wiest, 2001; and North Central Regional Educational Laboratory, 2004). Additionally, in Klomegah’s (2007) study which reviewed four variables (ability, self-efficacy, self-set goals, and assigned goals) self-efficacy had the strongest predictive power of college success, and high school grade point average and self-efficacy were strongly correlated with academic performance in college.

Although there is a large body of evidence that shows that academic self-efficacy is positively associated with grades and persistence in college (Lent, Brown, & Larkin, 1984, 1986, 1989; Zhang & RiCharde, 1998; Klassen, 2004; Pajares, 2003), little to no
research has been identified to show whether implementing a college readiness program for high school students increases academic self-efficacy. If variables such as academic self-efficacy are directly related to success in college, then there are implications for both students and postsecondary institutions. Postsecondary institutions should be focusing their efforts on increasing and improving academic self-efficacy prior to admission and enrollment in order to admit and retain more students who are prepared for college. Providing readiness programs to high school students to improve and increase their academic self-efficacy, postsecondary institutions would ultimately improve student performance and retention. It is this premise that supports this research study.

**Research Questions**

As stated earlier, the purpose of this study was to examine the effect of an Enhanced Summer College Readiness Program on students’ academic self-efficacy scores. The intended goal was to determine whether or not college readiness programs increase or improve high school juniors’ academic self-efficacy. The following research questions were examined:

1. Was there a difference between high school juniors that complete the new Enhanced Summer College Readiness Program and those who completed the current Summer College Prep Workshop in academic self-efficacy scores?

2. If academic self-efficacy scores were significantly different for students who participated in the new Enhanced Summer College Readiness Program, to what extent could this significance be attributed to the program?
Definition of Terms

In order to gain a better understanding of the terms used in this study, the following definitions are provided.

Academic Self-Efficacy – An individual’s belief that he or she will be able to be academically successful.

Academic/Student Readiness – Reading, writing, and math skills and knowledge as well as the use of strategies that lead to effective study, problem solving, and thinking critically, in order to progress satisfactorily through college level course work.

Dual-Enrollment – Enrollment in two separate, academic institutions, one being high school and the other a postsecondary institution.

GPA – Grade Point Average – The average of all grades throughout a student’s years in high school.

Remedial Education – Postsecondary coursework that has the sole objective to teach pre-collegiate knowledge and skills.

Self-Efficacy – A personal judgment about one’s ability to perform required actions in order to achieve specific outcomes (Bandura, 1977).

Underprepared Student – Any student whose academic skills fall below those determined to be necessary for college success and/or any student whose college readiness skills do not adequately prepare him or her for the rigors of college study and learning.
Summary

This chapter served as an orientation to the study by briefly reviewing the challenges and issues involved with student readiness for higher education and the impact of academic self-efficacy. Noting the gap in relevant literature, studying if college readiness programs improve or influence academic self-efficacy may provide insight for secondary and postsecondary professionals. This chapter raised salient issues important to preparing high school students for college, including challenges to their academic self-efficacy. The next chapter will review theory and relevant studies in order to ground the study in relevant empirical research.
CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This chapter provides a detailed synthesis of the literature regarding students’ academic readiness for postsecondary education and self-efficacy. Specifically this chapter will cover literature on academic self-efficacy and factors that improve and enhance academic self-efficacy, as well as the skills needed to successfully navigate through college successfully. While there is a significant amount of literature surrounding academic self-efficacy and academic success, there is a gap in the research on whether college readiness programs improve or increase academic self-efficacy.

A discussion of these topics will contribute to helping higher education officials better understand how to assist in preparing high school students for postsecondary education and improve retention rates. It may also assist admissions officers, who have historically used standardized testing, in making better decisions regarding the admission process.

Student Academic Readiness

Student readiness remains one of the most critical issues facing higher education today. Preparing high school students for college level work and future employment in the global economy has been on the agenda for many states across the country (Haycock,
Several state boards of education recognize that a serious gap exists between students arriving at college prepared to be successful and those who arrive at college lacking skills for success and requiring remedial courses (South Region, 2002). Unfortunately a high school diploma does not represent adequate preparation for the demands of college level work, “In every state today, students can meet the requirements for high school graduation and still be unprepared for success in college or the workplace” (America Diploma Project, 2004, p.1). While this is not a new problem, it has taken on more importance in today’s economy as employers believe that a high school diploma is no longer sufficient to secure employment. Instead some type of postsecondary education is now a requirement for most jobs. Research conducted by Knowledge Works shows that the general population in Ohio believe that today’s high school graduates are less likely to have the necessary skills for college and the work force (2006). With this being the case, the charge for not only the government but also both high school and postsecondary educators must be to better prepare students for college.

Currently the concept of being prepared for college means students must overcome three hurdles: they must graduate from high school, they must have taken specific courses in high school that colleges require for the acquisition of necessary skills, and they must demonstrate basic literacy skills (Greene & Winters, 2005). In more than 40 states, these hurdles are being closely monitored by the state legislative bodies. The goal is to improve the high school students’ academic preparation for postsecondary education. To meet the goal, state governments have implemented standardized testing of grade-level proficiencies, grade 12 graduation tests, and curriculum reform in the areas of science, mathematics, and English. For example, Minnesota has focused much effort on
analyzing the state’s high school to college transition issues and has implemented several initiatives such as graduation standards which align with college preparation curriculum, improved documentation of students’ achievement, and developmental education opportunities facilitated by early assessment and reporting (Crist, Jacquart & Shupe, 2002).

In 1996, the Florida House of Representatives facilitated research to analyze the remedial education needs and college Readiness of students and recommended increased academic and achievement standards to include raising the minimum Grade Point Average (GPA) required for graduation, increasing admission requirements for community colleges and state universities, increasing accountability from high schools and postsecondary institutions, and creating incentives for students to succeed, in addition to the current Grade Ten Assessment Test and High School Competency Test (Florida House of Representatives, 1996).

New York has diligently pursued dual enrollment programs “that are focused on preparing young people for college” (Center for an Urban Future, 2006, p. 1). These programs were designed to combat the large numbers of high school students who were graduating from New York’s public schools grossly unprepared for the rigors of college. In 2002 only 32 % of New York City’s graduates were considered prepared for college according to the Manhattan Institute’s Center for Civic Innovation (Greene & Winters, 2005). These dual enrollment programs are also supported by research that states that students benefit greatly from dual enrollment. According to Hugo (2001) dual and concurrent enrollment provides an opportunity for students “to learn about colleges and
improve their study skills and it gives them more information about the process of attending college” (p.72). The goal of these programs is to provide meaningful benefits to high schools by offering students course options that would not be available to them at their high schools, and of course by allowing them not only to earn high school and college credits, but also to recognize if they are truly prepared for college. These programs also benefit postsecondary institutions by recruiting and retaining students.

In 2005, North Carolina began focusing on building collaborations between high schools and postsecondary institutions to prepare students for the rigor of college through the Innovative Education Initiatives Act (North Carolina State Board of Education, 2008). In order to reform high school curriculum, schools are encouraged to partner with higher education institutions to target students at risk of not completing high school and provide these students with core academic skills and college preparatory studies.

Ohio has also been carefully researching if its high school graduates are ready for college and if they succeed. In 2005, the Ohio Board of Regents released its report, *Making the Transition from High School to College in Ohio 2005: A Statewide Perspective*. This report revealed that only 24% of high school graduates had taken the core curriculum recommended for college preparation and over 40% of Ohio’s high school graduates in 2003, who were enrolled in public colleges and universities in Ohio, took at least one remedial education course. This report supplemented research which looked at New Jersey high school juniors and seniors and found that the majority of seniors had completed their graduation requirements upon the conclusion of their junior year, leaving these students unchallenged or no longer preparing for their educational
future during their senior year (Duffy, 2002). Ohio has also a well-established dual enrollment program. In 1989, Ohio established its dual enrollment program called the Post Secondary Enrollment Option. This program allows high school students the opportunity to enroll in college courses and receive both high school and college credit at no cost. Between 1998 and 2004, more than 55,000 students earned credit that could be applied to college degrees (Knowledge Works, 2007). Similar to many other states, the data collected from Ohio’s dual enrollment program have not been inconclusive in showing whether students who participate in the program are more successful in college or not (Knowledge Works, 2007).

These state initiatives are an outgrowth of the federal government’s No Child Left Behind Act of 2001 which mandates the elimination of the achievement gaps which exist between groups of students within the nation’s schools (US Department of Education, 2004). The groundwork for this legislative reform of American K-12 education is attributed to the Business Roundtable, an association of chief executive officers of leading U.S. companies with $4.5 trillion in annual revenues and more than 10 million employees, that is committed to advocating public policies that ensure vigorous economic growth, a dynamic global economy, and a well-trained and productive U.S. workforce essential for future competitiveness (Business Roundtable, 2008).

One of the central issues that lie at the heart of student readiness is America’s future workforce. The emerging workforce will require workers to have the ability to reason through complex issues and be able to assimilate complicated processes, very different from simply following rote instructions (McCabe, 2003). Currently across the country, business and industry have reported that they do not have enough skilled and
competent applicants to fill open positions. According to a survey conducted by Jean
Johnson for a Public Agenda report, employers and college professors were asked about
high school graduates’ skill levels and both indicated that high school graduates were
lacking skills in reading, writing, and mathematics (2003). These results are not only
concerning to postsecondary educators, but to business and industry as well. If students
are graduating from high school ill-prepared for college and the workforce, employers are
left wondering where they will find qualified employees.

As the federal and state governments prioritize students’ achievement through K-
12 reform, colleges and universities are increasing the minimum requirements for
admissions to their institutions. The need to strengthen the college admission process is a
reflection of the growing tide of new college students who require remedial education.
Colleges and universities are intentionally addressing the academic deficiencies of their
entering freshmen, as remedial education has become a reality for higher education. In
fall 2000, 76% of all degree granting two- and four-year postsecondary institutions
offered at least one remedial reading, writing, or mathematics course, the three key areas
of deficiency for high school students (Parsad & Lewis, 2003). Additionally, students
who took remedial education courses have been found to be less likely to graduate from
college (Adelman, 2006). Students who need remedial education also need the
certainty that they can succeed in college. According to Davis Jenkins, high dropout
rates for remedial education students are due to the fact that students who require
remedial education need more motivation to continue their studies (2006).
Preventing students from taking remedial education is a main goal of high school educators. High school course selection is critical to this goal because research indicates that high school students who completed rigorous curricula were more likely to enroll in a four year postsecondary institution, persist through postsecondary education, earn a bachelors degree, and are less likely to need remedial education (Horn & Kojadu, 2001; Adelman, 2006). High school coursework has also been found to have a particularly important effect on students’ attitudes, behaviors, and motivation to learn (Keith & Benson, 1992). Students who have taken rigorous college preparatory high school curriculum feel more confident in their abilities and graduate more quickly and at a higher rate. Therefore postsecondary institutions have been encouraged to require college preparatory coursework for admissions.

There is an economic side to remedial education as well. The state of Michigan estimates the costs of providing remedial education for new college students to be over $600 million annually; this figure is given in comparison to the nearly $16.6 billion spent by the U.S. government on remedial education (Mackinac, 2006). Florida estimates to have spent over $51 million in remedial education in 1995 (Florida House of Rep, 1996). This growing student population who require remedial coursework cuts across social, ethnic, and academic standing and is growing each year. Between 1992 and 2002, the percentage of high school graduates who required remedial education increased from 30% to 55% (NCES, 2002). This increase occurred for both sexes and all racial and ethnic groups.
**Prediction, Persistence, and Retention**

The first approach to raising college admission standards focuses on the high school Grade Point Average (GPA), the most commonly used indicator of a student’s academic success. This is supported by an extensive body of literature that identifies high school GPA as a strong predictor of college success (Irvine, 1966; Astin, 1993; Zheng et al., 2002). Through the eighties and nineties, a strong base of literature developed which supports high school grades and overall GPA as a strong predictor of academic performance in college (Perry, 1981; Mark, 1982; Noble, 1991). More recent studies (Hoffman & Lowitzki, 2004) continue to validate high school GPA as a strong predictor of college success. Building upon more than 20 years of research, Schwartz and Washington (2002) found that high school GPA is a stronger predictor of college academic success than standardized tests. Recently, the National Association for College Admission Counseling (NACAC) supported that research by recommending that admission officers not use standardized tests to predict first-year grades or base admission on such tests solely. “The Commission wishes to underscore that as such, standardized admission tests should not be considered as sole predictors of true college success” (NACAC, 2008, p. 11).

Researchers have been working for years to understand the other factors that lead postsecondary students to stay or leave school. Standardized tests, GPA, and high school coursework are only part of the story. Much of the early research has focused on background and personal characteristics of students and their families, such as gender, race and ethnicity, parental education, and family income. For example, Astin (1970)
found that students are less likely to graduate if they attend part-time or are first-generation, and minority or low-income students. Bean and Metzner (1985) and Bean (1990) investigated the variables of finances, hours of employment outside of school, and family responsibilities. These researchers found that students are more likely to leave college when the demands of employment and family and finances interfere with college studies. More recent research has shown that delaying entry into postsecondary education, having a General Equivalency Diploma (GED) instead of a regular high school diploma, and not taking rigorous coursework in high school are all risk factors for withdrawal from college (Bradburn, 2002). Additionally, first year drop-outs all have two common attributes: low first year academic grades and low academic self-efficacy (Bradburn, 2002).

In his work on college persistence, Vincent Tinto (1993, 1997) focused on students’ experiences after arriving on campus. Tinto argues that students are more likely to stay in school and perform well when they feel fully integrated into the college experience, both socially and academically. This integration occurs when students have regular, meaningful interactions with faculty, staff, and fellow students, both in the classroom and within informal settings. The more a student’s experiences serve to integrate the student socially and academically, the more likely the student is to persist. If a student is poorly integrated into the institution, the student is more likely to withdraw.

Persistence and retention are often used interchangeably. However, the National Center for Education Statistics defines the term retention as an institutional measure and persistence as a student measure (NCES, 2008). These definitions mean that institutions
retain students and students persist through their studies. Not all students will persist until graduation because that was never their goal, even though graduation is the goal of most high education institutions. Therefore, understanding what makes some students persist on until graduation has become increasingly important. However, it is also challenging to isolate factors that negatively and positively relate to retention. According to Beal and Noel (2006) student characteristics including academic factors, motivation, and financial stability combined with environmental factors including type of post-secondary institution and level of involvement must all be taken into account when determining what plays a role in retention. Due to these large numbers of variables programs and strategies to increase retention are wide and varied.

Campus strategies to increase persistence and retention have been studied in great detail within the past decade (Braxton et al., 2004; Raey, 2001; Thomas, 2002; Tinto, 2006). Programs for first year students that assist in the development of study skills, time management, and career planning have been shown to have some success in increasing persistence and retention (Ewell, 2005). These programs provide freshmen with the skills to feel confident in their ability to be successful in college; therefore, their persistence and overall retention increases.

Bean and Eaton (2000) investigated whether academic self-efficacy played a role in college persistence by combining a self-efficacy assessment with the psychological processes of coping (asking questions in class, seeking assistance with coursework) and avoidance (not attending classes or procrastinating) and found that when academic self-efficacy is low, a student is less likely to persist in college. Bean and Eaton also noted
that although self-efficacy attitudes are formed prior to college, they are modified during the college experience.

**Private Postsecondary Persistence**

The largest difference between private and public postsecondary institutions is that private postsecondary institutions typically receive little to no financial support from the state government. Therefore, they are not governed by state boards and typically rely on tuition, support from alumni, foundations, and corporations as sources of income. Most private postsecondary institutions are accredited which means they are subject to the same rigorous review process by regional and national accrediting agencies and specialized or programmatic accrediting agencies as public institutions (NAICU, 2003). Each accrediting agency establishes its own standards as a framework of expectations and practices that govern the conduct of the institution. These standards address similar areas, including curricula, faculty, facilities, fiscal and administrative capacity, student support services, recruiting and admissions practices, student achievement, and compliance with state and federal requirements.

Thorough research on the completion rates of private postsecondary institutions (Astin, Tsui, & Avalos, 1996; George et al., 2008) has found that students attending private colleges and universities are more likely, by as much as 20%, to complete their degrees and are more than twice as likely to graduate in four years as students enrolled in public postsecondary institutions. According to the Ohio Board of Regents, in 2005, first-time, full-time degree seeking students enrolled in a private postsecondary institution had
an average 81% persistence rate from fall to fall enrollment as compared to 61% persistence rate for students enrolled in a public postsecondary institution (OBR, 2008).

Research also shows that private schools tend to focus on controlling class size. Private college classes on average are less than half the size of classes at public colleges, which has been shown to provide for more one-on-one experiences between faculty and students (Klonsky, 1995; Chase, 2008). These experiences in smaller classes have been shown to lead to higher achievement in college and increase persistence rates (Lee & Smith, 1993, 1997). There is a gap in the research in analyzing the benefits of a private postsecondary education on academic self-efficacy, or if private postsecondary education improves or increases academic self-efficacy.

**High School to College Transition Programs**

High school to college transition programs that are designed to prepare students for college are common. However, a majority of these programs are aimed at specific academic areas, creating dual-enrollment options, or targeting specific populations of students such as minority, at-risk students, or students identified as gifted. Many states have developed programs along these lines in order to improve high school to college readiness.

Ohio Early Mathematics Placement Testing Program (EMPT) created by The Ohio State University was designed to provide high school juniors with feedback on their level of math proficiency, and to compare those proficiency levels with college admission or entrance requirements (Laughbaum, 2008). The feedback provided to high schools and
students from this program allows them to remediate any deficiencies prior to enrollment in college and allows for curriculum revision to become more in line with college requirements. A similar program that is focused at the community college level is the Bridge Partnership, a program supported by the League for Innovation in Community College. The program works with high school minority students to ensure that they aspire to go to college and are ready for college academics by providing feedback to students on their college readiness from standardized college placement exams (McCabe, 2005). Students in this program receive a certificate of completion if they are able to pass reading, writing, and math section of the placement exams, and are allowed to retest after taking coursework that would prepare them appropriately in those academic areas. The goals of the program are to increase the number of high school minority students entering postsecondary education, increase the number of high school minority students who are fully prepared for college level work, and to help align high school and community college curriculum (McCabe, 2005).

Syracuse University in New York currently has the largest program in the United States offering accredited college courses taught in high schools by high school faculty through Project Advance which began in 1972 (Yackel, 2003). This program offers introductory college courses to high school students in the effort to increase skills for full-time college study and to provide realistic expectations of the rigor of academic coursework. Recent research on this program shows that students who participate in Project Advance are more likely to persist and graduate in higher education programs after high school (Karp et al, 2007).
The University of Buffalo, in cooperation with area schools, offers the Gifted Math Program for gifted and highly motivated mathematics students in grades 7 through 10 (Davidson, 2005). Students accepted into this program study mathematics at the University two days a week during the academic year. Occasionally, these students are immersed in non-program university mathematics classes where they would study with undergraduate and graduate students. These classes replace their high school classes and upon successful completion of the program students may earn credits towards regular university mathematics courses.

The Gaining Early Awareness and Readiness For Undergraduate Programs (GEAR UP) is a grant program supported by federal and state education funds and is designed to increase the number of low-income students who are prepared to enter postsecondary education (MERC, 2008). Students in the program are put into cohorts who are provided early intervention programs and scholarship opportunities. Early intervention programs within GEAR UP include improving academic skills, providing college access information, personal counseling, and financial assistance. Case studies analyzing the effectiveness of GEAR UP have found that GEAR UP interventions increase the number of low income students who enter postsecondary education (MERC, 2008).

While high school and college partnerships, as well as transition programs designed to increase students’ readiness for college have been implemented and studied across the United States, very little has been explored regarding programs designed to
increase students’ academic self-efficacy even though it has been identified as a strong predictor of academic success in college.

**Theoretical Framework**

**Social cognitive theory.**

Social Cognitive Theory provides a framework for how self-efficacy can be used to enhance the readiness of high school students for college success. An assumption of Social Cognitive Theory is that personal determinants such as forethought and reflection do not reside unconsciously within individuals (Bandura, 1986). Instead individuals can consciously change their cognitive functioning. This is important to the concept that self-efficacy can be altered or advanced. Therefore, individuals are capable of influencing their own academic performance by increasing their academic self-efficacy.

Social Cognitive Theory originated out of the work of Gabriel Tarde who proposed in his book, *The Laws of Imitation*, that learning occurs through imitation of others within the following stages a) close contact b) imitation of superiors c) insertion (Tarde, 1903). The Law of Close Contact contends that individuals in close intimate contact with one another will imitate one another’s behavior. Therefore, those with the closest contacts will behave similarly. The Law of Imitation of superiors contends that imitation spreads from top down. Therefore, youngsters imitate their elders, and students will imitate their teachers. The Law of Insertion contends that new acts and behaviors that have been successful and/or rewarded are superimposed on old ones and subsequently reinforce or discourage previous behaviors.
A formal social learning theory was presented by Neal Miller and John Dolland in 1941. Their theory asserted that individuals became motivated to learn new behaviors or tasks through observations. Additionally, by imitating and modeling observed actions the individual observer would solidify the learned action and would be rewarded with positive reinforcement (Miller & Dolland, 1941). This observational learning theory attempted to meld behaviorism with psychoanalysis by accepting the importance of cognitive processes in influencing behavior.

In the fifties, Julian Rotter expanded upon behaviorism theory as a basis for learning and developed a social learning theory, which suggested that when an individual engages in behavior, he or she does so attempting to avoid negative consequences, while anticipating positive results. If an individual expects a positive outcome from a behavior, he or she is more likely to engage in that behavior. When the behavior is reinforced with the expected positive outcomes, the individual will repeat the behavior (Rotter, 1954). According to Rotter, people engage in behaviors not merely for the reward but because of what he called behavior potential (Rotter, 1954). He defined this in terms of an expectancy to be rewarded and the value of the potential reward. In other words, for an individual to behave in a certain manner his or her expectation of a reward for that behavior and how much the reward is worth to him or her combine to form the action or behavior. For a behavior to occur, according to Rotter, both of these must exist. If a person believes he or she can do very well at a specific task and therefore receive the reward but sees the reward as useless, he or she is much less likely to perform. In the case of postsecondary education, if a student believes he or she will do well in college but
does not see the value of a college education he or she will not complete or pursue a college degree.

In the sixties Albert Bandura expanded upon these concepts and theorized that learning occurs when a combination of environmental and psychological factors influence an individual’s behavior. Social Cognitive Theory is a learning theory based on the idea that individuals learn by observing what others do and assimilating those observations with thought or psychological processes.

Cognitive learning assumes that psychological factors are important in influencing how an individual behaves (Bandura, 1982). Social Cognitive Theory outlines three requirements for individuals to learn and model behavior; these are a) retention (remembering what one observed), b) reproduction (ability to reproduce the behavior), and c) motivation (having a good reason to want to adopt the behavior) (Bandura, 1977). Social Cognitive Theory provides a framework for understanding, predicting, and changing human behavior.

In the book “Educational Psychology: Developing Learners” (2003) Jeanne Ellis Ormrod lists the main principles of Social Cognitive Theory: a) people learn by observing others; b) learning is an internal process that may or may not change behavior; c) people behave in certain ways to reach goals; d) behavior is self-directed as opposed to being determined by the environment; e) reinforcement and punishment have unpredictable and indirect effects on behavior and learning.

Bandura theorized that the individual, the behavior, and the environment were all inseparably entwined to create learning in the individual (Bandura, 1986). Individuals are
neither exclusively controlled by unconscious processes nor by the environment. This is the foundation of Bandura’s reciprocal determinism, which is the view that personal factors, behavior, and environmental influences create interactions that result in a triadic reciprocality (Bandura, 1986).

Social Cognitive Theory revolves around the process of knowledge acquisition or learning directly correlated to what is observed. This observation is also called modeling, which can be formal or informal. An example of a formal modeling environment would be the classroom with a teacher modeling the desired skill or task. An example of an informal modeling environment would be in the hallways of a college where peers observe a skill or task. Effective modeling teaches general rules and strategies for dealing with different situations which may arise (Bandura, 1988).

Further development in Social Cognitive Theory posits that learning will occur if there is a close identification between the observer and the model and if the observer has strong self-efficacy. Self-efficacy beliefs function as important determinants of human motivation (Bandura, 1989).

**Self-efficacy theory.**

Bandura’s (1977, 1986) self-efficacy theory refers to beliefs about personal competence (such as success in college) and states that they are rooted in four primary sources: mastery experiences, social modeling, social persuasion, and psychological state or mood.
The strongest source of self-efficacy comes from mastery experiences which, “provides the most influential source of efficacy information because they are based on authentic mastery of experiences” (Bandura, 1982, p. 196). The more successes individuals experience, the higher their perceived self-efficacy. Performing a task successfully strengthens the sense of self-efficacy and makes individuals more likely to try other activities. This area entails handling of a crisis or difficult situation. Skills learned while working to overcome the situation provides the individual with a stronger sense of self-efficacy. Failure in a particular task decreases self-efficacy beliefs for a behavior. The effects of failure on personal self-efficacy have greater value depending on the time and importance of the experience. This means that when an individual fails to meet a goal and the goal is a highly valued one, that value will have a large impact on the individual’s life. In the case of a college education where there is a large social value on success of this task, not being successful or completing the degree can have a huge impact on an individual’s future endeavors.

Another source of self-efficacy comes from social modeling, which occurs when an observer witnesses an individual of similar characteristics perform a task that he or she feared. The observer overcomes his or her fear by witnessing someone equal to him or her achieving success in a task, “Seeing people similar to oneself succeed by sustained effort raises observers’ beliefs that they too possess the capabilities to master comparable activities to succeed” (Bandura, 1994, p.73). This technique allows an individual to develop self-efficacy by safely experiencing the situation through someone else. Modeling refers to the process of intentionally demonstrating and describing the pieces of a task to a student. Modeling is successful because it provides large information about a
task and raises students’ expectations that the task can be mastered (Schunk, 1991). Peer modeling has been shown to be the most effective because the models are the most similar to the individual observing and this similarity bolsters feelings that the task can be accomplished (Schunk, 2003).

A weaker source of self-efficacy is verbal persuasion. Verbal persuasion is a skill that is used to encourage an individual to do things that he or she believes, for whatever reason, that he or she cannot do. Bandura (1994) asserts that people can be persuaded to believe they have skills and abilities necessary to succeed in tasks given to them. These are often tasks that people want to do but fear they do not possess the skills needed. Bandura cautions that verbal persuasion is limited because it is tied to an individual’s perception of their realistic abilities. Therefore, individuals must believe they can achieve the goal, no matter how strong the persuasion (Bandura, 1982). In the case of postsecondary education, no matter how much encouraged, an individual will not pursue a degree if he or she perceives success is not attainable. It is also important to note that it is difficult for students to retain self-efficacy bolstered by verbal persuasion and easy to cause them to doubt themselves (Bandura, 1994).

Lastly, psychological state is the emotional responses and reactions to situations. Moods, physical reactions, and stress levels all impact how an individual feels about his or her ability to succeed in a situation and leads to self-doubt. “It is not the sheer intensity of emotions and physical reactions that is important but rather how they are perceived and interpreted” (Bandura, 1994, p. 80). Unfortunately, individuals often equate their physiological state with poor performance, incompetence, and failure. Therefore, a
student who is extremely nervous about the rigors of college coursework may interpret that nervousness as a lack of ability.

**Academic self-efficacy beliefs.**

The construct of self-efficacy in academic settings is a relatively recent one. Self-efficacy is one’s self-judgments of personal capabilities to initiate and successfully perform specified tasks at designated levels, expend greater effort, and persevere in the face of adversity (Bandura, 1977, 1986). Bandura (1989) later expanded the definition of self-efficacy to also refer to people’s beliefs about their capabilities to exercise control over events that affect their lives, as well as beliefs in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over task demands (Bandura, 1990).

Although self-efficacy is examined with much greater depth in therapeutic settings, recent research shows that self-efficacy holds significant power for predicting academic success (Lent, Brown & Larkin, 1986; Marsh, Walker & Debus, 1991; Schunk, 1989; Schunk 1994; Zimmerman, Bandura & Martinez-Pons, 1992). Bandura (1986) asserts that students who feel self-efficacious are able to picture themselves successfully dealing with challenging situations.

In academic domains research on self-efficacy is less extensive, with much of the research focusing on teacher training (Gibson & Dembo, 1984; Henson, 2001; Woolfolk Hoy & Hoy, 2004), career aspiration (Bandura et al., 2001), and gender differences (Schunk, Hanson & Cox, 1987; Schunk, 1987). It was not until the mid-eighties that self-
efficacy pertaining to academic success began to be investigated with any rigor. Several researchers have investigated the relationship of self-efficacy to academic achievement, confirming that strong academic self-efficacy is a predictor of academic success. (Bong, 2001; Lent, Brown, & Larkin, 1984, 1989; Hackett, Betz, Casas, & Rocha-Singh, 1992; Zhang & Richarde, 1998).

Self-efficacy is a domain-specific construct in academics, and there have been many studies which have investigated the relationship among self-efficacy beliefs and factors that are helpful towards persistence in college such as goal-setting (Wood & Locke, 1990; Locke & Latham, 1990), reward contingencies (Schunk, 1983), and self-regulation (Zimmerman, Bandura & Martinez-Pons, 1992). Self-efficacy beliefs influence behavior through mediating processes such as goal-setting and persistence, cognition, affect and selection of environments, individual’s choices of goals, the amount of effort given to task completion, and the level of persistence when faced with adversity (Bandura, 1982, 1986, 1989). Typically students do not exert a great amount of effort on tasks they perceive they cannot accomplish or on tasks where they have no interest. Therefore a student who believes he or she cannot be successful in college will not expend much energy on being successful. Additionally, a student who is not interested in college will likewise not expend much energy on it. Bandura (1993) stresses that self-efficacy affects college outcome by increasing students’ motivation and persistence to master academic courses; however, research is lacking in the area of increasing academic self-efficacy in students. Therefore research in the area of improving and increasing student academic self-efficacy is important.
Students most often believe that their academic success are related to academic ability, effort exerted, task difficulty, and luck (Weiner, 1979, 1985; Frieze, 1980). Elementary school children typically have greater confidence in their academic capabilities, and this confidence extends equally across genders. In later years however, confidence in academic ability begins to wane. By the time students reach middle school the majority of them already have made judgments regarding their abilities towards certain academic domains. The growth or reduction of self-efficacy is influenced over time by social comparisons with peers and is therefore more pronounced as an individual grows older. By college, judgment of an individual’s ability becomes more solidified. These judgments are influenced by perceived academic capabilities, comparison with peers, and feedback from teachers. For educators the critical time to influence self-efficacy is early in high school.

**Strengthening Self-Efficacy**

Bandura’s (1986) emphasis that one’s mastery experiences are the most influential source of self-efficacy information has important implications for the development of a program to improve academic achievement. This concept would indicate that in order to increase student academic self-efficacy, program efforts should focus on altering students’ beliefs in their abilities and competence through hands-on activities, when in fact the typical program attempts this by enhancing self-beliefs through verbal persuasion methods even though this is one of the weakest methods of influence (Bandura, 1994). Social cognitive theorists recommend that developing a multi-faceted program to raise competence and confidence primarily through successful
mastery experience of applicable tasks and modeling both through peers and superiors is the most beneficial to increasing academic self-efficacy. As Schunk (1981, 1983, 1987) has demonstrated, the effects of models are particularly relevant in this context. A positive model in an individual’s life can help build self-beliefs that will influence the course and direction that life will take. Part of one’s vicarious experience also involves the social comparisons made with other individuals. These comparisons, along with peer modeling, can be powerful influences on developing self-perceptions of competence (Schunk, 1983).

Verbal persuasion should not be excluded from these programs as these persuasions provide exposure to the verbal judgments that others have about an individual. Although this is a weaker source of efficacy information than mastery or vicarious experiences, verbal persuaders can play an important part in the development of an individual’s self-beliefs (Zeldin & Pajares, 2000). Effective persuasions should not be confused with praise just for praise’s sake: “children cannot be fooled by empty praise and condescending encouragement” (Erikson, 1980, p. 95). Rather, persuaders must cultivate people’s beliefs in their capabilities while at the same time ensuring that they truly believe success is attainable. Just as positive persuasions may work to encourage and empower, negative persuasions can work to weaken self-beliefs. Therefore caution must be taken to provide positive but realistic persuasion. Psychological states or moods such as anxiety, stress, arousal, and fatigue also provide information about efficacy beliefs. Bandura (1994) has observed that people live with psychic environments that are primarily of their own making. It is often said that people know themselves best; this concept comes from the thoughts and emotional states that individuals have created for
themselves. Often, individuals gauge their confidence by the emotional state they experience, therefore assuring that the psychological state that an individual is in or experiences during the program is vital. Students must be relaxed and comfortable in order to influence their behaviors and self-beliefs.

**Measuring Self-Efficacy**

Several instruments have been created to measure self-efficacy over the years and most are specific to certain areas or domains. An example of this is The Mobile Computing Self-Efficacy Scale (MCSE) created by Wang and Lin (2007) which measures individuals’ beliefs regarding mobile computing self-efficacy. The Teachers’ Sense of Efficacy Scale (TSES) measures teachers’ beliefs of their self-efficacy in the classroom by focusing on three factors: instructional strategies, classroom management, and student engagement (Tschannen-Moran & Hoy, 2001). The College Self-Efficacy Inventory (Solberg, O’Brien, Villareal, Kennel, & Davis, 1993) is a self-efficacy instrument that measures overall college self-efficacy with three self-efficacy subscales: course efficacy, roommate efficacy, and social efficacy. The College Academic Self-Efficacy Scales (CASES), which was created by Owen and Froman in 1988, focuses specifically on students’ beliefs regarding academic self-efficacy.

Each of these instruments measures a unique area of self-efficacy. For the purposes of this research the area of academic self-efficacy was to be measured; therefore, the College Academic Self-Efficacy Scales (CASES) (See Appendix A) was chosen.
Summary

Extensive research has been conducted that shows that academic self-efficacy is a strong predictor of college success. Self-efficacy concerns a student’s judgment of his or her capabilities based on mastery criteria. A sense of a student’s competence within a specific framework, it focuses on a student’s own assessment of his or her own abilities in relation to goals and standards rather than a comparison with others’ capabilities. Self-efficacy builds on personal past experiences of mastery, ability, and persuasive support.

In study after study, high academic self-efficacy is shown to be a very strong predictor of academic achievement. Increased self-efficacy is accompanied by enhanced intrinsic motivation, the ability to sustain levels of motivation and achievement-oriented behaviors, persistence in the face of difficulties, and better problem solving. Bandura (2001) summarizes that, “Students whose sense of efficacy was raised set higher aspirations for themselves, showed greater strategic flexibility in the search for solutions, achieved higher intellectual performances, and were more accurate in evaluating the quality of their performances than were students of equal cognitive ability who were led to believe they lacked such capabilities” (p. 1209).

This research leads us to believe that increasing and improving academic self-efficacy will lead to increased college success and persistence and ultimately increased graduation rates. However, research is lacking in the areas of how to increase or improve self-efficacy, investigating programs that are designed to increase or improve self-efficacy, and whether these programs actually do increase or improve academic self-efficacy. Therefore it is important to begin studying these areas of academic self-efficacy.
The next chapter will discuss the methodology used, including a description of the sample, the instrument used, and the procedures used to collect and analyze data.
CHAPTER 3

METHODOLOGY

The literature reviewed in Chapter two highlighted the issues associated with college readiness and academic self-efficacy. The literature has shown that academic self-efficacy is a predictor of college success. The literature has also shown that postsecondary institutions often offer college readiness programs for high school students. However, recent literature has not explored if college readiness programs increase or improve academic self-efficacy. This chapter explains the methodology used to conduct this study. More specifically, the details of the research design, sample and instrumentation, data collection methods and strategies, and techniques for data analysis are discussed.

Purpose of the Study, Research Questions, and Research Hypotheses

The purpose of this experimental study was to determine the effect of the new Enhanced Summer College Readiness Program on academic self-efficacy. The following research questions were explored and the following hypotheses were tested:

1. Was there a difference in academic self-efficacy between high school juniors who attended the new Enhanced Summer College Readiness Program and high school juniors attended the current Summer College Prep Workshop?

Hypothesis: High school juniors who completed the new Enhanced College Readiness Program have statistically significant higher academic self-efficacy
scores than those who completed the current Summer College Prep Workshop.

2. If academic self-efficacy scores were significantly different between students who participated in the new Enhanced Summer College Readiness Program and those who did not, to what extent could this significance be attributed to the program?

Hypothesis: The significant difference between students who participated in the new Enhanced Summer College Readiness Program and those who did not could be attributed to the program itself.

Study Variables

The outcome variable in this study is academic self-efficacy. As originally defined by Bandura (1977), self-efficacy in general is a specific type of expectancy concerned with one’s belief in one’s ability to perform a specific action or set of behaviors required to produce an outcome. Bandura expanded the definition to also refer to an individual’s belief about his/her capabilities to exercise control over events that affect his/her life, as well as beliefs in the capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over task demands (Bandura, 1990). In the present study, self-efficacy beliefs were examined with reference to academic ability beliefs, defined as an individual’s beliefs that he or she would be able to be academically successful.
Academic self-efficacy was measured as a continuous variable using the CASES instrument (See Appendix A for a copy of the CASES instrument). Student responses to the 33 Likert-type scale questions with 0 being the least confidence and 4 being the most confidence, were summed to obtain academic self-efficacy scores that could range from 0 (the lowest amount of confidence) to 132 (the highest amount of confidence).

The independent variable manipulated in this study was the type of the summer college readiness program administered by faculty and staff. This was a dichotomous variable with two levels – participation in the new Enhanced Summer College Readiness Program and participation in the current Summer College Prep Workshop.

**Study Participants**

A total of 150 students (87 females and 63 males) were identified as eligible for the present study. These were the students who enrolled in the current Summer College Prep Workshop between January 2009 and June 2009. The students in this study ranged in age from 15 to 17 years of age, and all had identified an interest in participating in the current Summer College Prep Workshop. The make-up of the students was represented across racial and ethnic lines, and students could potentially come from anywhere in the United States. These were students who had sought out the workshop in some way. To be eligible for this study, the students needed to have successfully completed their sophomore year of high school within a standard curriculum, be categorized as high school juniors by the start of the program, and had volunteered for the study. The students were informed about the program by a network of guidance counselors, teachers, website media promotions, and college personnel. The students were also informed that
participation in this study would in no way impact future admission to the university facilitating this program; as these students could potentially apply to the university in the future but that was not a requirement for eligibility to participate in the program.

Research Site

The research site for this study was held at a small, private institution located in northwest Ohio and affiliated with the Churches of God, General Conference. The University does not require any particular religious affiliation for its student body, nor does it require religion coursework within the curriculum or attendance at any religious functions as part of it higher education structure for students. Additionally the University does not give preference to any student based on religious affiliation. Therefore, the student body make-up is similar to other northwestern Ohio non-denominational private and public institutions. The 2008 religious make-up of postsecondary students in the United States was 78% Christian, 1.2% Jewish, .7% Muslim, 18.5% unaffiliated, and 1.6% atheist (Grossman, 2008). The University enrolls approximately 700 first-time freshmen each fall. In 2008, based on fall enrollment data, the religious make-up of students enrolled at The University was 80.1% Christian, 1.0% Jewish, 1.5% Muslim, 17.1% unaffiliated, and .3% atheist. In the same year, the enrollment at the University was 3,512 undergraduate students, 1,054 graduate students, and 609 international students. The University demographics show that the 2008 student body consists of 61% female, 39% male, 5% black, 83% white, 2% Hispanic, and 10% other.
Research Design

This study was a true experiment. More specifically, the design of this study was a Solomon Four-Group design. Students from the eligible pool of high school juniors were randomly assigned to one of the four groups, with two groups receiving the intervention of the new Enhanced Summer College Readiness Program and two other groups serving as comparisons. All four groups were measured on their academic self-efficacy after the program was over. In addition, two of the groups (one treatment and one comparison) were also pre-tested on their academic self-efficacy. The following table maps out the details of the design.

Table 3.1

Research Design (Solomon Four Group)

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Intervention</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTG1</td>
<td>O1</td>
<td>X1</td>
<td>O2</td>
</tr>
<tr>
<td>RCG2</td>
<td>O3</td>
<td>X2</td>
<td>O4</td>
</tr>
<tr>
<td>RTG3</td>
<td></td>
<td>X1</td>
<td>O5</td>
</tr>
<tr>
<td>RCG4</td>
<td></td>
<td>X2</td>
<td>O6</td>
</tr>
</tbody>
</table>

Note. R represents random assignment, T represents treatment group, C represents comparison group, O1 and O3 represent pre-test observations of the dependent variable; X1 stands for the treatment program; X2 stands for the comparison program; and O2, O4, O5, and O6 are post-test observations of the dependent variable.

As illustrated in Table 3.1, Treatment Group 1 (n=36) received pre-test CASES, the new Enhanced Summer College Readiness Program treatment, and post-test CASES. Comparison Group 2 (n=36) received pre-test CASES, the current Summer College Prep
Workshop, which was the comparison, and post-test CASES. Treatment Group 3 (n=36) received the new Enhanced Summer College Readiness Workshop treatment and the post-test CASES. Finally, Comparison Group 4 (n=36) received the current Summer College Prep Workshop, which was the comparison, and post-test CASES.

The Solomon Four-Group design is considered to be one of the most rigorous designs that can be used in quantitative studies. This design allows the researcher to test for pre-test sensitivity and separate out the effects of pre-testing and treatment (Campbell and Stanley, 1963; Gall, Borg & Gall, 1996). Use of this design enables the researcher to have more confidence in inferring causal relationships because of the high degree of internal validity of this design (Creswell, 2009). There is also a reduction in between-subject variation due to the treatment groups being given the same program and the comparison groups being given the same program, which increases the power of the study to determine true treatment effects. However, according to the U.S Department of Education, research that employs “pre-post” designs cannot be considered rigorous when the study is poorly implemented (CEBP, 2003). Taking that into account, this study design meets the criteria for well-designed experiments set forth by the U.S Department of Education. More specifically, the following components should be implemented in well-designed experiments:

First, “the study’s intervention and comparison groups should be very closely matched in academic achievement levels, demographics, and other characteristics prior to intervention,…. e.g., in student test scores prior to the intervention, demographic characteristics, time period in which the two groups will be studied, and the methods used to collect the outcome data” (CEBP, 2003, p.11). The intervention and comparison
groups were randomly assigned in this research, thereby eliminating the need to match the groups. All participants in this study were high school juniors within the same age range, and all participants were studied during the same period of time using the same instrument at the pre-test and the post-test.

Second, “the comparison group should not be comprised of individuals who had the option to participate in the intervention but declined” (CEBP, 2003, p 12). The comparison groups in this study were not comprised of individuals who had the option to participate in the intervention but declined, because participants in this research who opted out of the study were not used. Thus, out of 150 participants who were originally identified as meeting the criteria for the program, 144 participants actually went through the program to completion.

Third, “the study should preferably choose the intervention/comparison groups and outcome measures ‘prospectively’ – that is, before the intervention is administered” (CEBP, 2003, p.12). The participants in this research were randomly assigned to their groups prior to the intervention. This procedure guaranteed that all subjects had the same chance of being in the intervention or comparison group. The outcome measure in this research was the CASES survey, which was selected prior to intervention as the tool to assess academic self-efficacy. Again, the randomized assignment of participants in this study insured that non-systematic changes between the treatment and comparison groups differed solely due to chance because the groups had equal and balanced composition. The methodology employed in this study allowed the effects of the interventions to be measured and not some other underlying variable or variables.
And finally, “The study should...use valid outcome measures, have low attrition, and report tests for statistical significance” (CEBP, 2003, p. 12). This study used the College Academic Self-Efficacy Scale (CASES) to measure academic self-efficacy as discussed in detail in the next section; this instrument was found valid and reliable for measuring academic self-efficacy. This research also had a very low attrition rate of only 4% with 144 out of 150 students participating. Lastly, appropriate statistical tests were used to analyze the data and are reported in Chapter four.

Cross-case analyses were used to summarize and condense the data collected from the note-takers during the program sessions, the feedback from faculty who facilitated the academic programs, and student participation surveys. Cross-case analysis looked for similarities and differences found within and across the groups in the study in order to determine if one group was more successful than another, overall or in a particular area. This study followed procedures outlined by Berkowitz (1996) when applying this analysis to the groups within this study in order to help answer the research questions.

**Intervention.**

As previously mentioned, the research included two treatment groups and two comparison groups. All four groups received an intervention with some commonalities among them. The two comparison groups participated in the current Summer College Prep Workshop (for current Summer College Prep Workshop Agenda see Appendix B). The two treatment groups received the enhanced program. Table 3.2 illustrates the similarities and differences between the two intervention programs.
Table 3.2

*Current College Prep Workshop & Enhanced Summer College Readiness Program
Similarities and Differences*

<table>
<thead>
<tr>
<th>Similarities</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check-in</td>
<td>Duration of Program</td>
</tr>
<tr>
<td>Breakfast</td>
<td>*ACT Preparation Testing</td>
</tr>
<tr>
<td>Team Assignments</td>
<td>Academic Workgroups</td>
</tr>
<tr>
<td>Introductions</td>
<td>*Duration of Campus Tour</td>
</tr>
<tr>
<td>Team Building Exercise</td>
<td>Overnight in Residence Hall</td>
</tr>
<tr>
<td>Financial Aid Presentation</td>
<td>Scavenger Hunt</td>
</tr>
<tr>
<td>Career Workshop</td>
<td></td>
</tr>
<tr>
<td>Admissions Information</td>
<td></td>
</tr>
<tr>
<td>Faculty Interaction</td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>Peer Student Mentor</td>
<td></td>
</tr>
</tbody>
</table>

*Note. *variations occurred in these sessions.*

*New enhanced summer college readiness intervention.*

The new Enhanced Summer College Readiness Program was developed by the undergraduate admissions office and Student Paths, a company headquartered in Minnesota, which provides material and curriculum to high schools across the United States to prepare students for the transition from high school to college. This intervention program was a two-day, overnight event that provided students with an introduction to college concepts including college terms, vocabulary, and resources. The students attended an ACT test preparation session, time management and study skills session, and
financial and career planning presentation. They also received an extended interactive campus tour, academic presentations and activities with faculty, and interaction with current students.

The students in treatment groups were completely immersed in college living by studying, eating, and sleeping as a college student would. The activities and sessions were built into the treatment program to address multiple sources of self-efficacy, peer modeling, mastery of skills, verbal persuasion, and psychological state. Research predicts that students, who develop a positive attitude about living on campus, participating and becoming successful in college activities and events, will lose their stress and anxiety about higher education, therefore becoming more successful during their college careers through higher grades, retention rates, overall completion rates, and improved time to graduation rates.

The new enhanced program began with a welcome and introduction to the program followed by an extended campus tour that was a 90-minute interactive tour-activity where the students were given digital cameras and encouraged to take pictures of themselves at various stops. Although the students on the extended tour went to the same buildings as the high-light tour, the extended tour allowed the students to explore all buildings on the route inside and out and see lecture halls and laboratories as well as student support offices. The students in the extended tour also had an in-depth campus housing tour where they were allowed to visit all types of student housing options. The students in the treatment groups were expected to feel more inclined to believe they could also experience college with the same comfort and ease. During the tour, the peer mentor
guides verbally encouraged the students to visualize themselves in various successful situations while in college (e.g., “This is the Memorial Arch which you will be walking through when you graduate!”). Lastly, the extended tour allowed the students in the treatment groups to relax and explore the campus thoroughly, which was intended to reduce their overall anxiety of a college campus thereby reducing their self-doubt.

Following the tour, the treatment groups participating in the new Enhanced Summer College Readiness Program attended a residence hall meeting with their peer mentor. During this 30-minute meeting in their assigned residence hall, students in the treatment groups were told about residence hall policies and guidelines. These meetings combined with the overnight stay in the residence hall were built into the treatment program to address the mastery experiences and psychological state sources of self-efficacy. By understanding the policies and procedures that were associated with living in a residence hall and then actually putting those same policies and procedures into place the students were expected to feel they had successfully mastered one of the steps of successful college life.

After their residence hall meeting the students in the treatment groups experienced a 30-minute informal welcome reception where students and faculty had the opportunity to talk one-on-one or in small groups about programs of study, future job opportunities, and college life in general. This student/faculty welcome was added to the treatment program to address the verbal persuasion and psychological state sources of self-efficacy. Students who felt they could connect comfortably with faculty and were
encouraged to succeed by faculty would in turn feel they could succeed in an academic atmosphere surrounded by faculty which otherwise might feel intimidating.

The treatment groups also attended a student panel which was a question and answer forum facilitated by currently enrolled students. This session was called “The Fishbowl” because frequently asked questions were pre-typed and placed in a fishbowl and the fishbowl was passed around the room randomly for the participants to choose from and ask. These generated beginning questions for the panel and participants were encouraged to ask any question that came to mind at any point during the 30-minute session. Peer modeling occurred when an observer witnessed an individual of similar characteristics perform a task that he or she feared.

After lunch, the treatment groups participated in the science and writing academic work sessions. Each of these sessions was 60-minutes long and was facilitated by university faculty. Participants went to the science academic work session first. This session consisted of two hands-on experiments, simulating, observing, and discussing an oil spill and purifying water. Both experiments were chosen because they required little preparation prior to the experiment and minimal supplies were needed. These experiments were also a good choice because the safety level was high for both and they addressed contemporary issues of environmental concerns. The writing hands-on session consisted of analyzing the college writing process through a puzzle analogy. This session was chosen because it presented a creative, interactive lesson to demonstrate the steps of essay writing at a college level. These hands-on academic sessions addressed the mastery sources and psychological state of self-efficacy. By allowing participants in the treatment
groups to actually perform tasks in a college environment was intended to strengthen their sense of academic self-efficacy.

An icebreaker was on the agenda for the treatment groups following a brief 15-minute break. The icebreaker/teambuilding exercise, “Getting to College” was also used for the comparison program however, due to time constraints the treatment groups’ exercise was a 30-minute session, as opposed to the 60-minute session given to the comparison groups. The Financial Aid, ACT preparation, and Career Workshop sessions were also identical for both treatment and comparison groups. These sessions, which will be described in more detail, used the same presentations for the treatment and comparison groups intentionally in order to control for as many confounding variables as possible within the study. The icebreaker was designed as a team building exercise, facilitated by college peer mentors allowing the participants a time to interact with one another in an engaging, relaxed way. The students were instructed to complete all of the tasks on their college mission list within the allotted timeframe. The college mission list included items such as, “Find a student who can sing the alphabet backwards, have them sing it to you, and then you sing it back to them, and then have the student sign your mission list”, the first student in the group to complete all tasks won a prize of a travel mug.

The 30-minute time management skills presentation was intended to provide the students with an overview of the importance of time management skills for college success. The session objectives were to identify the most common interruptions for college students and to teach students to apply practical technique and strategies for managing time and overcoming procrastination. The students were asked to write down
their definition of time management and volunteers were asked to share theirs with the group. Facilitators discussed time management techniques with the support of a PowerPoint presentation. This presentation, facilitated by two administrators from the office of Student Services, was also used for the two comparison groups.

The students proceeded on to the 60-minute Career Workshop that used a PowerPoint presentation, and reviewed identifying interests and skills, and understanding of education and experience requirements for specific career paths. The students took ACT’s Discover Career Assessment, a career planning computer-based program that assisted the students in identifying career options based on interests, skills, and abilities. Facilitators then briefly reviewed the students’ results in a groups setting.

After an hour long break for dinner in the dining hall, a 2-hour campus scavenger hunt facilitated by a college student peer mentor exposed the students to services available on campus while developing a sense of belonging and teambuilding in a non-threatening environment. This scavenger hunt event was imbedded in the treatment groups program in order to address the mastery experience and psychological state sources of self-efficacy. The students successfully mastered not only the logistics of the multitude of offices and services across campus but also mastered an understanding of what these offices and services would provide them as a student in college.

At the end of the first day, the students in the treatment groups returned to the residence halls for an overnight visit. Again, this element of the treatment program addressed the mastery experiences and psychological sources of self-efficacy. The
students experienced spending the night in a residence hall in similar conditions to what the real experience would be of living in a residence hall as a college student.

The following morning, the students in the treatment groups had breakfast in the dining hall and then moved on to the ACT preparation and financial aid presentation that were both 60-minutes in length. As mentioned before, the ACT presentation was also used for the comparison groups’ presentation with the exception that treatment groups’ participants had the opportunity to take a practice ACT test and review the results. The ACT preparation presentation was a 60-minute session facilitated by staff members from The Office of Admissions and Retention Services. The objective of the presentation was to provide students with an overview and general understanding of the ACT standardized test required for admission to most colleges and universities. The PowerPoint presentation in this session covered the structure of the ACT assessment, explanation of test sections, scoring, and helpful preparation tips.

The Financial Aid presentation was a 60-minute session facilitated by staff from The Office of Financial Aid. The objectives of this presentation were to expose the students in both the treatment and comparison groups to the financial aid process through a PowerPoint presentation, which explained types of financial aid, the FAFSA (Free Application for Federal Student Aid) process, the institution’s financial aid process, and an open question and answer session.

One the second day of the new Enhanced Summer College Readiness Program the students once again engaged in academic work groups, this time in Math, History, and Business facilitated by faculty. The math academic work group was a 60-minute hands-
on exercise called *Optimizing Distance*. This exercise focused on overall mathematics concepts and specifically on geometry principles. The history work group was a 60-minute interactive exercise that had the students actively engaged in one of three debate topics. Lastly the 60-minute business work group had the students interactively participating in a *Stock Market Challenge*. All of the academic work groups were added to the treatment program to address the mastery experiences and psychological state sources of self-efficacy.

Following a 15-minute refreshment break the students in the treatment groups met for a 15-minute team award presentation, celebrating each academic work group. The new Enhanced Summer College Readiness Program concluded with the Admissions Information Session and closing remarks, a 60-minute presentation, facilitated by staff from The Office of Admissions. This presentation, which was also used for the comparison groups, provided students with a brief overview of the history of the University, frequently asked questions regarding admission to the University and the application process. All students were given a certificate of completion and a thank you gift of a University t-shirt.

*Current summer college prep workshop comparison group program.*

The students in the comparison groups began their program with the same morning schedule as the treatment groups, being welcomed and introduced to staff members and students who would be working with them throughout the day. The students in the comparison groups also participated in a campus tour however; theirs was a 60-minute walking high-light tour of the University facilitated by college student
mentors. This tour stopped at the major academic and administrative buildings on campus and was designed to provide students with a familiarization of the layout of campus and general historical information.

The students in the comparison groups also participated in the teambuilding exercise “Getting to College.” However, the comparison groups had a 60-minute timeframe for this ice-breaker as opposed to the 30-minutes provided to the treatment groups. As stated before, in order to control for as many extraneous variables as possible, the Time Management skills presentation, the ACT presentation, the Financial Aid presentation, the Career Planning Workshop, and the closing Admissions Information Session were all identical to the treatment groups’ presentations.

**Instrumentation**

The College Academic Self-Efficacy Survey (CASES) was used to assess academic self-efficacy of the students in this study. The questions on the CASES were asked on a 5-point Likert-type scale, where 0=Very little confidence, 1=A little confidence, 2=Neutral, 3=A lot of confidence, and 4=Quite a lot of confidence. The respondents rated how confident they felt in relation to activities such as taking notes, answering questions, writing, attending class on a regular basis, and using computers effectively.

Owen and Froman (1988) established reliability for the CASES scale by administering the scale twice over an 8-week interval to a group of 88 educational
psychology students. Cronbach’s alpha internal consistency estimates for the two occasions were .90 and .92 while the eight week stability point estimate was .85.

Validity for the CASES instrument was assessed in several ways. CASES was deemed to have content validity because the 33 questions on the CASES were developed by three university faculty members in education and psychology, and were based on frequent student patterns of behaviors (Owen & Froman, 1988). The pool of questions was also examined by seven graduate teaching assistants, revised based on their suggestions and pilot tested on 93 undergraduate educational psychology students.

Concurrent validity, which is a measure of how well the scale correlates with a previously validated measure, was estimated by using two different criteria, each suggested by self-efficacy theory: frequency of performing each task and enjoyment of each task. Although frequency and enjoyment may seem to be different constructs of self-efficacy, in the measure of self-efficacy, Lee (1984) and Wood and Locke (1987) showed correlations between the two, and Wood and Locke concluded that both measures could be used to assess self-efficacy. In separate studies, students were asked for 5-point Likert-type self-ratings on frequency and enjoyment for each of the 33 academic behaviors on CASES (Owen & Froman, 1988). These studies were arranged as incremental validity research, which determines whether or not a particular instrument or measure is a better predictor over another approach. In predicting mean item frequency, GPA was forced into the regression equation, followed by CASES score. An identical analysis was done for the prediction of mean item enjoyment. The analyses, each carried out on different samples of educational psychology students from those described above,
gave very similar results. Frequency criterion adjusted R² was .78 for CASES and .40 for GPA, and enjoyment criterion adjusted R² was .72 for CASES and .38 for GPA (Owen & Froman, 1988). The academic self-efficacy showed very strong incremental validity beyond that explained by GPA alone. Owen and Froman (1988) concluded that the analyses were in keeping with Bandura’s self-efficacy theory.

Procedures

Facilitator training.

Six weeks prior to the beginning of the new enhanced and current summer programs, a 40-hour training session was held for facilitators who included faculty, staff, and student note-takers. All facilitators were aware of their assigned groups (i.e., whether they were in a treatment or in a comparison group). The training included an overview of the research on self-efficacy, explanation and discussion of experimental research, review of the lesson plans, note-taking procedures, presentation planning, mock presentations, and walk through of implementation. Facilitators were instructed to stay within the guidelines of the lesson plans and time allocations for each session. Feedback paperwork was provided to all note-takers, and they were instructed on recording observations of the sessions assigned to ensure uniform response formats.

The note-takers, who were senior education and psychology student ambassadors recommended by faculty, were asked to follow each group as they proceeded throughout the day and take notes using the same protocol for consistency. Each note-taker was required to describe the session they were observing, report on the sessions to which they
were assigned in regards to time limit, curriculum delivery, student participant
ingagement and interest, and make suggestions for improvement. The faculty who
facilitated the academic sessions were also asked to answer the same series of questions
following the completion of their session.

**Intervention procedures.**

The participants from all four groups arrived for check in between 8:00 and 8:30
am. At that point they were provided with the packets containing the agenda and all the
materials they needed for the program. In order to keep the comparison and treatment
groups isolated, the students assigned to treatment groups checked in at a building on the
south end of campus while the students in comparison groups checked in at a building on
the west side of campus. Furthermore, the groups were assigned to different rooms for all
their academic presentations and sessions: treatment group 1 was assigned to room 204,
treatment group 2 was assigned to room 145, comparison group 1 was assigned to
Memorial Union North and comparison group 2 was assigned to Memorial Union South.
All the groups were provided with a continental breakfast and a welcome from the
President or the Director of Student Services. All the students were given the opportunity
to meet their fellow group members, and had an assigned note-taker. The treatment
groups met their peer mentor who stayed with the groups throughout the program. All the
groups were introduced to the staff who would be working with them during the program.

As mentioned in the intervention section, all four groups were given a campus
tour. The tour guides were instructed to begin tours at opposite ends of the campus to
keep the groups separated from one another. Treatment group 1 began at the Theological
Seminary while treatment group 2 began at Center for Health Professions. Comparison group 1 began the tour at the Memorial Union while comparison group 2 began the tour at the Admissions Hall. All the participants were provided with lunch in the dining hall with the lunch times staggered; treatment groups went to lunch an hour after comparison groups to prevent the comparison and treatment groups from coming in contact with one another.

**Data collection procedures.**

Eight weeks prior to administering the surveys and collecting data, the researcher mailed an informed consent letter to the parents of the participants to inform them that their student would be involved in a study, and that they had the right to opt out of the study. The parents were informed that their child might be selected for the regular college prep 1-day workshop or the 2-day enhanced program. The parents were instructed to complete a participation response and consent card, which served as verification for participation and was to be returned to the researcher by June 8, 2009. The parents were also notified that if they consented to participate in the study, a survey might be arriving within two weeks and that their student had to complete the survey and return it in the self-addressed stamped envelope by June 29, 2009. In those cases when the response cards were not received by the June 8 deadline, the researcher contacted the participants via phone to explain the study, ensure receipt and return of the response cards, and accept their verbal response and consent. Six of the 150 eligible students chose not to participate.
Once the response cards were received, the participants were randomly assigned to the treatment groups and the comparison groups. The CASES instrument was then mailed to one of the treatment and one of the comparison groups four weeks prior to the program. Again in those cases when the surveys were not received by June 22, the researcher made phone calls to the participants to insure the surveys were received, completed, and returned. The participants who completed the survey received a $20 gift certificate for the campus bookstore.

The incentive was used to increase the survey response rate. Research has shown that using incentives increases response rates for mail surveys even though promised incentives have less of an impact on response rates than prepaid incentives (Church, 1993). Church further suggests that moderate incentives raise response rates by motivating those already predisposed to responding; therefore, students not inclined to respond were not coerced by the incentive provided.

Post-test data using the same instrument were collected at the end of the program from all four groups. A testing specialist from the Owens Community College testing center certified by the National College Testing Association administered the surveys, matched pre-test to the post-test, removed the student identifying information, and assigned each student test answer packet a number. This ensured that students could not be identified during the data analyses.
Data Analysis

To address the research questions, both quantitative and qualitative data were analyzed. Qualitative data were analyzed to ensure procedural processes were adhered to and to substantiate the findings from the quantitative data. The data analyses are described below.

Quantitative data analysis.

A statistical software package for social sciences (SPSS) was used to analyze the survey data. Descriptive statistics were used to summarize the large amounts of data in this study and enabled comparisons among the treatment and comparison groups. Multiple t-tests were used to test for the differences in the pre- and post-test mean scores, rule out a pre-test sensitization, determine the effect of the treatment, and establish that random assignment was effective. The use of multiple different t-tests was appropriate due to the fact that the Solomon Four-Group design used in this study resulted in an incomplete data matrix (see Table 3.1) with no pre-test observations for treatment group 2 and comparison group 2. In order to accept the hypotheses, the following results would be expected: the pre-test of treatment group 1 would be equal to the pre-test of comparison group 1 \((O_1 = O_3)\); the post-test of treatment group 1 would be equal to the post-test of treatment group 2 \((O_2 = O_5)\); the post-test of comparison group 1 would be equal to the post-test of comparison group 2 \((O_4 = O_6)\); the pre-test of treatment group 1 would not be equal to the post-test of treatment group 1 \((O_1 \neq O_2)\); the combined average mean of post-test scores of treatment groups 1 and 2 would not be equal to the combined average mean of the post-test scores of comparison groups 1 and 2 \((\mu O_2 ,O_5 \not\geq \mu O_4 ,O_6)\).
Random assignment effectiveness.

To verify random assignment effectiveness the two pre-test groups, one treatment and one comparison (O₁ and O₃) were compared using an independent t-test. This is important because it ensures that any student characteristics that may influence the outcomes do not favor either the treatment or the comparison groups. If random assignment was effective then there should be no difference between the pre-test scores for treatment group 1 (O₁) and comparison group 2 (O₃).

Pre-test sensitization.

The mean scores of the post-test of the two treatment groups (O₂ and O₅) were compared with an independent t-test to ascertain the difference between the two groups.

The mean scores of the post-test of the two comparison groups (O₄ and O₆) were compared using an independent t-test to ascertain the difference between the two groups.

The comparison between the post-test of treatment group 1 and the post-test of treatment group 2 and the comparison of the post-test of comparison group 1 and the post-test of comparison group 2 allows the researcher to determine the effect that the pre-test has on the treatment. If the post-tests for the treatment groups and the comparison groups are similar then the pre-test has not had an effect on the treatment.

Treatment existence.

A dependent t-test was conducted between treatment group 1 pre-test (O₁) and treatment group 1 post-test (O₂) to determine if there was a statistically significant change
in the pre-post test scores of treatment group 1. If there is a statistically significant change in the pre-post test scores then it can be inferred that the treatment had an effect on the scores. An independent t-test was conducted on the combined post-test means of the two treatment groups (µO₂, O₃) and the combined post-test means of the two comparison groups (µO₄, O₆) to determine the difference of the groups after receiving the summer programs.

**Qualitative data analysis.**

As with any research, program implementation provides an opportunity for errors to occur that may impact the results. Qualitative analyses allowed the researcher to rule out program implementation issues as possible contributors to the change in academic self-efficacy, if such were observed. Cross-case analysis was used to analyze the note-takers feedback, faculty feedback, and student participant feedback of their experiences within the program. Cross-case analysis was used to categorize the similarities and differences among the feedback received and then examine any patterns or commonalities that emerge.

**Limitations**

Being a true experiment by design, this study was not without limitations that manifested themselves as internal and external validity threats for which the researcher was not able to control. Several of such threats were present in this study at the design and implementation stages, thereby limiting the ability of the researcher (1) to conclude with confidence that the observed changes in the dependent variable, academic self-
efficacy, were actually due to the treatment and not to some other extraneous factors and (2) to generalize the findings of this study. The very nature of experimental design studies means that there will be obstacles in planning and executing the research. The obstacles can change or skew the results, which could ultimately make the research findings invalid. Therefore care should be taken in minimize and, if possible, eliminate internal and external threats to assure the results are a true reflection of the study itself. Several threats that might have impacted this study were anticipated and successfully controlled for at the design, implementation, and execution stages of this research. The specific internal and external validity threats that were controlled as well as not controlled are discussed below.

**Internal validity threats.**

Internal validity refers to the level of confidence with which it can be concluded that the observed effect(s) were produced solely by the independent variable and not extraneous ones, or the confidence that can placed on the cause and effect relationship in a study (Shadish et al, 2002). Threats to internal validity include selection bias, which occurs when subjects are not randomly placed into treatment and control groups thereby making the characteristics of the groups within the study different and these differences may affect the results. The threat of maturation occurs when participants grow older, more experienced, wiser, more skillful, etc. between the pre-test and the post-test thereby confusing whether the change is due to time or the independent variable (Onwuegbuzie, 2000). Treatment diffusion is an internal threat that occurs when participants discuss the
study amongst each other thereby potentially altering the results (Onwuegbuzie, 2000). Compensatory rivalry occurs when the treatment or comparison group become competitive with one another and change their behaviors or work extra hard to improve or change the results. Experimenter bias occurs when the conscious or unconscious actions of the researcher affects participants’ performance and responses. Lastly, testing is a procedural threat that occurs when the same test is administered multiple times, and confounding variables are variables that the researcher failed to control, or eliminate, damaging the internal validity of an experiment (Shadish, et al, 2002).

**Controlled threats.**

To control for selection bias, maturation, and history, the students were randomly assigned to the groups, which means that the group attributes for the different treatments would be roughly the same and therefore any effect observed between groups could be linked to the treatment effect and not a characteristic of the individuals in the group. Therefore, these threats were controlled by random assignment in those individual differences and maturation components would be manifested equally in both treatment and comparison groups.

The threat of experimenter bias was controlled at the design stage. In this study, the threat of experimenter bias was controlled because although the researcher oversaw the implementation of this study, she was not present during the actual execution of the programs and had no direct contact with the students. Therefore, the researcher, could not knowingly or unknowingly impact the groups to increase or decrease their performance.
The threat of testing was controlled due to the Solomon Four-Group design used in the study. This design allowed for eliminating the pre-test bias because both a treatment and comparison group received the pre-test therefore differences in the post-test could be measured similarly. Additionally, the pre-and post-test were administered using the same procedures to insure consistency.

_Minimized threats._

The students in this study potentially could have come in contact with one another throughout the day during various group activities such as passing at lunch time; therefore, they could potentially share information about the program. This discussion might have led to students who received the treatment program feeling less or more motivated to participate in the program. Additionally, the comparison groups might have become competitive and worked extra hard to improve their CASES survey results.

To minimize these threats, all students were informed prior to the study that they could participate in The University’s on-campus college preparatory sessions offered as a course by the Office of Retention, and were provided with the appropriate information to pursue this option. Therefore students in the comparison groups would not feel as if they were missing out on an opportunity or that they were receiving something that other students could not receive. The researcher also designed the agendas for the groups to minimize contact between groups as much as possible. All four groups were assigned to separate areas of campus throughout the entire program including the two experimental groups being housed in separate residence halls, tours beginning at opposite areas of campus, and staggering lunch times.
Another threat to the internal validity of this research is due to confounding variables. A confounding variable can adversely affect the relation between the independent variable and dependent variable. This may cause the researcher to analyze the results incorrectly. The results may show a false correlation between the dependent and independent variables, leading to an incorrect rejection of the null hypothesis.

Confounding variables were controlled for to some extent by maintaining similarities between the two programs. Thus, the two programs were identical in several areas to include the morning program check-in procedures, team assignments, team building exercise, Time Management and Financial Aid presentation, Career workshop, Admissions overview, faculty interaction, lunch, and peer student mentor. Both the treatment and comparison groups were kept as similar as possible to ensure the same conditions with the exception of the intervention treatment. However, several differences existed. These included duration of program, academic work groups sessions, intensity of faculty interaction, extended campus tour, overnight visit in residence hall, and scavenger hunt. These differences could not be tested for their separate effect on the academic self-efficacy in this study, thus presenting a threat to internal validity. The new Enhanced Summer College Readiness Program was developed as a variant of the current Summer College Prep Workshop with the intent that it would be examined holistically.

**External validity threats.**

Similar to internal validity, external validity is a matter of degree and can be strong or weak and studies with strong external validity are characterized by generalizability of the findings to the target population (Shadish et al, 2002). This occurs
when the sample is selected from the general population, and because the sample is representative of the population, the researcher can automatically generalize the research results back to the population. This research used random assignment not random selection. Therefore, generalizability in this research can only be attributed to populations with similar characteristics as the study participants.

Threats to external validity include the Hawthorne Effect and population validity. The Hawthorne Effect occurs when participants are aware that they are being observed or of the treatment they are receiving and may behave differently than participants who are not being observed or do not know they are about the treatment they are receiving. Population validity is a type of external validity that describes how well the sample used in the research can be generalized to a population as a whole (Shadish et al., 2002).

Minimized threats.

The students in this study were aware of the treatment they received, and were aware that students in the treatment groups were receiving extra services. This awareness may have brought about an increase in the CASES survey results due to consciousness of being a participant in the study, the extra attention given, and novelty of the study. To minimize this threat, the intervention of the new Enhanced Summer Readiness Program was incorporated, at the design phase, as a variant of the current Summer College Prep Workshop, and the treatment was facilitated by the faculty and staff that would have normally facilitated. Finally, the design of this study, Solomon Four-Group, incorporated two comparison groups which minimized this threat.
If the sample being researched is drawn from an accessible population, rather than the target population, generalizing the research results from the accessible population to the target population is risky. This study used a volunteer sample, not a random sample, therefore, the experimental sample of high school juniors who sought out the summer workshop, may be too different from the overall population of all high school juniors planning on attending college to make generalizations. However, population validity is minimized in that the intent of this research was not to make generalizations about all high school juniors across the United States, but only to the target population of high school juniors who would be interested in the university in this study. Therefore, the results from this research would only be generalized to a population where the characteristics and demographics of the high school student were similar.

Summary

This chapter serves to detail the methods used in the implementation of the research study. Procedures and limitations of this research were discussed as well as the pre-existing scale of academic self-efficacy, CASES, (Owens, 1988) which was used to measure high school juniors’ feelings of academic self-efficacy. The analyses of the data of this study will be discussed in the following chapter.
CHAPTER 4

RESULTS

This chapter reports on the results of the analyses conducted to determine if the new Enhanced Summer College Readiness Program had an effect on students’ academic self-efficacy scores. For the purpose of this study, academic self-efficacy was defined as the individual’s level of confidence that they would be able to successfully complete certain academic focused tasks in college. The program of interest would be deemed to have an effect if (1) a difference in academic self-efficacy was found on post-test scores between high school juniors who attended the new Enhanced Summer College Readiness Program and high school juniors who attended the current Summer College Prep Workshop; and (2) if the statistical results could be attributed to the program, that is, if alternative explanations could be ruled out.

Research Questions and Hypotheses

The research questions for this study and the respective hypotheses were as follows:

Research Question 1: Was there a difference between high school juniors that completed the new Enhanced Summer College Readiness Program and those who completed the current Summer College Prep Workshop in academic self-efficacy scores?

Hypothesis: High school juniors who completed the new Enhanced College Readiness
Program have statistically significant higher academic self-efficacy scores than those who complete the current Summer College Prep Workshop.

Research Question 2: If academic self-efficacy scores were significantly different for students who participated in the new Enhanced Summer College Readiness Program, to what extent could this significance be attributed to the program?

Hypothesis: The significant difference between students who participated in the new Enhanced Summer College Readiness Program and those who did not could be attributed to the program itself.

**Quantitative Results**

**Quantitative Statistics.**

The data were subjected to a series of statistical tests, particularly t-tests, to statistically determine if there was a significant difference between the academic self-efficacy scores for students who attended the new Enhanced Summer College Readiness Program and those that attended the current Summer College Prep Workshop.

Table 4-1 summarizes the descriptive statistics for the pre-test and post-test data of the comparison and treatment groups and comparison groups. The treatment groups were those high school juniors that attended the new Enhanced Summer College Readiness Program, while the comparison groups were comprised of students who attended the current Summer College Prep Workshop.
Table 4.1  

*Descriptive Statistics of the Pre-test and Post-test Academic Self-Efficacy scores of the Comparison and Treatment Groups.*

<table>
<thead>
<tr>
<th>Program</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>New – Pre-test</td>
<td>36</td>
<td>52</td>
<td>104</td>
<td>82.55</td>
<td>15.04</td>
</tr>
<tr>
<td>New – Post-test</td>
<td>36</td>
<td>76</td>
<td>123</td>
<td>103.06</td>
<td>10.860</td>
</tr>
<tr>
<td>Current – Pre-test</td>
<td>36</td>
<td>40</td>
<td>119</td>
<td>82.14</td>
<td>19.166</td>
</tr>
<tr>
<td>Current – Post-test</td>
<td>36</td>
<td>48</td>
<td>116</td>
<td>86.19</td>
<td>19.214</td>
</tr>
<tr>
<td>New – Post-test</td>
<td>36</td>
<td>60</td>
<td>124</td>
<td>103.89</td>
<td>11.434</td>
</tr>
<tr>
<td>Current – Post-test</td>
<td>36</td>
<td>61</td>
<td>112</td>
<td>85.25</td>
<td>17.469</td>
</tr>
</tbody>
</table>

*Note. Total N(144)*

For treatment group 1, the mean academic self-efficacy scores after attending the new Enhanced Summer College Readiness Program was higher compared to the mean academic self-efficacy scores prior to attending the program. The students’ in treatment group 1 academic self-efficacy scores increased from 103.06 in the post-test from the 82.55 pre-test academic self-efficacy score. The comparison group 1, involving those students who did not attend the new Enhanced Summer College Readiness Program, the difference of the mean pre-test and post-test academic self-effacy scores were not significantly large, 82.14 and 86.19 for pre-test and post-test, respectively, with standard deviations also having near equal values.

Similarly, it can also be observed that treatment group 2 had a higher post academic self-efficacy score of 103.89 than the academic self-efficacy score of comparison group 2 at 85.25. Based on these observations of the descriptive statistics it can be noted that the academic self-efficacy of students who attended the new Enhanced
Summer College Readiness Program seem to have improved. However, findings drawn from the descriptive statistics are not sufficient and strong enough for a conclusion.

**Random assignment effectiveness.**

The results of the independent t-test used to test if random assignment worked showed no significant difference between the pre-test scores of the treatment group and comparison group, \( t(70) = .10, p = .92 \). Examination of the descriptive statistics (see Table 4.1) revealed that the mean self-efficacy scores of the treatment and comparison groups prior to the intervention were similar 82.55 and 82.14 respectively. In other words, the groups were comparable on the dependent variable, allowing the researcher to rule out the impact of pre-testing on the outcome.

**Pre-test sensitization.**

In order to rule out if the students in this study were more sensitive to the treatment due to the pre-test, independent t-tests were conducted to determine if differences existed between post-test scores of the two treatment groups (O2 and O5). The results of the independent t-test, showed no statistical difference \( t(70) = -.31, p = .75 \). This can be supported by the very minimal mean difference shown in the descriptive statistics (see Table 4.1) of the academic self-efficacy score of the two groups of 0.83333.

Another independent t-test was conducted for the comparison of the post-test academic self-efficacy scores of the two comparison groups (O4 and O6) and no significant difference was found \( t(70) = .22, p = .82 \). The descriptive statistics reveal similar means of the two groups 86.19 and 85.25 (see Table 4.1). Taken together, these
findings indicate that the pre-test did not impact the academic self-efficacy post-test scores.

*Treatment effect.*

To determine if there was a significant difference between high school juniors that completed the new Enhanced Summer College Readiness Program and those who did not complete the new Enhanced Summer College Readiness Program in academic self-efficacy scores.

A dependent t-test was first conducted to compare the pre-test and post-test academic self-efficacy scores of students who attended the new Enhanced Summer College Readiness Program (O₁ and O₂). The results indicated that the mean score for treatment group 1 on the pre-test (M = 82.55, SD = 15.04, N = 36) was significantly smaller than at the post-test (M = 103.06, SD = 10.86, N = 36). In other words, there was a significant increase in academic self-efficacy scores for participants in treatment group 1, \( t(35) = -10.2, p = .000 \).

The post-test mean academic self-efficacy scores of the students in the two treatment groups were then combined and compared to post-test mean academic self-efficacy scores of the students in the two comparison groups combined (µO₂, O₅ and µO₄, O₆). It is ideal that a statistical difference should be found between the scores of the two combined groups to confirm that the improvement of the academic self-efficacy of those who participated in the new Enhanced Summer College Readiness Program is attributed to the program. No significant difference would indicate that there are other factors that resulted in the improvement and this might be dependent on the characteristics of the
group or factors that are influenced by the group. An independent t-test would be the
appropriate test to check if a difference exists or did not exist between the groups.

The independent t-test revealed a statistically significant difference $t(142) = 7.05$, $p<.001$. The mean post-test self-efficacy scores of the treatment groups combined was higher than that of the comparison groups combined. This finding taken together with no
difference between the treatment and comparison groups at the pre-test, a significant
change from pre-to post-test for the treatment group and no effect of pre-testing, suggests
that the new Enhanced Summer College Readiness program really does have an effect on
academic self-efficacy. Specifically, these results suggest that when students participated
in the program their academic self-efficacy increased. Based on the results for this
analysis, it can be concluded that the significant difference between students who
participated in the new Enhanced Summer College Readiness Program and those who did
not can be attributed to the program itself.

**Qualitative Results**

In order to rule out program implementation issues as possible explanations of the
statistical findings reported above, qualitative data were gathered and analyzed for
patterns and commonalities. As stated previously, note-takers for the program sessions
were instructed to report back on the process and procedures throughout the events. The
results of these surveys were compiled in a cross-case analysis format and overall
findings are illustrated in Table 4.2.
As seen in Table 4.2, certain patterns and common themes emerged from the note-takers observations. All four groups were reported to have had some issues staying within the time limits provided for sessions. Groups 1 and 3, which were treatment groups, both went over the allotted time for the science and career sessions. Treatment group 3 also went over time in the math. Comparison group 4 went over time on the ACT prep session. Therefore all the groups received a “Mostly” coding for being Delivered and Staffed as Planned. All the groups, except treatment group 1, which needed more data and information on loans, were reported as providing accurate information during the sessions. Additionally, all groups employed appropriate techniques, provided all necessary materials and appropriate presentations, and all groups maintained the students’ interest, with groups 1 and 3, the treatment groups, reporting Highly Interested and Active and groups 2 and 4, the comparison groups, both reporting Interested and Active during the sessions.

<table>
<thead>
<tr>
<th>Group</th>
<th>Session Delivered and Staffed</th>
<th>Session Content Accurate</th>
<th>Appropriate Techniques Used</th>
<th>Materials Available</th>
<th>Presentation Appropriate</th>
<th>Interested and Engaged in Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mostly</td>
<td>Mostly</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes-Highly</td>
</tr>
<tr>
<td>2</td>
<td>Mostly</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Mostly</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes-Highly</td>
</tr>
<tr>
<td>4</td>
<td>Mostly</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Note: Coding – No, Somewhat, Mostly, Yes, Yes-Highly*
These data show that the students were engaged and interested in the material presented, therefore, it can be inferred that their self-efficacy in that material they are engaged in increases as their understanding and mastery increases. Interestingly, treatment groups 1 and 3 had a higher reported interest than comparison groups 2 and 4. This would suggest that the new Enhanced Summer College Readiness Program was more engaging than the regular summer college prep workshop. Therefore, it can be inferred that this higher level of engagement had an impact on the increase in academic self-efficacy, because according to Bandura (1997), the more engaged a student is in mastering a task the more growth occurs in academic self-efficacy.

Faculty facilitators were also asked for their feedback on their respective sessions. Table 4.3 illustrates the compiled results from the faculty feedback.

Table 4.3

Cross Case Analysis Results - Faculty Feedback on Academic Sessions

<table>
<thead>
<tr>
<th>Group</th>
<th>Session Delivered And Staffed</th>
<th>Session Content Accurate</th>
<th>Appropriate Techniques Used</th>
<th>Materials Available</th>
<th>Appropriate Presentation</th>
<th>Interested and Engaged in Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mostly</td>
<td>Mostly</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes-Highly</td>
</tr>
<tr>
<td>3</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note. Coding – No, Somewhat, Mostly, Yes, Yes-Highly
Note. Only treatment groups 1 and 3 had faculty facilitators therefore feedback is limited to those groups.

As can be seen in Table 4.3, treatment group 1 science faculty facilitator reported that time was an issue as time limits assigned to that session were overridden. The math session faculty facilitator reported finishing in time but felt future programs should allow
for more time. Treatment group 1 faculty also reported that the students in their group were highly engaged, which could account for the extended time in the sessions, assuming that the more engaged someone is the more time they would prefer to spend on the tasks. Considering the faculty facilitators were thoroughly trained and fully understood the importance of staying within the time limits, going beyond these time limits most likely is due to a factor other than facilitators’ lack of concern. However, the note-takers and faculty feedback differed with treatment group 3 - the note-taker reported faculty going over time limits for the math session whereas the faculty did not report this. The faculty did comment that she finished in just enough time, so this discrepancy might be due to confusion over the length of the session or starting and finishing times.

There are several similarities between the faculty feedback and the note-taker feedback. Both the faculty and note-takers categorized treatment group 1 as highly interested and engaged in the program, and both had consistent feedback on the accuracy of the content, the appropriateness of the techniques used, the materials available during the presentations, and the overall appropriateness of the programs. From this feedback it can be inferred that the processes and procedures for the programs was followed accurately, and all groups experienced the same conditions except the treatment groups which received the intervention.

Table 4.4

Cross Case Analysis Results - Student Participant Feedback on Program

<table>
<thead>
<tr>
<th>Group</th>
<th>Session Delivered AndStaffed</th>
<th>Session Content Accurate</th>
<th>Appropriate Techniques Used</th>
<th>Materials Available</th>
<th>Presentation Appropriate</th>
<th>Interested and Engaged in Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Somewhat</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes-Highly</td>
</tr>
</tbody>
</table>
Lastly, program feedback results from the participants’ of the research were collected and are illustrated in Table 4.4. As can be seen in this table, treatment group 1 participants reported going over the time allotted for the academic workgroup sessions. Once again, treatment group 1 participants also reported being highly engaged in the sessions. This feedback corroborates feedback provided by the faculty and note-takers, both of whom reported exceeding time limits and highly engaged students. The feedback received from the students shows that the session content was deemed accurate, materials were readily available, and the presentations in the programs were appropriate, which was consistent with the reports from both faculty and note-takers. One difference was the students in groups 2 and 4, the comparison groups, of this study reported that only “somewhat” appropriate techniques were used as opposed to the previous reports from both the note-takers and faculty facilitators. Students in comparison group 2 also reported being only “Somewhat” interested or active during the program sessions. However, this feedback must be reviewed with caution due to the low response rate, as only 29% of participants completed the survey.

The overarching patterns emerging from these analyses were that more time was needed for the program sessions, the session content was accurate, appropriate techniques were used, materials were available, presentations were appropriate and accurate, and that
students were interested and active in all the groups irrelevant of the type of program. However, students participating in the treatment groups were reported by note-takers, faculty, and the participants themselves as more interested and active during sessions than the students in the comparison groups. These results demonstrate a strong consistency in the delivery and implementation of the two programs, thus allowing for procedural errors to be ruled out.

**Summary**

The results of the data analyses matched the expected results: the pre-test of treatment group 1 did equal the pre-test of comparison group 1 (O₁ = O₃); the post-test of treatment group 1 was equal to the post-test of treatment group 2 (O₂ = O₅); the post-test of comparison group 1 was equal to comparison groups 2 (O₄ = O₆); The pre-test of treatment group 1 was not equal to the post-test of treatment group 1 (O₁ ≠ O₂); and the combined mean scores of treatment groups 1 and 2 did not equal the combined mean scores of comparison groups 1 and 2 (μO₂, O₅ ≠ μO₄, O₆). The findings supported the hypothesis that the new Enhanced Summer College Readiness Program would lead to an improvement in the academic self-efficacy of those students who attended it while those that did not attend the same program, but instead attended the current Summer College Prep Workshop, experienced the same level of academic self-efficacy in the pre-test and post-test. A discussion, as well as the implications of these results, and suggestions for future research are discussed in the next chapter.
CHAPTER 5
SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of chapter five is to interpret the results presented in chapter four and to make recommendations on the conclusions drawn from the study. Based on the findings reported in the previous chapter and the literature discussed in chapter two, this chapter will also provide implications for current practice, recognize the limitations of the investigation, and make suggestions for future research.

The purpose of this study was to investigate the effect of the new Enhanced Summer College Readiness Program on academic self-efficacy. The research questions asked if high school juniors who completed the new Enhanced College Readiness Program would have significantly higher academic self-efficacy scores than those who completed the current Summer College Prep Workshop and if there was a statistically significant difference in self-efficacy scores could that be contributed to the program itself? A Solomon Four Group design was used in this research. Multiple t-tests were used to research the effect of the new Enhanced Summer College Readiness Program on academic self-efficacy. From the completed analyses it can be inferred that there is an effect on academic self-efficacy from completing the enhanced program.

One major rationale for this study was the high number of entering college freshmen who are unprepared for college and the overall high attrition rate among college freshmen. Its primary focus was junior high school students who demonstrated an interest in attending a college readiness program.
Summary and Discussion of Findings

Multiple t-tests were conducted to detect if there was a statistically significant effect of the new Enhanced Summer College Readiness Program on academic self-efficacy. The data showed that there is in fact a strong effect of the new Enhanced Summer College Readiness Program on academic self-efficacy. Additionally, the data showed that the enhanced program itself was responsible for the increased academic self-efficacy scores.

Prior research (Lent, Brown & Larkin, 1986; Marsh, Walker & Debus, 1991; Schunk, 1989; Schunk 1994; Zimmerman, Bandura & Martina-Pons, 1992; Bean and Eaton, 2000) shows that the higher a students’ academic self-efficacy the more likely they will be to persist in college. Drawing tentative conclusions from these data, it could be inferred that students who go through an Enhanced Summer College Readiness Program may have higher levels of academic self-efficacy and in turn have higher college persistence rates.

Data collected from the note-takers and follow-up surveys of the faculty and student participants brought into view certain common themes and patterns. One common pattern that emerged from these surveys was that more time was needed for program sessions, specifically the science and career sessions. Both of these sessions had intensive hands-on portions for students to complete. Since self-efficacy is gained through successful completion of tasks, specifically mastery, it can be inferred that high interest and active participation in these session would drive a sense of mastering the topic and thereby extend the program sessions until this mastery is accomplished successfully. The high level of engagement in the sessions could account for the extended
time in the sessions, assuming that the more engaged someone is the more time they would prefer to spend on the tasks.

The feedback from note-takers, faculty, and student participants also showed that all three feedback groups reported similar experiences in regards to time, content, presentation, and reported engagement which can be interpreted to confirm that the implementation of the program was consistent and extraneous variables were controlled for within the research programs.

It is important to note that only 29% (31 females and 11 males) completed the student participant survey. Therefore it is difficult to determine how much the participants’ feedback is an accurate reflection of the entire group experience. The low response rate could be due to the survey being handed out at the end of the program after the closing remarks and not being formally distributed, or collected, or built as a required portion of the program itself. Future research should incorporate this feedback as a required portion of the study, or for a more in-depth student participant interview after completing the program.

**Implications for Practice**

Although several studies have been conducted on various areas and types of self-efficacy (Bandura, 1977, 1981, 1988, 2001) and the predictability of academic self-efficacy on college success (Irvine, 1966; Lent, Brown & Larkin, 1989), this study was unique as it sought to discover if there was an effect of a college readiness program on academic self-efficacy of a group of high school juniors. The analyses run between the groups determined that there was a statistically significant relationship between the new Enhanced Summer College Readiness Program and academic self-efficacy.
In order to build self-efficacy, Bandura (1994, 1997) stated that a person must feel supported and able to take risks in a given area. The data from this research infer that the new Enhanced Summer College Readiness Program provided the students in the study with a structured, supportive environment to explore college concepts. Therefore, it can be suggested that post-secondary institutions can help increase students’ academic self-efficacy by designing similar college readiness programs that help students’ feel comfortable in a college atmosphere. This comfort level will allow these students to take risks exploring college concepts and tasks thereby building their self-efficacy. It would also be suggested that administrators and student affairs practitioners should examine any current college readiness program for a system of support and encouragement.

Academic self-efficacy has been shown to have a strong positive effect on freshman grades and credits; in fact, previous research has shown that academic self-efficacy is the single strongest predictor of college GPA in all models, even taking into account high school academic performance and demographic background variables (Brown et al., 1989; Lent et al., 1984, 1986, 1987). The data in this research showed a large effect of the new Enhanced Summer College Readiness Program on academic self-efficacy therefore, it may stand to reason that increased attention and support to pre-college preparation in the form of a structured college readiness program may improve academic confidence as well as increase students’ persistence and success in college. For admissions and enrollment management practitioners who seek to improve recruitment of high caliber, well-prepared students, and retain them, developing college preparation programs for high school students may be an effective mode to increasing academic self-efficacy thereby increasing success and persistence in college and reducing costs.
The variable of academic self-efficacy thought to improve as a result of participating in the new Enhanced Summer College Readiness Program, is based on Bandura’s theory of self-efficacy. Bandura’s theory of self-efficacy states that people guide their lives by their beliefs of personal efficacy. Specific self-efficacy expectancies seem to achieve their influence by affecting both willingness to engage in behaviors and to tenaciously hold on to their attempts to master behaviors (Bandura, 1997). When students experience successes through completing various course activities arranged at increasing difficulty levels, they will be more likely to experience increased academic self-efficacy which, in turn, serves to improve college students’ academic achievement.

Therefore, it might be plausible for student affairs practitioners who seek to develop students holistically to have all incoming students complete the CASES instrument, possibly during an orientation. Those students with low self-efficacy scores could receive individual or group sessions, similar to those facilitated during the new Enhanced Summer College Readiness Program, designed to assist them in becoming more confident in their ability to succeed academically at the beginning of their college experience and continuing as long as necessary. This type of program could provide students and personnel with information about students’ strengths and provide them with examples of students who are similar to them and succeeding. Students with average to high academic self-efficacy scores could be informed that they may experience new challenges in the university environment and be made aware of university support services to assist them as they are needed. University personnel can also monitor the progress of students academically to determine if they are maintaining their original
levels of academic self-efficacy and provide interventions for those students in this group who experience decreasing self-efficacy scores.

**Recommendations for Future Research**

As there were limitations to this study, further research would be beneficial. This study could be repeated with slight modifications in order to analyze the data more rigorously.

Additionally, conducting a similar study with a large sample size may improve the generalizability of the findings. This study focused on a small population of high school students who indicated an interest in attending a college readiness program at a specific university. Therefore it cannot be generalized outside of the university being researched or a similar university with similar conditions and similar students.

New data may be generated regarding this population at different institutions and eventually, comparisons could be made in academic self-efficacy. Academic self-efficacy could also be studied across all types of institutions. Should findings continue to corroborate the current study, then generalizations regarding academic self-efficacy and college readiness programs can be made more widely.

This study cannot determine if the increased academic self-efficacy gained by participating in the new Enhanced Summer College Readiness Program will be something that participants maintain throughout their senior year of high school and into their freshmen year of college or beyond. A recommendation to replicate this study but follow the participants for five years with periodic academic self-efficacy surveying would be beneficial.
Over time longitudinal studies may be conducted to discern if the enhanced treatment was sustained until entry into postsecondary education and even until graduation. The investigator would like to follow the students in this study to determine if the treatment has lasting effects on academic self-efficacy with the students into their college years and beyond. With the current study data it cannot be assumed that the effects of increased academic self-efficacy will last long-term. A recommendation to replicate this study but follow the participants for five years with periodic academic self-efficacy surveying would be beneficial as the researcher would be able to determine if the new Enhanced Summer College Readiness Program produced results that lasted beyond completion of the program.

As this specific intervention concentrated on the four sources of self-efficacy according to Bandura (1997), it was expected that the students’ self-beliefs would change after the training program. However, one of the limitations of this study is the type of control group we used. This study cannot accurately determine which elements of the enhanced workshop directly impacted academic self-efficacy. For example, it would be desirable to isolate, in a more effective way, the effects of the enhanced program on self-efficacy by using a control group that only received mastery experiences tasks in order to isolate; if so, the real effects of the program on this area.

Additionally, it was difficult for the current study to control for all variables within the two programs. An interesting future research study would be to hold identical programs except for one variable. For example, the only difference in programs would be the extended tour. Thereby controlling for all other variables and providing the researcher
with the ability to firmly identify the one variable or combination of variables which positively impacts academic self-efficacy.

Taking feedback from the note-takers, faculty, and student participants feedback, the pattern which emerged that the program session went over their time allotted, suggests that additional research needs to be conducted with longer sessions, possibly even a longer program overall. Future research may include repeating this study with longer session lengths to accommodate the current studies failure to complete the sessions, specifically in science and career, on time. The enhanced program could also be expanded to a week-long immersion in college or even a summer-long program in future research.

The measure of academic self-efficacy is an area of this research that can also be modified in future research. Although the CASES instrument was convenient to use for this research due to its previous use in measuring academic self-efficacy and its ease of administration and relative minimal time commitment for participants the tool was not without issues. The CASES instrument which uses a Likert-type scale has ambiguous items which can confuse students completing the assessment. Deciphering between “quite a lot of confidence” and “little confidence” and where the student feels they fall within that range, can pose a challenge to students, and ultimately can impact the results of the research. Therefore, exploring alternative academic self-efficacy assessment tools and implementing those tools in future research would be of interest, especially to compare those results to the results obtained in this study.

A qualitative element to this study, such as student participant interviews, may also assist in isolating which pieces of the program designed to focus on the four sources
of self-efficacy actually improved academic self-efficacy. This would be of great assistance to post-secondary professionals who are either designing a college readiness program or evaluating a current program. A qualitative element would also provide research triangulation strengthening the results and may provide further insight into the experiences of the participants as they moved through the workshop.

**Summary**

Overall, from the findings, it may be inferred that the new Enhanced Summer College Readiness Program improved academic self-efficacy better than the current Summer College Prep Workshop.

The study had several limitations that impeded the generalizability of the findings of the study. The study focused on a particular group, which in turn yielded a relatively small sample size with specific characteristics. However, the findings provided valuable information regarding preparing students for college experiences, retention, and persistence.

In the future, more research concerning academic self-efficacy and college readiness programs should be conducted. Understanding what will improve students’ success and persistence in college can assist postsecondary professionals in developing programs which will improve these areas, thereby improving the college experience for students as well as potentially improving graduation rates and post-graduation success.
REFERENCES


practices. *Journal of college student retention research, Theory & Practice, 3*(1), 73-89.


U.S. Department of Education.


Knowledge Works (2007). The promise of dual enrollment: Assessing Ohio’s early college access policy. WICHE.


Educational Testing Service.


http://www.ncrel.org/sdrs/areas/issues/students/learning/lr2locus.htm


Ohio Board of Regents. (2005). *Making the transition from high school to college in Ohio 2005: A statewide perspective*. Columbus, OH.

Ohio Board of Regents. (2008). *Report on the condition of higher education in Ohio: Meeting the state’s future needs*. Columbus, OH.


Research, 66(4), 543-578.


26, 207-231.


Southern Regional Education Board. (2002). *Student readiness for college: Connecting state policy*. Atlanta, GA: SERB.


Department of Commerce, Washington, DC.


**APPENDIX A**

**CASES INSTRUMENT**

<table>
<thead>
<tr>
<th>Lot</th>
<th>Little</th>
</tr>
</thead>
<tbody>
<tr>
<td>A B C D E</td>
<td>1. Taking well-organized notes during a lecture.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>2. Participating in a class discussion.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>3. Answering a question in a large class.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>4. Answering a question in a small class.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>5. Taking “objective” tests (multiple-choice, T-F, matching).</td>
</tr>
<tr>
<td>A B C D E</td>
<td>6. Taking essay tests.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>7. Writing a high quality term paper.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>8. Listening carefully during a lecture on a difficult topic.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>10. Explaining a concept to another student.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>11. Asking a professor in class to review a concept you don’t understand.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>12. Earning good marks in most courses.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>13. Studying enough to understand content thoroughly.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>15. Participating in extracurricular events (sports, clubs).</td>
</tr>
<tr>
<td>A B C D E</td>
<td>17. Attending class regularly.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>18. Attending class consistently in a dull course.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>19. Making a professor think you’re paying attention in class.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>20. Understanding most ideas you read in your tests.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>21. Understanding most ideas presented in class.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>22. Performing simple math computations.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>23. Using a computer.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>24. Mastering most content in a math course.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>25. Talking to a professor privately to get to know him or her.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>26. Relating course content to material in other courses.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>27. Challenging a professor’s opinion in class.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>28. Applying lecture content to a laboratory session.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>29. Making good use of the library.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>30. Getting good grades.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>31. Spreading out studying instead of cramming.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>32. Understanding difficult passages in textbooks.</td>
</tr>
<tr>
<td>A B C D E</td>
<td>33. Mastering content in a course you’re not interested in.</td>
</tr>
</tbody>
</table>

**Please continue on the following page**
APPENDIX B

Current Summer Prep for College Workshop

Agenda

- Check in & Continental Breakfast 8-8:30am
- Welcome from President & Director of Student Services 8:30-9am
- Team Assignments 9-9:15am
- Introductions 9:15-9:30am
- Campus Tour 9:30-10:30am
- Team Building 10:30-11:30am
- Lunch 11:30-12:30am
- Meet the Faculty 12:30-1:30pm
- Time Management Presentation 1:30-2pm
- ACT Preparation 2-3pm
- Break 3-3:15pm
- Financial Aid Presentation 3:15-4:15pm
- Career Workshop 4:15-5:15pm
- Admissions Information & Closing Session 5:15-6:15pm
APPENDIX C

The New Enhanced Summer Preparedness for College Workshop

Intervention Agenda

DAY 1

Check in & Continental Breakfast 8-8:30am
Welcome from President & Director of Student Services 8:30-9am
Team Assignments 9-9:15am
Introductions 9:15-9:30am
Campus Tour 9:30-11am
Residence Hall Meeting 11-11:30am
Faculty Presentation 11:30-12pm
Student/Peer Panel 12-12:30pm
Lunch 12:30-1:30pm
Academic Work Groups Science & Writing 1:30-3:30pm
Break 3:30-3:45pm
Peer Teambuilding 3:45-4:15pm
Time Management Presentation 4:15-4:45pm
Academic Work Group Awards 4:45-5pm
Career Assessment 5-6pm
Dinner in Dining Hall 6-7pm
Teambuilding Scavenger Hunt 7-9pm
Return to Residence Hall 9pm
DAY 2

Breakfast 8:30-9:30am
ACT preparation 9:30-10:30am
Financial Aid Presentation 10:30-11:30am
Lunch in Dining Hall 11:30-12:30am
Academic Workgroup Math, History & Business 12:30-2:30pm
Team Presentations & Awards 2:30-4pm
Break 4-4:15pm
Admissions Information & Closing Session 4:15-5:15pm