

INTERVENING WITH STUDENTS ON ACADEMIC PROBATION:
THE EFFECTIVENESS OF A STUDENT SUCCESS COURSE

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TABLE OF CONTENTS

Chapters.....	1
I. Introduction and Review of the Literature	1
Trends in College Enrollment	3
Theoretical Models of Student Retention	5
Spady’s Model of Dropout Process	5
Pascarella’s Student-Faculty Informal Contact Model.....	5
Tinto’s Student Integration Mode.....	6
Roots of Academic Success	7
Background/Environmental Factors	7
Race	8
Sex	9
Previous Academic Achievement.....	10
Socioeconomic Status	11
Age.....	13
Academic Probation	13
Characteristics of Probationary Students	14
Intervention Strategies to Increase Student Success	16
Student Success Courses Defined.....	17
Student Success Courses and College Success	18
Student Success Courses and Probationary Students	19
Overview of Copper University	22
What is the Problem?.....	23

The Current Study	25
Research Hypotheses	27
II. Methodology	28
Course Development and Implementation.....	28
Participants.....	35
Data Collection Procedures.....	37
Variables	38
Research Design	39
Data Analyses.....	41
III. Results.....	42
Preliminary Analyses.....	42
Hypotheses Testing	45
Effect Sizes	48
IV. Discussion.....	49
Course Participation	49
Control Variables	54
Implications.....	56
Limitations	58
Future Research.....	60
Summary	61
References	63
Table 1. Descriptive Statistics for Key Variables.....	72
Table 2. Descriptive Statistics for Age and Standardized Test Scores	73

Table 3. Change in Academic Standing Over Time.	74
Table 4. Change in Semester GPA Over Time.	75
Table 5. Change in Cumulative GPA Over Time.	76
Table 6. Pearson Correlation of Variables (Model 1).....	77
Table 7. Pearson Correlation of Variables (Model 2).....	78
Table 8. Regression of Model 1.....	79
Table 9. Regression of Model 2.....	80
Table 10. Effect Sizes of GPA Changes.....	81

Abstract

Despite meeting admittance standards, there are many college students who struggle to be academically successful, which sometimes results in them being placed on academic probation. Colleges implement various programs and interventions to help probationary students achieve success at their institutions. Student success courses (SSC) are one type of intervention used; however, much of the literature on the efficacy of SSCs focuses on first semester freshmen. Currently, there are only a few empirical studies on the effectiveness of SSCs with probationary students, but the results of these existing studies are promising. At Copper University (CU), there were limited college-wide supports available to students on probation, leaving them at great risk for academic failure. In an attempt to better support probationary students, a semester-long SSC called Dynamics of Student Success (DOSS), for first- and second-year students on academic probation was piloted in the fall of 2016. DOSS was designed to assist probationary students gain the college success skills necessary to increase their grade point averages. This study assessed the effectiveness of DOSS by comparing the archival data of probationary students who participated in DOSS in the fall of 2016 to those who did not participate. Participants in the treatment and control groups saw gains in their semester GPAs after the fall 2016 and spring 2017 semesters; however, the results of two simultaneous multiple regressions revealed that course participation was not a significant predictor of semester GPA at either point in time. As a result, the researcher concluded that it was other factors, not DOSS, that positively influenced the changes in semester GPA demonstrated by the sample.

Chapter I: Introduction and Review of Literature

Copper University (CU) ¹is a small, private liberal arts institution that proudly offers a variety of majors. Despite its picturesque setting and academic diversity, CU has faced low retention and graduation rates for the last several years. Nationally, first to second year retention rates are approximately 80% at four year institutions (National Student Clearinghouse, 2016), while CU's highest rate of retention in the last several years was 75%. Similarly, CU has a six-year graduation rate between 55-61%, compared to the national average of 66% (NCES, 2017c). Copper University's lower than average retention and graduation rates have negative implications at the individual and institutional level.

A college education has become an essential ingredient for financial stability for the majority of Americans today. Students leaving, dropping out, or being dismissed from CU run the risk of never achieving a degree that could help them earn an additional three quarters of a million dollars across their life-time (Tinto, 2012). At the institutional level, low retention and graduation rates not only threaten the reputation of the university but also equate to hundreds of thousands of dollars in lost revenue. The need to resolve this problem is clear, but many questions still remain. What is contributing to these low numbers and what can be done to help fix it?

Upon reviewing enrollment data, CU has been admitting students at increasingly higher-risk of academic failure or dropout over the last several years. Within the higher education literature, it is well established that incoming first-year students with low high school grade point averages (GPAs) and standardized test scores are at higher-risk for academic failure than their

¹ All information regarding Copper University was obtained from the institution's Fact Books, Registrar Reports, retention reports, and website.

higher achieving counterparts, regardless of an institution's selectivity (Westrick et al., 2015).

At CU, the average high school GPA of first-year students dropped from 3.19 in 2012 to 3.02 in 2016. Similarly, the SAT verbal and math scores have also seen a consistent decline over time. Given these trends, it is not surprising that a large number of students at CU end up on academic probation in their first or second year of study.

Academic probation is a system used at many college institutions to identify students who are not making satisfactory academic progress. Typically, academic probation status is reserved for students who earn GPAs less than a 2.0 on a 4.0 scale (Sneyers & De Witte, 2017). As one may presume, students on academic probation are at a high-risk of academic suspension or dismissal (Kelly, 1996). As a standalone intervention, academic probation has been shown to have minimal impact on student success (Sneyers & De Witte, 2017). Although CU has provided some additional support to students on academic probation over the years, the intensity of that support has varied greatly between the different academic units and the impact on student outcomes have not been thoroughly assessed. A lack of systematic intervention in combination with the dwindling retention and graduation rates, has greatly underscored CU's need for a comprehensive program specifically designed for probationary students.

There is an array of interventions used within the higher education community to assist high-risk student populations, such as tutoring, supplemental instruction, peer mentoring, etc. The impact of such interventions varies based on the target population and institutional factors. Generally, more intensive interventions, such as student success courses (SSCs), have been shown to have a significant impact on GPA and retention (Valentine et al., 2011). However, the efficacy of SSCs with probationary students has yet to be firmly established (Hamman, 2016).

SSCs are usually semester long interventions designed to assist students with learning non-content specific skills necessary for college success, such as time-management, study skills, note-taking skills, and goal-setting (Kimbark, Peters, & Richardson, 2017; Rasmussen, 2013). There are very few published studies that investigate the impact of SSCs on probationary students (Hamman, 2016) and the large majority of current research focuses on first semester freshmen (Rasmussen, 2013). However, the existing literature related to the impact of SSCs on students on academic probation is promising (Hendrickson, 2015; McGarth & Burd, 2012; Royal & Tabor, 2008). Most notably, McGarth and Burd (2012) found that first-year students on academic probation who participated in a 1-credit SSC, were significantly more likely to earn good academic standing by the end of their first year, persist into their 2nd, 3rd, and 4th years, and graduate within four to five years when compared to similar students who did not take the course. Based on these promising results and the observed needs of the students at CU, a SSC specifically designed to increase probationary students' GPAs was piloted in the fall 2016 semester.

Primarily, this study assessed the efficacy of that SSC, which is called Dynamics of Student Success (DOSS), in assisting probationary students at CU with increasing their GPA. In addition, this study will add to the limited body of research related to interventions for students on academic probation.

Trends in College Enrollment

A college education is becoming increasingly important in today's society for employment opportunities and, in turn, economic success. According to the College Board, bachelor's degree recipients earn about 66% more than a high school graduate over a 40-year career ("Trends in higher education," 2009). Consequently, the number of individuals pursuing a

college degree has significantly increased in the last fifteen years. According to the National Center for Education Statistics (NCES), the number of students enrolled in college increased by 31% from the year 2000 to the year 2014. Further, college enrollment is projected to increase by another 14% by the year 2025 (NCES, 2017b). Overall, this positive trend postulates that higher education is becoming more accessible than it was even just a decade ago. However, college graduation rates are not climbing with enrollment rates, as more students attending college are disadvantaged and unprepared (Tinto, 2012). Approximately 66% of full-time students who enroll in 4-year private institutions graduate within six years (NCES, 2017b). Students drop-out or are dismissed from college for a multitude of reasons, including lack of finances, lack of social support, poor university involvement, and academic under-achievement (Tinto, 2012).

Retention and attrition have a significant impact on both college institutions as a whole and individual students. At an institutional level, a student leaving before degree completion creates financial loss in terms of unrealized fees, tuition, and recruiting dollars spent to replace that student. Additionally, low retention rates can negatively impact an institution's reputation making it more difficult to recruit students (DeBerard, Scott, Spielmans, & Julta, 2004). At an individual level, leaving college before completion can have devastating financial effects: "the gap in lifetime earnings between those who complete at least a college degree and those who start a college degree but do not graduate is more than \$750,000" (Tinto, 2012, p. 1). Based on the above, it is critical that institutions invest in strategies designed to assist students in reaching their educational goals, especially when considering the current trend in college enrollment and graduation rates.

Theoretical Models of Student Retention

A large body of research offers a breadth of models to address various student retention issues. Of the many existing models, there are three that are among the most widely tested and researched. They include Spady's, Pascarella's, and Tinto's models (Aljohani, 2016).

Spady's Model of Dropout Process. The Explanatory Model of Dropout Process (Spady, 1970) was the first retention model derived from Durkheim's theory of suicide, which is foundational to many subsequent models (Aljohani, 2016). Durkheim believed that suicide is the result of a lack of an individual's integration into society. Similarly, Spady (1970, 1971) asserted that a student's decision to persist or dropout is most influenced by integration into the academic and social fabric of their institution. In his model, Spady (1971) broadly labeled these two factors academic potential and normative congruence. Academic potential mostly encompassed grades and intellectual development, while normative congruence referred to compatibility between the student and the expectations and interactions within the institution's social systems (Aljohani, 2016; Spady, 1970). Additionally, family background played a key role in the demands and expectations of college life which is the main influence on the level of student integration (Spady, 1971).

Pascarella's Student-Faculty Informal Contact Model. One of the main elements of Pascarella's (1980) Student-Faculty Informal Contact Model suggested that the amount and quality of a student's informal (non-classroom) interactions with faculty, in combination with other college experiences, impacts a student's educational outcomes (e.g., academic performance, intellectual and personal development, college satisfaction). Further, he theorized that student background characteristics (e.g., family background, attitude, goals, values, interests) interact with institutional factors (e.g., faculty culture, organizational structure

academic standards) to influence institutional satisfaction, academic achievement, academic and personal development, career aspirations, and institutional integration (Aljohani, 2016; Pascarella, 1980). According to Pascarella (1980), all of these interactions are significant to student persistence and retention.

Tinto's Student Integration Model. Tinto's theory on student departure is one of the most widely studied and influential theories on student retention (Ajohani, 2016). His model, like Spady's, has roots in Durkheim's Suicide theory (Tinto, 1975, 1993). Tinto's Student Integration Model, developed in 1975 and revised in 1993, focused on full integration of the student into the intellectual and social systems of the institution. According to Tinto (1993), intellectual integration involves grades, intellectual development, and level of connection to faculty, while social integration involves social interactions with peers and faculty. Tinto postulated that students enter college with their own goals and level of commitment, which are shaped by their community background, previous personal and academic experiences, personal attributes (e.g., gender, race), skills, and financial resources. Once in college, the student's goals and level of commitment are influenced by their intellectual and social experiences. These interactions impact the student's ability to integrate into the institution's community and, thus, their persistence at the institution (Tinto, 1993).

Tinto's (1993) model was designed to help college institutions understand why students leave so they could better understand the diverse needs of their students and create programs to increase retention. As a result, many interventions designed to help with persistence implicitly and explicitly reference Tinto's model by attempting to promote the intellectual and social integration of their students (Valentine et al., 2011).

Although at varying levels, all three models link student success to background characteristics and level of integration into the institution's community. However, the three models focus on slightly different aspects of student integration. Pascarella, for instance, places more emphasis on a student's informal interactions with their faculty, while Spady and Tinto emphasize the importance of the dynamic relationship between a student's academic and social experiences and their level of institutional commitment.

Roots of Academic Success

There are many factors that predict and influence a student's academic success, which, in the college setting, is commonly measured using grade point average (GPA), retention, and/or graduation rates (DeBerard, Scott, Spielmans, & Julta, 2004; Zahnar, Ramsaran, & Steedle, 2014). Spady (1970), Pascarella (1980), and Tinto (1993) all emphasize the influence of a student's background on their academic success. Within higher education, students are considered high-risk if their background or personal characteristics increase their potential for academic failure or drop-out (Horton, 2015). Understanding the factors that put a student at-risk is essential to ensure that college institutions meet the needs of their diverse students.

Background/environmental factors. The background characteristics theorized to impact student success are expansive and include everything from race to specific personality traits. Therefore, it is necessary to narrow down the characteristics discussed here to those most relevant to the current study, which include race, sex, and previous academic achievement (DeBerard, Scott, Spielmans, & Julta, 2004; Sheard, 2009; NCES, 2017a; Westrick et al., 2015). Notably, these three background characteristics have all been linked to student outcomes at the institution where this study was conducted. Further, although age and socioeconomic status are shown to impact college student achievement nationwide (Westrick et al., 2015), they are not

included in the current study for two reasons. First, the majority of students at CU and all of the participants in this study are traditional college age students, between 18 and 25 years old. Second, the students in this study likely come from a variety of socioeconomic backgrounds, but this data was not available to the researcher. While the participants' age and SES will not be included in the analysis, they will be briefly discussed below to provide an indication of their potential impact on academic success.

Race. There are no significant differences in the cognitive aptitude of racial groups, but the achievement gaps between various racial groups begins at a young age (Tovar & Simon, 2006) and continues throughout higher education (Fletcher & Tienda, 2010). According to a recent NCES report (2017a), the persistence rate of college students varies when controlling for race. In this particular report, the NCES defines persistence as current enrollment at an institution or degree obtainment 3 years after initial enrollment. For comparison, the persistence rate of all first-time, full-time students who enroll at 4-year institutions is about 80%. When considering race, Asian students (90%) tend to persist at the highest rate, while White, Hispanic, and Pacific Islander students persist at similar rates of 82%, 79%, and 79%, respectively. Black (69%) and American Indian/Alaskan Native (64%) students tend to have the lowest persistence rates of all of the racial categories (NCES, 2017a).

Some researchers propose that achievement differences among racial groups are related to income disparity, racial stereotypes, and racial segregation in the United States' education system, all of which result in unequal educational opportunities, especially for Black and Hispanic students (Davis-Kean & Jager, 2014; Fletcher & Tienda, 2010; Miller-Cotto & Byrnes, 2016). This theory is supported by Fletcher and Tienda's (2010) examination of 10 years of enrollment data of approximately 200,000 students from public universities in Texas. In their

initial analysis, Fletcher and Tienda found that White students earned significantly higher GPAs than non-White students, even after controlling for the effects of high school GPA (HS GPA) and standardized test scores. More notably, however, when controlling for the quality of high school attended, Black and Hispanic students earned higher GPAs in their first and sixth semesters of college than White students. These findings suggest that leveling the educational playing field is essential to promoting long-term positive educational outcomes for minority students. Given the complexity of this deep-rooted societal issue, educators and policy makers must focus on promoting equitable educational experiences at all levels of education.

Sex. There are many stereotypes that exist regarding sex and academic aptitude. Some people, for example, believe that males are better at math and science, while females are better at reading and writing (Haemmerlie & Montgomery, 2012). Although these patterns do sometimes show up in standardized achievement testing, they are not often found in other measures of academic achievement, such as school performance. To systematically test this theory, Voyer and Voyer (2014) conducted a meta-analysis to investigate sex differences in school performance, as measured by teacher assigned grades. A total of 369 empirical studies and 502 effect sizes that measured sex differences in school performance were analyzed. Participants in the analyzed studies ranged in educational level from elementary school through graduate school. Specifically, the researchers measured the overall effect of sex on academic performance in various content areas, while accounting for the moderating effects of national origin, level of schooling, year of publication, and racial composition of the sample.

Overall, the analyses revealed that females significantly outperformed their male counterparts across all content areas, with the largest effects in language and the smallest in mathematics and science. Level of schooling (elementary-graduate school), national origin

(North American, Scandinavian, other countries), and racial composition (White, Black, Racially Diverse, Other, non-US) were all found to be significant moderators, while year of publication had insignificant effects. Although the effect sizes were small, these results suggest that females outperform males in North America and Scandinavia, across major content areas, levels of schooling, and racial categories. The authors claim that because year of publication did not have significant effects, the achievement gap between males and females is not a new phenomenon, but rather an issue that has existed for decades (Voyer & Voyer, 2014).

Previous academic achievement. It is largely recognized across the higher education community that students with higher high school grades and SAT or ACT scores tend to earn higher grades in college. In fact, many colleges and universities use these scores as their main admittance criterion (Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008; Zahnar, Ramsaran, & Steedle, 2014). High School GPA is still the most commonly used college readiness indicator, despite the huge differences in grading standards across the country. To account for varying grading standards, most colleges also utilize standardized test scores such as the SAT and/or ACT to better predict college success and inform their admissions process (Atkinson, 2001).

To more thoroughly understand the relationship between previous academic achievement and college success, Westrick et al., (2015) conducted a comprehensive meta-analysis that investigated the predictive validity of ACT composite scores, HS GPA, and SES on the GPA and retention of 189,612 students enrolled at 4-year institutions from 2000-2006. Overall, ACT scores and HS GPA were the strongest predictors of academic performance and retention. More specifically, ACT scores and HS GPA demonstrated moderate correlations with first- and second-year GPA (1st year: $r = .51, .58$; 2nd year: $r = .55, .62$). Interestingly, both predictor variables, ACT scores ($r = .55$) and HS GPA ($r = .62$), showed slightly stronger correlations with

second-year GPA than first-year GPA. Although the relationships weren't as strong, ACT scores and HS GPA were also found to be related to second- and third-year retention (2nd year: $r = .19, .21$; 3rd year: $r = .18, .22$). However, the strongest predictor of second- and third-year retention was first-year cumulative GPA ($r = .41, .37$). All of the findings described above remained relatively stable when controlling for institutional selectivity, which indicates that these results can be generalized across 4-year institutions. Taken together, these results suggest that incoming students with lower HS GPAs and standardized test scores are at higher risk for academic failure and attrition than higher achieving students, even into their second and third years of study.

Socioeconomic status. When considering background characteristics, SES is one of the most commonly cited factors influencing academic achievement. In the literature, SES is defined in a variety of ways to include one, some, or all of the following: parental education, parental income, parental occupation, home resources, and neighborhood characteristics. As one may suspect, all of these defining features of SES have different implications for societal positioning (Sirin, 2005). As a result, the available literature on the relationship between SES and academic achievement is somewhat mixed and seems to depend on how both variables are defined. In an attempt to clear-up this ambiguity, Sirin (2005) conducted a meta-analysis that examined the relationship between various types of SES on various types of academic achievement. The final sample included 58 studies that all reported quantitative data on the relationship between SES and academic achievement for students in kindergarten through 12th grade.

Of the studies analyzed, the overall mean correlation between SES and academic achievement was .299. However, the strength of the correlation changed based on how SES and academic achievement were measured. When SES was defined using neighborhood

characteristics, the smallest correlation was generated ($r = .25$). In contrast, when home resources were used as the SES indicator, the largest correlation was generated ($r = .47$). All of the other SES indicators, including parental income and education, had correlations between these two endpoints. Interestingly, SES was found to have stronger correlations with more specific measures of academic achievement, such as math performance, than more global measures, such as GPA (Sirin, 2005). Although these results inform the reader of the relationship between SES and academic achievement, they do not speak specifically to the impact of SES on college student achievement.

Unlike HS GPA and standardized test scores, SES is not typically used as admittance criterion to college. Nevertheless, it is commonly thought to influence college success (Westrick et al., 2015). However, based on a meta-analysis conducted by Westrick et al. (2015), the relationship between SES, as measured by parental income, and academic achievement appears to dampen over time. In Westrick et al.'s study, SES was found to have estimated mean correlations with first- and second-year GPA of .24 and .25, respectively. Overall, SES was found to have a weak relationship with retention. The estimated mean correlation for second-year retention was .10, while it was .09 for third-year retention. Comparatively, SES was found to be a far weaker predictor of college success than previous academic achievement. Although this study does not measure various types of SES, it does support the notion that SES becomes less important at the college level. One could reason that college students, especially those living away from home, are not experiencing the factors that constitute SES as directly, thus, blunting their impact. However, to get a clearer picture, more research needs to be done to determine the relationship between different indicators of SES and different measures of academic achievement at the college level.

Age. Age at time of enrollment impacts the persistence of first-time students enrolled at 4-year institutions. Nontraditional students tend to have a much higher risk of attrition than their younger counterparts, nationwide. More specifically, the persistence rate of students 19 years old or younger (85%) is 28 points higher than the age group with the second highest rate, students 30 years or older (57%). The persistence rates of students between the ages of 20-23 and 24-29 are 53% and 48%, respectively. Overall, students who start college when they are 20+ years-old are at higher risk of drop-out or academic failure (National Student Clearinghouse, 2016). However, since the vast majority of first-time students accepted at CU are traditional age, the age of the participants is not a significant concern in this study.

Academic Probation

Academic probation is a performance-based policy meant to identify students who are not making satisfactory academic progress (Sneyers & De Witte, 2017). Typically, students are put on academic probation if their GPA, cumulative or semester, falls below a 2.0 on a 4.0 scale (Cruise, 2012; Hamman, 2016; Renzulli, 2015). In most cases, when students end up on academic probation it reflects a pattern of academic difficulty rather than poor performance in a single class. The consequences of being on academic probation vary from college to college but can lead to academic dismissal if improvement is not made. Generally speaking, the term is meant to notify stakeholders, including the student themselves, that a student's academic performance is unsatisfactory and improvements must be made. In response to being placed on academic probation, students are often required to complete certain tasks, such as meet with their advisor on a regular basis, take a study skills course, or develop a behavioral contract, with the expectation of increasing their GPA to a satisfactory level (Kelly, 1996).

Characteristics of students on academic probation. Although most individual institutions report on the success of their students, Hamman (2016) asserts that “there is a serious gap in the literature in regard to national data about students on academic probation (p. 12).” However, the information available regarding the background characteristics of students on academic probation mostly mirrors national trends related to academic achievement, retention, and persistence.

As outlined previously, women tend to earn higher GPAs and persist at greater rates than men. Likewise, women are also less likely to end up on academic probation than men (Kamphoff, Hutson, Amundsen, & Atwood, 2006-2007; Mathies, Gardner, & Bauer, 2006). Interestingly, Hamman (2016) found that women placed on academic probation are less likely to return the following semester, but, of the women who did return, they were significantly more likely to recover academically. Similarly, students of color tend to make-up a highly disproportionate amount of students on academic probation (Mathies et al., 2006).

There is limited information related to the specific relationship between SES, previous academic achievement, and academic probation. Nevertheless, considering that lower achieving high school students from lower SES backgrounds tend to earn lower GPAs in college and are less likely to persist (Westrick et al., 2015), it seems safe to presume that these students are also more likely to end up on academic probation. In addition to background characteristics, Ahmed, Chowdhury, Rahman, and Talukder (2014) found that 242 students on academic probation perceived the following factors to have significantly contributed to their academic status: difficulty understanding language, weak communication skills, involvement with other activities, wrong course selection, and personal problems.

Although students typically thought of as high-risk do end up on academic probation, probationary students may or may not have identified risk-factors such as those described above (Cruise, 2012). In fact, as many as one fourth of students end up on academic probation at some point during their undergraduate academic career, some of whom were certainly successful high school students with strong grades and standardized test scores (Hamman, 2016). Still, they can lack the academic-related skills, such as time-management, self-testing, goal-setting, and organization, necessary to be successful in college (Renzulli, 2015). In some cases, these are bright students who were never taught or never had to use such skills because the academic rigor of high school did not necessitate it. Further, probationary students may be bored, lack maturity, or have a difficult time integrating into the institution. Sadly, this subset of students does not always get the attention from faculty and staff that they need because they tend to fly under the radar until academic failure is already upon them (Garnett, 1990). Ironically, the mere act of putting a student on academic probation may even put them at increased risk of failure or dropout (Sneyers & De Witte, 2017).

Although academic probation is a popular practice, there is little empirical evidence to support its effectiveness in improving student outcomes, especially as a standalone practice. In fact, there is empirical evidence to suggest that academic probation actually has negative effects on student outcomes. In 2017, Sneyers and De Witte conducted a meta-analysis that investigated the impact of academic probation, need-based grants, and student-faculty mentoring on student enrollment, dropout, and graduation. There were 25 studies included in the analysis, all of which had an experimental or quasi-experimental design and a quantitative dependent variable. Although need-based grants and student-faculty mentoring demonstrated a positive effect, academic probation was found to have a significant negative effect on retention ($d = -.17$) and six

year graduation rates ($d = -.01$). Further, students on academic probation were 8.4% more likely to drop-out than students in the control group. These findings suggest that students on academic probation should be provided with support if institutions hope to retain them until graduation.

Intervention Strategies to Increase Student Success

Interventions designed to promote retention and academic achievement have been of high priority for colleges and universities for decades. As a result, an abundance of support services designed to meet the diverse needs of students have emerged, including tutoring, mentoring, supplemental instruction, and student success courses (SSC) (Valentine et al., 2011).

In a meta-analysis, Valentine et al. (2011) analyzed 19 studies that investigated the impact of various college programs on retention and achievement outcomes. In order to be included in the analyses, studies had to meet two criteria. First, the interventions had to be geared toward high-risk student populations. For the purposes of this meta-analysis, high-risk was defined broadly and included students who were identified as academically and/or economically underprepared for college or on academic probation. Second, the study had to include a quantitative evaluation of the program. The investigated programs came from both community colleges and 4-year institutions. Only three of the studies examined used random assignment. Rather, most studies utilized a local comparison group of students who did not participate in the target intervention.

The intensity of the interventions in the studies varied drastically and ranged from journaling requirements added to an existing general education course to comprehensive SSCs. Although students who participated in some sort of intervention tended to have greater gains in achievement outcomes, such as GPA, and were more likely to reenroll than students who did not participate, the differences were not statistically significant. However, when the researchers

examined only high quality studies that utilized more equivalent comparison groups and more intensive interventions, such as semester long SSCs, the effect of the interventions on GPA and reenrollment were statistically significant. Overall, this meta-analysis suggests there are at-least modest, short-term positive effects of intervention programs on the GPA and reenrollment of high-risk students, including those on academic probation. However, based on Valentine et al.'s (2011) work, university administrators should be investing their time and resources into more intensive intervention practices like SSCs. It is important to note that many of the studies included in this analysis were not transparent regarding the fidelity of the program, data exclusion, and study attrition, thus, making it difficult to generalize results.

Student success courses defined. SSCs are “interventions designed to increase college success...defined by learning outcomes such as grades, retention and graduation rates, or noncognitive skills” (Hoops, Yu, Burrige, & Wolters, 2015, p. 124). These types of programs first emerged in the early 1970s and have since grown in popularity (Fidler, 1991). The goal of most SSCs is to enhance/change student behavior to promote academic success (Hope, 2010). Typically, SSCs help participants with academic and career planning, connect students to university resources, and assist students with developing techniques to improve study skills (Kimbark, Peters, & Richardson, 2017; Rasmussen, 2013). More recently, SSCs are beginning to incorporate elements that promote self-regulation and growth mindset (Hope, 2010). According to Kelly (1996), teaching students time-management and study skills is likely to be ineffective in improving outcomes if their mindset is not first addressed. More specifically, students need to have a sense of control over the internal and external factors that contribute to their academic performance (Kelly, 1996).

Although there are common threads among most SSCs, the models utilized and the students served by such courses are diverse, which makes the generalization of outcomes difficult from institution to institution. As a result, SSCs wear a variety of labels in the literature, including First Year Experience (FYE) courses, orientation courses, study skills courses, first-year seminars, etc. (Hope, 2010). For the purposes of this study, SSC will be used as the common descriptive of all such interventions.

Student success courses and college success. There is some discrepancy in the literature regarding the impact of SSCs on student outcomes, which is not surprising given the high variability in course design, content, target population, and research methodology (Hope, 2010; Rasmussen, 2013). However, there is an array of evidence to support the benefits of such interventions on economically and academically disadvantaged populations, in regard to credit obtainment (Cho & Karp, 2013), GPA, and retention (Bail, Zhang, & Tachiyama, 2008; Rasmussen, 2013).

In 2013, Rasmussen conducted a meta-analysis that investigated literature related to the impact of SSCs on GPA, retention, and persistence. A total of 68 studies, conducted at both community colleges and four-year institutions, were included in the meta-analysis. For inclusion in the study, SSC was defined broadly to include college survival and FYE courses with “participants described as freshmen, under-prepared freshmen, or under-prepared students” (p. 26).

The analysis yielded statistically significant results related to the impact of SSC on the GPA, retention, and persistence of course takers when compared to non-course takers. Students who successfully completed a SSC had higher GPAs, were more likely to be retained into their next year, and were 1.5x more likely to persist to graduation. However, because of varying

effect sizes, publication bias, and lack of external validity of the analyzed studies, Rasmussen cautioned against making inferences based on these results. Further, in her deep dive into the literature, Rasmussen only found 6 studies that investigated the effect of a SSC on probation status, only one of which met the inclusion criteria for her analysis.

Although the research is limited, there is also evidence that supports the long-term benefits of SSCs on student retention. In 1991, Cone examined the long term effects, approximately 2 years, of a SSC on high-risk student retention. Of the high-risk, first-semester students who took the course, 53% maintained enrollment into the second semester of their sophomore year. In contrast, only 7% of high-risk non-course takers were still enrolled the second semester of their sophomore year. Unfortunately, the researchers did not specify what made course participants high-risk.

More recently, Bail, Zhang, and Tachiyama (2008) investigated the impact of a semester-long, credit bearing SSC on the cumulative GPA of 79 students enrolled in a university support program for underprepared students. Of the 157 participants, 79 students voluntarily took the SSC course over several consecutive semesters, while 78 other students in the program did not take the course and were matched to act as the comparison group. The racial make-up of course participants was quite diverse, with only 47% identifying as a single race. Of the 79 students who participated in the SSC, 95% of them graduated after 7 years, while only 54% of non-course takers graduated in the same time frame. Shockingly, the odds of a student who took the SSC course of graduating were 13 times greater than students who did not take the course. Further, a logistical regression analysis revealed that SSC enrollment and previous GPA were the only significant predictors of graduation, even when accounting for gender and the interaction

between gender and prior GPA. It is important to note, that because the course was voluntary, there may have been different levels of academic motivation between the two groups.

As previously stated, not all of the research on the impact of SSCs demonstrated significant effects. Though, as noted by Valentine and colleagues (2011), many of the studies yielding insignificant results used low-risk populations and/or inequivalent comparison groups. For example, Hoops, Yu, Burrige, and Wolters (2015) found their SSC to have no significant impact on retention or GPA of low-risk, upperclassman required to take the course as part of their education major.

Student success courses and academic probation. As previously stated, there is a lack of empirical research on the efficacy of the use of SSCs with students on academic probation. Most published studies focus on the impact of such courses on first-time freshmen. In fact, 88% of participants in the studies analyzed in Rasmussen's (2013) meta-analysis were described as new freshmen. However, there is some evidence to suggest that SSCs have positive effects on the achievement (Hendrickson, 2015; McGrath & Burd, 2012) and personal attributes, such as commitment to personal achievement and sense of personal responsibility (Royal & Tabor, 2008), of students on academic probation.

A study conducted by McGarth and Burd (2012) illustrates the potential impact of SSCs on probationary students most clearly. This quasi-experimental study investigated the impact of a mandatory, one-credit SSC on the academic performance, persistence, and graduation rates of first-time freshmen put on academic probation after their first semester of study. The total sample consisted of 254 students. The treatment group was comprised of 154 students admitted in 2004 or 2005 who participated in the SSC, while the control group consisted of 100 students

admitted in the fall of 2002 or 2003 before the class was offered. All data was collected using archival data obtained from the institutional researcher.

The course focused on student development, test-taking and note-taking strategies, campus policies and processes, major exploration, and engagement with faculty, advisors, and other campus resources. Class sizes were kept small, with a maximum of 18 students in each section, and the instructors used cooperative learning methods both in and outside the classroom. Academic performance was measured using probation status after course completion (on probation or off probation). Persistence of the participants was measured from 1st to 2nd, 2nd to 3rd, and 3rd to 4th year and graduation rates were measured 5 years after initial matriculation (McGarth & Burd, 2012).

Statistically significant results, with medium effect sizes, were found for all three dependent variables. That is, students who participated in the SSC were significantly more likely to earn good academic standing, persist into their 2nd, 3rd, and 4th years, and graduate within 4 to 5 years than similar students who did not take the course. More specifically, 49% of students who took the course achieved good academic standing compared to only 9% of students who did not take the course. Further, 25% of students who took the course graduated from the institution within 4 to 5 years compared to 2% of students who did not take the course (McGarth & Burd, 2012).

The lack of research related to the use of SSCs with probation students may be related to the fact that SSCs are often used as preventative interventions, designed to prevent high-risk first year student attrition and academic failure (Rasmussen, 2013). However, as noted by Cruise (2012), some students who end up on academic probation were never flagged as high-risk first-year students when considering traditional predictors; thus, they were never required nor

encouraged to participate in such prevention programs. Further, some scholars assert that SSCs would actually have a greater impact on student outcomes if used more regularly as a reactive program rather than a preventative one because students are more likely to actively engage in such interventions once they know they are at-risk of academic failure. Many first-year students tend to overestimate their preparedness for college, as 57.7% of students expect to maintain at least a B GPA throughout their college career and, as a result, do not understand the need to participate in such a course. Additionally, the theories and strategies taught in SSCs have greater meaning when students have the college experiences and context to relate to them (McGrath & Burd, 2012). In order to establish SSCs as a valid intervention for students on academic probation, more empirical studies with stronger methodology must be conducted.

Overview of Copper University

Copper University (CU) is a small private, liberal arts institution in rural New York with an undergraduate enrollment of about 1,700. There are four colleges within the university, each with its own acceptance criteria. The majority of the students who attend CU are traditional age students from the surrounding states. Typically, more men attend CU than women; in 2016, 41% of first-time, full-time (FTFT) students were women and 59% were men. By some standards, CU would not be considered an ethnically diverse campus, with 65% of undergraduate students identifying as Caucasian, 9% as Black, 7.3% as Hispanic, 2.6% as Multiracial, 2.2% as Asian, and 0.4% as American Indian/Alaskan Native. The race of the remaining students is unknown as it was not reported to the university upon admission. However, fostering diversity and creating a culture of acceptance is of top priority to the institution as evidenced by its emphasis in the most recent strategic plan. Additionally, according to the 2014 The Integrated Postsecondary Education Data System (IPEDS) report, CU is more ethnically diverse than

similar colleges nearby. Although the demographic make-up of the student population fluctuates slightly from year to year, these trends have remained quite consistent.

What is the problem? CU is an institution proudly built on promoting social justice. Additionally, several of its academic programs have earned nationwide recognition for their high quality and ingenuity. Despite these points of pride, CU has been facing declining enrollment and alarmingly low retention rates over the last several years that threaten the financial health of the institution. At the same time, the admittance rate of high-risk students has steadily increased. Unfortunately, the programming needed to adequately support the increasing number of high-risk students has been insufficient, thus, adding to the cyclical problem of low student retention.

At CU, first to second year retention for FTFT students has been well below the national average for four-year private institutions for many years. According to the National Student Clearinghouse Persistence Snap Shot report (2016), the average first to second year retention rate for four-year private institutions hovers around 80%. CU's first to second year retention rates have risen in the last several years; however, it was still only 75.5% in 2015. Although four percentage points off the national average may not seem like it should be a major concern, it is important to stress that even just one percentage point equates to hundreds of thousands of unrealized dollars for the institution.

First to second year retention is not the university's only enrollment problem, as many students are not persisting to graduation. At the national level, the average six-year graduation rate tends to be higher for four-year private institutions than it is for four-year public institutions, at 66% and 59%, respectively (NCES, 2017c). However, within the private sector these rates vary based on institution selectivity. That is, students who attend colleges with more selective admissions processes are more likely to persist to graduation. At CU, which is increasingly

becoming less selective, only 38-44% of students graduate within four years, while 55-61% graduate within six. Within the institution, there are select groups of students who are at even higher risk of not graduating. For example, the six-year persistence rate for men is consistently between 5-10 percentage points lower than it is for their female counterparts. Similarly, non-White students typically have six-year persistence rates that are between 5-15 percentage points lower than that of White students. Although these patterns are in line with national trends, they still shed light on the need for increased support for these high-risk populations at CU.

In addition to low retention and persistence rates, CU has also been facing a steady decline in first-year enrollment. In 2010, first-year enrollment was at its peak at 527 students. Unfortunately, those high numbers were not sustained and have been dropping ever since, reaching 417 by the fall of 2016. Additionally, the university is becoming less selective in the admissions process, presumably to make up for declining student interest. In 2012, the average high school GPA of the FTFT students was 3.19 which dropped to 3.02 by 2016. Likewise, the SAT verbal and SAT math scores have also seen a decline. The 25th to 75th percentile of SAT verbal scores was between 480-590 and 450-560 in 2010 and 2016, respectively. A similar trend has been seen in the SAT math composite scores, as the 25th to 75th percentile ranged from 500-620 in 2010 and 460-580 in 2016. Further, the percentage of the undergraduate population receiving Pell Grant funding, which is typically for students coming from lower income homes, increased from 38% in the 2012-2013 academic year to 43% in the 2016-2017 academic year.

Given that previous academic achievement and socioeconomic status are two strong predictors of academic success and persistence in college (Atkinson, 2001; Geiser & Santelices, 2007); it is not surprising that a relatively large number of students at CU are ending up on academic probation in their first or second years of study. There are also students finding

themselves in academic trouble who are not high-risk when considering these traditional risk factors. The university has not done a comprehensive analysis that explicitly identifies what these students struggle with, but there is strong anecdotal evidence that points to underdeveloped college success skills. At CU, like many other institutions, students are typically put on academic probation if their GPA falls below the 2.0 on a 4.0 scale (Cruise, 2012; Renzulli, 2015). When reviewing three consecutive years of probation data, 2012-2015, an average of 180 students were put on academic probation in the fall and 128 in the spring. Freshmen and sophomore students unquestionably made-up the bulk of these students. If probationary students are unable to bring their GPAs above a 2.0, they are in danger of being dismissed or suspended from the institution, which is hurtful to the student and the college as a whole.

The current study. The university has historically had limited system-wide interventions to assist students on academic probation develop the skills they need to be successful. Each of the four colleges has had different requirements for students on probation, ranging from meeting with their advisor or assistant dean several times throughout the semester to attending required weekly study halls. Due to the variability among practices, thorough evaluation of the effectiveness of these existing interventions has been limited. Despite the overall lack of uniformity, the university had one intervention that targeted academically underachieving students from across all four colleges in the last decade--the Student Success Conference. As a result, creating an intervention to support students on probation across all four colleges has been discussed by university administrators for many years.

Originally, the Student Success Conference was a day-long program required for students who successfully appealed academic dismissal that focused on learning college success skills, such as time-management, test-taking, and study skills. The program also sought to familiarize

students with valuable campus resources, such as the Career Development Center and the Writing Center. In 2013, the Retention Roundtable Committee, a group of university officials charged with reviewing university practices and making recommendations to increase student retention, recommended that the four colleges collaborate to revamp the conference. More specifically, the committee recommended that the conference be transitioned to a one-credit, semester-long course provided to a larger group of students. However, at the time of the committee's recommendation, limited financial and personnel resources, as well as faculty/staff turnover, did not allow for the creation and implementation of a semester-long course. Rather, the Student Success Conference remained one day in length but the target population was expanded to include students returning from academic suspension, as well as those put on academic probation. All students were required to participate in the conference the day before classes began.

By 2015, changes in resource allocation allowed administrators to begin considering a more comprehensive intervention for students on academic probation. After consulting the research and surrounding colleges regarding best practices, it became clear that the creation of a semester-long student success course was the next necessary step. The course, Dynamics of Student Success (DOSS), which piloted in the fall of 2016 with a group of first and second year students on academic probation, sought to teach students the non-academic skills necessary to be a successful college student. This study investigated the relationship between participating in DOSS and semester GPA to justify and inform programming. Additionally, this study also adds to the existing body of research on interventions for students on academic probation.

Research Hypotheses

In order to examine the effectiveness of the DOSS course for students on academic probation, the researcher held the following research hypotheses:

1. Students on academic probation who participated in DOSS will have significantly higher GPAs than similar students who did not take the course the semester the course was initially implemented.
2. Students on academic probation who participated in DOSS will have significantly higher GPAs than similar students who did not take the course one semester after the course was implemented.

Chapter II: Methodology

This quasi-experimental, between-subjects study, investigated the impact that participating in a SSC, Dynamics of Student Success, had on the academic performance of freshmen and sophomore students on academic probation.

Course Development and Implementation

Throughout the 2015-2016 academic year, the Center for Academic Success (CAS) staff collaborated with various internal college officials and external experts to create a SSC that would work well within the unique structure of CU. More specifically, the content of the course had to meet the diverse needs of students on academic probation and the logistics of course implementation had to be organized around the four different administrative processes that existed among the separate colleges. After much collaboration and consultation, a SSC course called Dynamics of Student Success (DOSS) was designed to assist freshmen and sophomores on academic probation develop college success skills.

DOSS was piloted in the fall 2016 semester; there were four sections with a maximum of 15 students in each section. Each of the four sections was taught by one of three CAS staff: the Director taught one section, the Assistant Director taught one section, and a Senior Academic Consultant taught two sections. In addition to being CAS staff, the course instructors all had at least a master's degree in school psychology, and one to four years of experience working with college students on developing college success skills.

For the pilot semester, DOSS was a 0-credit pass/fail course. That is, students who participated in the course did not receive credit toward graduation and their grade in the course did not impact their GPAs. Freshmen and sophomore students on academic probation were selected to participate in the pilot by their college's Scholastic Standards Committee. The course

was made a mandatory condition of the student's probation, but the consequences of not taking or not being successful in the course was left up to the student's academic dean. Each of the class sections met one time per week for 50 minutes for a total of thirteen class meetings. Of the thirteen lessons, three were facilitated by guest presenters who were experts in the subject discussed (e.g., the campus Wellness Educator taught the lesson on stress management). Additionally, each student was required to meet individually with their course instructor at least three times during the semester to review self-assessment results, create goals for the semester, and review progress toward those goals.

The course materials and general teaching practices were consistent throughout the four sections. In the spring and summer leading up to the pilot semester, a standardized course syllabus and an instructor's manual were created. The instructor's manual consisted of an instructor's orientation section which outlined collaborative learning strategies to be used in their lessons (based on Barkley, Major, & Cross, 2014; Butler, 2002; Drummond, 1995; Zimmerman, 1990), ten detailed lesson plans, handouts and worksheets for each day of class, and outlines for each of the three individual meetings between the students and their instructor. The topics covered throughout the semester included both metacognitive and study skills. More specifically, the metacognitive factors covered included mindset, motivation, goal-setting, mindfulness, stress management, and developing self-awareness. The study skills addressed included time-management, organization, using university resources, effective communication, and exam preparation.

The course instructors participated in an instructor orientation organized by the director of CAS which took place approximately one week before classes started for a total of about 4 hours. In the instructor orientation, the instructor manual and course materials were thoroughly

reviewed, the course goals and objectives were discussed, and teaching strategies were outlined. Instructor approach and attitude toward students was also a topic heavily discussed in the instructor orientation. More specifically, instructors were encouraged to develop collaborative relationships and maintain a positive regard toward all of their students. Additionally, to help ensure fidelity of course implementation, the instructors met for one hour per week throughout the semester to review student progress and to discuss the next week's topics.

Lesson overview. To give the reader an overview of each lesson, a brief description is provided below.

Week 1: Welcome and developing a growth mindset. On the first day of class the instructors introduced themselves and explained their various roles on campus. Then, students participated in an ice-breaker activity to get them accustomed to interacting with one another. The course syllabus, goals, objectives, and assignments were then thoroughly reviewed. The last portion of class was spent watching a video on growth mindset and discussing how the concept impacted each of their lives.

Week 2: Motivation and goal-setting. Each student met with their instructor individually before the second lesson to review the outcomes of a brief self-assessment and develop at-least one goal for the semester. Through reflective writing exercises and class discussions, students reflected on what motivated them to attend college and to do well. Students then worked individually or in small groups to break down their goals into objectives and action steps.

Week 3: Task-management and organization. In the third week, students learned how to create a semester, weekly, and daily schedule. They also learned how to prioritize various tasks by classifying them based on level of importance and urgency.

Week 4: Effective note-taking and classroom engagement. This lesson focused on various ways to reframe a student's thinking to promote classroom engagement. This was done via a self-reflective exercise and large group discussion. In the second half of this lesson, effective note-taking strategies were reviewed. Students practiced using these strategies while watching a video in class.

Week 5: Exploring your resources. This lesson served to help students understand the importance of developing an effective support system, while educating them on how to access and utilize various campus resources.

Week 6: Study skills and exam preparation. In the sixth week, students learned effective study strategies, like self-testing, and how to evaluate their effectiveness.

Week 7: Relaxation and mindfulness and second individual meeting with instructor. An associate psychology professor at CU guest lectured on mindfulness and how it relates to learning during this week. Students also had their second individual meetings with their instructor, in which progress toward goal attainment was reviewed.

Week 8: Writing in college. In week eight, the director of the university Writing Center taught students how to use free writing as a learning tool.

Week 9: Enhancing interpersonal communication. The objective of lesson nine was to teach students how to communicate effectively verbally, non-verbally, and in writing. Assertive communication skills were outlined and practiced and students were taught how to write a professional email.

Week 10: Managing stress. The managing stress lesson was taught by the Wellness Educator from CU's Wellness Center. The lesson addressed various aspects of stress

management such as good sleep hygiene, healthy eating, regular exercise, and effective relationships.

Week 11: Identifying and overcoming barriers. This lesson helped students identify the barriers, both internal and external, to their academic success. Students also learned one effective way to approach such problems and barriers.

Week 12: Developing self-awareness and defeating harmful scripts. Students learned about the basic relationship between thoughts, emotions, and behaviors. They learned strategies for identifying and changing unhelpful thought and behavior patterns that may have been negatively impacting their academic performance.

Week 13: Course wrap-up. In the final day of class, students created study schedules for their final exams. The student's perceived progress toward their semester goals and their overall experience with the course was discussed as a group. Students also filled out their anonymous evaluations of the course.

Week 14: Third individual meeting with instructor. The class did not meet as a group the last week of the semester. Rather, students met with the instructor for their third individual meeting. Student's post-test self-report results were reviewed and their progress in the course was discussed.

Sampling Procedures

Convenience sampling procedures were utilized to recruit participants for this study. When using convenience sampling, participants are selected based on their accessibility to the researcher. Although this method can lead to researcher bias and decrease overall generalizability, it was appropriate for this project given the purpose of this research. This was an action research study, with the purpose of investigating the impact of an intervention on a

specific group of students within the natural educational environment, which random sampling procedures would not easily allow for (Creswell, 2009).

The participants for this study were selected based on the results of the spring 2016 Scholastic Standards meetings. The four colleges at CU each have their own Scholastic Standards Committees that meet separately at the end of every semester to review the academic standing of each of their enrolled students. Each committee is made up the college's Academic Dean, Assistant Dean, and faculty members representing a variety of majors within the individual college. Although they are not official members of the committees, the Director of Higher Education Opportunity Programs (HEOP), the Director of the Center for Academic Success (CAS), and the Associate Dean of Students attend all four Scholastic Standards meetings to share information that may be relevant in the committee's decisions (e.g., conduct history, academic support utilization). The objective of each committee is to review the academic performance of all of the students within their college and make determinations regarding each student's academic status. In general, students with cumulative and semester GPAs ≥ 2.00 are considered in good academic standing. These students are judged to be on track to graduate and, thus, not in need of any formal intervention from the university. Students with a cumulative or semester GPA < 2.00 are considered at-risk and undergo a more thorough academic review by the committee to determine their academic status and any necessary interventions.

When making academic status decisions for at-risk students, each committee typically considers the following information: grades from past and current semesters, progress toward graduation, previous interventions, behavioral or motivational strengths or concerns, anecdotal input from faculty and staff who have worked with the student, and previous academic standing. Upon review of the above information, students are assigned one of the following statuses:

academic probation (P1), extended academic probation (P2), one semester academic suspension (S1), two semester academic suspension (S2), or dismissal (D) from the university. For this study, academic and extended academic probation will be treated as one variable and will be referred to as academic probation.

As previously stated, the students selected to participate in the study were determined based on the outcomes of the spring 2016 Scholastic Standards meetings. Before each of the four meetings began, the Director of CAS gave a brief introduction of DOSS to the committee, outlining the target population, course goals and objectives, and the maximum number of students who could participate from each college. The committee was informed that all students selected to participate had to be freshmen or sophomore when considering number of earned credit hours and be placed on academic probation. Since the number of students placed on academic probation for each college exceeded the maximum number of students able to participate in DOSS, the committee was also asked to consider the following qualitative information when making participation decisions:

1. Why was the student on probation (based on data, instructor report, student report, etc.)?
 - a. Would an alternative intervention be more appropriate (e.g., counseling, change in academic advisor)?
2. What interventions have been tried previously? How effective were they?
 - a. Would DOSS be repetitive for the student?
3. Based on what is known, is the student likely to engage/benefit from this course?

The students selected by the committee to take DOSS largely comprised the treatment group of this study. Their participation in the course was made a mandatory condition of their

probation. That is, the students were required to take the course as a condition of their return to the university in the fall. The consequences of not taking or not being successful in the course were determined by the Deans and Assistant Deans of the student's individual college of enrollment. Students selected to participate were sent a letter outlining the requirements of their probation and prompting them to register for the course before they return for classes in the fall. Any freshmen and sophomores on academic probation who returned for the fall 2016 semester that were not selected to participate or did not enroll in DOSS despite the requirement made-up the study's control group.

Participants. The sample consisted of 68 full-time (12 or more credit hours), matriculated, undergraduate students attending a small private university in NY state. Of the 68 participants, 39 participated in DOSS (treatment), while 29 students did not take the course (control group). All participants in the sample were freshmen or sophomores on academic probation entering the fall 2016 semester. For this study, freshmen were defined as students who had earned between 0-29 college credit hours, while sophomore was defined as students who had earned between 30-59 credit hours. Earned credit hours include only credits both attempted and passed by a student. That is, earned credit hours exclude credits for courses that were incomplete, in progress, or audited, as well as those in which a student withdrew or received a failing grade. Credits taken at another accredited institution did count toward earned credit hours if the student received a grade of a 2.0 (C) or higher; however, transfer credits did not count toward semester or cumulative GPAs ("Undergraduate Academic Regulations," n.d.). Although all students in the sample were freshmen or sophomore status, three participants from the treatment group were entering their third year of college. These three students had not earned enough credit hours to receive junior standing due to multiple failed or withdrawn courses or a

previous academic suspension. There was one student who participated in DOSS that was removed from the sample because of junior status. Additionally, there were 27 students removed from the control group despite being on academic probation and having freshmen or sophomore status because they did not return for or complete the fall 2016 semester, effectively withdrawing from the institution.

The average age of the entire sample ($M = 20$, $SD = .952$), treatment ($M = 19$, $SD = .855$), and control ($M = 20$, $SD = 1.072$) groups was very similar. Approximately 62% of the entire sample was male and 38% was female. The treatment and control groups were 64% and 59% male and 36% and 41% female, respectively. CU typically has a larger male enrollment than female, thus, the sample is generally reflective of institutional sex demographic patterns. In contrast, the sample was more racially diverse than the institution as a whole, as the majority of participants identified as a racial minority. More specifically, 49% of the sample identified as White/Caucasian, 25% as Black, 21% as Hispanic/Latino(a), 3% as Asian/Pacific Islander, and 3% as multiracial. For this study, race had to be collapsed into two groups for the regression analyses, so Black, Hispanic, Asian/Pacific Islander, and multiracial were recoded into a group labeled Minority. After recoding, 44% of the treatment group was White and 56% was a minority, while 55% of the control group was White and 45% was a minority. Sixty-two (62) of the 68 participants took the SAT resulting in a mean composite score of 982.74 ($SD = 150.11$). The 37 students who took the SAT in the treatment group earned a slightly lower composite score, on average, than the 25 students in the control group that took the standardized measure (Treatment Group: $M = 961.62$, $SD = 136.35$; Control Group: $M = 1014.00$; $SD = 166.36$). For comparison, the national average of the combined critical reading and mathematics sections of the SAT was 1,006 in 2015 (Roell, 2017); thus, the sample in this study was similar to the

national norm. A more complete breakdown of the participants' age, sex, race, college of enrollment, and standardized test scores can be found in Tables 1 and 2.

Data Collection Procedures

The data used in this study were part of a pre-existing data set that was created by the Director of CAS to track student outcomes to make informed programming decisions for the university. All of the data was first maintained in a password protected Excel spreadsheet and later transferred into a Statistical Package for the Social Science (SPSS) data file for data analyses. Data collection took place from May 2016 to May 2017. Most of the data for the sample was obtained from the university registrar using Bannerweb. Bannerweb is a system used by many colleges that provides students, faculty and staff web access to institutional information. The researcher requested an excel spreadsheet from the registrar that contained the names, class year, earned credit hours, ACT/SAT scores, college of enrollment, and spring 2016, fall 2016, and spring 2017 semester GPAs of all students on academic probation in the fall 2016 semester. Only the data on students who were considered freshmen or sophomore status and who completed the entire fall 2016 semester were kept and all other student information was deleted. Once the list was narrowed down to students appropriate for this study, the researcher obtained the race, sex, and age of the sample by requesting the fall 2016 census report from the university's Institutional Researcher. Once these demographic variables were added to the dataset, each participant was assigned an identification number and identifying information was deleted.

Variables

This study included one independent, dichotomous variable--level of participation in DOSS during the fall 2016 semester. The two levels of this nominal variable were: (1)

participated in DOSS (treatment); and (2) did not participate in DOSS (control). The dependent variable of this study was academic achievement, as measured by semester GPA at different points in time: end of the fall 2016 and spring 2017 semesters. At CU, GPA is measured on 0.0 to 4.0 scale with the following grade designations: A= 4.0, A- =3.67, B+ = 3.33, B = 3.0, B- = 2.67, C+ = 2.33, C = 2.0, C- = 1.67, D+ = 1.33, D = 1.0, and F= 0.0. Since GPA is a quantitative variable with an absolute zero, the dependent variable in this study is a ratio level of measurement. The literature indicated that certain student characteristics could influence any observed change in GPA. To account for their potential impact on the dependent variable, the participant's previous academic achievement, race, and sex were treated as covariates in the data analyses.

Previous academic achievement was measured using the participants' semester GPA prior to the fall 2016 semester. For the large majority of participants this was their spring 2016 semester GPA. However, there were three students in the treatment group that were inactive during the spring 2016 semester due to academic suspension. For these three students, their spring or fall 2015 semester GPA was used for their previous academic achievement score. Semester GPA was used to measure previous academic achievement because the literature indicates that college GPA is a better predictor of future achievement than high school GPA and standardized test scores (Westrick et al., 2015).

The participants' original race designations were obtained from the Institutional Researcher's census report. However, for the regression analyses, race had to be collapsed into two categories: White and non-White. Any student who identified as White/Caucasian was included in the White category, while any student who identified as Black/African American, Hispanic/Latino(a), Asian/Pacific Islander, or multiracial were considered non-White. White was

chosen as the reference category for this project because the majority of students at CU identify as White.

The participants' sex was also obtained from the Institutional Researcher's census report. For this study, sex included only two predesignated categories: male or female.

Research Design

This was a quasi-experimental, between-subjects research design with nonequivalent groups. Quasi-experimental designs have multiple groups or waves, such as the treatment and control groups in this study, but lack randomized assignments. The participants in this study were not randomly assigned to the treatment and control groups due the convenience sampling methodology that was utilized (per Trochim, 2006).

Selection bias is a potential threat to the internal validity of this study, especially when considering the sampling procedures that were utilized. The control group was comprised of students who were not selected by their scholastic standards committee to participate in the course, which resulted in the two groups being inherently different in regard to their previous academic performance (selection-regression threat). Unfortunately, there was little that could be done in terms of research design to address this problem because the project was conducted within the natural educational environment in partnership with other university administrators. Therefore, any observed differences between the treatment and control groups were interpreted with caution and with close attention paid to the participant characteristics (per Trochim, 2006).

Action research. Depending on the point of reference, this study could also be considered action research. Action research is most often used in the educational setting because it allows educators to directly investigate their most relevant concerns within the natural teaching environment. Rather than seeking to obtain new information about an existing theory, action

research is more focused on obtaining information for the purpose of finding practical solutions to a specific problem (Ferrance, 2000). The creation, implementation, and assessment of DOSS very much follows the framework described here. The first step in action research is to identify the problem or area of focus. CU has a clear problem with student retention, partly due to students on academic probation not having the necessary supports to be successful. This particular study investigated the impact of an educational program, DOSS, on the academic outcomes of students on academic probation. In action research, once a research question is narrowed down from the initial inquiry phase, data is collected and analyzed in a manner that appropriately addresses the identified question (Ferrance, 2000). As described above, data was systematically and intentionally collected on student outcomes so the stated research concerns could be appropriately addressed. Lastly, the results of action research should be used to guide and inform the educator's future behaviors (Ferrance, 2000). The results of this study will be used by the director of CAS to guide programmatic decisions.

Action research is also one method for implementing data-based decision making. Data-based decision making is essential to ensuring that colleges and universities are investing their time and money into programs that are effective in improving student outcomes. Further, institutional research (IR) increases overall accountability while strengthening educational policies and programs (St. John, 2006).

Data Analyses

Statistical Package for the Social Sciences (SPSS) data analysis software was used to conduct the statistical analyses for the proposed study. The data was examined closely before and after analysis and it met the required assumptions for each regression conducted; thus, the data could be analyzed as originally proposed.

Descriptive statistics were calculated for the treatment and control groups. The participants' academic standing, semester GPA, and cumulative GPA were calculated at the end of three semesters: (1) spring 2016-prior to taking DOSS, (2) fall 2016-upon completion of the course, and (3) spring 2017-semester one semester after course completion. Effect sizes were calculated using Cohen's d_{RM} to examine changes in the GPAs of the treatment and control groups.

Two simultaneous multiple regressions were conducted to test the stated hypotheses. A multiple regression "is a way of predicting an outcome variable (i.e., dependent variable) from several predictor variables (IVs)" (Field, 2009, p. 198). Specifically, using a multiple regression allowed the researcher to observe the effects of participating in DOSS on GPA, while controlling for known covariates, such as race, sex, and previous academic achievement. Controlling for these covariates was necessary because the lack of randomized sampling procedures used for this project likely lead to differences in the demographic characteristics of the treatment and control groups. Additionally, the literature illustrated that these factors would have likely influenced the outcome variable; therefore, it was necessary to select a statistical analysis, such as a multiple regression, that would allow the researcher to control for such covariates.

Chapter III: Results

Preliminary Analyses

The overarching goal of DOSS was to help students on academic probation return to good standing by providing them the college success skills needed to increase their GPAs. To help evaluate whether this goal was met, descriptive statistics were generated for the sample's academic standing, semester GPA, and cumulative GPA at three points in time: (1) prior to course implementation, (2) after the fall 2016 semester, (3) and after the spring 2017 semester. Results suggest that there were improvements in the GPA of students who participated in DOSS and that many were eventually successful in returning to good academic standing. Refer to Tables 3-5 for complete academic standing, semester GPA, and cumulative GPA descriptives.

Academic Standing. Upon entering the fall 2016 semester, 100% of students in the treatment and control groups were on academic probation. After the fall 2016 semester, approximately 46% (n = 18) of students in the treatment group returned to good standing, 41% (n = 16) remained on academic probation, 10% (n = 4) were suspended, and 3% (n = 1) were dismissed. In comparison, approximately 59% (n = 17) of students in the control group returned to good academic standing after the fall 2016 semester, 38% (n = 11) remained on academic probation, and 3% (n = 1) were suspended. Taken together, 18 students from the treatment group and 17 students from the control group earned good academic standing one semester after being put on academic probation.

In addition to the five students in the treatment group that were suspended or dismissed after the fall 2016 semester, two students withdrew voluntarily and one took a medical leave of absence prior to the start of the spring 2017 semester. As such, the academic standing of those students was not factored into the proceeding analyses. Following the spring 2017 semester, 55%

($n = 17$) of the remaining 31 students from the treatment group remained on good standing, 32% ($n = 10$) remained on academic probation, and 13% ($n = 4$) were suspended. In addition to the one student in the control group who was suspended after the fall 2016 semester, four withdrew voluntarily and three took a leave of absence prior to the spring 2017 semester. The academic standing of those students was not included in the following analyses. Of the remaining 21 students in the control group, 62% ($n = 13$) earned good academic standing after the spring 2017 semester, 29% ($n = 6$) remained on academic probation, and 9% ($n = 2$) were suspended. Overall, 17 students from the treatment group and 14 students from the control group earned and remained on good academic standing two semesters after being put on academic probation.

Semester GPA. A student's semester and cumulative GPA must be above a 2.0 to be in good standing. Therefore, the means and standard deviations were calculated for both of these metrics for the treatment and control groups over time.

One (3%) student in the treatment group had a semester GPA over a 2.0 the term prior to taking the course. Twenty-seven (71%) students in the treatment group earned a semester GPA over a 2.0 after the fall 2016 semester, while 24 (78%) students earned a semester GPA over a 2.0 after the spring 17 semester. Further, when using mean previous academic achievement (most recently completed semester GPA) as a baseline ($M = 1.43$, $SD = .476$), the mean semester GPAs for students who participated in DOSS increased after the fall 2016 ($M = 2.26$, $SD = .739$) and spring 2017 semesters ($M = 2.31$, $SD = .646$). That is, students who participated in DOSS, on average, increased their semester GPA by 0.83 points after the fall 2016 semester and 0.88 after the spring 2017 semester.

Seven (24%) students in the control group had a semester GPA over a 2.0 the term prior to the implementation of DOSS. Nineteen (66%) students in the control group earned a semester

GPA over a 2.0 after the fall 2016 semester and 14 (64%) after the spring 2017 semester.

Participants in the control group demonstrated increases in their mean fall 2016 semester GPA ($M = 2.33$, $SD = .731$) and mean spring 2017 semester GPAs ($M = 2.42$, $SD = .831$) when compared to their mean previous achievement scores ($M = 1.79$, $SD = .370$). That is, students who did not participate in DOSS, on average, increased their semester GPA by 0.54 points after the fall 2016 semester and 0.63 points after the spring 2017 semester.

Taken together, these results indicate that students in both the treatment and control groups, on average, increased their semester GPAs each consecutive semester. However, after both the fall 2016 and spring 2017 semester, students in the treatment group saw larger increases in their average GPA. Additionally, a larger percentage of students in the treatment group earned a semester GPA over a 2.0 than those in the control group.

Cumulative GPA. Nine (23%) students in the treatment group had a cumulative GPA over a 2.0 prior to the implementation of DOSS. A total of 18 (46%) students in the treatment group had cumulative GPAs over a 2.0 after fall 2016 semester, while 20 (65%) had a cumulative GPA over a 2.0 after spring 2017. Further, when using spring 2016 mean cumulative GPA as a baseline ($M = 1.78$, $SD = .434$), course participants saw gains in their mean cumulative GPA after the fall 2016 ($M = 2.03$, $SD = .426$) and spring 2017 semesters ($M = 2.19$, $SD = .433$). That is, students who participated in DOSS increased their cumulative GPAs an average of 0.25 points after the fall 2016 semester and 0.41 points after the spring 2017 semester.

Prior to the implementation of DOSS, 20 (69%) students in the control group had cumulative GPAs over a 2.0. The number of students with cumulative GPAs over a 2.0 rose to 24 (86%) after the fall 2016 semester and 17 (81%) after the spring 2017 semester. Compared to their spring 2016 cumulative GPAs ($M = 2.13$, $SD = .248$), students in the control group saw

positive changes in their fall 2016 ($M = 2.26$, $SD = .264$) and spring 2017 cumulative GPAs ($M = 2.33$, $SD = .310$). That is, students in the control group increased their cumulative GPAs by an average of 0.13 points after the fall 2016 semester and 0.20 points after the spring 2017 semester.

Taken together, these findings suggest that, although both groups saw increases in their cumulative GPA over time, students who participated in DOSS saw greater changes than those who did not participate.

Hypotheses Testing

Two simultaneous multiple regressions were conducted to further test the relationship between participation in DOSS and semester GPA at two points in time. For both hypotheses listed below, race, sex, and previous academic achievement, were used as control variables.

Tables 6 and 7 include correlational relationships between variables.

1. Students on academic probation who participated in DOSS will have significantly higher GPAs than similar students who did not take the course the semester the course was initially implemented.
2. Students on academic probation who participated in DOSS will have significantly higher GPAs than similar students who did not take the course one semester after the course was implemented.

Group Equivalence. Prior to conducting either regression, a series of independent samples t-tests were conducted to determine if the treatment and control groups were equivalent in terms of the participants' race, sex, college of enrollment, and previous academic achievement. No significant group differences were found in race, sex, or college of enrollment. In contrast, students in the control group were found to have significantly higher previous

academic achievement scores than those in the treatment group (Control group $M = 1.73$, $SD = .370$; Treatment group $M = 1.43$, $SD = .476$; $t(66) = 3.41$, $p < .001$, two-tailed).

Hypothesis One. The first hypothesis examined the relationship between participation in DOSS and GPA at the end of the semester the course was implemented (fall 2016 GPA). This hypothesis was analyzed using simultaneous multiple regression, where fall 2016 semester GPA was regressed on course participation, while controlling for the effects of race, sex, and previous academic achievement. The resulting model did not reach statistical significance ($F(4, 62) = .925$, $p = .455$), with an R^2 of .056. Further, course participation ($B = .063$; $p = .752$), race ($B = -.153$; $p = .405$), sex ($B = -.094$; $p = .619$), and previous academic achievement ($B = .220$; $p = .109$), were all found to be non-significant predictors of fall 2016 GPA. Therefore, hypothesis one was not supported by the model. Refer to Table 8 for complete regression results.

Hypothesis Two. The second hypothesis examined the relationship between participation in DOSS and GPA one semester after the course was implemented (spring 2017 GPA). This hypothesis was analyzed using simultaneous multiple regression, where spring 2017 semester GPA was regressed on course participation, while controlling for the effects of race, sex, and previous academic achievement. It is important to note that a total of 16 cases were removed from this model due to missing data. Sixteen (16) students, 8 from the treatment group and 8 from the control group, did not have a spring 2017 semester GPA because they did not persist to that semester. Of the eight students removed from the treatment group, one took a leave of absence, three withdrew from the institution voluntarily, three were academically suspended, and one was academically dismissed. Of the eight students removed from the control group, three took a leave of absence, four voluntarily withdrew, and one was academically suspended.

The overall model was significant ($F(2, 47) = 4.346, p = .005$) and explained 27% of the variance in spring 2017 semester GPA ($R^2 = .270$). Previous academic achievement ($B = .752; p = .001$) and race ($B = .382; p = .041$) were significant predictors of spring 2017 semester GPA, with previous academic achievement demonstrating the largest impact. In contrast, course participation ($B = .182; p = .368$) and sex ($B = -.092; p = .623$) were found to be non-significant predictors of spring 2017 GPA. These results suggest that students with higher previous academic achievement scores were significantly more likely to earn higher GPAs during the spring 2017 semester, regardless of their course participation and sex. Likewise, minority students were more likely to earn higher spring 2017 GPAs than their White counterparts. Taken together, these results show that hypothesis 2 was not supported by the model because course participation did not significantly predict spring 2017 semester GPA. Refer to Table 9 for complete regression results.

Effect Sizes

Although course participation was not a significant predictor of GPA in either model, the researcher calculated the effect size of the observed changes in GPA over time for the treatment and control groups (see Table 10). Given the relatively large changes in the semester GPAs of the sample, the researcher suspected that meaningful effects might exist, despite the lack of statistical significance.

To test this hunch, effect sizes were calculated using Cohen's d_{RM} to determine the magnitude of the change in semester GPAs of the treatment and control groups (See Table 10). As outlined above, students who participated in DOSS increased their fall 2016 semester GPAs ($M = 2.26, SD = .739$) from their baseline ($M = 1.43, SD = .476$). The effect size of this change ($d_{RM} = 1.35$) exceeded Cohen's (1988) conventions for a large effect. This suggests that students

in the treatment group, on average, increased their fall 2016 semester GPAs by $1^{1/3}$ standard deviations. Likewise, students who participated in DOSS increased their spring 2017 semester GPAs ($M = 2.31$, $SD = .646$) when compared to their baseline. The effect size of this change in GPA ($d_{RM} = 1.46$) also revealed a large effect, suggesting that students who participated in DOSS earned a mean spring 2017 GPA nearly $1\frac{1}{2}$ standard deviations higher than their mean baseline GPA.

Similar to the treatment group, the control group increased their fall 2016 semester GPAs ($M = 2.33$, $SD = .731$) from their mean previous achievement scores ($M = 1.79$, $SD = .370$). The effect size of this change was large ($d_{RM} = 1.16$) and suggests that students in the control group increased their fall 2016 semester GPAs by more than 1 standard deviation. Consistently, students in the control group also increased their spring 2017 semester GPA ($M = 2.42$, $SD = .831$) from baseline, a change that yielded a large effect size ($d_{RM} = 1.84$). That is, students in the control group increased their spring 2017 semester GPAs by almost 2 standard deviations.

Taken together, students in the treatment and control groups demonstrated large changes in their fall 2016 and spring 2017 GPAs. The large changes in both groups, further supports the results of the regression analyses; DOSS did not have its intended effect on GPA.

Chapter IV: Discussion

The two hypotheses in this study asserted that students on academic probation who participated in DOSS would have greater gains in their GPA (1) during the semester the course

was implemented and (2) one semester after the course was implemented when compared to similar students who did not take the course. Although both the treatment and control groups saw gains in their GPA during the fall 2016 and spring 2017 semesters, the difference in those gains did not rise to the level of statistical significance. As such, DOSS did not appear to significantly impact the GPAs of the students in the treatment group at either point in time. The control variables that influenced GPA varied for each analysis. Similar to course participation, sex did not have a significant impact on GPA for the fall 2016 or spring 2017 semesters. Race and previous academic achievement also demonstrated a nonsignificant relationship with fall 2016 GPA. However, both variables significantly predicted spring 2017 GPA, indicating that non-White students with higher semester GPAs prior to fall 2016 earned higher GPAs during the spring 2017 semester, regardless of their sex or participation in DOSS.

Course Participation

When compared against the previous academic achievement metric, both groups of participants earned higher GPAs during the fall 2016 and spring 2017 semesters, which suggests that, on average, both groups of students showed improvements. However, the observed changes in GPA were not significantly different for students who participated in DOSS when compared to those who did not. Since the existing literature supports the use of SSCs with at-risk populations (Bail, Zhang, & Tachiyama, 2008; McGarth, 2012; Rasmussen, 2013), these results are somewhat surprising. However, there is a great deal of variability among the published literature related to SSCs in terms of methodology, target population, institutional characteristics, and course implementation practices, which makes the generalization of results from institution to institution problematic (Hope, 2010). Therefore, there are a multitude of factors that could help interpret the results of this study.

Extraneous Variables. Given that both groups in this study earned higher GPAs over time but there were not significant differences in those gains, it is likely that something other than DOSS influenced the observed improvements. There are several factors at the institutional and individual level that could have influenced the outcomes.

The most apparent potential confound in this study was time. More specifically, the students in this sample may have improved their GPAs because of the natural effects of maturation. That is, with more time at CU, they became more accustomed to the college environment and academic rigor, thus, improving their GPAs. More time at CU, may have helped foster social and academic integration, which has positive effects on student outcomes (Tinto, 1993).

It is also possible that students in the entire sample showed improvements because the mere act of being placed on academic probation elicited positive behavioral changes. For instance, being put on academic probation may have increased students' motivation to succeed because they were faced with the possibility of being suspended or dismissed from the institution (McGarth & Burd, 2012). Although academic probation alone may have positively influenced some students, it is unlikely that it accounts for the large GPA gains demonstrated by the sample in this study because academic probation as a standalone practice has been shown to have negative effects on student outcomes (Sneyers and De Witte, 2017).

Various environmental factors could have influenced the improvement in the GPAs of the treatment and control groups. DOSS was the only institution-wide intervention implemented for students on academic probation during the fall 2016 semester but at least three of the individual colleges were implementing their own interventions simultaneously. In addition to DOSS, all CLAS students on probation were required to meet with their academic advisor at the beginning of the semester to complete a probation contract. The purpose of that contract was to outline the

actions the student planned to take to ensure their academic success for the semester. In CPS, all students on academic probation were required to participate in mandatory study halls for six hours per week and meet with their assistant dean or academic advisor several times throughout the semester. In SOE, students in the control group were required to participate in four academic skills workshops throughout the semester that focused on teaching time-management, goal-setting, and study skills. Taking these additional interventions into account, nearly every student in the sample, regardless of their participation in DOSS, had some level of institutional support, which might help explain why students in both the treatment and control groups improved their GPAs after being placed on academic probation.

Course Implementation. When comparing the results of this study to the existing literature, one must consider that certain aspects of how DOSS was implemented may have lessened its impact on students' GPA. A study conducted by McGarh and Burd (2012) provides some insights regarding how the implementation procedures of DOSS could have been restructured to more effectively foster positive student outcomes.

In their investigation of the effects of a SSC on probationary first-year students, McGarh and Burd found that students on academic probation who participated in a SSC, STCH195a, were significantly more likely to earn good academic standing, persist into their 2nd, 3rd, and 4th year, and graduate within five years than students who did not participate in the course. Interestingly, the topics covered in DOSS were very similar to those described in McGarh and Burd's study. Further, both courses had maximum class sizes of 15-20, were required because of probationary status, and utilized cooperative learning methods. However, STCH195a, was implemented with only freshman students on academic probation in their second semester of study (McGarh & Burd, 2012). The vast majority of students in the current study were entering

their second year at CU, even those with freshman status. Perhaps the effects of DOSS would have more closely aligned with the results seen in McGarth and Burd's study if it was implemented in the second semester of the first-year. Similarly, Hoops et al. (2015) asserted that "SSCs should be offered to students earlier in their college career so they can capitalize on the development of ... skills" (p.142).

Additionally, the STCH195a course in McGarth and Burd's (2012) study was credit bearing while, DOSS was not. DOSS participants may not have taken the course or the content taught seriously, since it would not directly impact their standing with the university. The topics and skills targeted in DOSS have been shown to be positively related to GPA and student persistence (Robbins et al., 2004). However, students may not have perceived the topics covered to be important or relevant, creating an additional barrier to student buy-in. Course content was chosen based on empirical research and anecdotal data presented at Scholastic Standards meetings and during consultative exchanges with various university officials. Perhaps, if the students themselves were interviewed or surveyed prior to the implementation of the course, they would have been more engaged in the process at the onset.

Positive Outcomes. Although the data presented would suggest that DOSS did not help students on probation at CU increase their GPA, to say that the course was not beneficial would be inaccurate. The process of creating and implementing DOSS prompted regular collaboration between various departments at CU, linked struggling students to helpful resources, and brought attention to a population of students that often gets overlooked. Further, GPA may not have been a sensitive enough metric to judge student growth in such a short amount of time.

DOSS was the first college-wide, semester-long intervention for students on academic probation at CU in recent history. Previous to the implementation of DOSS, students on

probation were required to participate in a day long intervention, the Student Success Conference, intended to introduce them to campus resources and teach them college success skills, such as time management. Although the Student Success Conference was a very positive step toward supporting probationary students, it was only one day long. In contrast, to implement DOSS, collaboration and communication had to occur between the academic units, DOSS instructors, and faculty throughout the semester. This resulted in more faculty and staff being directly involved with probationary students for a longer period of time than ever before. Although the effect of this increased connection with academically underachieving students has not been quantified yet, it almost certainly will benefit students in the long run. As asserted by Pascarella (1980), quality interactions with faculty and staff are vital to promoting positive student outcomes.

Unlike the K-12 setting, struggling college students often have to seek out help on their own. This can be problematic because some students do not recognize when they need help, may not know how to access help, or may be embarrassed to seek out assistance (McGarth & Burd, 2012). By making DOSS mandatory, students who would not normally seek out support, were educated on and connected with various levels and types of support (e.g., tutoring, counseling, career planning, etc.). For instance, there were three students with disabilities required to take DOSS that were not accessing accommodations or services until they were encouraged to by their instructor. In addition, one student had not been previously diagnosed with a disability but was referred for an evaluation because of the specific learning challenges he presented with and he was subsequently identified. In all four of these instances, it was the trained eye of the DOSS instructors (school psychologists) that recognized that the student may have a learning difference and encouraged them to access supports.

Lastly, it is plausible that, given more time, participation in DOSS would show a greater effect on GPA, as the skills taught in the course do take time to practice and develop for many students (Hoops, et al., 2015). Grade point average may not have been a sensitive enough metric to detect student growth in such a short amount of time. For example, students who participated in DOSS, when compared to those who did not participate, may have demonstrated significant growth in the skills taught, like time-management or study skills. However, additional research would have to be conducted to test this theory.

Control Variables

Race, sex, and previous academic achievement were control variables in both of the original hypotheses tested. Although the control variables were not the focus of the current study, it is important to note their role in each of the models. None of the control variables were significantly related to fall 2016 semester GPA. However, race and previous academic achievement, but not sex, were significantly related to spring 2017 GPA.

The results described above suggest that, regardless of course participation, minority students were more likely to earn higher GPAs one semester after course implementation but not during the semester the course was implemented. This was unexpected as the achievement gap between White and minority students (Black and Hispanic) starts at a young age and persists throughout higher education (Davis-Kean & Jager, 2014; Fletcher & Tienda, 2010; Miller-Cotto & Byrnes, 2016). Originally, the researcher thought that perhaps one of the two racial groups, White or minority, persisted to the spring 2017 semester at a higher rate, impacting the influence of the variable. However, this was not the case. Of the students lost between the fall 2016 and spring 2017 semester, 50% were White and 50% were minorities. Upon further inspection, all of the students who did not persist for academic reasons, suspension or dismissal, were minorities

(n=6) and, consequently, were not included in the spring 2017 regression. Therefore, the minority group lost its lowest achieving members for the spring 2017 analysis, likely resulting in a higher average GPA than the White students.

There is another potential explanation for this finding. As noted by Fletcher and Tienda (2016), minority college students achieve higher GPAs than White students when controlling for the quality of high-school attended. This suggests that when minority students are given equal opportunity to achieve they are more likely to outperform White students. One could reason, that more time to adjust to the college setting and the college success skills taught in DOSS, served to level the playing field for the minority students in this study, resulting in race being a significant predictor of GPA one semester after the course was implemented. To confirm this hunch, the academic outcomes of the White and minority groups would have to be tracked for a longer period of time.

Previous academic achievement did not predict fall 2016 GPA but it did significantly predict spring 2017 GPA. That is, students with higher previous academic achievement scores earned higher GPAs in the spring 2017 semester but not in the fall 2016 semester, regardless of course participation. As demonstrated by Westerick et al.'s (2015) meta-analysis, students' academic performance early on in college is moderately correlated with student outcomes through the third year of study. The researcher expected previous academic achievement to be a significant predictor of GPA at both points in time. However, that is not what occurred. The potential reasons behind this result are similar to those described for race. Of the 16 students who did not persist to the spring 2017 semester, including those who withdrew or took a leave of absence, 11 had earned a GPA below a 2.0 in the fall 2016 semester. Therefore, some of the lowest achieving students were removed from the spring 2017 analysis but not the fall 2016

analysis, which could have skewed the results. One other possible explanation is there was not enough statistical power to detect a significant relationship for the fall 2016 analysis.

Implications for CU

This study has implications for college administrators, especially those at CU, working with under-achieving students. Although probationary students at CU who participated in DOSS may not have increased their GPA significantly more than those who did not participate, more students who took the course earned semester GPAs over a 2.0 after the fall 2016 and spring 2017 semesters. This suggests that DOSS may be a promising intervention for probationary students at CU, but more time and data is needed before strong conclusions can be made. Therefore, it is recommended that the course continues to be offered to students on probation across all four colleges at CU with some adjustments.

It would be beneficial to make the course credit bearing, like the SSC presented in McGarth and Burd's (2012) study. This change would encourage students to take the course seriously from the onset because there would be a more direct effect on their GPA. Additionally, it would be beneficial to offer the course during the spring semester, so more students on probation in their first-year have the opportunity to participate. Offering the course in the spring would allow students to learn the skills necessary for academic success earlier on, giving them more time to benefit from that skill development. Lastly, in order to fully judge the impact of DOSS, student outcomes have to be tracked over a longer period of time and across additional metrics of student success, like level of skill development, retention and graduation rates.

Implications for Higher Education

The generalizability of this study is not expansive, which is to be expected given the applied nature of the investigation. CU is a small, unique institution and DOSS served a small subset of

students, the combination of which will not closely mirror other colleges. However, this study does point to a growing need within higher education in general. Specifically, there is a need for many colleges, including CU, to create a more comprehensive system of supports for students as they progress through their college careers.

There are a myriad of reasons why a student may not be academically successful in college (Titno, 1993). Most colleges invest a great deal of time and money into interventions to help students with identifiable risk factors be academically successful. The majority of these programs and interventions, including SSCs, focus on first-time freshmen (Rasmussen, 2013), which is a valuable strategy. But, many students find themselves on academic probation after their first semester despite not exhibiting traditional risk-factors or having already participated in the institution's preventative programs, which puts them at even greater risk of academic failure or drop-out (Sneyers & DeWitte, 2017).

Given that nearly one fourth of college students end up on academic probation at some point during their academic career despite meeting admission requirements (Hamman, 2016), institutions of higher education need to broaden their model of support to meet the increasingly diverse needs of all students beyond the first year. Using SSCs with probationary students is one initiative that addresses this need. However, colleges should consider taking a more systems-wide approach to supporting diverse student bodies. One approach suggested by researchers is a multi-tiered system of supports (MTSS) model similar to what is used in the K-12 setting. By adopting an MTSS approach in the college setting, institutions would be able to more fluidly and systemically provide support to underachieving students throughout their college careers as their needs change (O'Connell, Burch, & Shea, 2017). A SSC like DOSS would likely be considered a Tier II intervention within in an MTSS model because small groups of students

were selected to participate in the intervention based on not meeting the standards of a designated performance benchmark, GPA. In this particular example, Tier I student data (GPA) was used to identify students in need of additional support, which is a fundamental component of MTSS. However, the implementation of a true MTSS model in a college setting would take creativity as the implicit and explicit rules that govern higher education are quite different than those in the K-12 setting.

Limitations

The quasi-experimental design of this study created several threats to internal validity. More specifically, the non-randomized, convenience sampling procedures utilized created inequalities between the treatment and control groups. The treatment group had significantly lower previous achievement scores than the control group, meaning DOSS participants were more academically needy at the onset. This may have a number of implications in regard to student preparedness and motivation that could have impacted the outcomes of this study. In addition, the two groups could have been inequivalent in ways known to impact GPA that were not measured, like SES or academic self-efficacy.

One of the most notable threats to internal validity was the potential for maturation effects. Students in both the treatment and control groups improved their GPAs over time, making it difficult to conclude that change in GPA was an effect of participating in DOSS, and not simply the maturation of students becoming more accustomed to the college environment.

The generalizability of this study is not expansive, which is to be expected given the applied nature of the investigation. Since the sample size was relatively small and the study took place at a private liberal arts University, it may be difficult to generalize results to other settings like community colleges or public institutions. Additionally, this sample was comprised of students

with freshmen or sophomore status only; therefore, it is unknown if the course would yield similar results with students at different points in their academic career. However, this study was originally intended to evaluate the effectiveness of a specific program at one institution, so the generalizability of the results was secondary to the researcher.

There were many environmental influences that could not be controlled for that may have confounded the results at all points of comparison. Although DOSS was the only institution-wide intervention implemented for students on academic probation during the fall 2016 semester, at least three of the individual colleges were implementing their own interventions simultaneously. Further, the researcher did not consider the effect that change in major could have had on GPA. This change would have impacted the nature of the courses taken and likely their academic performance.

Lastly, the researcher should have investigated the relationship between participation in DOSS and additional aspects of student success over a longer period of time. More specifically, the level of skill development, retention, and graduation rates of the sample would have given a more holistic picture of the effects of DOSS. However, the data needed to measure these additional variables has since been tracked and will be part of the researcher's future investigation of the course's impact.

Future Research

This study sought to investigate the impact of DOSS on probationary students at CU to inform future programming decisions. More broadly, this project also helped fill a gap in the literature regarding the use of SSCs as an intervention for probationary students. Therefore, most of the research implications described below apply to both CU's future implementation and assessment of DOSS and external researchers interested in similar topics.

The current study only investigated the effect of a SSC on the GPA of probationary students during and one semester after implementation. Since the skills taught in most SSCs, including DOSS, take time to practice and develop, further research should be done to investigate the long term effects of course participation on GPA. Additionally, the relationship between course participation and other metrics of student growth, like academic self-efficacy, skill development, retention and graduation rates, should be measured.

At an institutional level, it would be beneficial for administrators at CU to do a comprehensive analysis of the factors that contribute to students ending up on academic probation in the first place. By more thoroughly understanding the factors that are related to academic struggle, CU administrators could more effectively identify students who are likely to struggle and have them participate in supportive interventions, like DOSS, proactively. This more intentional use of data would also serve to further the institution's efforts to implement a more systematic and data driven system of supports that is more indicative of an MTSS model.

Tinto (1993) suggested that there are a number of student factors, internal and external, and institutional characteristics that impact student outcomes. As such, there are many other variables that were not addressed in this study that may be beneficial to include in future investigations. Future researchers may want to consider the relationship between SSCs and student motivation, academic self-efficacy, major, learning skill development, and future skill usage. Further, it would be beneficial to know what specific aspects of SSCs make them successful or not. Is it the topics taught, the training of the instructors, the duration of the course, when students participate, etc.? These are just a few examples of many variables that could serve to enhance our understanding of how SSCs affect students on academic probation.

The generalizability of this study, like many studies on SSCs, is limited (Hope, 2010). A larger sample with students from varying types of institutions would help to increase generalizability. More specifically, future researchers may want to examine how participation in SSCs impacts probationary students at community colleges, public colleges, and more selective private institutions. Although it may be challenging given the applied nature of such investigations, stronger methodology with randomized sampling should be used so maturation effects can be better controlled for and stronger implications can be made. There is variability in the existing literature regarding the effectiveness of SSCs, so a meta-analysis on the relationship between SSCs and student outcomes would benefit researchers and college administrators alike.

Summary

This study sought to evaluate the efficacy of a student success course, DOSS, with improving the GPA of students on academic probation at Copper University. Initially, the researcher hypothesized that students on probation who participated in DOSS would see significantly higher gains in their semester GPAs the semester the course was implemented, fall 2016, and one semester after implementation, spring 2017, when compared to students on probation who did not take the course. The results of two simultaneous multiple regressions revealed no significant relationship between course participation and fall 2016 or spring 2017 GPA.

These results suggest that DOSS may not be an effective intervention for college students at CU on academic probation and that other factors better accounted for the outcomes of these students. However, there is some evidence to suggest that DOSS influenced students and CU in a positive way, at least in the short term. For instance, more students who participated in DOSS earned semester GPAs over a 2.0 during both semesters, despite having significantly lower baseline GPAs, than students who did not take the course. Further, the creation and implementation of DOSS helped foster more ongoing collaboration among administration and the academic units, in a way that brought much needed attention to an at-risk group of students. Nevertheless, in order to gain a more holistic understanding of the usefulness of DOSS, student outcomes need to be accessed over a longer period of time, across additional aspects of student success, and maturation effects need to be more explicitly ruled out. As such, it is recommended that DOSS continues to be offered to CU students on academic probation. On average, over 150 students every fall are placed on academic probation at CU. The vast majority of these students are freshmen and sophomore students who are in the beginning phases of their college careers. If CU hopes to help probationary students persist and be academically successful, it is important that the University continues to provide them with comprehensive and systematic support, like that created by DOSS.

Every college institution has students who struggle to meet the academic demands of higher education, despite meeting admission requirements. The needs of college students are becoming more and more diverse with each passing year. Colleges need to thoroughly evaluate how they are providing academic support to students throughout their academic careers. Using SSCs with probationary students is one method of providing such ongoing support, but there is much more work to be done.

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Table 1

Descriptive Statistics For Key Variables

Variables	CU Undergrads	Total Sample	Treatment	Control
Sex (n)	417	68	39	29
% Male	59.23 (247)	61.76 (42)	64.10 (25)	58.62 (17)
% Female	40.77 (170)	38.24 (26)	35.90 (14)	41.38 (12)
Race (n)	417	68	39	29
% American Indian	0.48 (2)	-	-	-
% Asian/Pacific Islander	1.20 (5)	2.94 (2)	5.13 (2)	-
% Black	12.71 (53)	25.00(17)	28.21 (11)	20.69 (6)
% Hispanic	7.67 (32)	20.54 (14)	17.95 (7)	24.14 (7)
% Multiracial	2.64 (11)	2.94 (2)	5.13 (2)	-
% Nonresident	0.48 (2)	-	-	-
% White/Caucasian	66.91 (279)	48.53 (33)	43.59 (17)	55.17 (16)
% Unknown	7.91 (33)	-	-	-
Race Recoded (n)	382*	68	39	29
% White	73.04 (279)	48.53 (33)	43.59 (17)	55.17 (16)
% Minority	26.96 (103)	51.47 (35)	56.41 (22)	44.83 (13)
College (n)	1719	68	39	29
% CLAS	35.19 (605)	47.06 (32)	41.03 (16)	55.17 (16)
% CPS	20.01 (344)	20.59 (14)	35.90 (14)	-
%SOE	25.01 (430)	26.47 (18)	15.38 (6)	41.38 (12)
% SOAD	19.31 (332)	5.88 (4)	7.69 (3)	3.45 (1)
% No College Association	0.47 (8)	-	-	-

Note. Data for CU Undergrads was obtained from an internal report created by the Institutional Researcher and includes FTFT students from the fall 2016 cohort.

**Removed students with unknown race or nonresident status from this calculation*

Table 2

Descriptive Statistics For Age and Standardized Test Scores

Variables	Total Sample			Treatment			Control		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Age	68	19.56	.952	39	19.46	.854	29	19.69	1.072
SAT Comp	62	982.74	150.11	37	961.62	136.35	25	1014	166.36
ACT Comp	12	20.67	2.84	6	19.83	2.48	6	21.50	3.15

Table 3

Change in Academic Standing Over Time

Variables	Baseline		After fall 2016 semester		After spring 2017 semester	
	n	%	n	%	n	%
	Treatment	39	-	39	-	31
Good Standing	-	-	18	46.15	17	54.84
Probation	39	100	16	41.02	10	32.26
Suspended	-	-	4	10.26	4	12.90
Dismissed	-	-	1	2.56	-	-
Semester GPA ≥ 2.0	1	2.56	27	71.05	24	77.95
Semester GPA ≤ 2.0	38	97.44	11	28.95	7	22.58
Cumulative GPA ≥ 2.0	9	23.07	18	46.15	20	64.52
Cumulative GPA ≤ 2.0	30	76.92	21	53.85	11	35.48
Control	29	-	29	-	23	-
Good Standing	-	-	17	58.62	14	60.87
Probation	29	100	11	37.93	7	30.43
Suspended	-	-	1	3.45	2	8.70
Dismissed	-	-	-	-	-	-
Semester GPA ≥ 2.0	7	24.14	19	65.52	14	63.64
Semester GPA ≤ 2.0	22	75.86	10	34.48	7	33.33
Cumulative GPA ≥ 2.0	20	68.97	24	86.20	17	80.95
Cumulative GPA ≤ 2.0	9	31.04	5	17.24	4	19.05

Table 4

Change in Semester GPA Over Time

Variables	Previous achievement			Fall 2016 semester GPA			Spring 2017 semester GPA		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Treatment	39	1.43	0.476	38	2.26	.739	31	2.31	.646
Control	29	1.79	.370	29	2.33	.731	21	2.42	.831

Table 5

Change in Cumulative GPA Over Time

Variables	Spring 2016 cumulative			Fall 2016 cumulative GPA			Spring 2017 cumulative		
	GPA			GPA			GPA		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Treatment	39	1.78	.434	39	2.03	.426	31	2.19	.433
Control	29	2.13	.248	29	2.26	.264	21	2.33	.310

Table 6

Pearson Correlation of Variables (Model 1)

Variables	Course Participation	Race	Sex	Previous Achievement	Fall 2016 GPA
Course Participation	1.00	-	-	-	-
Race	.103	1.00			
Sex	-.046	.172	1.00		
Previous Achievement	-.392**	-.007	.123	1.00	
Fall 2016 GPA	-.051	-.114	-.056	.196	1.00

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

Table 7

Pearson Correlation of Variables (Model 2)

Variables	Course Participation	Race	Sex	Previous Achievement	Spring 2017 GPA
Course Participation	1.00				
Race	-.008	1.00			
Sex	-.088	.201	1.00		
Previous Achievement	-.419**	.035	.160	1.00	
Spring 2017 GPA	-.075	.271*	0.57	.433**	1.00

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

Table 8

Regression Model 1 (N = 67)

Variable	Fall 2016 Semester GPA		
	<i>B</i>	<i>SE</i>	<i>p</i>
Course Participation	.063	.198	.752
Race	-.153	.183	.405
Sex	-.094	.188	.619
Previous Achievement	.341	.220	.109

Note. The racial categories used in the institution's census report have been collapsed into two categories: White and Minority.

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

Table 9

Regression Model 2 (N = 52)

Variable	Spring 2017 Semester GPA		
	<i>B</i>	<i>SE</i>	<i>p</i>
Course Participation	.182	.200	.386
Race	.382	.182	.041*
Sex	-.092	.186	.623
Previous Achievement	.752	.214	.001**

Note. The racial categories used in the institution's census report have been collapsed into two categories: White and Minority.

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

Table 10

Effect Sizes of GPA Changes

Variables	Baseline-fall 2016			Baseline-spring 2017		
	n	Cohen's d_{rm}	Size of effect	n	Cohen's d_{rm}	Size of effect
Treatment Semester GPA	38	1.353	Large	31	1.462	Large
Control Semester GPA	29	1.163	Large	21	1.839	Large