Walden University

College of Education

This is to certify that the doctoral study by

Jeannie Riddle Knecht

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Abstract

Tutoring Time in TRIO Student Support Services and Remedial Course Success

by

Jeannie Riddle Knecht

MS, Walden University, 2013

BA, Limestone College, 2010

Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

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Abstract

Since 1968, the federally funded TRIO Student Support Services (SSS) program has assisted students who are either low income, first-generation, or have disabilities with services designed to improve the success of these participants in college. To achieve this goal, the services offered, such as the tutoring services at a participating 2-year college in the southeastern United States, must be effective. Guided by Tinto's theory of academic integration, the purpose of this retrospective prediction study was to ascertain whether the amount of documented time receiving tutorial services, college placement test scores, race/ethnicity, gender, and age were predictive of student success as measured by grades in 2 levels of remedial math courses and 1 remedial English course. Nonprobability sampling of remedial course tutoring recipients produced samples for Level 1 math $n = 43$, Level 2 math $n = 49$, and English $n = 25$. Ordinal logistic regression analyses indicated that time spent in SSS tutoring during the first 5 weeks of a semester positively predicted grades for all 3 remedial courses. In addition, female gender was negatively correlated with grades for the Level 1 remedial math course, and college placement scores were predictive of success for both remedial math courses. Age and race/ethnicity were not significant predictors of student success for any of the courses. Based on these findings, a recommendation to implement a remedial summer bridge program was developed for the local college to provide recent high school graduates with the opportunity to get a head start on their remedial education and aid them with their transition into higher education. The summer bridge program will influence positive social change by strengthening the services of TRIO SSS at the local college, thus positively affecting the education and lives of students who take part in these services.

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Dedication

I would like to dedicate my doctoral study to my husband and best friend, Chris, for believing in me even during the times that I had a hard time believing in myself. To my brother, Trey, I thank God that you are still here to be a pain in my side. To my TRIO SSS colleagues, you will never know how much your support has meant to me throughout the years. And, finally, to the loving memory of my parents, James and Patricia Riddle, I love and miss you both every day.

Acknowledgments

I would like to acknowledge my wonderful committee. To my chair, Dr. Catherine Watt, I cannot thank you enough for putting up with me and talking me off the ledge from time to time. Dr. Vicki Underwood, I want to thank you for always being in my corner and for all the helpful resources. And, finally, I must recognize Dr. Richard Hammett for his contributions to the success of my final study. Thank you all.

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Section 1: The Problem

TRIO Student Support Services (SSS) is a higher education program funded by the U.S. Department of Education to assist traditionally underserved students reach their educational goals (Chaney, 2010). TRIO programs were established in the 1960s under President Lyndon B. Johnson's administration as a part of federal initiatives aimed at improving economic conditions for those individuals living in poverty (Groutt, 2003). SSS was the third of what are now eight TRIO programs that serve students who are either low income, first-generation, or have a disability (Groutt, 2003). Federal legislation (Higher Education Opportunity Act; P.L. 110-315) tasks SSS with assisting college students to stay in good academic standing, persist, and graduate. For SSS purposes, a student's *good academic standing* at a college is indicated with a minimum cumulative 2.0 grade point average (GPA), and *persistence* is defined as being retained until graduation. In addition, SSS programs at 2-year colleges are tasked with assisting students transfer to 4-year institutions.

The Local Problem

The SSS program associated with my study is located at a 2-year institution in the southeastern United States. According to the program's director, it is funded to serve 350 students annually and offers tutorial services to those served (personal communication, April 7, 2014). Researchers who have studied academic tutoring have suggested that it has a positive effect on students' grades (Ticknor, Shaw, & Howard, 2014). At the local college, insufficient information was available with regard to the value of SSS tutoring in assisting students' transitions from taking remedial courses to college-level courses.

The local SSS program offers a holistic approach to tutoring. SSS tutors develop supportive relationships with the students they assist on a reoccurring basis (SSS director, personal communication, May 27, 2014). Tutors detail the content of their student sessions into a database named Blumen, including the amount of documented tutoring time in minutes. Also, when students are admitted into the program they are categorized by one of five SSS criteria: low income only, first-generation only, disabled, low income and first-generation, and low income and disabled (Chaney, 2010). Despite the anecdotal praise from its participants through survey evaluations at the end of each semester, a gap in practice existed in that there has been no quantitative assessment of SSS tutoring to determine whether a positive association exists between the time that students receive tutoring and the student success indicator of grades in remedial math and English courses.

Rationale

Evidence of the Problem on the Local Level

The SSS program at the local research site offers academic tutoring, but its director was advised in 2013, by an external evaluator, to discontinue the tutorial services (personal communication, April 7, 2014). The external evaluator's recommendation was because SSS programs are not mandated by federal regulations to provide tutoring. Instead, SSS can refer students to the institution's tutoring center for assistance. TRIO SSS directors are empowered to choose to pay for the costs of providing these services directly with federal TRIO grant funds or elect not to incur that expense. Instead of paying for tutoring services, directors can choose to offer more in SSS grant aid to students or spend more on cultural awareness activities. The director for the SSS program

at the local research site elected not to follow the evaluator's recommendation to discontinue the tutoring services.

Federal legislation (Higher Education Opportunity Act; P.L. 110-315) does mandate that certain TRIO services be offered through all SSS programs funded by the government. According to SSS legislation, these programs must provide their participants with assistance in completing the application for federal financial aid, assistance in selecting courses for registration, academic tutoring (either paid for by grant funds or as a referral service to the institution's tutorial services), financial literacy training, and transfer assistance to 4-year institutions for those programs housed at 2-year colleges (Chaney, 2010). These services are critical for student success, but legislation also states that SSS programs cannot duplicate the services that their institutions offer. SSS programs must ensure that the services they offer differ in some manner from those similar services provided by the institution. Thus, the issue with duplicating services is even more complex because SSS programs can choose to forego offering tutoring and, instead, refer students to institutional tutorial services.

At the research site, SSS tutoring services offered differ from the institution's tutoring center. First, SSS participants are allotted up to 2 hours per week per course with a tutor. Tutoring appointments in SSS are standing appointments, which means that the appointments are at the same time each week with the same tutor. These appointments do not change unless the student is not attending regularly or requests to be dropped from their tutoring sessions. After four absences from their scheduled tutoring sessions, a student can be dropped from the tutoring schedule. In comparison, the institution's

tutoring center requires that appointments be made on a weekly basis. No guarantee exists that a student will receive the same time or the same tutor. According to the director of the institution's tutoring center, students can receive a maximum of 3 hours of tutoring per week from the institutional tutoring services (personal communication, May 27, 2014). Students in SSS benefit from being able to rely on their scheduled tutoring time and do not have to be concerned about scheduling their tutoring sessions each week. SSS students also benefit from having the same tutor assist them through their course work because a rapport is created with their tutees, and tutors can respond to each student's individual learning style.

Although significant care has been taken by the SSS director to differentiate between SSS tutoring services and the institution's services, no data relate student success in remedial courses to time spent in SSS tutorial services. Internal data indicate that the program provides tutoring services to 150 students per year, on average, but it is not known how many of these students are tutored in remedial courses (SSS director, personal communication, May 8, 2018). SSS program professionals survey the participants to gauge their satisfaction with the tutorial services, but it is not clear whether the services affect the success of students in remedial courses. My research produced information regarding the number of students assisted in tutoring with remedial courses and the success of these students.

The SSS program at the local research site has a successful, proven track record in other aspects of its work. The 2015-2016 annual performance report for the program indicated the following success measures: 72% persistence rate of all students who

enrolled in the program in 2015-2016 and who returned in the fall of 2016, 78% of all

students who enrolled in the program in 2015-2016 achieved a GPA of 2.0 or higher

(good academic standing), and 28% of all students who enrolled in the program in the

2012-2013 academic year graduated (SSS director, personal communication, May 8,

2018). The program met all of its objectives except its transfer objective, which was to

graduate and transfer to a 4-year institution 20% of its students from the 2012-2013

cohort. SSS fell short at 7% for the transfer objective. Although the program has been

successful in assisting students for more than 40 years, no evidence suggests the role that

tutoring plays in this success.

Evidence of the Problem in the Professional Literature

A national evaluation by the U.S. Department of Education on the effectiveness of

SSS programs found a significant relationship between participating in SSS and increased

student GPAs, as well as degree completion rates when compared with similar students

who did not participate in SSS. However, the evaluation was not able to identify which

services had the most significant effect on student success (Chaney, 2010). The findings

of Chaney's (2010) evaluation indicated no known association between SSS tutoring

services and student success.

SSS programs serve an at-risk student population, which means that remediation

is required for some members. According to internal program data at the research site,

remediation is required for 72% of the program's participants, and 52% take two or more

remedial courses (program director, personal communication, September 18, 2018).

According to the dean of admissions, enrollment in these remedial courses is a result of

performance on the Compass college placement test (personal communication, March 3, 2014). The use of placement tests has been criticized because it does not take other variables like recent high school GPA into account when determining course placement. Research has indicated that one-third of students who took the Compass placement test were unnecessarily placed into remedial courses (Scott-Clayton, 2012). These remedial courses are problematic because they lengthen the time that it takes many students to achieve an education credential, thus increasing the likelihood that they will not persist (Bachman, 2013). Data from the National Center for Education Statistics (NCES) indicated that 41% of public, 2-year college students must take at least one remedial course (Chen, 2016). A need did exist for research on the effect that SSS tutoring services has on the success of students in remedial courses because of the challenging nature of these courses.

Purpose

My purpose in this study was to evaluate the role that SSS tutorial services play in students' remedial education success. A gap in practice has been created by this relationship not having been explored by the local SSS program. I chose remedial courses as the focus of my study to narrow down the list of potential courses for which SSS provides tutoring. The definition of *success* in these courses is passing the class with a grade of at least "C," but for those not meeting that criterion, these courses may serve as a barrier for students in degree progression. In this study, I sought to establish whether benefits exist from participating in the structured SSS tutorial services in relation to grades received in remedial courses. In this study, I have informed best practices at the

local research site for SSS tutorial services and potentially also for institutional tutorial services and beyond.

Definition of Terms

The following are definitions of terms that are found in the study:

Academic tutoring: Providing instruction and learning support to individuals in their coursework to assist with attaining one's goals (National Tutor Association, n.d.).

Blumen: A software package used to track the services that TRIO programs offer to students (Blumen, 10.8).

Colleague: A software package used by the local research site as a database for student records (Colleague, 4.4.1).

Compass: Placement test used by the local research site developed by ACT and administered on a computer in a proctored testing center without time constraints. The test covers math, reading, and writing skills and is used to gauge a student's readiness for college coursework (ACT, Inc., n.d.).

Disability: A verifiable learning, mental, or physical impairment that limits the individual (Americans with Disabilities Act of 2008, 42 U.S. Code § 12102, 2008).

First-generation student: A student whose parents did not earn a bachelor's degree (Chaney, 2010).

Low-income individual: The person's taxable income (family income included if the student is deemed dependent by federal financial aid regulations) cannot be more than 150% of federal poverty guidelines (Chaney, 2010).

Remedial: Courses that are designed to provide foundational knowledge to underprepared students in reading, writing, and mathematics (Long & Boatman, 2013).

Student Support Services: Used in the study to refer to one of eight TRIO programs funded by the U.S. Department of Education at the national level (Chaney, 2010).

TRIO: A federal initiative funding eight programs including Upward Bound, Talent Search, SSSs, Educational Opportunity Centers, Ronald E. McNair Post-baccalaureate Achievement, Training Programs for Federal TRIO Programs Staff, Upward Bound Math and Science, and Veteran's Upward Bound (Groutt, 2003).

Significance of the Study

Through this study, I provided the SSS program and the college that served as the research site with data on the role tutorial services play in the success of students in remedial courses. The findings led to a better understanding of the relationship between the amount of time in SSS tutoring and the student success indicators of grades in remedial math and English courses when taking into account student entrance variables such as college placement test scores, race/ethnicity, gender, and age. The knowledge gained from my study served as a starting point for assessing SSS tutorial services and indicated possible aspects of the services that need to be strengthened. Areas appropriate for future programmatic development were also revealed. It was vital to understand how tutoring influences remedial course success. Students must be successful in these courses before moving on to college-level courses that lead toward completion. The success of SSS students in remedial courses directly affects the objectives of the TRIO program.

Improvements to the program are critical for the continued funding of the program by the U.S. Department of Education. TRIO programs have an extensive network of professional organizations that could provide venues for sharing my research with other SSS programs in need of information regarding assessment and possible ways to improve their tutorial services.

Research Questions and Hypotheses

My intent in this research was to determine whether the independent variable of SSS tutoring time (in minutes) was a significant predictor of the dependent variables of grades in remedial courses MAT 032, MAT 101, and ENG 100. In addition, I wanted to explore how students' Compass placement test scores, race/ethnicity, gender, and age related to the dependent variable of grades in these remedial courses. The following are the research questions and hypotheses that my research addressed.

Research Question 1 (RQ1): To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grade in MAT 032?

H_{01}: None of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—are predictive of students' course grade in MAT 032.

H_{a1}: At least one of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—is predictive of students' course grade in MAT 032.

Research Question 2 (RQ2): To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grade in MAT 101?

H_{02}: None of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—are predictive of students' course grade of MAT 101.

H_{a2}: At least one of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—is predictive of students' course grade in MAT 101.

Research Question 3 (RQ3): To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grade in ENG 100?

H_{03}: None of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—are predictive of students' course grade in ENG 100.

H_{a3}: At least one of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—is predictive of students' course grade in ENG 100.

Review of the Literature

The following is a review of the literature associated with the student populations that SSS programs serve, remedial coursework, college placement testing, and the effect of tutoring on student success. The theoretical foundation that informed my study is

Tinto's (1975) theory of integration. Tinto's work provided an appropriate framework because of the emphasis on variables that create student success, particularly on academic integration. I will review Tinto's work and how it will be reflected in my research. The literature review will conclude with a synthesis of works that lead into the methodology.

A search of the literature was conducted using peer-reviewed journals, professional organizations' websites, governmental websites, and books. The search used the databases accessed through the Walden University Library, including Academic Search Premier, EBSCO, Education Research Complete, Education Source, ERIC, ProQuest, SAGE Premier, and Taylor and Francis Online. The following keywords and phrases were used in the search: *academic tutoring, college placement testing, college tutoring services, development coursework, first-generation students, low-income students, placement testing, remedial coursework, remediation, tutoring and remediation, tutoring and student success,* and *tutoring effectiveness.*

Theoretical Foundation

The problem that I will address with this research involves the lack of information regarding the relationship between SSS tutoring and student success in remedial courses. One of the most noted theories on student success is Tinto's (1975) theory of integration. Tinto (1988) adapted Van Gennep's (1960) *The Rites of Passage* to describe three distinct stages that individuals must go through to acclimate socially and academically into the fabric of a college. The acclimation process Tinto referred to as *incorporation*. The theory stresses the importance of academic integration. For academic integration to occur, a student must take intentional steps to adjust to the rigors of college (Tinto, 2012).

Seeking out tutoring assistance can be viewed as an intentional step towards integrating academically at colleges such as the research site. The meaningful action towards academic integration justifies the selection of Tinto's theory as the theoretical foundation for my research.

Tinto's stages of integration are separation, transition, and incorporation (Tinto, 1988). In the separation stage, students must distance themselves from the family and community in which they were raised. The person must begin to part with the values of the family and begin to find worth in the values of their chosen institution of higher education (Tinto, 1988). Separation provides the individual the opportunity to begin the process of identifying with the college. For many students, this time of separation can be stressful, and for some, it can lead to an early departure from college. Tinto (1988) admitted that this stage does not necessarily apply to those students who live at home while in college.

The second stage is transition. It is a midpoint for the students who begin to connect with the new social and academic norms of their institution. Students begin to form relationships with their peers and the faculty and staff of their college as well as adjust to the academic rigors of higher education (Tinto, 1988). In this stage, students begin to identify more with the values of their institution. Tinto (1988) posited that this stage could be stressful for students from backgrounds where college may be foreign subject matter (i.e., racial and ethnic minorities and first-generation college students). Tinto also admitted that this stage is not required for students at non-residential, 2-year colleges.

The goal of the final stage, incorporation, is for the student to feel connected to college (Tinto, 1988). The likelihood of the student failing is lessened once a student completes the incorporation stage because the student has fully integrated both socially and academically with the college. Students entering this stage often feel isolated because they must navigate college life on their own with little help (Tinto, 1988). The students who fail to make connections with their peers and institutional employees may fail to reach the goal of incorporation and subsequently leave the institution (Tinto, 1988). Tinto argued that students who "establish repetitive contact with other members of the institution" are more likely to integrate (Tinto, 1988, p. 446). This type of continuous interaction occurs for students taking part in SSS tutoring. Thus, it may be likely that students receiving SSS tutoring achieve integration, which is difficult to achieve at 2-year colleges where most students commute.

An additional theme in Tinto's theory is the importance of the first year (especially the first 6 weeks) for a student in relation to retention and the importance for institutions to assist students through the transitional time (Tinto, 1988). Tinto points to the importance of orientation programs as key to easing some of the stress associated with the stages of integration. These orientation programs educate students to the many services that are available to them and serve as a starting point for introducing students to the values and norms of an institution.

Tinto's (1975) theory has been highly debated in higher education for 40 years, with additional research exposing some issues with the theory, although others have offered evidence to support certain elements of the theory. Some of the criticisms of

Tinto have resulted from the questionable applicability of his theory to nontraditional and 2-year college students (Metz, 2004). Research in the late 1970s and early 1980s conducted at residential colleges validated Tinto's theory (Pascarella & Chapman, 1983; Pascarella & Terenzini, 1980). However, in the late 1980s, Metzner and Bean (1987) found that nontraditional students were more likely to drop out of college due to a lack commitment and did not find support for social integration as a factor in the attrition of these students. Also, research at nonresidential and community colleges in the 1990s suggested that social integration did not play a significant role in student success at these types of institutions (Mutter, 1992). However, during this same time, several researchers did find a positive relationship between academic integration and the retention of community college students (Nora, Attinasi, & Matonak, 1990; Webb, 1989). The findings of this research would suggest that 2-year community colleges need to provide more academic support to students and worry less about their social integration at an institution.

Researchers in the 1990s also criticized Tinto for not accounting for the importance of external factors such as financial aid and the rising cost of attendance as variables affecting student success (Nora, 1990). Many of the criticisms of Tinto were addressed in later theories of student attrition. Among those theories were Bean (1980) and Astin (1984). Like Tinto, Bean's theory focused on integration but also emphasized external factors that were beyond the control of the institution. Astin's focus was on students' academic and social involvement and the energy that students put into their

involvement in college. Thus, Astin focused more on a student's motivation to be involved in college activities and academics.

Tinto's (1975) theory continues to be popular in higher education, with researchers validating the academic integration component of the theory. Ishitani (2016) suggested that Tinto's theory is applicable to the success of first-generation college students, which is one of the at-risk populations that SSS programs serve. Ishitani used data from the Beginning Postsecondary Students Longitudinal Study to research the social and academic integration of students by employing multilevel regression. The academic integration variables included meeting with an advisor, attending a study session, and speaking with faculty outside of class; the social integration variables were participating in recreational clubs, sports, and other activities on campus. The findings of the study suggested that involvement in academic support activities by first-generation students does correlate with higher persistence (Ishitani, 2016), which would suggest that first-generation student success can be positively affected if institutions can increase these activities. Social integration did not play a significant role in student retention. Ishitani's research is directly applicable to the services that SSS programs offer.

Tinto (2012) expanded the theory by detailing the best practices for student success. Among the best practices that Tinto mentioned, early academic support, including tutoring services, is seen as critical to student success. These supports are important for the academic integration of students to assist them in progressing toward their goals. Tinto also posited that it is crucial that academic supports are assessed to

improve programmatic decision making concerning the services that students are receiving.

In summation, Tinto's (1988) theory has received attention in higher education for more than 40 years, and although the applicability of the theory may not be universal, it has produced valuable information in addressing the problem of student retention. Tutoring services assist students with comprehending the content of their courses with the intent of having a positive effect on grades and course completion. The current research is informed by Tinto's emphasis on academic integration. The preponderance of research that has been completed on Tinto's theory supports the stance that academic integration is essential for student success.

Student Populations Relevant to SSS

SSS programs serve student populations that possess unique barriers in attaining their educational goals. Internal program data indicate that from 2011-2015, SSS at the local college served 539 students (program director, personal communication, May 8, 2018). Table 1 shows the demographic breakdown of those 539 participants.

Table 1

SSS Participants' Demographics 2011-2015

Demographics	Number	Percentage
Gender		
Female	371	69
Male	168	31
Age (years)		
18-24	271	50
25+	268	50
Race/ethnicity		
African American	352	65
White	137	25
All others	29	6
Hispanic	21	4
Eligibility criteria		
Low income and first-generation	319	59
First-generation	78	14
Low income	61	11
Disabled and low income	50	9
Disabled	31	6

Note. Percentages were rounded and may not equal 100. Demographic information was provided by the program director (personal communication, May 8, 2018).

In the following sections, I highlight research on the three primary student populations that SSS programs serve: first-generation, low income, and students with disabilities. An abundance of research exists with regard to the challenges of first-generation college students, but I focus on lack of family assistance and unfamiliarity of available support on college campuses. Much of the research that I found on low-income students also classified these students as first-generation. The focus of my literature review for this population included financial stressors and students' lack of preparation

for college-level courses. Research on students with disabilities is complicated because these students must self-identify to receive assistance. I found mixed research on the effects of disabilities for student's success. I complete the section on SSS student populations by detailing research on the success of SSS programs.

      First-generation college students. First-generation college students often face challenges when entering college. Many of these challenges derive from their parents' inability to assist them with the transition into college (Gibbons, Rhinehart, & Hardin, 2016; Moschetti & Hundley, 2015; Palbusa & Gauvain, 2017). Gibbons et al. (2016) conducted qualitative research on the experiences of first-generation students and described the barriers these students face when transitioning into college. The students in the study reported feeling stressed about financial concerns and lacked knowledge of where to turn for assistance with financial aid and academic issues (Gibbons et al., 2016). The researchers also reported that students in the study were not able to turn to their families for help because the families lacked the knowledge to aid the students through their transition into college (Gibbons et al., 2016).

      In a similar study, Moschetti and Hundley (2015) reported that many first-generation students were unaware of supports available to them because of their parents' lack of familiarity with the structure of higher education. Also, Moschetti and Hundley (2015) found that first-generation students were often not encouraged to seek assistance by their families. The researchers conducted grounded theory research on social capital in a 2-year college setting similar to the local research site for my study. The researchers defined social capital as support within the network of relationships that students have

both through their family and through their educational setting (Moschetti & Hundley, 2015). The authors found that students did not receive encouragement from their families in seeking out academic support. Instead, families tended to place more emphasis on the ability of the students to handle situations on their own. The researchers' findings lend credence to the argument that first-generation college students are at a disadvantage because of their parents' lack of information about support systems.

This lack of parental information concerning higher education affects the communication quality between parents and first-generation students. Palbusa and Gauvain (2017) used both a *t* test and regression analysis to compare survey results concerning family communication styles of first-generation and continuing generation students. The researchers did not find a significant difference in the frequency of communication related to college topics but did find that continuing generation students reported significantly higher rates ($p = .003$) of better quality communication on college topics. In the regression analysis, Palbusa and Gauvain found that this higher quality communication was a significant predictor of higher GPAs ($p = .003$) for continuing generation students. Palbusa and Gauvain's research would suggest that first-generation college students may be hindered by not being able to discuss college topics with their families.

The research of Gibbons, et al., (2016), Moschetti and Hundley (2015) and Palbusa and Gauvain (2017) highlight the need for SSS programs. First-generation students turn to SSS programs to provide a support system they are unable to receive from their families. Although first-generation students may be supported emotionally by

their families, the families lack practical support in the form of knowledge concerning

financial aid, registration, and academic assistance. SSS participants receive the

assistance needed to fill in the gaps of knowledge that their families do not possess.

Low-income students. Some first-generation college students also fall into the

category of being low income. Research on low-income, first-generation students has

revealed that these students may be underprepared for the rigorous academic challenges

that college courses produce (Fike & Fike, 2008; Schademan & Thompson, 2016; Ting,

1998). Schademan and Thompson (2016) reported in their qualitative research at a 2-year

community college that low-income, first-generation students often expressed the feeling

that high school did not prepare them for the demanding nature of their college courses.

Schademan and Thompson also indicated that faculty members teaching first-generation

and low-income students believed that these students were ill prepared for rigors of

college academics. Also, Ting (1998) underscored the importance of academic

preparedness in a quantitative study that complements the findings of Schademan and

Thompson's qualitative study. Ting used multiple regression to analyze data from a 4-

year college and found that high school class rank was a significant predictor of college

GPA. Ting's study is particularly relevant to my research because SSS program

participants comprised the sample and high school class rank was an indicator of

academic preparedness, similar to the placement test scores to be used in my study.

Ting's (1998) research also found that psychosocial factors in the form of leadership and

community involvement were significant predictors of college GPA. In a similar

regression study, Fike and Fike (2008) found that a significant predictor of success for

students who fell into the low-income, first-generation category was college-ready

reading ability. The findings of Fike and Fike, Schademan and Thompson, and Ting

inform my study because they demonstrate that a confounding variable such as academic

preparedness may affect the relationship between academic tutoring and student success.

Low-income, first-generation students often attend community colleges because

of financial concerns and limited alternatives (Inman & Mayes, 1999). In a sample of

5,057 students attending community colleges in Kentucky, Inman and Mayes (1999) used

survey data to compare first-generation students with continuing generation students. The

researchers found that first-generation college students were more than twice as likely to

have an annual income of less than $8,840 and have twice as many dependents compared

to continuing generation students (Inman & Mayes, 1999). These low-income, first-

generation students also reported having fewer college choices due to their financial

situations. Many of the surveyed students stated that they had to stay close to home

because of work or family obligations (Inman & Mayes, 1999). Of the survey

respondents, 46.6% of first-generation, low-income students indicated that without the

availability of a community college, they would not be able to pursue a college education

(Inman & Mayes, 1999).

Additionally, financial stress may affect the success of low-income students

(Martin, 2015; Thayer, 2000). Martin (2015) used interviews and journal entries to

investigate the college experiences of White, low-income students at a 4-year institution

and found that the need to work affected students by limiting their ability to be involved

in campus activities. Students in the study also reported making the decision to attend

college to better their lives and their economic status. Another finding of Martin's study was that students had to find additional financial resources such as scholarships from TRIO to pay for their living expenses. In a national study of SSS programs, Thayer (2000) reported that lack of financial resources affected the success of low-income, first-generation students. Thayer noted that SSS programs provide an additional avenue of support for these students to deal with their financial obligations.

Students with disabilities. In addition to first-generation and low-income students, SSS programs serve students who have disabilities. Students with disabilities face the challenge of battling an underlying condition (emotional, learning, or physical) that may hinder their ability to attain their academic goals. In higher education, students self-identify as disabled, working through the institution's student disability office.

Research on disabled students has produced mixed results with respect to the effect of being disabled on student success. Hen and Goroshit (2014) used measurements related to emotional intelligence, academic self-efficacy, and procrastination to report that students with learning disabilities showed greater levels of procrastination and learned helplessness than students without a disability, as well as lower levels of academic expectations and emotional intelligence. The students' responses indicated that they had little belief in their abilities and demonstrated behaviors detrimental to their success. Despite this, the researchers did not find a significant difference in the GPAs of disabled students when compared to the nondisabled students. The study was completed in Israel, so the applicability of the study in the United States could be questioned.

The results of a separate study contradict the findings of Hen and Goroshit (2014). Blake and Rust (2002) used survey data to compare self-efficacy and self-esteem in college students with disabilities versus a normative sample of students. They reported that disabled students scored higher on measures related to self-efficacy and self-esteem than the normative sample. Blake and Rust also reported a positive correlation ($r = .30$, $p < .05$) between social self-efficacy and the visibility rating of the student's disability. The researchers theorized that this result may be due to the highly visible disabled students' acceptance of their situation, and to the less visibly disabled students trying to hide their disability.

The conclusion of Blake and Rust (2002) was supported by research from Fleming and Wated (2016) that indicated students who possess a disability may not view their disability as a stigmatizing factor. Fleming and Wated used survey data to conclude that students may not have a negative attitude about being labeled as disabled because the benefit of divulging the disability is the special accommodations that disabled students can receive. The research of Blake and Rust and that of Fleming and Wated would suggest that despite the barriers they face, disabled students can potentially put a positive spin on their circumstances. The student populations of Blake and Rust and that of Fleming and Wated were 4-year college students and may differ from the 2-year college students in my research.

Research on the success of SSS. Since 1968, SSS has been assisting students from disadvantaged backgrounds succeed in higher education. In 2013-2014, TRIO SSS assisted 98,096 students nationally at 2-year institutions (U.S. Department of Education,

2016). Of those students, 48.9% received academic tutoring assistance through SSS.

Despite such a large number of students that take part annually in SSS tutoring, little

research has been published on the role that SSS tutoring plays in the success of students.

The lack of available research on SSS tutoring may be due to the need to justify the

existence of TRIO programs through research that demonstrates the overall effect on the

success of its participants.

Chaney (2010) conducted the last national study on SSS services, which revealed

that SSS programs have a positive effect on participants' GPAs, retention, and degree

completion rates. Chaney (2010) completed a longitudinal study that used national SSS

data from the 1991 student cohort year and tracked that information throughout a 6-year

period. The SSS student data were compared with non-SSS students with similar

backgrounds. Multivariate and logistic regression indicated that SSS students had an 8%

to 11% greater degree completion rate than non-SSS students (Chaney, 2010). Chaney

also reported that SSS students were 17% to 19% more likely to be retained than their

non-SSS counterparts. Finally, Chaney found SSS students achieved an average GPA of

2.34 compared to the 2.18 GPA of non-SSS students, reflecting a +.16 difference in favor

of SSS students.

Differences between SSS and non-SSS students are apparent when comparing

student success outcomes. Nationally in 2014, 2-year institutions retained 54.2% of their

students and graduated 31.6% (U.S. Department of Education, 2016). In comparison,

during the same time, SSS programs at 2-year institutions retained 85% of their students

and graduated 39% with an associate degree or certificate. At the local research site, the

success comparison has produced similar results. In 2015-2016, the local research site

had a retention rate of 53% and a graduation rate of 11% for students who entered in

2013 (NCES, 2017). In comparison, the SSS had a 72% retention rate in 2015-2016 and a

31% graduation rate for students who entered the program in 2013 (program director,

personal communication, May 8, 2018). The graduation rate comparison is problematic

because the NCES uses data from first-time, full-time students to compute their rate,

whereas SSS data are derived from all students who entered the program in 2013

irrespective of their full-time enrollment status. However, when comparing the national

and local retention data, SSS seems to make a difference in the success of its students.

What is unclear is the role that academic tutoring plays in this success.

College Placement Testing and Remediation

College placement testing is required by most 2-year colleges, but the use of these

tests has come under fire in recent years as researchers have questioned if these tests

accurately place students into courses (Melguizo, Kosiewicz, Prather, & Bos, 2014;

Scott-Clayton, Crosta, & Belfield, 2014). In a quantitative study using data from two

community colleges and employing predictive modeling, Scott-Clayton et al. (2014)

found that students were two to six times more likely to be underplaced into courses

(meaning that they were placed into a class that was lower than their ability) than

overplaced (meaning that they were not placed into a class that was higher than their

ability). In fact, the researchers determined that one-third of the students in their sample

were underplaced. In a mixed methods study using data from a community college,

Melguizo et al. (2014) reported few department heads believed that placement testing

accurately placed students into courses. The same authors posited that placement tests'

cut scores are not applied consistently throughout most colleges because each department

sets their cut scores. In the quantitative portion of their research, Melguizo et al. (2014)

reported that two-thirds of students placed three levels below the math course transfer

level and concluded that the students who placed higher in a remedial course sequence

were more likely to complete the remaining remedial math courses and progress to a

college level math course.

Additional research into college placement tests has produced mixed results

concerning the ability of these tests to predict student success, thus continuing to add

questions concerning the ability of these tests to properly place students into courses. In a

study that encompassed data from two community colleges and used marginal logistic

regression, researchers found that the Accuplacer placement test developed by College

Board did not properly predict students' success in remedial math courses (Medhanie,

Dupuis, LeBeau, Harwell, & Post, 2012). Another quantitative study by Bremer et al.

(2013), in which logistic regression was used with data from a community college,

produced different results, indicating that higher math placement test scores were a

significant predictor of student success as defined by higher GPAs ($p < .001$). The

researchers did not find that higher reading ($p = .179$) or writing ($p = .901$) placement

scores significantly predicted students' GPAs. The results of this research suggested that

higher math placement scores may predict student success, but this may not be the case

for reading and writing placement.

Because of the mixed results of research into the effectiveness of placement testing, the local college began using multiple measures for remedial course placement in the fall of 2016. During the years for which I planned to extract data for my study, the institution was still using the Compass placement test. Analysis of the data from those years determined if a relationship existed between grades in remedial math and English courses and the students' scores on the Compass placement test. My research had the potential to validate the institution's decision to use multiple measures or contradict that decision.

Based on placement tests scores, remediation may be required, but enrollment in these courses can be problematic to student success. The intent of remedial courses is to prepare students for success in subsequent courses. Researchers have found that students who begin college in remediation are significantly less likely to finish the sequence of college-level courses in both math and English for degree attainment (Bahr, 2013; Ngo & Kosiewicz, 2017). The authors of these studies question if remediation is meeting the academic needs of the students in these courses. Remediation in math has especially been shown to be problematic for success in higher-level college courses. Ngo and Kosiewicz (2017) found that students who started in remedial math completed fewer degree-applicable courses; the problem was compounded for students who had to take two remedial math courses. Also, Bahr (2013) found students who abandoned the remedial math sequence slowed their progress through their other courses as these students reduced the number of classes they were taking each semester. Overall, these studies indicate that students in remedial courses often find themselves unable to complete the

full sequence of those classes, which hinders them in making progress beyond the barrier of remediation.

It is also important to understand which students are affected most by remediation. Crisp and Delgado (2014) reported higher numbers of female, minority, and first-generation college students enrolled in remedial courses. Wolfle and Williams (2014) found that female remedial students persisted at higher numbers than male remedial students, but that African American students were 42.6% less likely to persist than their non-African American cohorts (Wolfle & Williams, 2014). The results of Wolfle and Williams' research is relevant to my study because the majority of SSS students at 2-year colleges are female (67.5%) and 57.3% of SSS students are racial and ethnic minorities (U.S. Department of Education, 2016).

Researchers have also found that nontraditional-aged students are negatively affected by remediation; they persist in significantly lower numbers than traditional-aged students in remedial courses (Davidson & Petrosko, 2015; Wolfle & Williams, 2014). The traditional-aged students have the benefit of recent exposure, through their high school education, to the same academic material covered in college-level remedial academic courses, which may explain the research findings. These effects of remediation on nontraditional-aged students affect SSS programs at 2-year colleges because of the large number of older students who are served. Nationally, SSS membership at 2-year institutions is comprised of 50% of students who are beyond the age of 23. Several variables may affect the success of nontraditional-aged students in remedial courses. Nontraditional students often have more family, financial, and employment obligations

than their traditional-aged cohorts, which affects the amount of time they have to devote to their studies (Wolfle & Williams, 2014). My study assessed whether an increased commitment to academics in the form of participation in SSS tutoring is related to remedial course success for nontraditional students.

Another issue for students in remedial courses is the perceived stigma associated with the courses. In a qualitative study, Bachman (2013) reported that students believed remediation was for those who were unintelligent, and they saw little benefit to the courses. On a positive note, Bachman also reported that many remedial students began to change their opinion of remedial courses after completing them. It could be construed that these students came to believe that remediation was beneficial. In an earlier study, Deil-Amen and Rosenbaum (2002) revealed the dangers of destigmatizing remediation. The researchers reported in their qualitative research that some colleges had attempted to mitigate the stigma of remedial courses by rebranding them as developmental courses (Deil-Amen & Rosenbaum, 2002). At the two community colleges where this had occurred, it was reported that some students were not aware of their remedial status and that it meant a longer path to degree attainment (Deil-Amen & Rosenbaum, 2002). For those students unaware of their remedial status, this also meant that they were not informed of other career certificates that they could have obtained in lieu of the degree programs requiring remediation (Deil-Amen & Rosenbaum, 2002). The local research site for my study also practices the destigmatizing technique of rebranding remediation as these courses are referred to as *transitional* courses.

Some research has also shown that enrollment in multiple remedial courses has an effect on student success (Attewell, Lavin, Domina, & Levey, 2006; Hoyt, 1999). Hoyt (1999) used data from a community college in Utah to find that students required to enroll in three remedial courses (math, English, and reading) underperformed in those classes compared to students only required to enroll in two remedial courses. The mean GPA of the students in three remedial courses was 2.3 compared to the mean GPA of 2.47 for students in two remedial courses (Hoyt, 1999). Hoyt also found that 64% to 67% of students who took three remedial courses eventually dropped out of college. In contrast to Hoyt's research, an earlier study found that enrollment in multiple remedial courses did not affect student success. Attewell et al. (2006) used data from the National Educational Longitudinal Study conducted by NCES that included a sample of 6,879 traditional students. These researchers found that 14% of community college students had to take more than three remedial courses. Logistic regression indicated that when variables concerning academic preparation were controlled, students taking multiple remedial courses did not graduate at a significantly lower rate than students who only took one remedial course (Attewell et al., 2006).

Research has also revealed factors that predict college remediation success. Bailey, Jeong, and Cho (2010) completed a multiple regression analysis of Achieving the Dream data and found that women were 1.53 to 1.56 times more likely to pass upper-level remedial math courses (Introduction to Algebra and Intermediate Algebra) than their male counterparts. The researchers also reported that White and Hispanic students were more likely to pass higher remedial math courses than African American students.

No significant difference existed between the pass rates for White and Hispanic students in higher-level remedial math courses (Bailey et al., 2010). In a study that included many of the same variables as my research, Fike and Fike (2008) examined data from a community college using a logistic regression model to identify predictors of retention for community college students. Among the significant predictors ($p < .001$) were completion of a remedial reading, writing, or math course; receiving financial aid; and participation in TRIO SSS.

Effect of Tutoring on Student Success

Tutoring is a service that colleges provide to assist students with mastering the concepts and skills necessary to be successful in their courses. Researchers have shown that students who take part in tutoring services are more likely to achieve higher grades in the course(s) they seek assistance with than those students who do not take advantage of tutoring (Jaafar, Toce, & Polnariev, 2016; Ticknor et al., 2014; Vick, Robles-Pina, Martirosyan, & Kite, 2015). In a quantitative study conducted at a community college similar to the local research site, researchers found that students who took part in math tutoring earned grades 37% higher than their GPA-matched cohorts (Jaafar et al., 2016). In a similar study involving tutoring services for developmental English at a community college, 61% of tutored students received either an A or B, as compared to 39% of students not tutored (Vick et al., 2015). Ticknor et al. (2014) also found a significant relationship between higher grades and participating in tutoring but questioned if students who sought tutoring possessed other qualities that led to higher success rates. One

possible explanation was that students who sought tutoring may have been more engaged academically and would have been successful without the tutoring assistance.

Beyond higher course grades, researchers have also shown that tutoring can have a positive influence on course completion. Colver and Fry (2016) found support for the positive effect of tutoring on course grades in a mixed-methods study that incorporated both correlational and quasi-experimental methods. In the correlational component of their research, Colver and Fry found a significant relationship ($p = .001$) between the number of hours that students received tutoring assistance and course grades. Thus, a student's level of dedication to the tutoring process may also play a role in student success. In the quasi-experimental portion of their study, Colver and Fry found that as a treatment for students retaking a previously-failed course, tutoring played a significant role in course completion on the second attempt. Also, Copus and McKinney (2016) presented supporting evidence for tutoring having a positive influence on course completion. Their quasi-experimental research at a community college indicated that students taking a beginning algebra course with tutoring support demonstrated a nine percentage point higher completion rate when compared to nontutored students.

In addition to course grades and completion, tutoring has been shown to affect students' overall GPAs and retention to the second year. Many researchers have pointed to a relationship between tutoring and significantly higher overall GPAs of students who took part in tutoring when compared to nontutored students (Coladarci, Willett, & Allen, 2013; Drago, Rheinheimer, & Detweiler, 2016; Grillo & Leist, 2013; Walvoord & Pleitz, 2016). Using matched samples, Walvoord and Pleitz (2016) found that tutored students

had a significantly higher GPA by .29 points when compared to their nontutored cohorts.

When controlling for other variables such as gender, academic ability, and income status,

Drago et al. (2016) also found that tutoring played a significant role in the higher GPAs

of tutored students when compared to nontutored students. Although the research of

Walvoord and Pleitz and Drago et al. cannot establish a cause and effect relationship

between tutoring and higher GPAs, their studies eliminated many of the other mitigating

factors, through a case-control matching design, that could explain the higher GPAs for

tutored students. In another study, Grillo and Leist (2013) established a positive

correlation between the number of tutoring hours attended and students' GPAs. In a

similar study, Coladarci et al. (2013) found only a slight positive effect (one fifth of a

grade point) on the GPAs of those students who were tutored in comparison to nontutored

students but did find a strong correlation between the number of hours tutoring was

received and students' retention to the second year. One possible explanation for that

finding was that tutored students were engaging in a purposeful activity to integrate

themselves academically into their institution through their increased use of tutoring

services.

Additional research has produced some interesting insights into how students feel

about seeking tutoring assistance. In a mixed-methods research design, Colver and Fry

(2016) surveyed students who took part in tutoring and reported that students believed

that the service had assisted them with understanding concepts covered in their courses.

The students in that study also reported feeling more confident in their ability to master

course material due to participating in tutoring. However, despite the positive results of

taking part in tutoring reported in the literature, many students do not seek tutoring assistance. Ciscell, Foley, Luther, Howe, and Gjsedal (2016) revealed some of the reasons why students may not take advantage of tutoring services. From results of a focus group interview, Ciscell et al. reported that many students believed that a stigma was associated with seeking academic tutoring. It could be that these students believed they would be viewed as less intelligent because of tutoring participation. Colver and Fry also reported that many students were not aware of the availability of tutoring services, and others could not find time to take part in tutoring. Findings from the study indicated that tutoring program personnel needed to better promote their services and the potential benefits of tutoring. Additionally, research has pointed to the importance of tutor training. In a national study of remedial education for both 2 and 4-year colleges, Boylan, Bliss, and Bonham (1997) did not find a significant relationship between tutoring and students' GPAs. That finding was reversed when the researchers studied programs where tutors had gone through a tutor training program. The researchers also commented on the importance of continuous assessment of tutoring practices.

Only two studies were found in which researchers specifically studied the role of tutoring in SSS, indicating that a gap in research exists that my study can assist in addressing. The first study was completed in 1997 and was based on data from a case study of five SSS programs that were found to offer best practices (Muraskin, 1997). One of the best practices involved academic support for remedial courses and frequently-taken first-year college courses (Muraskin, 1997). Academic tutoring was listed as a best practice for academic support; however, the researcher claimed that one of the

institutions identified for best practices did not offer tutoring and two institutions only had limited tutoring services (Muraskin, 1997). The type of tutoring also differed from institution to institution with peer tutoring being most common. Weinsheimer (1998) completed the second study on SSS tutoring and asserted that it had a significant effect on the grades, credits earned, and retention of students. Weinsheimer's (1998) 3-year longitudinal study, reported in a monograph for the U.S. Department of Education, differed in several ways from my study. Weinsheimer (1998) only used data from 4-year institutions, the tutoring programs were all peer-tutoring programs, and no mention was made of student success in remedial courses.

Implications

The information presented in the literature review informed the direction of my research by providing a greater understanding of the challenges that the SSS student population faces in successfully navigating through higher education. Also, based on the review of relevant literature, for many students, the complex nature of college placement testing and remediation proves to be a hurdle to their college success. Finally, the findings highlighted in the literature show that a relationship may exist between tutoring and course grades. The information from the literature review combined with the findings of this study led to the development of a project that focused on the strengths associated with SSS tutoring services to provide early academic support to SSS participants. Application of what was learned from this study can strengthen the services offered by the local SSS program.

Summary

For SSS at the local research site, a gap in practice was identified because it was unknown if the program's tutorial services were effectively assisting students in remedial education. The research discussed in the literature review indicated that SSS students face barriers to success. For many of these students, the need for remediation is an additional hurdle, but tutoring has shown promise in assisting students with their grades. This study explored remedial course grades and their relationships with the time students invest in tutoring (as documented by SSS tutors), college placement test scores, race/ethnicity, gender, and age. The next section will detail the methodology that I used in the study including research design, setting, sample, instrumentation, data retrieval process, possible limitations, and issues involving protection of human participants in the research.

Section 2: The Methodology

In this section, I describe the quantitative research methods that helped me address the role TRIO SSS tutoring services play in the success of students in remedial education. In this section, I will address the research design that I chose to explore my research questions. Information regarding the research setting, population, sample, and research instrumentation will be detailed to describe how I conducted my research.

Research Design and Approach

In my study, I used a retrospective prediction research design. This design is a type of correlational research that explores variables that can be used to forecast a result using historical data (Creswell, 2015). The independent variables are all recorded before the outcome occurs. This design can establish if a statistically significant relationship exists between grades in remedial courses and time in SSS tutoring, college placement test scores, race/ethnicity, gender, and age. A prediction design is appropriate when the researcher does not plan to divide participants into a treatment and a control group but instead explores predictor and outcome variables that occurred at different points in time (Creswell, 2015).

In my research, I used institutional, archived data collected through regular academic practices of the institution from September 2012 to August 2016. This design and data retrieval approach were selected, in part, because of my current employment status at the local research site. The use of archived data limits potential issues of bias with my research and guards against violations of participants' rights.

In my study, I investigated data of former SSS participants who received tutoring in MAT 032, MAT 101, and ENG 100 to learn if a significant relationship existed between the independent variables of time in SSS tutoring, college placement test scores, race/ethnicity, gender, or age and the dependent variable of grades in these courses. MAT 032 at the local research site is a remedial math course that familiarizes students with basic algebraic principles, measurement, and statistics. MAT 101 is an introductory algebra course that delves into linear and fractional equations. ENG 100 is a remedial English course that covers grammar, sentence structure, and essay writing techniques. I explored an additional basic skills remedial math course, MAT 031, to learn whether a relationship existed between completion of that course and MAT 032.

My research derived from the local problem because it served as a starting point in establishing the strength of the relationship between tutoring in SSS and remedial course success. I theorized that if a significant relationship was found between the amount of documented time in tutoring and remedial course grades, then more detailed policies and assessment practices could be built around those relationships. If no significant relationship was identified, then tutoring policies and assessment practices needed to be established to focus on improving SSS tutorial services. Also, it was important to know how student demographic and entry data, the other independent variables (college placement test scores, race/ethnicity, gender, and age), influence remedial course grades. This knowledge can also be used to help improve programmatic decisions and policies.

Setting and Sample

The local research site is an open admission, multicampus, 2-year institution in the southeastern United States with more than 9,000 students enrolled (National Center for Education Statistics, 2017). The SSS program is located on the original and largest campus. The program is funded annually to serve 350 students who meet the eligibility criteria laid out by federal regulations. Also, students must be enrolled in an associate degree or certificate program and have a minimum 2.0 GPA (for students who have already completed at least one semester). SSS-eligible students cannot already possess an associate degree or higher or have earned more than 90 hours of college credit (Chaney, 2010). According to the program director, participation in tutoring services is optional for SSS students, but each student is encouraged at SSS participant orientation to sign up for the services (personal communication, April 7, 2014). Also, SSS tracks participants' academic progress throughout each semester. If a student falls below a 70 average in a course, then SSS staff members contact the student to offer tutoring. The program begins the process of assigning tutors on the first day of each semester on a first come, first served basis. A student can be assigned a tutor later in a semester if a tutor who can assist with the needed course(s) has available time slots.

The population for my study consisted of students enrolled in SSS who were either low-income, first-generation, or had a physical or learning disability, and also requested tutorial services through SSS at the local research site. SSS only serves students at the institution's original campus. From the fall of 2012 to the summer of 2016, 522 students participated in SSS with an average of 60 students receiving tutoring

in fall and in spring. For the research, I used nonprobability, census sampling to identify

archived data for a set of students who specifically received tutoring for MAT 032, MAT

101, and ENG 100 from 2012-2016. These remedial courses were chosen due to the

potential barriers that are caused because a student must enroll in remediation. According

to Creswell (2015), this type of specific sampling strategy is used when one is

researching a group with a unique characteristic. Any student who received tutoring for

one of those three classes but withdrew from the course was not included in the sample.

Also, students who attempted a remedial course more than once were excluded from the

sample to eliminate the possibility that previous exposure to the course increased the

likelihood of success for those students. Data from students' records were used to

investigate the research questions.

I used multiple ordinal logistic regression analysis for hypothesis testing. To

determine if the null hypotheses could be rejected, I needed adequate power in my

sample size (Creswell, 2015). Vittinghoff and McCulloch (2007) stated that when using

logistic regression for prediction, the usual rule for assuring sufficient power is 10

participants per independent variable category, but the authors believe that the rule may

be too restrictive and made a case for sufficient power between 5-9 participants per

category. My sample sizes were as follows: MAT 032 $n = 43$, MAT 101 $n = 49$, and ENG

100 $n = 25$. With both categorical independent variables, race/ethnicity and gender,

having only two categories each, these sample sizes should have provided sufficient

power for the ordinal logistic regression analyses.

I used archived data collected through the normal academic practices at the local research site to answer my three research questions. I used two databases to retrieve data, Blumen and Colleague. Data concerning SSS tutoring services and the courses that students received tutoring in were retrieved from Blumen. Demographic information, placement test scores, and grades in remedial courses were retrieved from Colleague.

Blumen

According to the SSS program director, many TRIO programs use Blumen to track their student service activities (personal communication, April 7, 2014). The software was developed to aid TRIO programs with their annual reporting to the U.S. Department of Education. The information entered into Blumen is used to create a data file that is uploaded to the U.S. Department of Education when the program completes its Annual Performance Report. The report consists of the number of services that the programs offered to its students and whether objectives were met for the year (Chaney, 2010).

According to the local program director, SSS began using Blumen in 2002, but tutoring services were not tracked within the system until 2012. Tutors keep paper logs of their activities with tutees during sessions throughout their workday including the subject matter covered and total time for the session in minutes. Tutors have a designated hour each week where they manually input that information into Blumen. The tutor's supervisor then checks these entries each month for accuracy. Data extracted from Blumen included the amount of time students participated in tutoring and the subject(s) for which they were tutored. Tutors are responsible for reporting student attendance

issues to their supervisor, who determines whether a student should be dropped from the tutor's schedule. Enrollment in courses is also tracked. A student who withdraws from a class is subsequently dropped from tutoring as well. Data in Blumen entered by SSS tutors were considered to be reliable because this information is verified by the program director and certified by the research site's president when submitting the information to the U.S. Department of Education for annual reporting.

Colleague

Information on student grades, age, gender, race/ethnicity, and college placement test scores was found in Colleague. The local research site has used Colleague as its student database for more than 15 years. At the time that the college converted to Colleague, it was known as Datatel. The institution's registrar ensured the accuracy of the information. Information retrieved from Colleague was considered reliable because it reflects what would appear on a student's official college transcript.

Compass Placement Testing

During the time of my study's focus (fall 2012 through summer 2016), the local research site used the Compass placement test developed by ACT. Reliability and validity are important aspects of any testing instrument. Reliability refers to the consistency of an instrument, whereas validity refers to the accuracy of the measurement (Creswell, 2015). According to ACT (2006), the Compass placement test showed a median .85 marginal reliability coefficient and a 60% to 80% placement accuracy rate. However, the validity of using these tests alone to place students into courses has been questioned and led ACT to stop supporting the use of the test (Scott-Clayton, 2012). ACT

(2006) also recommended the use of placement test scores as a guide and the use of other placement measures was advised.

Data Retrieval and Analysis

I obtained permission from the local research site through the Institutional Effectiveness division, the official institutional approver in lieu of an Institutional Review Board (IRB). Data retrieval started after I received approval (08-14-18-0327202) from Walden University's IRB. An SSS staff member extracted the data for my study and removed any identifying information from the data before forwarding it to me. The Institutional Effectiveness department at the local research site could not retrieve data from Blumen; a staff member from the program had to extract the data for me. The SSS employee, who has the needed access for both Blumen and Colleague, extracted a list of all SSS students from Blumen for 2012-2016 to determine who received tutoring in MAT 032, MAT 101, and ENG 100. Blumen was also the source of data specifying the amount of time in tutoring for each student. The SSS employee paired data extracted from Blumen on the students who received tutoring in MAT 032, MAT 101, and ENG 100 and the amount of time in tutoring with data from Colleague for the placement test scores, race/ethnicity, gender, age, and grades of those in the sample. Also, grades for those tutored MAT 032 students who also took MAT 031 were extracted from Colleague. These data were provided to me with no identifying information and were secured on a password protected Excel spreadsheet located on a personal USB drive. Data for race/ethnicity were coded as only two groups, African American and Other, to adhere to

the data usage agreement I signed with the local research site that indicated I could not report results on any group of students of 10 or less.

Table 2 lists the variables for my research and how these variables were coded and used for statistical analysis in IBM SPSS.

Table 2

Variables Included in the Study

Variables	Measure	Values	Variable type
Independent			
Tutoring time	Minutes	Weeks 1-5, 6-10, 11-15	Continuous
Compass scores	1-100	Numerical, writing	Continuous
Age	Self-reported	$\geq$18 years	Continuous
Race/ethnicity	Self-reported	African American, Other	Nominal
Gender	Self-reported	Female, male	Nominal
Dependent			
Course grade	As recorded	A=4, B=3, C=2, D=1, F=0	Ordinal
MAT 032			
MAT 101			
ENG 100			

The retrospective study included five independent variables and one dependent variable. Dummy variables were created to represent the independent variables that are categorical in nature. The independent variables of the amount of documented time that students participated in tutorial activities, age, and college placement test scores are considered interval-level variables because they are continuous and the distance between components is equal (Creswell, 2015). The variables of race/ethnicity and gender are categorical. The dependent variables that I explored are students' final letter grades in

MAT 032, MAT 101, and ENG 100. Letter grades are considered an ordinal variable

because the values are rankings demonstrating order but without equal distances between

the values (Creswell, 2015).

Analysis of the data retrieved for my study produced both descriptive and

inferential statistics. Demographic statistics for each course (including percentages for

gender, race/ethnicity, course grades, and age) are presented in Tables 3, 6, and 9.

Additionally, descriptive statistics for each course (including means and standard

deviations for the age, Compass scores, and tutoring time) are found in Tables 4, 7, and

10. Hypothesis testing was conducted using three multiple ordinal logistic regression

analyses, one for each dependent variable (course grade for the three remedial courses).

Logistic regression analysis is appropriate when the dependent variable is not continuous,

and when more than one independent variable is in the research (Stoltzfus, 2011). My

analysis consisted of an ordinal dependent variable, thus I ran ordinal logistic regression

testing. Because I did not hypothesize that one independent variable would be more

predictive of student success in remedial math and English courses than another, I used a

direct approach with my logistic regression model.

Statistical Testing Assumptions

The statistical analysis of my dataset produced a goodness of fit determination

for my model. Also, the logistic regression model produced odds ratios, which indicate

the strength between each independent variable and the dependent variable (Huck, 2012).

The significance of these odds ratios can be established through a Wald test, which

analyzes the significance of beta weights (Huck, 2012). Additionally, I ran three linear

regression tests (one for each course) to ensure that multicollinearity did not occur with my independent variables. Multicollinearity can happen when independent variables "are too highly correlated," which can cause issues with drawing a conclusion about which variable has predictive qualities (Huck, 2012, p. 400). A final assumption was that my analysis would produce proportional odds, which hold that when comparing independent variables, the same effect occurs (Osborne, 2015).

Assumptions, Limitations, Scope, and Delimitations

Certain assumptions were associated with my study. It was assumed that all data gathered from Blumen and Colleague were accurate. The assumption was made because those data were recorded through the normal academic practices as required by published policies associated with SSS and the local research site. As I did not personally retrieve the data, it was also assumed that the data were reported to me wholly and accurately.

My study was limited in that relational research does not equate to causation (Creswell, 2015). Through this research, I was not able to determine causality, only quantifying the nature and extent of the relationship between the amount of documented time students participated in SSS tutoring and their remedial course grades. Although certain student demographic and college entry variables were included to assess their contributions as independent variables, other mitigating variables could not be eliminated. Another limitation of my study was a result of the purposeful sampling technique. Because I studied a specific group of students, my research cannot be generalized to a larger population of students (Creswell, 2015). Due to the quantitative

nature of my research, students' personal experiences in tutoring were not reported, and this can be seen as a limitation.

The scope of my research included only tutoring services for SSS. The research did not include students outside of SSS who received tutoring from other resources at the college, nor did it include students in SSS who received tutoring for any other subject matter. Also, the scope of my research did not include a comparison group. The variables in my research included the independent variables of the amount of documented time being tutored in SSS tutoring, age, race/ethnicity, and college placement test scores in relation to the dependent variable, grades for MAT 032, MAT 101, and ENG 100. Also, I investigated the relationship between taking MAT 031 for those students who were tutored in MAT 032. Many other variables may affect students' grades in remedial courses.

My research was delimited through the selection of one college campus and the purposeful exclusion of students from my study. Although SSS provides tutoring services for more students than I studied, those students were excluded because they did not receive tutoring in remedial courses. Focusing my research on the relationship between time in tutoring and success in remedial courses was another delimitation of my research. I selected remedial courses because of the challenge that they pose for student success, but other courses could have been the focus of this research.

Protection of Participants' Rights

In my study, I used archival data to mitigate issues that could arise involving protection of students' rights due to my employment at the local research site.

Additionally, I complied with Walden University's policy of completing the National Institutes of Health's online training entitled "Protecting Human Research Participants." In my involvement with SSS, contact with individuals in the sample could have potentially occurred in the past. To ensure anonymity of the data, I did not retrieve any data; another employee from SSS extracted the data on the samples from Blumen and Colleague and provided them to me in de-identified form.

Data Analysis Results

This section details the statistical analysis results for the following research questions and hypotheses:

RQ1: To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grades in MAT 032?

> *H_01:* None of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—are predictive of students' course grades in MAT 032.

> *H_a1:* At least one of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—is predictive of students' course grades in MAT 032.

RQ2: To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grades in MAT 101?

> *H_02:* None of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—are predictive of students' course grades of MAT 101.

H_a2: At least one of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—is predictive of students' course grades in MAT 101.

RQ3: To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grades in ENG 100?

H_03: None of the independent variables—time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, or age—are predictive of students' course grades in ENG 100.

H_a3: At least one of the independent variables—time in tutoring, Compass placement test scores, race/ethnicity, gender, or age—is predictive of students' course grades in ENG 100.

MAT 032 Descriptive Statistics

Table 3 shows MAT 032 demographic statistics for MAT 032. A total of 43 students took part in tutoring for MAT 032 from August 2012 through July 2016. Of these students, 35 students (81.4%) completed the course with a grade of C or better, 23 students (53.5%) were female, and 30 students (69.8%) were African American. Also, 22 of the students (51.2%) who received tutoring for MAT 032 had also taken MAT 031. MAT 031 is the first of four remedial math courses that the college offered at the time of my research, MAT 032 was the second. The demographic statistics for MAT 032 mirror the student population data of SSS that was reported in Table 1 with a majority of African Americans and females. MAT 032 demographic statistics were also consistent with

research that indicates women and racial/ethnic minorities are more likely to be placed

into remediation (Crisp & Delgado, 2014).

Table 3

MAT 032 Demographic Statistics

		N/n	Percentage
MAT 032 grade	F	7	16.3
	C	15	34.9
	B	14	32.6
	A	7	16.3
Gender	Male	20	46.5
	Female	23	53.5
Race/ethnicity	African American	30	69.8
	Other	13	30.2
MAT 031	Yes	28	65.1
	No	15	34.9
Age (years)	18-24	17	39.5
	25+	26	60.5
Total		43	100.0

Table 4 shows the descriptive statistics for MAT 032. The mean Compass

placement test score was 32.72, with a minimum of 17 and a maximum of 55. Students

must score from 35-49 to take MAT 032 (dean of admissions, personal communication,

March 3, 2014). Due to the minimum score requirement, 25 students had to take MAT

031 before attempting MAT 032, and one student elected to take MAT 032 although

being placed into MAT 101. The standard deviation for the placement test score was 9.2,

which is indicative of the wide range of scores. The mean time in tutoring increased by

62.21 minutes from the first 5 weeks of a semester to the second five weeks before

declining by 31.63 minutes in the third 5 weeks. The mean age for tutored students for

MAT 032 was 31.63. This is consistent with the overall demographics of the SSS

program with 50% of students being 25 years of age or older.

The high mean age of MAT 032 students highlights the nontraditional students'

need for remediation, which, particularly in math, may be due to the number of years that

have passed since nontraditional students have taken a math class. These students could

potentially benefit from workshops that refresh their math skills and give students a

second opportunity to take the placement test. The local research site does offer

workshops, but it is unknown if any of the students in my research took advantage of that

opportunity. Additionally, the college now has computer software that students can

purchase for 6 weeks of access to refresh math skills, and upon completion of a

certification exam, students can place out of the immediate remedial math course in

which they had placed. The computer software access could also benefit the high number

of nontraditional students placed into remedial math by bypassing at least one remedial

math course.

Table 4

MAT 032 Descriptive Statistics

	Minimum	Maximum	Mean	SD
MAT 032 grade	0	4	2.33	1.25
Minutes tutored 1st 5 weeks	0	660	182.09	179.77
Minutes tutored 2nd 5 weeks	0	1380	244.30	267.28
Minutes tutored 3rd 5 weeks	0	1620	212.67	283.30
Compass placement test score	17	55	32.72	9.20
Age	18	65	31.63	13.643

MAT 032 Test Assumptions and Goodness-of-Fit

Linear regression testing was conducted to test for the assumption of multicollinearity. For no multicollinearity to be found, the values of the variance inflation factor (VIF), which indicates if a regression coefficient is inflated due to collinearity, for all independent variables must be under 5 (Bruce & Bruce, 2017). No multicollinearity was found in the MAT 032 dataset as all the VIF values of the independent variables were less than 10. Therefore, the MAT 032 dataset passed the assumption of no multicollinearity. This finding was expected because my independent variables were not highly correlated with one another.

A test of parallel lines was conducted to determine if the dataset for MAT 032 met the assumption of proportional odds. This test analyzes the slope of all coefficients to determine if they are the same across all categories (UCLA Institute for Digital Research and Education, n.d.). Results of the test for parallel lines must have a significance value greater than .05 to possess proportional odds (UCLA Institute for Digital Research and Education). The test of parallel lines showed that the MAT 032 dataset did indeed produce proportional odds as $p = .185$. This finding is important because failure to pass the assumption for proportional odds invalidates the results of the analysis.

Goodness-of-fit testing produced mixed results for MAT 032 data. Deviance and Pearson goodness-of-fit analysis reports how consistent the research data is with the model (UCLA Institute for Digital Research and Education, n.d.). To have goodness-of-fit, deviance and Pearson values must have a significance of greater than .05 (UCLA Institute for Digital Research and Education, n.d). The deviance goodness-of-fit test

indicated that the model was a good fit with $\chi^2(118) = 103.014$, $p = .836$. Likewise, the Pearson goodness-of-fit test indicated that the model was a good fit with $\chi^2(118) = 124.489$, $p = .323$. However, the overall model fit did not indicate that the model was a good fit with $\chi^2(8) = 10.828$, $p = .212$. Overall model fit should have a significance value less than .05 for the model to have a predictive function (UCLA Institute for Digital Research and Education, n.d).

MAT 032 Ordinal Regression Analysis

Ordinal regression on the dataset for MAT 032 was completed to ascertain if a predictive relationship existed between time tutored in SSS, placement test scores, age, gender, and race/ethnicity and remedial course success in MAT 032. Also, successful completion of MAT 031 with a grade of C or better was included in my analysis. Table 5 shows the results of the analysis. Three independent variables produced significant results for the dependent variable of grade in MAT 032, minutes tutored in SSS during the first 5 weeks of a semester, placement test score, and gender.

Table 5

Results of Ordinal Logistic Regression for MAT 032

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Tutoring 1st 5 weeks	.005	.002	4.951	1	.026	.001	.010
Tutoring 2nd 5 weeks	-.003	.002	2.345	1	.126	-.007	.001
Tutoring 3rd 5 weeks	.001	.002	.530	1	.467	-.002	.005
Placement score	.075	.036	4.384	1	.036	.005	.145
Age	-.013	.024	.303	1	.582	-.061	.034
Gender	-1.432	.659	4.727	1	.030	-2.723	-.141
Race	.321	.643	.249	1	.618	-.940	1.581
Completed MAT 031	-.005	.641	.000	1	.994	-1.262	1.252

The independent variable of SSS tutored minutes during the first 5 weeks of the semester produced a significant result of Wald $\chi^2(1) = 4.951$, $p = .026$. Additionally, the independent variable of placement test score produced a significant result of Wald $\chi^2(1) = 4.384$, $p = .036$. Finally, the independent variable of gender-female produced a significant result of Wald $\chi^2(1) = 4.727$, $p = .030$. Because three of the independent variables were shown to have a significant predictive relationship with the dependent variable of student grades in MAT 032, I was able to reject the null hypothesis for RQ1.

My results aligned with the research of Bremer et al. (2013) who also found that math placement scores were predictive of remedial course success. The results for MAT 032 were not consistent with previous research as it relates to gender and predictive success in remedial math courses. Bailey et al. (2010) found that women often outperform men in remedial math courses in algebra. Although MAT 032 does not rise to the level of algebra, my analysis showed a negative correlation between the female

gender and MAT 032 grades. The analysis would indicate that women did not perform as well in MAT 032 than their male counterparts. MAT 032 test results indicated that age did not have a predictive relationship with MAT 032 success. My finding is inconsistent with previous research, which did find that nontraditional aged students were negatively affected by remediation (Davidson & Petrosko, 2015; Wolfle & Williams, 2014). Because age was not a predictive factor, it cannot be determined if time spent in SSS tutoring aided nontraditional students with their success in MAT 031. Completing MAT 031 with a grade of C or higher before taking MAT 032 was not a predictive factor for success in MAT 032. The finding for this independent variable is unclear because the initial math skills of students who place into MAT 031 are lower than students who place directly into MAT 032. My results would indicate that those students who took MAT 031 performed on par with the students who directly placed into MAT 032.

My results mirror the results of research that has linked tutoring participation with positive course grades (Jaafar et al., 2016; Ticknor et al., 2014; Vick et al., 2015). It was telling that time spent in tutoring during the first 5 weeks of the semester was a significant predictor of MAT 032 course grade because this is the time that students build the foundational knowledge needed for the entire semester of the course. Additionally, students who start tutoring in the first 5 weeks can begin to build important study habits through the use of tutoring that students who start later in the semester may accrue too late. It also stands to reason that students who start tutoring later in the semester may already have a grade that is too low to overcome.

MAT 101 Descriptive Statistics

Table 6 shows MAT 101 demographic statistics for MAT 101. A total of 49

students took part in tutoring for MAT 101 from August 2012 through July 2016. Of

these students, 28 (57.1%) completed the course with a grade of C or better, 29 (59.2%)

were female, and 30 (61.2%) were African American. Also, 32 students (65.3%) took

MAT 032 before taking MAT 101. MAT 032 is the second of four remedial math courses

that the local research site offered at the time of my research, MAT 101 was the third.

Like the demographic statistics for MAT 032, the demographics for MAT 101 mirrored

the racial and gender makeup of SSS.

Table 6

MAT 101 Demographic Statistics

		N/n	Percentage
MAT 101 grade	F	14	28.6
	D	7	14.3
	C	11	22.4
	B	8	16.3
	A	9	18.4
Gender	Male	20	40.8
	Female	29	59.2
Race/ethnicity	African American	30	61.2
	Other	19	37.8
Took MAT 032	Yes	32	35.4
	No	17	34.7
Age (years)	18-24	22	44.9
	25+	27	55.1
Total		49	100.0

Table 7 shows the descriptive statistics for MAT 101. The mean grade for MAT 101 was 1.82, which reflects the 21 students who did not earn a C or higher in the course. The mean Compass placement test score was 39.02 with a minimum of 17 and a maximum of 94. Students must score from 50-99 to take MAT 101 (dean of admissions, personal communication, March 3, 2014). The minimum and maximum score ranges indicate that 32 students had to take MAT 032 before attempting MAT 101. The standard deviation for the placement test score was 17.12 which is indicative of the wide range of scores whereas the placement test score for MAT 032 had less variability with a 9.2 SD. The mean time in tutoring increased by 54.69 minutes from the first 5 weeks of a semester to the second 5 weeks. No change was represented in mean time in tutoring between the second 5 weeks of a semester and third 5 weeks. The mean age for tutored students for MAT 101 was 30.04. The mean age for MAT 101 was less than the 31.63 mean age for MAT 032, which indicated younger students progressed or placed into MAT 101 than MAT 032. These younger students would have more recent exposure to math than their older cohorts. Table 7

MAT 101 Descriptive Statistics

	Minimum	Maximum	Mean	SD
MAT 101 grade	0	4	1.82	1.48
Minutes tutored 1st 5 weeks	0	750	235.82	207.63
Minutes tutored 2nd 5 weeks	0	780	290.51	230.95
Minutes tutored 3rd 5 weeks	0	1320	290.51	337.41
Compass placement test score	17	94	39.02	17.12
Age	18	62	30.04	12.08

MAT 101 Test Assumptions and Goodness-of-Fit

Linear regression testing was conducted to test for the assumption of multicollinearity. No multicollinearity was found in the MAT 101 dataset because the VIF values were less than 5. Therefore, the MAT 101 dataset passed the assumption of no multicollinearity; this was expected because my independent variables for MAT 101 were not highly correlated.

A test of parallel lines was conducted to determine if the dataset for MAT 101 had proportional odds. The test of parallel lines showed that the MAT 101 dataset did produce proportional odds, p = .119. Thus, the testing passed the assumption for proportional odds.

Goodness-of-fit testing produced positive results for MAT 101 data. The deviance goodness-of-fit test indicated that the model was a good fit with $\chi^2(184) = 136.455$, $p = .996$. Likewise, the Pearson goodness-of-fit test indicated that the model was a good fit with $\chi^2(184) = 177.298$, $p = .625$. The overall model fit also indicated that the model was a good fit with $\chi^2(8) = 18.232$, $p = .020$.

MAT 101 Ordinal Regression Analysis

Ordinal regression on the dataset for MAT 101 was conducted to ascertain whether a relationship existed between remedial course success in MAT 101 and time tutored in SSS, placement test scores, age, gender, and race/ethnicity. Data were also included on the completion of MAT 032 as a predictive factor. Table 8 shows the results of the analysis. Two independent variables were found to be significant predictors of the dependent variable of grade in MAT 101: minutes tutored in SSS during the first 5 weeks of a semester and placement test score.

Table 8

Results of Ordinal Logistic Regression for MAT 101

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Tutoring 1st 5 weeks	.004	.002	5.053	1	.025	.000	.007
Tutoring 2nd 5 weeks	.000	.002	.027	1	.870	-.004	.003
Tutoring 3rd 5 weeks	-.001	.001	.178	1	.673	-.003	.002
Placement score	.049	.024	3.976	1	.046	.001	.097
Age	.022	.027	.642	1	.423	-.031	.074
Gender	-.403	.616	.428	1	.513	-1.611	.805
Race/ethnicity	-.943	.589	2.563	1	.109	-2.099	.212
Completed MAT 032	-.095	.789	.014	1	.904	-1.642	1.452

The independent variable of SSS tutored minutes during the first 5 weeks of the semester produced a significant result of Wald $\chi^2(1) = 5.053$, $p = .025$. Also, placement test score produced a significant result of Wald $\chi^2(1) = 3.976$, $p =. 046$. Because two of the independent variables were shown to have a significant predictive relationship with

the dependent variable of student grades in MAT 101, I was able to reject the null

hypothesis for RQ2.

Like MAT 032, scoring high on the college placement test was a significant

predictor of MAT 101 success. However, unlike MAT 032, more than 42% of the

students did not pass MAT 101 with the C or better needed to advance to their next math

course. This finding may indicate that the placement test cutoff score was too low for

placing students into MAT 101 resulting in unprepared students entering that course. This

finding is consistent with research indicating that college placement testing, when used

alone, is not a sufficient method to accurately place students into courses (Medhanie et

al., 2012). Like my results for MAT 032, taking the preceding remedial math course in

the sequence was not a significant predictor of MAT 101 success. Students who took the

preceding remedial course were as likely to pass MAT 101 as those who were placed

directly. However, this finding is unclear because students who placed into MAT 032

before taking MAT 101 would have math skills that are initially lower than those who

place directly into MAT 101. As with the finding for MAT 032, this may indicate that the

preceding remedial course was effective in upgrading the math skills of students enrolled

in the course and placing them on an even plane with those students who enrolled directly

in the higher level course.

ENG 100 Descriptive Statistics

Table 9 shows the demographic statistics for ENG 100. A total of 25 students

took part in tutoring for ENG 100 from August 2012 through July 2016. Of these

students, all 25 (100%) completed the course with a grade of C or better, 15 were male

(60%), and 21 (84%) were African American. This was the only course in my research, where more male students participated in tutoring than females.

Table 9

ENG 100 Demographic Statistics

		N/n	Percentage
ENG 100 grade	C	7	28.0
	B	13	52.0
	A	5	20.0
Gender	Male	15	60.0
	Female	10	40.0
Race/ethnicity	African American	21	84.0
	Other	4	16.0
Age (years)	18-24	13	52.0
	25+	12	48.0
Total		25	100.0

Table 10 shows the descriptive statistics for ENG 100. The mean grade for ENG 100 was 2.92, which is indicative of the 100% pass rate for the class whereas the mean Compass placement test score was 50 with a minimum of 42 and a maximum of 66. Students must score from 45-69 to take ENG 100 (dean of admissions, personal communication, March 3, 2014). The standard deviation for the placement test score was 6.34, which is less than the standard deviation for MAT 032 and MAT 101, indicating that the range of placement test scores for ENG 100 was narrower than the range of the math placement scores. In a pattern similar to that of the tutoring time for MAT 032, the mean time in tutoring for ENG 100 increased by 40.6 minutes from the first 5 weeks of a semester to the second 5 weeks before declining by 12.8 minutes in the third 5 weeks. The mean age for tutored students for ENG 100 was 33.12, higher than the mean ages for

both MAT 032 and MAT 101. This difference could point to greater difficulty for

nontraditional students who have been out of school for 7 years or more to recall their

English knowledge on the placement test. The local research site does provide refresher

workshops for English with an opportunity to retake the placement test after completion

of the workshop. This opportunity could be beneficial to nontraditional students, but it is

not known how many students take advantage of the opportunity.

Table 10

ENG 100 Descriptive Statistics

	Minimum	Maximum	Mean	SD
ENG 100 grade	2	4	2.92	.70
Minutes tutored 1st 5 weeks	0	600	132.60	159.77
Minutes tutored 2nd 5 weeks	0	600	173.20	180.21
Minutes tutored 3rd 5 weeks	0	720	160.40	209.03
Compass placement test score	42	66	50.00	6.34
Age	18	65	33.12	16.45

ENG 100 Test Assumptions and Goodness-of-Fit

Linear regression testing was conducted to test for the assumption of

multicollinearity. No multicollinearity was found in the ENG 100 dataset because all of

the VIF values were less than 5. Therefore, the ENG 100 dataset passed the assumption

of no multicollinearity.

An ordinal regression analysis was conducted to determine if the dataset for ENG

100 had proportional odds. The test of parallel lines showed that the ENG 100 dataset did

produce proportional odds as the significance of the testing was .097. Thus, the testing

passed the assumption for proportional odds.

Goodness-of-fit testing produced mixed results for ENG 100 data. The deviance

goodness-of-fit test indicated that the model was a good fit with $\chi^2(41) = 39.982$, $p =$

.516. Likewise, the Pearson goodness-of-fit test indicated that the model was a good fit

with $\chi^2(41) = 46.315$, $p = .262$. However, the overall model fit did not indicate that the

model was a good fit with $\chi^2(7) = 10.936$, $p = .141$. Because of the mixed results for the

model fit, caution must be exercised when interpreting the results of the ordinal

regression analysis.

ENG 100 Ordinal Regression Analysis

Ordinal regression on the dataset for ENG 100 was conducted to ascertain

whether a relationship existed between remedial course success in ENG 100 and time

tutored in SSS, placement test scores, age, gender, and race/ethnicity. Table 11 shows the

results of the analysis. The independent variable of time in tutoring during the first 5

weeks of the semester produced significant results for the dependent variable of grade in

ENG 100.

Table 11

Results of Ordinal Logistic Regression for ENG 100

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tutoring 1st 5 weeks	.012	.006	4.676	1	.031	.001	.023
Tutoring 2nd 5 weeks	-.001	.005	.064	1	.801	-.011	.008
Tutoring 3rd 5 weeks	-.001	.003	.200	1	.655	-.008	.005
Placement score	.021	.084	.060	1	.807	-.144	.185
Age	-.013	.033	.163	1	.686	-.078	.052
Gender	-1.768	1.078	2.688	1	.101	-3.881	.346
Race/Ethnicity	.241	1.382	.031	1	.861	-2.467	2.949

The independent variable of SSS tutored minutes during the first 5 weeks of the semester produced a significant result of Wald $\chi^2(1) = 4.676$, $p = .031$. Because one of the independent variables had a significant predictive relationship with the dependent variable of student grades in ENG 100, I was able to reject the null hypothesis for RQ3.

Only one of the independent variables was a significant predictor of ENG 100 success. Unlike MAT 032 and MAT 101, a high score on the placement test did not predict ENG 100 success. This finding could be because 100% of the students passed the course with a grade of C or better. Age was not a significant predictor for ENG 100 grades, likely due to the length of time that nontraditional students may have not been in school. Time spent in tutoring during the first 5 weeks of the semester was a significant predictor of remedial course success throughout all three courses lending credence to the importance of providing early academic interventions for at-risk students.

Conclusion

The findings of the three ordinal logistic regression analyses indicated that a significant relationship existed between time spent in SSS tutoring and students' grades in remedial courses. More specifically, my research indicated that early intervention in the form of tutoring in the first 5 weeks of a semester was a significant predictor of remedial course grades. This finding is consistent with other research that showed a positive relationship between tutoring and course grades (Jaafar et al., 2016; Ticknor et al., 2014; Vick et al., 2015). Also, ordinal regression analyses for both MAT 032 and MAT 101 indicated that a significant relationship existed between college placement test scores and remedial course grades. This finding is similar to other research that found placement testing to be predictive of math course success (Bremer et al., 2013).

In Section 3, I discuss the project, located in Appendix A, that was developed based on my research findings. The project is a program recommendation to develop a summer bridge program in SSS. I detail relevant literature related to the program recommendation as well as my plan to implement a remedial summer bridge program for SSS. I also include an evaluation plan for the bridge program and future implications.

Section 3: The Project

Based on the results of my research, I developed a program recommendation (Appendix A) to establish a remedial summer bridge program in TRIO SSS. The SSS program at the local research site has assisted traditionally underserved students for more than 40 years. My research was able to establish significant factors in the relationship between SSS tutoring services and students' grades in remedial math and English courses. I was able to establish a relationship between minutes spent in SSS tutoring during the first 5 weeks of a semester and remedial course grades. This finding was consistent with Tinto's (1988) theory that emphasizes the importance of a student's first 6 weeks in college to their overall success as well as the need for colleges to create early intervention strategies to assist students through this critical time.

The proposed remedial summer bridge program would serve as a college success intervention strategy prior to the first semester of attendance for SSS participants placed into remedial courses. Students would benefit from being exposed to remedial course concepts before starting their coursework. Students attending the program would work with a SSS tutor to get an early start to their education. They would also be exposed to important college success strategies, including study skills, time management, and resources provided to them through participation in SSS.

The proposed summer bridge program would last for 2 weeks, for 5 hours per day, 5 days per week. The program would concentrate on remedial math and college skills training. Goals for students enrolled in the summer bridge program include:

- Successful completion of remedial math in the first fall semester.

- Persistence from fall to spring semester.

- Retention to the following fall semester.

These goals will be measured through an outcome-based evaluation plan. Also, students in the bridge program will be given the opportunity to retake the college's placement test to potentially test out of one remedial course.

Rationale

The initial problem that my research addressed was that the local SSS program administrators had not assessed the relationships that existed between tutoring services and participant success. The problem not only existed at the local research site but in the greater SSS community. A national evaluation of TRIO SSS services was not able to establish a relationship between SSS tutoring and student success (Chaney, 2010). I chose to concentrate my research on the relationship between SSS tutoring and participants' grades in remedial courses because of the problematic nature of these courses. Remedial classes extend enrollment thus negatively impacting students' odds of credential attainment (Bachman, 2013).

My purpose in this research was to establish whether benefits existed for students participating in the structured SSS tutoring program. I was able to determine that a significant relationship existed between the time that participants spent in SSS tutoring during the first 5 weeks of a semester and course grades in remedial courses. It is likely that a relationship was found between time spent in SSS tutoring during the first 5 weeks of a semester and not in subsequent weeks of a semester because those early weeks are imperative to building the course foundational knowledge students need to be successful.

Also, starting tutorial services later in a semester lessens the odds that students will be successful in a class due to poor performance in the course up to that point.

Review of the Literature

In the following literature review, I focus on information related to program recommendations, development, and implementation. Also, I searched for information related to institutional change in higher education. I also sought information pertaining to summer bridge program effectiveness and implementation. Finally, I searched for information concerning the evaluation of summer bridge programs.

A search of the literature was conducted using peer-reviewed journals, professional organizations' websites, and books. The search used the databases accessed through the Walden University Library including Academic Search Premier, EBSCO, Education Research Complete, Education Source, and ProQuest. The following keywords and phrases were used in the search: *college program development, college program implementation, college program recommendation, implementing change in higher education, summer bridge program effectiveness, summer bridge program evaluation,* and *summer bridge program implementation.*

Research on Program Recommendations and Implementing Change

Several themes ran throughout the research on program recommendations and implementing change at institutions of higher education. The first theme was the importance of data in supporting a program recommendation (Dee & Heineman, 2016). Institutional change is often impeded due to a lack of available resources (Kezar & Lester, 2009). Because of the scarcity of available resources, college decision makers are

hesitant to enact programs that are not grounded in evidence-based research to demonstrate their potential effectiveness (Dee & Heineman, 2016). Change agents need to understand what data to present and to whom the data should be presented in a clear and calculated manner due to the potential for data misinterpretation (Dee & Heineman, 2016). Tierney (2001) attributed the propensity for differing data interpretation to the "loosely coupled" nature of higher education institutions (p. 26). Tierney posited "In loosely coupled organizations like universities, where no clear or systematic process for reaching decisions exists, the possibility for misunderstanding is significant" (p. 26). Dee and Heineman (2016) also attributed these data misinterpretation tendencies to the organizational nature of higher education institutions and the vague, unclear goals they hope to ascertain. To counteract the problems that may occur from misinterpretation of data, Tierney pointed to the importance of providing data from other similar institutions as related to the success of the program or change being recommended. Decision makers want to know if institutions similar to theirs have implemented a relatable program and what happened as a result.

Another theme found throughout the research on program recommendations involved the importance of leadership. Institutional politics play a role in what does and what does not get implemented (Coburn, 2016; Dee & Heineman, 2016). Individuals making a program recommendation will need to know the intricacies of the political climate of their institution and how to maneuver around in that climate. The individual will need to be able to shape decision-makers' thoughts and intentions through sound arguments (Coburn, 2016). Because data can be misinterpreted, a change agent has to

possess an intimate knowledge of circumstances surrounding the recommendation to handle any dissention (Dee & Heineman, 2016). Finally, change leaders may face dissention, so it is imperative to gain support from members of the institution with the political clout to champion the recommendation (Kezar & Eckel, 2002). The champion can legitimize the recommendation (Coburn, 2016).

Finally, it is important for change agents to account for the scope that a new program or initiative involves when making a recommendation (Dee & Heineman, 2016). Many individuals from one or more areas of an institution may be impacted by the change. The recommendation provides direction, but in the end, the change will be implemented by individuals who may or may not have the same vision as the person who made the recommendation (Dee & Heineman, 2016). It is important that change agents provide a clear design for their recommendation, along with goals and objectives that need to be met throughout the implementation process (Kezar & Eckel, 2002). In the end, the eventual implementation of a program recommendation is not entirely in the hands of the change agent, so a clear and concise vision of the that person's intent needs to be portrayed in the recommendation.

Purpose and Population of Summer Bridge Programs

The purpose of summer bridge programs is to assist first-time, first-year college students with their transition into higher education. The overall goal of these programs is to ease the stress of college transition and, through that, to improve student success (Cooper, Ashley, & Brownell, 2017). More than 45% of colleges and universities across the United States offer some type of summer bridge experience to their incoming

students, but many of these programs are housed at 4-year institutions (Greenfield, Keup, & Gardner, 2013). To a lesser extent, summer bridge programs are often offered at 2-year colleges to help accelerate the remedial education of individuals (Lopez, 2016).

Historically, summer bridge programs are modeled from the work of TRIO Upward Bound (Kallison & Stader, 2012; Sablan, 2014), one of the eight federally funded TRIO programs (Groutt, 2003). The program provides high school students, who are either low income or whose parents do not possess a bachelor's degree, with the necessary tools to graduate high school and transition into higher education (Kallison & Stader, 2012). One element of Upward Bound that led to the establishment of summer bridge programs is the intensive services Upward Bound offers each summer (Kallison & Stader, 2012) that keep students academically engaged from one school year to the next and provide college admission preparation assistance. The academic and college preparatory components are present in many summer bridge programs (Sablan, 2014). Summer bridge programs that last from 4 to 6 weeks can offer participants instruction in remedial-level math, English, and reading, plus offer information on note-taking, time management, and career exploration (Greenfield et al., 2013; Kezar, 2000). Like its sister program, TRIO SSS programs that offer a summer bridge experience adopted these summer components into their programmatic offerings. SSS programs are not required to offer a summer bridge, but it is an allowable service (Chaney, 2010).

Like TRIO programs, summer bridge programs serve students who have historically been underserved in higher education. These students are typically low-income, first-generation, racial/ethnic minority, and students entering higher education

unprepared for the academic rigor of college (Cooper et al., 2017; Greenfield et al., 2013; Strayhorn, 2011). These students often graduate from high schools that offer little in the way of educational resources and whose educational standards are subpar when compared to higher performing schools (Strayhorn, 2011). Summer bridge programs often offer students who will begin in remediation a jumpstart to their education through early access to remedial courses (Evans, 1999; Greenfield et al., 2013). Douglas and Attewell (2014) reported in their research of summer bridge programs at six community colleges that some of these programs offer students the ability to complete required remediation so that students can start in college-level courses sooner, whereas others simply hope to give students' advance preparation for the remedial courses that they are enrolled in their first semester.

Research on the Effectiveness of Summer Bridge Programs

Research on the effectiveness of summer bridge programs has shown both positive and negative aspects of the initiative. The U.S. Department of Education, through its What Works Clearinghouse, proclaimed that these programs "have potentially positive effects on postsecondary attainment" for students who participate (Institute of Educational Sciences, 2016, para 4). The same clearinghouse did not find the same positive effect for summer bridge programs for remedial education due to the limited research that existed on the subject (Institute of Educational Sciences, 2015). The findings of the What Works Clearinghouse on remedial summer bridge programs highlight the lack of research on these programs at 2-year institutions.

Early research. The early research that was found on summer bridge programs focused on single institution initiatives at 4-year colleges and universities (Ackermann, 1991; Garcia, 1991; Gold, Deming, & Stone, 1992). Ackermann (1991) conducted quantitative research on 265 participants at a large research university in California. The bridge program was 6 weeks in length, and during that time, participants were enrolled in a general education course. The findings indicated mixed results on the success of the summer bridge offering with White students reporting greater feelings of goal achievement than African American students and an overall 97% persistence rate to the third semester for bridge participants (Ackermann, 1991).

In another study at a large research institution in California, survey research was used to report student perceptions of their integration into the university (Garcia, 1991). The summer bridge program was offered to students who were identified as at risk of failing and was 4 to 6 weeks in length. Participants of the bridge program took part in courses designed to improve the skills (time management, studying, notetaking) necessary for college success and received academic advising. Compared to nonbridge students, the summer bridge students reported higher levels of college integration in their first semester using tutorial services and greater time spent with their professors outside of class (Garcia, 1991).

Additionally, at a 4-year university in Georgia, Gold et al. (1992) conducted a longitudinal program evaluation of the summer bridge program for African American students who had tested into remediation. The bridge program included study skills

instruction, tutoring, and mentoring. Gold et al. reported the overall satisfaction rating of faculty and students as 4.57 out of 5 for the program.

Recent research. More recent research was found on the effectiveness of summer bridge programs at 2-year community colleges (Douglas & Attewell, 2014; Lopez, 2016; Wathington, Pretlow, & Barnett, 2016). Douglas and Attewell (2014) used data from the NCES to track 10,000 first-time first-year students at six community colleges in a single community college system. The community colleges all offered summer bridge programs to students who had tested into remedial math, reading, or English (Douglas & Attewell, 2014). The program offered instruction in remedial math and English, and students could retake the college placement test at the end of the program (Douglas & Attewell, 2014). Matching procedures were used, and logistic regression analysis revealed that summer bridge students took fewer remedial courses and passed 5.4% more of the classes they enrolled in than nonbridge students (Douglas & Attewell, 2014).

Lopez (2016) detailed qualitative research on a summer bridge program at a large community college in California. The program was 6 weeks long and offered interactive instruction on college and career success, assistance with completing the financial aid process, and graduation planning (Lopez, 2016). Of the 29 students in the research sample, 52.4% were Latino, and all were considered to be at a financial and educational disadvantage. Focus group interviews revealed that those summer bridge students who were doing well in their first semester of college credited the bridge program for that success and believed that the program had increased their self-confidence through early exposure to college-related materials (Lopez, 2016).

Wathington et al. (2016) reported their experimental research on a developmental summer bridge program conducted at six community colleges and two open enrollment 4-year colleges in Texas. The summer bridge program was 4 to 5 weeks in length, and participants received accelerated instruction in remedial courses (Wathington et al., 2016). The program also included workshops on college skills, required tutoring, and offered mentoring opportunities. Participants in the experiment were informed of the research methodology before consenting to participate in the study and were randomly assigned to the program group or the control group. Overall, the study had 1,318 participants, of which 60% were assigned to the program group with a large percentage (85%) of the students reported as Hispanic. Logistic regression revealed that summer bridge participants did not persist at a higher percentage than those individuals in the control group and did not earn a statistically significant higher number of credits (Wathingon et al., 2016). The researchers did find that participation in the bridge program had a significant effect on completion of math college-level courses for those who were in the program group as compared to the control group, with a 5.9% higher completion rate in the first semester and a 9.4% higher completion rate in the second semester (Wathingon et al., 2016). The college-level course completion disparity ended after the second semester. Similar results were found for college-level writing courses, but not for reading courses in this study.

Research on Summer Bridge Program Implementation Considerations

Research on summer bridge programs revealed four major considerations for implementation: year-round planning, faculty involvement, budgetary costs, and

collaborative leadership. According to Greenfield et al. (2013), the City University of

New York's Search for Education, Elevation, and Knowledge (SEEK) program along

with other educational opportunity programs "provide vetted templates for success when

implementing a summer bridge program" (p. 29). Year-round planning is vital, even

though bridge programs are normally held in the summer (Greenfield et al., 2013).

Planning for summer bridge activities and potential course content occurs in the fall,

including planning for staff and faculty hiring and training that needs to happen

(Greenfield et al., 2013). The spring should be dedicated to participant recruitment and

selection, and after the bridge program is completed in the summer, assessment of the

program needs to occur (Greenfield et al., 2013).

Faculty play a critical role in the success of a summer bridge program, which is an

important consideration in implementing this type of initiative. Bir and Myrick (2015)

detailed the role of faculty for the Creating Higher Expectations for Educational

Readiness (CHEER) summer bridge program offered at a Historically Black College or

University. The CHEER program hired its own instructors who were able to show

"engaging teaching practices" (Bir & Myrick, 2015, p. 24). Additionally, the CHEER

program gave hiring considerations to faculty who resembled the population of summer

bridge students that it served so that its students could work with teachers from the same

race and gender (Bir & Myrick, 2015). Cooper et al. (2017) reported on the importance of

faculty members' use of active learning techniques in a qualitative study conducted at 4-

year university in the southwest. The bridge program assisted students deemed in danger

of being unsuccessful with introductory biology concepts (Cooper et al., 2017). Students

in the study reported that active learning provided engagement with faculty that was important to the transition into college (Cooper et al., 2017).

Another important consideration for the implementation of summer bridge programs is the cost associated with them. Budgetary concerns are always of importance, but this is especially true in the fiscally stretched environment of higher education (Wachen, Pretlow, & Dixon, 2018). Potential costs associated with a summer bridge program include salaries of staff and faculty, technology needs, and supplies (Greenfield et al., 2013). Barnett et al. (2012) reported in their research of eight summer bridge programs (six were located at community colleges) that the average cost was $1,319 per student for the initial implementation of the initiative. In relation to these costs, it is important to assess the effectiveness of a summer bridge program to determine the cost/benefit to offering the initiative (Wachen et al., 2018). Greenfield et al. (2013) reported that 30% of institutions charge students for the service but offset the cost with financial aid options. Additionally, institutions also use private donations and state and federal grants associated with summer bridge programs.

A final consideration for the implementation of a summer bridge program is the collaborative nature of these programs and the leadership that guides them. Because of the extensive programmatic offerings that a summer bridge can provide to its participants, collaboration between different units on a college campus is a must (Greenfield et al., 2013). The academic division will be involved if course content is offered, and student affairs would be involved in providing advising, career services, and tutoring. Although collaboration is imperative to the success of a summer bridge

program, many institutions centralize the leadership of these programs into a single unit.

According to Greenfield et al. (2013), Louisiana State University has centralized its

summer bridge program in its Center for the Freshman Year, and all programmatic

offerings are under the direction of a coordinator. The centralized leadership is

accountable for all planning, training, assessment, and budgetary matters of the summer

bridge program. It also stands to reason that the person who is ultimately charged with

organizing an institution's summer bridge program would have to exhibit a collaborative

nature (Greenfield et al., 2013).

Summer Bridge Evaluation

Garcia and Paz (2009) found in their review of research literature that a deficit

existed in the evaluation of summer bridge programs. Many programs only reported

surveying students' perceptions of their experience throughout the summer bridge

program. Cabrera, Miner, and Milem (2013) posited that summer bridge programs must

improve their evaluation methods to "justify their existence and to inform and improve

practice" (p. 494). Summer bridge programs could demonstrate their effects on student

grades, persistence, and retention through well planned evaluations (Greenfield et al.,

2013). Purdue University has a robust evaluation of their summer bridge program that

compares the GPAs of bridge participants with nonbridge students and reports on

participants' perceptions of their college readiness (Greenfield et al., 2013). These

programs can also show their participants a sense of belonging, increase knowledge of

institutional resources, and add self-efficacy through evaluation (Greenfield et al., 2013).

For summer bridge programs, evaluation has the potential to showcase program effectiveness and reveal enhancement opportunities.

According to the vice president of student services (personal communication, July 28, 2017), the local research site's Student Services division adheres to the professional assessment practices of the Council for the Advancement of Standards in Higher Education (CAS). CAS is an association of 42 organizations that promote 12 professional standards for student services departments (Council for the Advancement of Standards in Higher Education, 2015). The standards relate to mission; program; organization and leadership; human resources, ethics, law, policy, and governance; diversity, equity, and access; internal and external relations; financial resources; technology; facilities and equipment; and assessment (Council for the Advancement of Standards in Higher Education, 2015). CAS offers self-assessment guides for more than 45 areas in student services, including orientation programs (Council for the Advancement of Standards in Higher Education, 2015). The assessment process begins with areas gathering evidence to support their adherence to the 12 standards. Areas rate their performance on subsections of each standard as: exceeds, meets, partly meets, does not meet, insufficient evidence/unable to rate, or does not apply (Council for the Advancement of Standards in Higher Education, 2015). Based on the ratings, departments develop an action plan to address any standards where they did not meet the standard. Additionally, areas can invite peer evaluators to review their department's evidence and conduct ratings. Each area develops a report that highlights the strengths of their department and the areas that will be addressed through the action plan. The CAS self-evaluation process is important

for improvement of departmental services and enhancing the student experience at an

institution.

Conclusion

My literature search revealed many of the considerations that must be accounted

for when recommending and implementing a new program. In general, when making a

recommendation, it is important to present data that highlights the need for the new

program, and that is comparable to similar institutions. Institutional politics can play an

important part in whether a recommendation is implemented or not. Thus, leadership is

important to program recommendation. Additionally, my literature review detailed older

and newer research into the effectiveness of summer bridge programs. Through this

research, many summer bridge best practices were revealed. Finally, my review of the

literature covered the importance of evaluating summer bridge programs.

Project Description

My detailed program recommendation to incorporate a summer bridge program in

TRIO SSS can be found in Appendix A. The summer bridge program will serve students

in remedial math. The program recommendation must go through two levels of approval

for possible implementation. First, it must be presented to the director of educational

opportunity programs at the local research site. The director provides oversight to the

institution's TRIO programs and other grant-funded programs and initiatives. If approved

by the director, then fiscal resources for the summer bridge program will need to be

included in the budget for the next fiscal year. The budget must be submitted to the TRIO

SSS program specialist for the state where the research site is located with a narrative that

describes the expenses. Once the budget receives approval, the path will be cleared to implement the summer bridge program. The program and its policies will then be written into the next grant funding application in 2020 as standard practice of the local SSS program.

Needed Resources, Existing Supports, and Potential Barriers

Many of the resources needed to implement a summer bridge program in SSS already exist. The salary expenses for SSS staff are included in the budget each fiscal year, including the summer. SSS staff will conduct the college orientation workshops for the summer bridge programs including workshops on study skills, time management, and college resources. SSS staff will also provide intensive advising services for bridge participants and will be on hand throughout the summer bridge program to ensure that it runs smoothly. Additionally, SSS tutors will hold small group study sessions with summer bridge participants to review information covered in the academic workshops. Expenses not already in existence that will be needed for the implementation of an SSS summer bridge program include:

1. Funding for instructor compensation for teaching academic remedial math workshops. This expense will be written into the SSS budget for the fiscal year for the implementation of the bridge program. If the expense is not approved, I will have SSS tutors lead the academic workshops in addition to leading small group study sessions.

2. Food allowance spending. I intend to offer lunch to summer bridge participants. This is an expense that cannot be written into the SSS budget because it is not

allowable (SSS director, personal communication, April 7, 2014). Several options are available for acquiring the needed funding. I could request the money from the budget of the director of educational opportunity programs and the vice president of student services. I could also ask the college's charitable foundation for funds or use money from an account that already exists in the foundation for SSS needs.

3. College placement testing data for participant recruitment. I would need to gain permission from the local research site to obtain data on potential students who have taken the college's placement test and tested into remedial courses. The data will be disaggregated for summer bridge participant recruitment.

4. A college placement test fee waiver. Permission will have to be sought from the vice president of learning and workforce development to offer summer bridge participants a fee waiver to retake the college's placement test. Currently, students must pay a $10 fee to retake the test.

Collaboration is key to the success of a summer bridge program (Greenfield et al., 2013; Kezar, 2000). Existing supports for an SSS summer bridge program are in place in the form of several collaborative relationships that SSS has cultivated throughout its time at the local research site. These collaborative partnerships include relationships with the college's academic division, financial aid office, and career services. All these areas will be called upon to assist with workshop presentations during the summer bridge program.

The greatest potential barrier that exists in implementing a summer bridge program in SSS is the project specialist for the state refusing budget allowances for the initiative. The solution to this barrier is to present a sound argument for the summer
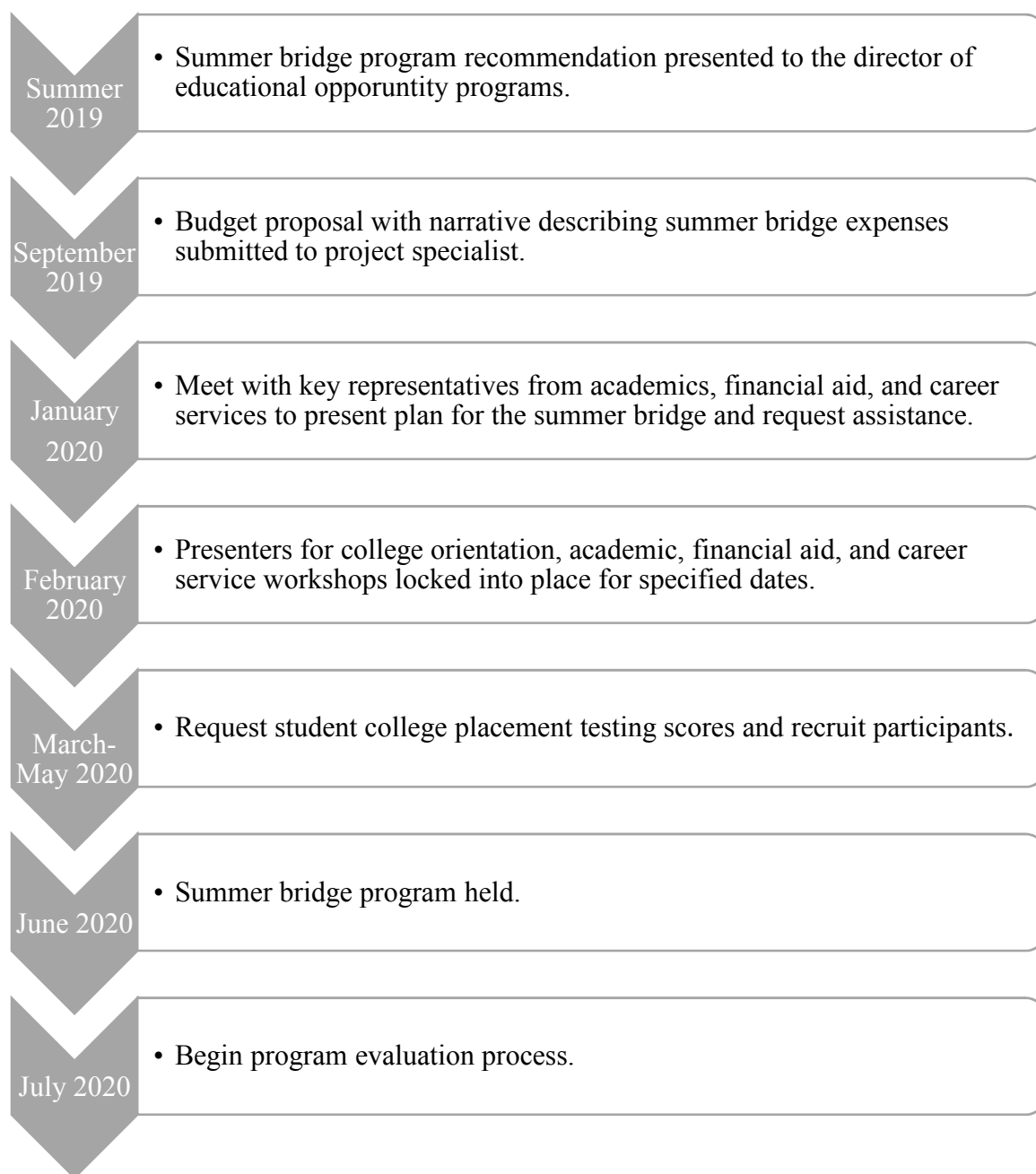
bridge expenses in the budget narrative. The proposed bridge program will occur in the last summer of the 5-year grant period; thus, every dollar for that fiscal year will have to be spent. With the reality that all funds must be allocated, the program specialist is more likely to approve any budget proposals that have a persuasive argument and show a benefit to program participants. The worst-case scenario to overcoming this potential barrier would be that the program must wait to write the summer bridge program into its application for grant funding. This barrier means it would be the summer of 2021 before the bridge program could become a reality.

Proposal for Implementation

The first step to implementing a summer bridge program in SSS is to obtain approval from the director of educational opportunity programs and later gain budget approval. Once these approvals occur, it will be necessary to meet with the various departments to review the summer bridge recommendation and describe the key roles that they will play in the success of the initiative. From the Transitional Studies Department, a curriculum plan will need to be developed for the academic workshops to be held, and an instructor will have to be secured. Additionally, representatives from the Academic Division will need to allow SSS to obtain data on students' placement test scores and offer summer bridge participants a placement test waiver. Finally, staff from SSS, financial aid, and career services will need to collaborate to determine who will present the various workshops. Recruitment of participants will likely take 2 months because once identified and contacted, these individuals will have to go through the SSS orientation process. The best time to offer the summer bridge would be the last 2 full

weeks of June. At that time, the summer term will have started at the local research site, and all the necessary services would have started in SSS. Figure 1 represents the proposed timeline for events that will need to occur for summer bridge implementation.

Summer 2019	• Summer bridge program recommendation presented to the director of educational opporuntity programs.
September 2019	• Budget proposal with narrative describing summer bridge expenses submitted to project specialist.
January 2020	• Meet with key representatives from academics, financial aid, and career services to present plan for the summer bridge and request assistance.
February 2020	• Presenters for college orientation, academic, financial aid, and career service workshops locked into place for specified dates.
March-May 2020	• Request student college placement testing scores and recruit participants.
June 2020	• Summer bridge program held.
July 2020	• Begin program evaluation process.

Figure 1. Implementation Timeline

Project Evaluation Plan

To evaluate the summer bridge program, I propose using an outcome-based evaluation plan that also incorporates formative data to improve practice. An outcome based evaluation "is a type of program evaluation that uses valued and objective person-referenced outcomes to analyze a program's effectiveness, impact, or benefit-cost" (Schalock, 2013, p. 5). This type of evaluation involves setting program summative objectives before an initiative begins and at its end, measuring to determine if those objectives were met. It is this type of outcome-based evaluation that SSS must report to the U.S. Department of Education each year; thus it is the type of evaluation that the program will use for the summer bridge initiative to show the benefit of the service.

To align with the overall SSS summative objective rates of 70% participant persistence to the fall semester and 78% of students in good academic standing, I propose the following summative outcome objectives for the summer bridge program:

- 90% of summer bridge participants will complete remedial math with a grade of C or better.

- 90% of summer bridge participants will persist to the spring semester.

- 70% of summer bridge participants will be retained the following fall semester.

Data on persistence, retention, and course completion will be collected by the SSS assistant director and reported to the director of educational opportunity programs and vice president of student services at the local research site. In addition to the summative objectives, formative objectives will need to be set, and data will need to be collected to inform programmatic offerings. Student surveys will be developed and administered at

the end of both weeks of the summer bridge program to determine if students believe a

benefit is being received from the initiative and its content. I propose the following

formative objectives for the summer bridge program:

- 90% of summer bridge participants rate workshops and activities as highly

    beneficial to their future success.

- 90% of summer bridge participants report being highly satisfied with the quality

    of instruction.

Additionally, students will be given the opportunity to make recommendations for

improvements on each survey. The overall goal of this evaluation plan is to improve upon

the summer bridge program, inform practice, and demonstrate the benefits of the

initiative. Additionally, after its first year of implementation, a CAS self-assessment of

the initiative will be completed to stay in tandem will all other departments in Student

Services at the institution.

Many stakeholders will be involved in and impacted by the summer bridge

program and its evaluation. These stakeholders include: SSS staff, SSS participants, those

staff and faculty members from other departments involved in summer bridge workshops

and activities, the director of educational opportunity programs, the vice president of

student services, the vice president of learning and workforce development, the president

of the local research site, and federal government officials. SSS staff and other members

of the institution who are involved in the summer bridge activities will be responsible foe

obtaining evaluations from summer bridge students. All outcomes of the summer bridge

will be reported to the director of educational opportunity programs and the vice

president of student services. The outcomes will also be reported to the vice president of learning and workforce development and president of the research site for possible expansion of the summer bridge at the institution. Finally, outcomes of the evaluation will be represented in various reports, budget proposals, and grant applications submitted to the federal government.

Project Implications

The greatest implication for social change of the summer bridge program is the potential benefit that it can offer to students in remedial courses in SSS, at the research site, and beyond. Research has shown that the student populations that SSS serves (first-generation, low-income, and racial/ethnic minority) are negatively impacted by remediation (Crisp & Delgado, 2014). These students who already face socioeconomic and personal barriers to achieving an education credential must also face a longer path to that credential because of remediation. The summer bridge program can potentially limit the number of remedial courses that a student must take, thus shortening the pathway to graduation. If the summer bridge program that SSS offers has a positive effect on SSS participants, then it stands to reason that the local research site may show interest in offering a similar summer bridge to the larger student population at the institution. Also, the benefits of the summer bridge program can be communicated to TRIO professional organizations at the state and regional level to encourage other SSS programs to offer a remedial summer bridge program to their students.

Conclusion

The initial problem addressed by this research was that the local SSS program had

not been able to establish a relationship between its tutorial services and student success

in remedial education. My research was able to establish that a positive relationship

existed between time in SSS tutoring during the first 5 weeks of a semester and remedial

course grades. To expand on that finding, I developed a program recommendation to

establish a summer bridge program for SSS participants placed in remedial math courses.

The recommendation was presented to the director of education opportunity programs in

the summer of 2019 and approved for implementation; budget approval came from the

SSS project specialist for the state in September 2019. The summer bridge will be offered

in the summer of 2020. Evaluation of the program will use both formative and summative

methods.

In Section 4, I review the projects' strengths and weaknesses, alternative

approaches, what I learned throughout this process, and directions for future research.

Section 4: Reflections and Conclusions

In my research, I addressed the lack of knowledge concerning whether a relationship existed between TRIO SSS tutoring and student success in remedial courses. Because a significant relationship was shown to exist between tutoring in the first 5 weeks of a semester and students' grades in remedial courses, my project was a program recommendation to create a summer bridge program in SSS at the local research site. The summer bridge will provide an early intervention for the student populations served by SSS who are in remedial education. The summer bridge will prepare these students for college with early exposure to remedial course content and additional informational workshops.

Project Strengths and Limitations

Project Strengths

A strength of the program recommendation to create a summer bridge program in SSS is that many of the resources needed for the program are already in place and any additional resources can be incorporated in the local SSS budget. The summer bridge will strengthen the services that SSS already offers and involve participants in the program at an earlier time than most participants become involved in the program. Another strength is that it will serve as an early intervention strategy for SSS student populations who are at high risk of not completing their college credentials. Research has shown that early intervention strategies are important for student success, especially for first-generation, racial/ethnic minority, and low-income students (Martin, 2015).

An additional strength of the summer bridge recommendation is that it uses the available research on the positive effects of tutoring on student success (Jaafar et al., 2016; Ticknor et al., 2014; Vick et al., 2015) to counter the negative consequences of remedial education (Attewell et al., 2006; Hoyt, 1999). These consequences include increased time to credential attainment that can decrease the likelihood that students will stay enrolled. Summer bridge students will get a head start on their remedial education through early tutoring exposure, thus increasing the odds that they will be successful in their remedial courses and limit the time that they must spend in remediation. Additionally, some students may have the added benefit of testing out of a remedial course after taking part in the summer bridge program.

Project Limitations

The most significant limitation of the summer bridge recommendation is the small number of students who will initially benefit from the project. My recommendation will first be implemented for SSS participants at the local research site. It is envisioned that only 20 students will take part in the initial summer bridge program due to the limited number of students who can take part in SSS annually. The potential exists that more students could benefit if the local research site later decides to expand the summer bridge to the institution. Unfortunately, it will take some time for this to occur, and it could be 2 or more years before implementation at the institution can take place.

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Recommendations for Alternative Approaches

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My recommendation to implement a summer bridge program was based on the relationship that was found to exist between time spent in SSS tutoring during the first 5

weeks of a semester and remedial course grades, but an alternative problem was exposed in my research. That problem was the lack of a relationship between SSS tutoring in the last 10 weeks of the semester and remedial course success. A different method of addressing my research problem would be to find ways to improve tutoring services in the last 10 weeks of the semester. One alternative course of action would be to require students to attend academic coaching and advising sessions in conjunction with tutoring. Academic coaches could focus on the nonacademic variables that may be causing students to struggle with their coursework, whereas an advisor could review students' options for withdrawing and retaking courses and the influence that would have on their path to credential attainment.

Another alternative to my research problem based on the findings of my study would be to require SSS participants who are in remedial courses to meet with a tutor. This meeting would be a requirement for their continued participation in SSS. This solution would be problematic due to the large number of SSS participants in remedial education and the limited number of SSS tutors, but the requirement could be limited to an initial meeting with a tutor during the first week of the semester to ensure that the student has a solid plan for success. If the tutor determines that more assistance is needed for the student, then at that point, the student could be referred to SSS staff for more extensive tutor scheduling.

Scholarship, Project Development and Evaluation, and Leadership and Change

Scholarship

Any discussion of scholarship or becoming a scholar practitioner must be rooted in my status as a first-generation college student. Most first-generation college students who find themselves in graduate school, originally, did not have that intent (Gardner, 2013). I am no different. I never imagined that I would attend graduate school and certainly, had zero aspirations for a doctoral degree or to call myself a scholar practitioner.

Gardner (2013) posited that many first-generation doctoral students struggle with feelings of being an imposter and struggle to find belonging. I can relate to both feelings. I have a limit to my level of comfort of being referred to as a scholar practitioner or interacting in the academic world. There has always been a part of me that questioned if I belonged at the table when working on committees with knowledgeable individuals at my institution. I have a small amount of self-doubt that I often battle. The doctoral study process brought those feelings of not belonging and of being an imposter to the forefront for me. With every critique from my committee, I would question whether I had the ability to complete the process. The feelings of not belonging do not just apply to the world of academia, but also to one's personal life (Gardner, 2013). In casual conversations with family members, I find myself veering away from any talk about my work or my studies because I know that my family cannot relate to it. I may continue to struggle to find a happy medium where I can belong both as a scholar and as a member of my family. Personally, this doctoral study has not been just about an academic pursuit; it

has also been about self-discovery. Throughout the process, I gained more self-confidence and found my worth as a scholar practitioner.

A scholar practitioner is exemplified by participation in activities to acquire new knowledge that can be used to improve practice (Wasserman & Kram, 2009). These activities include "evaluation, self-reflection, research, and application" to improve practice (Mullen, 2003, p. 13). Because of my doctoral studies, I feel more confident in my ability to conduct these types of activities. I have always thought of myself as a problem solver, but now I have the background to undergo the process of addressing a problem through systematic inquiry, data analysis, and project development. The doctoral study process has given me the tools needed to be an authentic scholar practitioner and has improved my confidence in my abilities.

Project Development

The findings of my research were the starting point in the development of my project for the summer bridge proposal. My research revealed that a significant relationship existed between time in SSS tutoring during the first 5 weeks of a semester and student grades in remedial education. For my project, I decided to focus on the strength of SSS tutoring and research that points to the importance of early intervention for students at risk of not completing their educational journeys. I looked at the different genres of projects that were available. Professional development and program recommendation were the obvious choices. I decided against professional development because the local research site already holds a professional development day for tutors, and I did not see value added by conducting a professional development project. I chose a

program recommendation because I knew that the local SSS could be strengthened by implementing a summer bridge program, and more importantly, it is a service that is allowable through TRIO legislation. Through the doctoral study process, I learned the importance of using data to guide decision making and to align practical solutions with problems.

Leadership and Change

Going through the process of writing this doctoral study not only impacted my abilities as a scholar practitioner and project developer, but it has profoundly influenced my leadership style. I have always believed in the tenets of servant leadership and leading by example. I come from a blue-collar family, where I developed a strong work ethic. Beyond leading by example, I have always believed that leaders should strive to be as knowledgeable as possible about their area of expertise. Before entering the doctoral program at Walden University, I would have told you that I needed to strengthen my knowledge and comfort levels as a leader with assessment and data-based decision making. Upon completion, I can say that my knowledge and comfort in those areas have increased and have improved my abilities as a leader.

On the topics of leadership and social change, I have to once again reflect on my first-generation college student status. I work with students, most of whom are first-generation as well, who see my diplomas on my office wall, and I share the story of my educational journey with them. Among those diplomas is an associate degree similar to the degree that students at the local research site are striving to obtain and my story is relatable to those students. I want the students I work with to understand what is

achievable when one puts in the hard work that is necessary to accomplish their goals. In the end, I want to influence social change by being an ongoing positive influence on all the students whom I work with and to use my voice and leadership abilities to better the services and the experience that they receive at the local research site.

<div align="center">**Reflection on Importance of the Work**</div>

The importance of my research is that it provided vital information for the local SSS program on the effect of early intervention of tutorial services for its participants. Evidence now exists that SSS tutoring in the early weeks of a semester plays a significant role in remedial course success. This evidence led to the creation of my project, but it also justifies the budgetary resources used for the service and may lead to other programmatic improvements for SSS. I will convey my research findings to all SSS participants to encourage students to use the tutoring service wisely. I will also provide my research finding to the local research site where improvements can be made to the tutorial services offered to the overall student population at the institution. For instance, it is possible that the institution could invest in supplemental instruction for remedial education.

<div align="center">**Implications, Applications, and Directions for Future Research**</div>

My research adds to the body of research that reflects the positive effect tutoring services have on student success. For the local SSS program, the research pointed to the value of its tutoring services, which had previously come under question. My findings on the relationship between SSS tutoring and student remedial course success can ease

apprehensions that the program's leadership had concerning the budgetary needs of the service.

My research has the potential to affect social change for the local SSS program, the research site, and other SSS programs through communication of the findings. Policies can be changed and/or implemented based on the knowledge generated by my research on the importance of providing academic support during the first weeks of a semester at the local research site. My research will also be presented at TRIO conferences at the state and regional levels, thus expanding the social change boundaries.

Directions for future research include exploring more of the services that SSS offers and the potential influence that those services have on participant success. This research could include a program evaluation or research into the effect of SSS services on student retention. Additionally, because my research was quantitative, a need still exists to hear SSS participants' thoughts and opinions about tutoring services or about other SSS services. Qualitative research would provide more insight from participants about their views on the quality of SSS tutoring and the program as a whole. Finally, my research was on a small subset of the population of the local research site. More research could be conducted at the local research site to ascertain which variables play a significant role in remedial course success at the college.

Conclusion

A problem existed for the TRIO SSS at the local research site in that little evidence existed of a relationship between the time students spent in SSS tutoring and their success in remedial courses. An independent evaluator had questioned the need for

the service and nationally, TRIO SSS research had not established if tutoring services added value to the success of SSS programs. My research indicated a significant relationship between time in SSS tutoring during the first 5 weeks of a semester and remedial course grades. Based on my research, I developed a project to capitalize on the relationship between providing early academic support and remedial course success. My project is a program recommendation to establish a remedial summer bridge program for the local SSS program with the potential to expand the program to the larger student population at the local research site. The bridge program will benefit students through early exposure to remedial course materials and information to better prepare them for the rigors of college. TRIO SSS was born from the idea that the socioeconomic situations of people's lives could be positively impacted through exposure to higher education. By expanding its services and implementing a summer bridge program, the local SSS program is facilitating a smoother transition into higher education for its participants at the local research site.

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Appendix A: The Project

Tutoring Time in TRIO Student Support Services and Remedial Course Success

Project: Student Transition and Readiness (S.TA.R.) Summer Bridge Program

by

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A problem existed for a TRIO Student Support Services (SSS) at a 2-year community college in the southeastern United States due to a lack of information regarding the relationship of its tutoring services to course success for its participants. Questions about the service's cost/benefit were raised by an independent evaluator and little supporting evidence from research was available to suggest that SSS tutoring services had a positive effect on student success. To investigate the problem, a retrospective prediction research design was used to establish whether a relationship existed between the time students spent is SSS tutoring and their grades in remedial courses. Ordinal logistic regression results revealed that a significant predictive relationship existed between SSS tutoring during the first 5 weeks of a semester and remedial course grades.

Based on the results of the research, it is recommended that the SSS program establish policies and procedures to implement a remedial summer bridge program. This program recommendation is based on the results of my research that points to the importance of early academic support for remedial education. The goal of the summer bridge program will be to give students a head start on their remedial math course, and some students may be able to place out of one remedial course after taking part in the program.

The Research Problem

SSS is one of eight TRIO programs funded by the U.S. Department of Education designed to assist students who are at a higher risk of not successfully completing their

educational goals (Chaney, 2010). TRIO programs were the result of Lyndon B. Johnson's War on Poverty in the 1960s (Groutt, 2003). SSS programs serve students who are first-generation, low income, or students with disabilities with intensive services designed to help these students stay enrolled in college. Services that SSS programs must offer their participants include assistance with course selection and financial aid, financial literacy education, academic tutoring, and transfer assistance for those programs housed at 2-year institutions (Chaney, 2010). SSS programs are also allowed to offer other services and a summer bridge program is among those allowable services. SSS programs at 2-year institutions are charged with certain objectives including: student persistence to the fall semester, good academic standing of a 2.0 GPA or better, graduation, and transfer to a 4-year institution (Chaney, 2010).

The SSS program at the local research site has been on campus since 1975 and has successfully applied for continued funding through a national grant competition which is held every 5 years (SSS program director, personal communication, April 7, 2014). The program is funded to serve 350 students and has the following objectives:

- 78% good academic standing.
- 70% persistence rate.
- 25% graduation rate (based on cohort year).
- 20% transfer rate (based on cohort year).

Since being refunded in 2015, the program has annually met three of the four objectives. It has failed to meet the transfer objective. The program has enjoyed a certain level of success with anecdotal praise from many of its participants.

Despite its success, the local SSS program had a problem due to the lack of an evaluation of its tutoring services and not knowing if a relationship existed between tutoring and student course success. Roughly 25% of the program's budget is used for tutoring services, and in the past, an independent evaluator had questioned the need for this service to be funded through the program's budget (SSS program director, personal communication, April 7, 2014). The question of cost/benefit from the independent evaluator of SSS tutoring services led the program's director to a difficult decision, but ultimately, SSS continued to offer the service. That decision was based on survey data from participants that reflected positively on the service, but no data on student course success existed at that time.

Tutoring services for SSS programs is also problematic because, even though it is a required service, it does not have to be offered directly by the SSS program. SSS programs can elect to refer their participants to institutional tutoring services. Additionally, SSS programs cannot duplicate the services of the institutions where they operate (Chaney, 2010). The program director took care to differentiate SSS tutoring services from those of its home institution, but concern remained about whether enough had been done to justify the continuation of SSS tutoring.

A national research study of SSS programs and student success was not able to identify the role that SSS tutoring plays in student success (Chaney, 2010). I sought to address the research problem through a quantitative research study that focused on SSS tutoring and the role the service played in remedial course success of its students.

Remedial courses were chosen for this research due to the problematic effect that these courses have on student success (Bachman, 2013).

Current SSS Tutoring Policies

SSS offers yearlong tutoring services to its participants in most general education courses. Students can set up tutoring appointments at any time during a semester, contingent upon tutor availability. When students make an appointment with a tutor, it is a standing appointment (meaning that the student will have the same time and tutor every week) for the semester. Students can receive 2 hours of tutoring per week for two courses. That is a total of 4 hours of potential tutoring time per week. If a student does not call or show up for two tutoring sessions or is absent for a total of four sessions, then the student forfeits the tutoring appointment. SSS is staffed with both professional and peer tutors.

The Research Questions

I conducted a research study that focused on the predictive relationship between time students spent in SSS tutoring and their course grade in three remedial courses (MAT 032, MAT 101, and ENG 100) offered at the local research site. MAT 032 was a basic arithmetic skills course, whereas MAT 101 was an introductory algebra course. ENG 100 was an introduction to composition course. My research also included the following independent variables: college placement test score, race/ethnicity, gender, and age. My research investigated the following questions:

Research Question 1 (RQ1): To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grade in MAT 032?

Research Question 2 (RQ2): To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grade in MAT 101?

Research Question 3 (RQ3): To what extent are time in SSS tutoring, Compass placement test scores, race/ethnicity, gender, and age predictive of students' course grade in ENG 100?

The Theorical Foundation

The theoretical foundation for my study was Tinto's (1975) theory of student departure that focused on students' social and academic integration as imperative components of their success. Tinto adapted Van Gennep's (1960) *Rites of Passage* to detail three stages (separation, transition, and incorporation) of student integration into their chosen college. In the separation phase, students must part from their family, friends, and community to begin to identify with the principles of their institution (Tinto, 1988). The second phase of transition occurs when students begin to build connections with peers, faculty, and staff at their institution (Tinto, 1988). In the final stage of incorporation, the students finally feel connected to their college. Tinto (1988) argued that once that connection is established, then that student is less likely to leave the college before credential completion. Additionally, Tinto (1988) pointed to the critical nature of a

student's first year in college but went even further to identify the first 6 weeks as the most crucial for a student's potential success.

Although Tinto's theory has been popular in higher education research for more than 40 years, it is not without its critics. One of the greatest criticisms is that Tinto's theory is not applicable at institutions that are not residential, like 2-year community colleges or for nontraditional students who are more likely to commute (Metz, 2004). Another criticism is that Tinto's theory did not account for external factors such as financial aid and the burden of the costs associated with college attendance (Nora, 1990). Despite the criticism, the academic integration component of Tinto's theory has been shown to have a positive relationship with student success even at 2-year colleges (Nora et al., 1990; Webb, 1989). Tinto (2012) later expanded the theory to emphasize the importance of early academic interventions for student success.

Review of Relevant Literature

Research on SSS student populations. The local SSS program served 539 students from 2011-2015 (program director, personal communication, May 8, 2018). Of those students, there was an equal percentage of traditional and nontraditional aged students, majorities of female students at 69%, and African American students at 65%. It is also important to note that the program served 79% of students who were low income with 73% also identifying themselves as first-generation and 15% as disabled.

Research on first-generation college students revealed that many lack information and support. Because of the lack of a family knowledge foundation, first-generation students often do not know where to turn for information on financial aid and academic

support (Gibbons et al., 2016; Moschetti & Hundley, 2015). This lack of information often adds to their stress when transitioning into college. Also, first-generation college students do not benefit from being able to discuss their troubles and apprehensions with their families because they lack understanding of college related issues (Palbusa & Gauvain, 2017).

Academic preparedness and financial concerns were barriers found in the research related to low-income student success. Schademan and Thompson (2016) reported that many low-income students questioned if their high school education had prepared them for college coursework. Additionally, college faculty also reported that low-income students were not ready for the rigors of their courses (Schademan & Thompson, 2016). Lack of college choice because of financial constraints and the need to financially assist their families were additional issues for low-income students (Inman & Mayes, 1999).

Research on students with disabilities produced mixed results. Hen and Goroshit (2014) reported that disabled students showed more learned helplessness and less self-efficacy when compared to nondisabled students, whereas Blake and Rust (2002) reported contradictory findings with higher self-efficacy results for disabled students. Other research indicated that disabled students may not view their disability as a stigmatizing problem because of the special accommodations received by self-identifying as disabled (Fleming & Wated, 2016).

Research on SSS success. A 2010 national research study of SSS programs highlighted the success that these programs have experienced with assisting students at

risk of failure (Chaney, 2010). Chaney, who compared success rates of SSS students with matched non-SSS students, published the following findings:

- SSS students had an 8% to 11% greater degree completion rate

- SSS students were 17% to 19% more likely to be retained

- SSS students' average GPA was 2.34 verses 2.18 for non-SSS students

Research on college placement testing and remediation. College placement testing is often used to measure students' reading, writing, and mathematics abilities to best place them into classes. Often, this will mean the need for remediation, but some researchers have questioned the use of these tests alone to place students into courses. Scott-Clayton, Crosta, and Belfield (2014) found that students were more likely to be placed in a class too low for their abilities than a class that is too high. Also, Melguizo, Kosiewicz, Prather, and Bos (2014) found that 75% of students in their study placed in a math course that was three levels under the college-level math course. This long math sequence before achieving college-level math credit may be too time consuming for many students. Research on the course success predictability of college placement tests is mixed. Medhanie, Dupuis, LeBeau, Harwell, and Post (2012) did not find that math scores on the Accuplacer college placement test predicted math course success, whereas Bremer et al. (2013) did find that higher math placement scores predicted math course success.

The mixed results of college placement testing may lead students into remediation and at times, many levels of remediation must be completed before students are able to take college-level courses. Remediation is problematic; research has suggested that

students are less likely to complete college-level courses when they begin in remedial

courses (Bahr, 2013; Ngo & Kosiewicz, 2017). Student populations who are most

affected by being enrolled in remediation include female students, racial/ethnic

minorities, nontraditional, and first-generation college students (Crisp & Delgado, 2014;

Wolfle & Williams, 2014). African American students seem to be most stymied by

remediation because they are 42.6% less likely to persist past remediation when

compared to other racial/ethnic groups (Wolfle & Williams, 2014). Students also reported

a stigmatizing effect associated with remediation, believing that the courses mean that

they are less intelligent than students not in remediation (Bachman, 2013). Finally, Hoyt,

(1999) found that enrollment in three or more remedial courses has been shown to have a

significant negative effect on student success in those courses with lower grade point

averages (GPAs).

Research on the effect of tutoring on student success. Research has shown that

tutoring has a positive effect on students' course grades and course completion rates.

Students who took part in tutoring services often had significantly higher grades in

courses where assistance was provided than their peers who were not tutored (Jaafar,

Toce, & Polnariev, 2016) and researchers have identified students who take part in

tutoring as being more engaged academically (Ticknor, Shaw, & Howard, 2014).

Additional research on tutorial services indicated that course completion rates for

students who took part in tutoring were higher than for those students who did not take

advantage of tutoring (Colver & Fry, 2016). Copus and McKinney (2016) found that

students who received tutoring in an introductory algebra course had significantly higher odds of completing that course than students who did not seek tutoring.

Increased overall GPAs was another positive student success factor related to tutoring services. Walvoord and Pleitz (2016) used matched sampling to control other variables that could influence GPAs (gender, academic ability, and socioeconomic factors) and found that tutored students averaged a .29 higher GPA when compared with their nontutored peers. Additional researchers were also able to find a significant relationship between the amount of time students spent in tutoring and their GPAs. The more time students spent in tutoring was correlated with higher GPAs (Coladarci, Willett, & Allen, 2013; Grillo & Leist, 2013).

Qualitative research has produced information regarding the perceived benefits obtained from tutoring. Colver and Fry (2016) reported that students believed that tutoring helped them to understand course concepts and made them feel more confident about their abilities to master course materials. Other researchers were able to identify reasons that students did not take part in tutoring services. Ciscell, Foley, Luther, Howe, and Gjsedal (2016) found that many students claimed feeling stigmatized as being seen as less intelligent for seeking tutorial services. Colver and Fry also found that many students were simply unaware of the availability of tutoring, and some students indicated that they did not have time to participate in the service.

Limited research was found on SSS tutoring services. Muraskin (1997) reported on the best practices of five SSS programs across the United States, and tutoring was reported as a best practice for academic support. Another study found that SSS tutoring

had a positive effect on the grades, credits earned, and retention of students (Weinsheimer, 1998). I found no research on SSS tutoring at 2-year institutions like the local site or SSS tutoring's effect on remedial course success.

Research Design

My research was quantitative, and I employed a retrospective prediction research design that used historical data to determine if a predictive relationship existed between my independent and dependent variables. This research approach does not require the use of a comparative sample group; instead it looks at independent variables that occur in time before an outcome variable (Creswell, 2015). Data from student records which were recorded from September 2012 through August 2016 were retrieved for the study. Students' transcript data on course grades, age, gender, race/ethnicity, and college placement test scores were extracted from the local sites' student information system, Colleague. Information on time spent in SSS tutoring was retrieved from a database that the local SSS program uses called Blumen.

I sought to understand if a relationship existed between time spent in SSS tutoring and remedial course grades in MAT 032, MAT 101, and ENG 100. In addition to time in tutoring, I also included the following independent variables in my study: college placement test scores, race/ethnicity, gender, and age. My research did not include any variables related to the financial aspects of college expenses, which can negatively affect student persistence throughout the remedial sequence of courses. The research site was a 2-year community college in the southeastern United States and the research sample involved students in the college's SSS program. Nonprobability, census sampling was

used because a unique sample of students was needed to address my research questions

(Creswell, 2015). SSS students who took part in SSS tutoring for MAT 032, MAT 101,

ENG 100 between 2012 and 2016 were included in the sample. Because my dependent

variables were ordinal (ranking) and I had more than one independent variable, I used

multiple ordinal logistic regression for my inferential statistical testing (Stoltzfus, 2011).

I did not hypothesize that any one of the independent variables would be more predictive

of remedial course grade success.

Statistical Analysis Results

I completed three ordinal logistic analyses to ascertain if any of my independent

variables had a significant relationship with course grades in MAT 032, MAT 101, or

ENG 100. Table 1 highlights the variables that proved to have a significant relationship

with remedial course grades.

Table 1

Variables Significantly Related to Course Grades

		Estimate	Std. Error	Wald	df	Sig.
MAT 032	Tutored time 1ˢᵗ 5 weeks	.005	.002	4.951	1	.026
	Placement scores	.075	.036	4.384	1	.036
	Gender (female)	-1.432	.659	4.727	1	.030
MAT 101	Tutored time 1ˢᵗ 5 weeks	.004	.002	5.053	1	.025
	Placement scores	.049	.024	3.976	1	.046
ENG 100	Tutored time 1ˢᵗ 5 weeks	.012	.006	4.676	1	.031

For MAT 032, three independent variables had a significant relationship with the

course grade: time spent in tutoring during the first 5 weeks of a semester, college

placement test score, and the female gender, which was negatively related to course

grade. For MAT 101, two independent variables had a significant relationship with the course grade, time spent in tutoring during the first 5 weeks of a semester and college placement test score. Finally, the independent variable of time spent in tutoring during the first 5 weeks of a semester had a significant relationship with the course grade for ENG 100.

My results echo Tinto's (2012) emphasis on the importance of providing early academic support to encourage student success. The original research problem was that it was unknown if a relationship existed between time spent in SSS tutoring and remedial course success. My research findings were able to establish that relationship, but to expand on that relationship and improve students remedial course success, I recommend that the SSS program creates the policies and procedures necessary to offer a remedial summer bridge program.

Review of Summer Bridge Program Literature

The purpose of summer bridge programs is to aid first-time college students with their transition into higher education to improve student success rates (Cooper, Ashley, & Brownell, 2017). Summer bridge programs have their origin from TRIO Upward Bound, which offers high school students intensive services to encourage college attendance (Kallision & Sadler, 2012; Sablan, 2014). Like TRIO programs, student populations most often served by summer bridge programs include low-income individuals, first-generation college students, racial/ethnic minorities, and students in remedial education (Cooper, et al., 2017; Greenfield, Keup, & Gardner, 2013; Strayhorn, 2011).

Summer bridge programs are unique to each institution, but research on effective summer bridge programs did reveal best practices, which include:

- Information to prepare students for the academic rigor of college (Lopez, 2016).

- Information sessions or classes taught using interactive pedagogy techniques (Lopez, 2016).

- Tutoring or supplemental education (Greenfield et al., 2013).

- Study skills instruction (Cooper et al., 2017).

- Introduction to college resources and financial aid (Lopez, 2016).

- Academic advising and career counseling (Lopez, 2016).

Like the characteristics of summer bridge programs, their intended outcomes are institution specific. For those institutions that offer a remedial summer bridge program, the intended outcome is to provide a head start on remedial courses through accelerated credit bearing courses thus eliminating some of the burden of remedial education (Wathington, Pretlow, & Barnett, 2016). Additionally, the intent of summer bridge programs is to have a positive effect on the persistence and retention of the students who participate (Ackermann, 1991; Douglas & Attewell, 2014; Garcia, 1991; Gold, Deming, & Stone, 1992).

Four considerations must be accounted for when implementing a summer bridge program. The first consideration is that planning for a summer bridge program is a year-long enterprise (Greenfield et al., 2013). Planning for summer bridge activities must begin well before the program is held. Second, is the important role that faculty members play in the success of a summer bridge program. It is imperative that faculty members

provide interactive pedagogy and connect personally with summer bridge participants (Cooper, et al., 2017). Third, budgetary costs associated with conducting a summer bridge program must be considered during the implementation phase. These costs include salaries for faculty and staff, technology, and supplies (Greenfield et al., 2013). Finally, collaboration is an important consideration for summer bridge implementation. Many different departments and divisions of a college will be involved in summer bridge activities, and collaboration between these stakeholders is imperative to its implementation (Greenfield et al., 2013).

Review of Research on Evaluation and Assessment

Research on summer bridge program evaluation practices revealed a shortfall of evaluations. Student surveys, for the evaluations that were conducted, were the most common data collection method (Garcia & Paz, 2009). Program evaluation is one area where summer bridge programs could stand to improve in their practice.

Council for the Advancement of Standards in Higher Education (CAS) standards and self-assessment practices are in use at the institution. CAS provides guidance in the form of assessment guides for more than 40 student services departments and has 12 standards on which departments must rate their performance based on collected evidence (Council for the Advancement of Standards in Higher Education, 2015). Any rating that does not meet the CAS standard should be addressed in an action plan (Council for the Advancement of Standards in Higher Education, 2015).

Recommendation: Student Transition and Readiness (S.TA.R.) Summer Bridge Program

Based on the results of my research, I recommend that the SSS program establishes a 2-week summer bridge program that provides an intense review of remedial math concepts. Because of the high pass rate in ENG 100, I am not proposing to include English concepts in the summer bridge program. The bridge program will start with a maximum of 20 students who graduated within the past 3 years from high school and who have tested into remedial math. Each day of the summer bridge program will consist of 5 hours of workshops on math concepts, small group tutoring sessions, individual advising, career testing, and college readiness information. Appointments with SSS staff will be made on the Fridays of the summer bridge program and will include the development of a graduation plan. In the future, a bridge program may be offered to older SSS students, but nontraditional students may find it difficult to commit to the timeline that I have set up for this bridge program.

Since I conducted my research, the local research site announced that it will overhaul its remedial math courses by condensing its four remedial math courses into two remedial courses beginning fall 2019 (assistant dean of academic advancement and support, personal communication, December 6, 2018). The new MAT 100 will replace MAT 031 and MAT 032 and the new MAT 105 will replace MAT 101 and MAT 102 (Intermediate Algebra). With these changes in mind, I propose that the SSS summer bridge program focus its content on MAT 100. It is very likely that with an intense 2-

week review of basic math concepts many students may be able to retake the college's

placement test at the end of the summer bridge and test into MAT 105. Figure 1 provides

a proposed schedule for summer bridge activities.

Student Transition and Readiness (STAR) Summer Bridge Program Week One					
Time	**Day One**	**Day Two**	**Day Three**	**Day Four**	**Day Five**
8:30am-8:55am	Welcome and purpose	Daily welcome	Daily welcome	Daily welcome	
9:00am-9:55am	Math skills workshop	Math skills workshop	Math skills workshop	Math skills workshop	Individual Advising
10:00am-10:55am	Intro to SSS and college resources	Hands on technology workshop	Time management workshop	Financial literacy workshop	Individual Advising
11:00am-11:55am	Career inventory assessment	Financial aid workshop	Study skills workshop	Career counseling workshop	Individual Advising
12:00pm-12:30pm	Lunch	Lunch	Lunch	Lunch	Individual Advising
12:45pm-2:00pm	Small group math tutoring	Small group math tutoring	Small group math tutoring	Small group math tutoring	Individual Advising

Student Transition and Readiness (STAR) Summer Bridge Program Week Two					
Time	**Day One**	**Day Two**	**Day Three**	**Day Four**	**Day Five**
9:00am-9:55am	Math skills workshop	Math skills workshop	Math skills workshop	Math skills workshop	Individual Advising
10:00am-10:55am	Essay writing Workshop	Leadership and diversity workshop	Small group math tutoring	Retake college placement test; review results	Individual Advising
11:00am-11:55am	Dealing with stress workshop	Goal setting and motivation workshop	Campus Tour	Retake college placement test; review results	Individual Advising
12:00pm-12:30pm	Lunch	Lunch	Lunch	Lunch	Individual Advising
12:45pm-2:00pm	Small group math tutoring	Small group math tutoring	Small group math tutoring	Summer Bridge Wrap-up	Individual Advising

Figure 1. Proposed 2-week schedule of STAR activities.

The 2-week summer bridge will offer its participants more than 18 hours of math concept review through interactive workshops developed and conducted by college math instructors as well as small group tutoring sessions led by SSS tutors. Each student will have the opportunity to meet with an SSS staff member to develop a graduation plan that maps out all the courses that will be needed to complete the degree and transfer, if applicable. Students will also take career interest tests and review those results with staff from the college's Career Center. Workshops on financial aid, college resources, time management, dealing with stress, and study skills are all geared toward aiding students with the transition from high school to college. This information is important to prepare students for the rigors of college academics and to ensure that students understand what will be expected of them as college students. After completing the math concept review workshops, the students will have the opportunity to retake the college's placement test free of charge.

The goal of the summer bridge program will be to give participants a head start on their remedial coursework to encourage course completion of MAT 100 with a grade of C or better. Additionally, it is possible that students will be able to bypass MAT 100 after participating in summer bridge math review sessions and retaking the college placement test. The ability to bypass one remedial math course can help reduce the length of time to credential attainment, thus promoting student retention. Another goal of the summer bridge program is to prepare students for their college experience by providing a positive experience with college staff, faculty, and peers.

Summer Bridge Implementation Plan

The director of educational opportunity programs would give first approval to implement the STAR summer bridge program in SSS, and then additional approval would come from the SSS project specialist for the state. After approval, the assistant director of SSS will lead the implementation process by meeting with key stakeholders on campus. The stakeholders include SSS staff; SSS tutors; key representatives from the Academics Division; and the Directors of the Transitional Department, Financial Aid, and the Career Center. SSS staff will be asked to develop student success workshops that are meant to assist students with their transition into college. Collaboration with the Transitional Department is essential for the development of a curriculum plan for MAT 100 workshops. A member of the Transitional Department staff will also be asked to lead these workshops and work with SSS tutors to ensure that summer bridge participants receive a streamlined preview of math concepts for MAT 100. Staff from financial aid and the Career Center will be asked to present at workshops for the summer bridge program. In addition to workshop presenters, SSS will need to seek permission to receive college placement test scores for participant recruitment and a placement test fee waiver for participants will be requested from the Academics Division.

Once all collaborators have agreed to contribute to the STAR summer bridge program, then participant recruitment can begin. College placement test data will be reviewed, and potential candidates will be contacted via mail, email, and phone. Potential candidates will meet with SSS staff and be vetted for their eligibility for SSS services. If

eligible and determined to be a good candidate for the summer bridge program, then a

candidate will receive an orientation into SSS where a contract must be signed that

stipulates the importance of attendance at summer bridge activities. Continued

involvement in SSS for summer bridge participants will be contingent upon their

attendance. Finally, the collaborators will be asked to meet again in the weeks before the

summer bridge program is held to ensure that all workshop presenters are in place and all

contingencies are covered. The summer bridge program will be held in the last 2 weeks

of June.

Summer Bridge Evaluation Plan

Part of the planning for implementation of the STAR summer bridge program is

its evaluation. All involved in the initiative will be asked for their input into the

program's evaluation, but both summative and formative objectives will need to be set.

Student surveys will be developed and disseminated to participants at the end of both

weeks of summer bridge activities. SSS staff will review the surveys daily and make any

immediate changes to programmatic events if deemed necessary. Survey results will also

be evaluated for improvements that can be initiated at the next year's summer bridge

offerings. Both formative and summative objectives will be evaluated by the assistant

director of SSS and reported to the director of educational opportunity programs.

Conclusion

In closing, through my research, I was able to determine that a positive

relationship existed between SSS tutoring during the first 5 weeks of a semester and

remedial course grades. My research findings are consistent with student success theories

that point to the importance of early academic intervention for at-risk students like those served by SSS. I recommend that SSS implement a summer bridge program to provide transitional support to students entering college and placed into remedial math courses. Summer bridge participants can benefit from previewing the content of their remedial math course through math concept review workshops led by college instructors and reinforced by group tutoring sessions led by SSS tutors. Participants will also attend workshops designed to provide vital information regarding college resources, study skills, and financial aid. Also, participants will be able to take a career inventory assessment and speak with a career counselor to ensure that the right major has been selected. Finally, participants will meet with an advisor to develop a graduation plan that maps out all the courses needed for graduation, and they will also be able to retake the college placement test to possibly test out of a remedial course. In the end, SSS was established to assist those individuals who historically had been underserved in higher education. This summer bridge program should add value to the SSS programmatic offerings intended to improve the odds for students at risk of not achieving their educational goals.

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