IMPACT OF THE STUDENT SUPPORT SERVICES/TRIO PROGRAMMING ON PERSISTENCE AND ACADEMIC ACHIEVEMENT

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ABSTRACT

Patrick D. Pauken, Advisor

The purpose of this study was to determine what specific sets of TRIO Student Support Services (SSS) variables predict persistence and academic achievement using Astin’s Input-Environment-Outcome (I-E-O) model. The model was employed to investigate the relationship among the following input variables of gender, race, eligibility for program services, and academic need for participation in the SSS program. Four environmental variables consisted of a select set of Bowling Green State University (BGSU) SSS services, namely advising, tutoring, math assistance, and writing assistance. The outcome variables were persistence and academic achievement. The sample for this study consisted of 1122 students who participated in the BGSU SSS program between 2005 through 2011. Logistic regression was applied to the data to examine the effect of the input and environmental variables on persistence and multiple regression was applied to the data to examine the association of the input and environmental variables on academic achievement as defined by grade point average (GPA).

Findings suggest that the best-input variables of eligibility (first-generation only, low-income only, and first-generation/low-income) and need (low high school grades and failing grades) were significant in predicting student persistence. The environmental variables advising, tutoring, and assistance in math and writing were not predictors of persistence. However, writing and advising were significant predictors of GPA, with writing having a positive impact on this outcome. The input variables of gender and need were also significant predictors of academic achievement. Female students who persisted had a higher GPA than males. Students
who entered the program because of failing grades and low high school grades had lower GPA than students with other levels of need. The overall models did not provide a substantial fit to predict persistence or academic achievement.

Although this study provides some guidance as to which BGSU TRIO factors contribute to the outcomes of first-generation and low-income students, considerations for greater programming efforts, increased partnerships, and a review of organizational policies is presented. Recommendations for future research to gain a greater understanding of the myriad characteristics and experiences of first-generation and low-income students, the changing environment of higher education and the impact on students are offered.
To John and Ann Childs

Who provided me the opportunity to pursue my dreams and encouraged me to not let my
circumstances dictate my future.

To my TRIO colleagues across the country who work each day in the college access and
success fields to ensure first-generation and low-income students have a voice and are not
forgotten.

“…but this one thing I do, forgetting those things which are behind, and reaching forth unto
those things which are before, I press toward the mark for the prize…”

Philippians 3:13-14
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CHAPTER I. INTRODUCTION

First-generation college students represent about one-third of the student population at public four-year institutions and 50% of the population at two-year and community colleges (Engle, 2007). These students often lack knowledge of institutional procedures (Choy 2001; Engle, Bermeo, & O’Brien, 2006; Nunez & Cuccaro-Almin, 1998; Pike & Kuh, 2005; Reid & Moore, 2010). Institutions of higher education will have to make changes to traditional educational policies, administration, curriculum, and support services to respond to the challenges many first-generation, low-income students experience. These experiences differ greatly from those students from college-educated families (Engle et al. 2006). Individuals who have unclear expectations of formal education may experience more difficulty than those who have prior knowledge of what is expected. For new college students, adjustments can cause additional hardships. Compounding that general experience, many first-generation students already occupy a variety of life roles (e.g., employee, parent or spouse) and the role of student seldom takes priority (Apps, 1990). First-generation college students do not receive as much emotional support as those individuals with family members who have attended college before them (Choy, 2001; Walpole, 2008). As a result, first-generation college students find college more stressful, which may be a contributing factor to the higher dropout rate among first-generation college students (Bowman & York-Anderson, 1991).

In terms of college completion, the probability of earning a bachelor’s degree varies among students. According to a recent six-year longitudinal study, nearly 42% of students who entered college in 1998 were first-generation college students, and 26% had dependent incomes of less than $25,000 (Mortenson, 2011a). For first-year students from high-income families, 65% earned some type of college degree within six years, and 56% earned a bachelor’s
degree. In comparison, only about 50% of students with dependent income of less than $25,000 earned some type of college degree within six years. Only 26% earned a bachelor’s degree, 14% earned an associate’s degree, and approximately 10% had earned less than a two-year certificate (Mortenson, 2011a).

The number of high school graduates enrolling in higher education has been increasing. For example, the U.S. Department of Education projects an average increase of 11% of high school graduates nationally by 2020 (National Center for Education Statistics, 2012). Many of these students will be highly ethnically diverse, first-generation students and will arrive on college campuses with distinct disadvantages--specifically, their lack of basic knowledge about higher education, a lower level of family income and support, under-developed education degree expectations and plans, and inadequate academic preparation in high school (Pascarella, Pierson, Wolniak, & Terenzini, 2004). These students, as a group, are more likely to experience a difficult transition from secondary school to college than their more affluent peers and this transition includes both social and academic experiences (Terenzini, Rendon, Upcraft, Millar, Allison, & Gregg, 1994).

When compared to students whose parents are college graduates, first-generation students are more likely to leave a four-year institution at the end of the first year, less likely to remain enrolled in a four-year college or be on track to a bachelor’s degree in three years, and less likely to stay enrolled or attain a bachelor’s degree after five years (Engle & Tinto, 2008; Pascarella et al., 2004). Moreover, graduate and professional education is not often an academic goal for students with these characteristics. Many of these students are enrolled for fewer credit hours, work more hours, do not participate in social activities outside the classroom, and lack the time
management and financial literacy skills needed to be successful (McConnell, 2000; Pascarella et al., 2004).

In 1964, Congress established a series of programs to help low-income Americans enter college, graduate, and move on to participate more fully in America’s economic and social life. Collectively, these programs have been referred to as the Federal TRIO programs. The purpose of TRIO programs is to provide educational opportunities to many people who otherwise would not have access to higher education because of their economic, cultural, and educational disadvantages (Groutt, 2003). TRIO is not an acronym but rather refers to the original three programs (currently, there are eight) that were created to provide services for the aforementioned population also described as disadvantaged students. These three initial programs were Educational Talent Search, Upward Bound, and Student Support Services. Thus, the label TRIO was born. Currently, many other programs exist under the TRIO umbrella, and all of them have one common goal: to increase opportunities for first-generation and low-income students in postsecondary education (Groutt, 2003).

More specifically, TRIO programs were established under the Educational Opportunity Act of 1964, which was the original War on Poverty statute. These programs set the stage for the Upward Bound Program and were followed by the Higher Education Act of 1965 (Groutt, 2003). The rationale for the Higher Education Act was that financial aid alone was not enough to provide access to higher education for disadvantaged students. In 1968, the reauthorization of the Higher Education Act created the Student Support Services program, the second largest TRIO program in terms of funding of the federal TRIO programs. All of these programs share the objective of helping disadvantaged students enter and achieve success at the college level (Carey, Callahan, Cunningham, & Agufa, 2004).
Even though all TRIO programs have the common goal of providing access to postsecondary education for disadvantaged students, the specific functions of each program differ from and address the many level of needs of students: as in secondary school, adults (college-aged and non-traditional), and veterans. In addition, the different TRIO programs serve students from many disadvantaged populations at various academic developmental stages. For example, the Student Support Services (SSS) program assists undergraduate students who are the first in their families to attend college, students from low-income backgrounds, and students with physical disabilities and learning disabilities. The TRIO SSS program provides opportunities for academic development, assists students with basic college requirements, and motivates students toward the successful completion of their postsecondary education. The SSS program may also provide grant aid to current SSS participants who are receiving federal Pell Grants. The goal of SSS is to increase persistence and graduation rates of its participants and facilitate the process of transition from one level of higher education to the next (Balz & Esten, 1998; Carey et al., 2004; Chaney, Muraskin, Cahalan, & Rak, 1997).

The present study focused on the Student Support Services at Bowling Green State University (BGSU), a mid-sized four-year public institution in Northwestern Ohio. The BGSU TRIO Student Support Services program is comprehensive in nature. It provides educationally purposeful activities and services that consist of academic advising, tutoring, financial aid assistance, developmental instruction, workshops, cultural enrichment events, personal counseling, financial aid counseling and assistance with the graduate and professional school application process. These services are available to approximately 350 eligible students each year until their graduation. Students typically enter the SSS program during their first year in college. Employing a comprehensive identification, selection and retention plan, students are
identified for participation for the program by a review of their high school GPA, ACT or SAT scores and placement in one or more of the BGSU developmental courses in math, reading or English. Additionally, program staff assesses a continuing student’s college level academic performance for entrance in the program. At the end of each project year, program staff members complete an annual performance report (APR) that identifies the attainment of each standardized objective as determined by the host institution. The U.S. Department of Education requires that at least two-thirds of these participants are the first in their families to attend college and are from low-income families. Other objectives include achieving benchmarks on academic achievement (GPA), persistence, and graduation.

These programs were developed to provide disadvantaged people with an equal opportunity to access higher education. Currently, more than 800 different SSS programs exist in the United States, and these programs serve approximately 178,000 college students (U. S. Department of Education, 2009b). While SSS programs across the nation have been successful in their retention and graduation efforts, limited federal grant funding has allowed SSS to serve only a small percentage of the eligible student population (Muraskin, 1997). Thomas, Farrow, and Martinez (1998) reported that first-generation and low-income students experience an increased risk of dropping out of college compared with many other college populations. Programs focusing on the unique needs of these students can help them complete baccalaureate degrees, thus increasing the success rates within this population.

Beginning in the mid-1960s, access was a predominant theme in political and educational discussions concerning educational opportunity. By the 1990s and beyond, the term access was replaced by retention as the predominant theme related to educational opportunity (Sedlacek, 2011). However, simply emphasizing a particular theme within higher education does not imply
that either access or retention has been fully realized (Thayer, 2000). The number of underrepresented students from low-income, first generation, and ethnically diverse backgrounds in colleges and universities has remained substantial, and is predicted to increase dramatically over the next two decades. Among this population, students who do enroll in higher education graduate at lower rates than students from other backgrounds (Thayer, 2000).

Background of the Problem

According to the U.S. Department of Education’s National Study of Student Support Services programs (1998) and national performance reports (2004; 2010), disadvantaged college students who participate in SSS programs achieve excellent results. However, due to the comprehensive and resource-intensive nature of services, SSS programs at most colleges can afford to serve only a small number of students relative to the size of the eligible student population (Mortenson, 2011b). For colleges and universities, offering comprehensive SSS program interventions to all students is cost prohibitive. According to Levin and Levin (1991), identifying specific, cost-efficient services and interventions that increase persistence and academic achievement among disadvantaged students is invaluable. This would allow institutions to provide affordable support services to a greater number of students beyond the small number of eligible participants normally served by SSS programs (Carey et al., 2004). In the future, if federal funding for TRIO programs should ever discontinue, identifying these specific, cost-efficient services and interventions would provide institutions insight into how to retain their disadvantaged student population by enabling these institutions to fund a reduced number of services and still remain effective. Thus, the need is evident to identify the most effective and cost-efficient support services that are associated with student persistence and achievement in postsecondary education.
The success of SSS programs in meeting persistence and graduation objectives is primarily known only among postsecondary educators who are familiar with TRIO programs; however, the precise factors underlying these success rates are often unclear (Thayer, 2000). Due to the variety of services offered and the holistic approach of SSS interventions, it is common practice to evaluate program performance against overall grant objectives rather than in terms of specific services provided. Data collected for performance reports most often consist of aggregated grade point averages (GPAs), retention rates, and graduation rates, but researchers have not analyzed the ways in which different SSS programs and services contribute to student success (U.S. Department of Education, 2004a). Studies that have explored isolated services and have focused on individual outcomes are rare (Chaney et al., 1997). For this reason, there is a tremendous need for empirical evidence identifying the specific types of interventions and services of SSS programs that most contribute to increased persistence rates and completion rates among program participants. Research concentrated on relationships between (a) specific SSS programs and services and (b) student persistence and achievement can help to determine which services are most effective in helping at-risk students achieve educational success (Muraskin, 1997). The intent of this present study is to examine such relationships and identify a small number of SSS services that contribute most to student persistence and achievement.

College persistence studies have examined degree attainment across income groups and consistently reveal a wide gap between low-income and high-income students. Seventy-five percent of students in the top income quartile earn a bachelor's degree, compared with only 9% of low-income students (Mortensen, 2006b). Persistence issues are crucial to institutional planning and funding, both of which are influenced by the retention or attrition of the student population served (Jones & Watson, 1990). Identifying specific services or interventions that
lead to student persistence and that facilitate higher completion rates for first-generation and low-income students is an important task for higher education institutions. While a substantial amount of research has been conducted in an attempt to identify factors that lead to student persistence, few studies have examined this issue in relation to low-income and first-generation students.

**Purpose of the Study**

The purpose of this predictive study was to identify an effective model of SSS program services at Bowling Green State University (BGSU) that predicts undergraduate student success in terms of persistence, as measured by students’ status of continuation or completion of their educational goals and achievements. More specifically, the purpose of this study was to identify the efficient combination of services offered by the SSS program at BGSU that predicts students’ persistence and achievement.

**Theoretical Framework**

Astin’s Input-Environment-Outcome (I-E-O) model (1993) served as the guiding framework for this study. This model provides a framework for understanding the interdependence between the individual and the environment. Inputs and outputs refer to the individual and are examined at two different points in time through the understanding of environmental influences. These intervening experiences are important and are instrumental in determining whether changes are needed to improve student outcomes (Astin, 1993, Astin & Antonio, 2012). For the purposes of this study, the four predictor variables (also referred to as the input variables) consisted of gender; race and ethnicity, first-generation status, and low-income status. The two outcome variables (also referred to as the output variables) consisted of academic achievement (GPA) and persistence (continued enrollment and/or graduation). The
environmental variables consisted of participation in BGSU’s Student Support Services program and the use of academic advising, tutoring services, writing assistance services, and math assistance services.

The quantitative and categorical dependent variables of grade point average (GPA) and persistence were examined at the end of each academic year. Graduation is defined as the attainment of a bachelor’s degree. The intended outcome of the study is to inform higher education professionals so that they might be more intentional when designing and facilitating student learning in the curriculum and co-curriculum.

**Research Questions**

1. What identifiable student demographics and BGSU Student Support Services program services can be used to predict persistence?
2. What identifiable student demographics and BGSU Student Support Services program services can be used to predict academic achievement?

**Significance of the Study**

Leaders of colleges and universities have committed to increasing the number of college graduates. Member institutions of the National Association of System Heads (NASH) have agreed to find ways of reducing the college retention gaps that separate low-income students from more affluent students (Engle & Lynch, 2009). This commitment by the NASH confirms and strengthens the idea that inequality exists for students from low socioeconomic status (SES) seeking access to higher education. It also promises to open up opportunities within higher education (Chen, 2005; Pike & Kuh, 2005; U.S. Department of Education, 2004; Walpole, 2007). College achievement rates among first-generation and low-income student are substantially lower than those of students from higher SES backgrounds. According to data from
the Lumina Foundation (2009) and Mortenson (2011), these achievement gaps have existed for decades and appear to be increasing each year.

The United States continues to lose ground to other countries in educational levels when compared to the number of college-age adults who have earned college degrees. According to the Organization for Economic Cooperation and Development (OECD) the U.S was once the world leader in tertiary educational achievement and in recent years has fallen in its standing from first to tenth among the 36 developed countries in the numbers of 25- to 34-year-old adults with some type of college degree. Engle and Lynch (2009) suggests the U.S. can expect to lose further ground if efforts are not put in place to increase the success rates of all students, particularly students from first-generation and low-income backgrounds.

Research studies focusing on persistence and/or retention of first-generation and low-income students have been consistent in reporting the success of these students in postsecondary education (Engle & Tinto, 2007; Ishitani, 2006; Longwell-Grice, 2008; Pascarella, Terenzini & Wolniak, 2004; Strayhorn 2006; Walpole, 2007). These studies have shown that low-income and first-generation students experience higher education differently than students from more affluent backgrounds. In fact, research has suggested that these students (a) are less likely than other students to attend a four-year institution, (b) receive less support and encouragement from home, and (c) experience increased difficulty transitioning to the postsecondary education environment (Choy, 2001; Swail, 2003; Titus, 2007; Walpole, 2007; U.S. Department of Education, 2008). According to Jones and Watson (1990), retention issues are crucial to institutional planning and funding, both of which have been affected by the retention or attrition of student populations. Identifying specific services or interventions that lead to student persistence and facilitate higher completion rates for first-generation, low-income students is an
important task for higher education. Given the waning economic and political support of TRIO programs, coupled with increased accountability measures, higher education stakeholders have been required to reevaluate expenditures and move toward greater operational efficiency. As a result, researchers must first identify specific services that demonstrate program effectiveness and facilitate the success of first-generation and low-income students. Secondly, researchers and practitioners must explore ways to incorporate these specific services or expand existing services. Finally, researchers must scale up these services that positively influence retention to retain and graduate more first-generation and low-income students in a cost-effective manner.

**Limitations**

There are several limitations inherent within this research study design. First, students who participate in SSS programs are not restricted to using only those services provided by the BGSU TRIO program. In fact, some students may use other BGSU academic support services that are available to all BGSU students. For example, BGSU offers academic assistance through the Learning Commons, where all BGSU students may elect to receive assistance in math, study skills and writing. The fact that participants in this study may have received assistance from these student services centers could influence the way that the results of this study are interpreted.

Second, several factors may present possible threats to the internal validity of this correlational predictive study: (1) Other characteristics or variables not identified in this study may more accurately explain the relationship between program usage and persistence, non-persistence, and achievement, and (2) there are potential data collection biases in that the data collected may not accurately reflect the use of SSS services, such as whether or not the data were
entered in the SSS database accurately and whether the methods used to collect the data were consistent.

A third limitation of this study is that the researcher may not be able to account for participants’ motivations to be successful, regardless of their eligibility status and the frequency with which they use SSS program services.

A fourth limitation of this study is the fact that personal concerns that influence student success and prevent students from continuing at BGSU may not be identifiable, such as illness, parental or family influence, and finances.

A fifth limitation of this study is that the data will come from an existing source and specific information may be missing and not available.

A sixth limitation of this study is the sampling method. Because this study employs a pre-selected, non-random sample, it may be difficult to draw conclusion about the population. Convenience sampling does not produce a representative sample of the population. Therefore, it may be difficult to generalize the results of this study to the entire population of students.

**Delimitations**

Several delimitations were considered when establishing the scope of this study. One delimitation is that the study will be conducted at one mid-size university in the Midwest region of the United States. The study examines only first-generation and low-income students in the TRIO Student Support Services Program. These two delimitations were set because the definitions of “first-generation and low-income students” vary among scholars and researchers.
Definition of Terms

**Academic Achievement:** For the purposes of this study, academic achievement is defined as the relative grade point average on a four-point scale at the end of an academic term.

**Academic Advising:** For the purposes of this study, academic advising is defined as the process of assisting students in making education plans, selecting and registering for courses, monitoring academic requirements, and assessing academic progress. In addition, students receive assistance in the areas of financial aid, career counseling and graduate school guidance.

**Academic Need:** For the purposes of this study, academic need refers to one of the five level of needs for participation in the Student Support Services as options outlined by the Office of Postsecondary Education in the U.S. Department of Education.

**Environment:** Refers to the Student Support Services program and the educationally purposeful services available to program eligible students. For the purpose of this study this includes four specific services of advising, peer tutoring, math assistance and writing assistance.

**First-generation Students:** The U.S. Department of Education, through the Higher Education Act (2008), has defined a first-generation student as an individual both of whose parents did not complete a baccalaureate degree or, in the case of any individual who regularly resided with and received support from only one parent, an individual whose only such parent did not complete a baccalaureate degree.

**Low-income:** For the purposes of this study, a low-income participant is one whose family’s taxable income is less than 150% of the poverty level. The U.S. Department of Commerce (2010), Bureau of the Census, sets guidelines for determining the poverty level for each cohort year.
**Math Assistance:** Refers to the individualized assistance students receive from a professional math specialist.

**Persistence:** For purposes of the present study, persistence describes the process of both pursuing and achieving educational goals, inclusive of continuing students who are pursuing a bachelor’s degree at the host institution as well as those students who have graduated (Engle, 2007).

**Race and Ethnicity:** Refers to the race and/or ethnic origin of the student as indicated on the Student Support Service application.

**Retention:** Refers to the extent to which students remain enrolled at the institution as they work toward achieving their academic goals.

**Student Support Services:** A federally funded program designed to (a) increase the college retention and graduation rates of first-generation, low-income students and/or students with disabilities and to (b) facilitate their transition from one level of postsecondary education to the next. For the purposes of this study, the SSS services include academic advising, tutoring, and math and writing assistance.

**TRIO:** Refers to programs created in response to the Educational Act of 1964 (initially three programs). TRIO began with the Educational Opportunity Act of 1964, the original War on Poverty statute. These federally funded programs were designed to help students overcome class, social, and cultural barriers to higher education.

**Tutoring:** A form of academic support designed to supplement classroom instruction and help students gain a better understanding of subject material and course expectations for improved academic achievement. For the purposes of this study, an undergraduate or graduate students provide tutoring.
Writing Assistance: Refers to the individualized assistance students receive in their general writing studies course from a professional writing specialist.

Organization of the Remainder of the Study

The remainder of this dissertation is comprised of several chapters. Chapter 2 consists of a review and summary of the research literature focused on (a) persistence of first-generation and low-income college students; (b) TRIO Student Support Services programs; and (c) academic support services, such as tutoring and advising. Chapter 3 describes the research design, the methods of data collection, and the methods of data analysis. Chapter 4 presents the results of the study. Chapter 5 presents (a) a discussion of the results within the context of prior research and theory related to programmatic factors that predict persistence, (b) recommendations for practice, and (c) recommendation for future research.
CHAPTER II. LITERATURE REVIEW

Introduction

This chapter presents research Astin’s Input-Environment-Outcome (I-E-O) model (1993) as the organizational framework for this study. In addition, this chapter presents general background information on the topic of retention and its importance to higher education institutions. This chapter also provides a brief historical context describing the research studies that have been conducted on aspects of retention. More specifically, this chapter reports the findings of studies on student retention and TRIO programs that have addressed first-generation and low-income students, support services, and academic advising.

Astin’s Input-Environment-Outcome Model

One of the earliest college impact models is provided by Astin (1970): the “input-process-output model.” In a survey published in 1990, it was reported that Astin’s Four Critical Years (1976), in which the I-E-O model was used, was the most frequently cited work in higher education literature (Astin, 1993, p. xii). Drawing on his experience as a clinical and counseling psychologist, Astin became convinced early in his research career that “any educational assessment project is incomplete unless it includes data on student inputs, student outcomes, and the education environment to which the student is exposed” (p. xii). The findings from his earlier studies led him to develop the Inputs (I)-Environments (E)-Outputs or Outcomes (O) model. For Astin,

Inputs refers to the characteristics of the student at the time of initial entry to the institution; environment refers to the various programs, policies, faculty, peers, and educational experiences to which the student is exposed; and outcomes refers to the student’s characteristics after exposure to the environment. Change or growth in the
student during college is determined by comparing outcome characteristics with input characteristics. The basic purpose of the model is to assess the impact of various environmental experiences by determining whether students grow or change differently under varying environmental conditions. (Astin, 1993, p. 7)

Inputs have been defined as personal qualities that students bring with them to the higher education environment. Examples of inputs include student characteristics, such as demographic information (e.g., race/ethnicity, age, socio-economic status, gender, etc.); educational background; political orientation; behavior patterns; degree aspirations; reasons for selecting an institution; financial status; disability status; career choice; major field of study; life goals; and reasons for attending college (Astin, 1993).

Environmental factors have been defined as those events, activities, and factors that might impact the development of students while they are in college. Examples of environmental factors include programs, curricula, relationships with faculty or staff members, peers, use of campus facilities, institutional climate, living arrangements, amount of time devoted to educational and extracurricular activities, and participation in student organizations (Astin, 1993).

Outcomes or outputs have been defined as student characteristics that develop after exposure to college and can be short- or long-term measurements (Astin & Antonio, 2012). Examples of outcomes in educational assessment include indicators such as grade point average, degree completion, satisfaction with college experience, employment in major field, and job satisfaction. In this framework, outcomes (i.e., student characteristics after exposure to college) are influenced both by inputs (i.e., student characteristics before and at the time of entry to
college) and environments (various programs, policies, faculty, and peers with which students have educational experiences while in college) (Astin, 1993).

In order to conduct meaningful research using the I-E-O model, all three components need to be accounted for, and if one or more components are missing, the pragmatic value of the data may be limited. For example, focusing solely on outcomes limits the ability of researchers to interpret data because they remain unaware of the factors, both pre-existing and environmental, that influenced the data. While an environmental-outcome approach often yields more useful information than an outcome-only approach, neither of these approaches provides necessary input data. In other words, collecting only environmental and outcome data still leaves researchers without baseline data with which to compare any meaningful changes that may have occurred; thus, they cannot know the extent to which growth may have occurred. Likewise, the input-outcome assessment involves testing and retesting at the same institution, but it does not allow researchers to fully understand or determine which factors contributed to any observable changes that may have occurred because the environmental variables are obscured. The environment-only assessment has limited uses and provides no information about the effectiveness of an educational program (Astin & Antonio, 2012). Finally, the I-E-O model is ideal for use when analyzing student data for correlational purposes for persistence and academic achievement provided there is a database containing input, environment, and output data.

Other researchers have used Astin’s model as a framework to explore the relationship among factors on student persistence as well as program effectiveness (Fischer, 2007; Gilmartin & Sax, 2002; Heaney & Fisher, 2011; Kim & Bragg, 2008; Reason, Terenzini & Domingo, 2006; Strayhorn, 2008; Walpole, 2008). Several of these studies specific to persistence and academic achievement are discussed throughout the review of the literature.
Student Persistence

Tinto’s “model of student departure” has been widely used to understand the reasons students leave colleges. Tinto (1975) developed three sets of factors that he believed were instrumental in student retention. The first set of factors Tinto identified included student-entry, or pre-college characteristics, such as family background (e.g., socio-economic status, parental education and expectations, etc.); other individual attributes, such as academic ability, race, gender, goals, and commitments (e.g., dedication to reaching goals); and institutional experiences (e.g., academic performance and social experiences). These sets of factors are longitudinal in nature and describe students’ attributes as they move from pre-college life to the on-campus experience.

Tinto (1975) suggested that the second and third sets of factors consisted of academic and social integration at students’ respective institutions of higher education. Tinto believed that individual entry characteristics directly influence departure decisions. He further believed that students’ initial level of commitment to the institution and to the goal of college graduation influenced his/her integration into the academic and social systems of higher education. Tinto suggested that academic integration could be measured by the degree to which students meet academic performance standards (e.g., accumulated GPA). Regarding the student population that Tinto studied, he believed that students’ departure decisions were further influenced by their level of social integration, such as peer group association, involvement in extracurricular activities, and interactions with faculty members.

Regarding the available research on retention, Tinto (1993) stated, “We need to develop a theory of student departure which clearly explains the longitudinal process of students leaving from institutions of higher education while capturing the complexity of behaviors that underlie
the phenomenon” (p. 3). Since the national departure rate from colleges and universities has remained constant for more than 100 years at 45%, understanding the role of institutional factors (as well as other influential factors) is crucial before researchers, educators, and administrators can create effective policies and programming to increase student retention.

Researchers (Chen, 2005; Tinto, 1993; Pascarella and Terenzini, 2005; York-Anderson and Bowman, 1991) have suggested that college and university students exit college prior to graduation under two conditions: academic dismissal and voluntary withdrawal. According to Tinto (1993), only 15% to 25% of students leave due to academic dismissal, leaving many to wonder why 75% to 85% of the departures from higher education are voluntary. When students depart from institutions, there may not be reliable methods of assessing whether their departures are true “drop outs” or whether they are “stop outs,” which is when students transfer to different institutions. Voluntary departure appears to have more to do with what happens to students after entry to the institution. Tinto also acknowledged that differences exist between groups (e.g., race, gender, socioeconomic status, age) and institution types (e.g., residential, commuter, community college, four-year university) and, therefore, there is no clear answer to the departure puzzle. For students who are the first in their families to attend college, this observation holds true (Tinto).

Tinto (1993) modified his 1975 model to include social support and external commitment components. This modification acknowledged the many additional factors that influence how students adjust to college. Tinto maintained that retention models are designed to clearly explain the types of relationships that exist between students and higher education institutions and how these relationships may account for dropout behavior. Likewise, according to Tinto, institutions should identify their role in students’ decisions to drop out and to identify which changes (if any) might be needed to reduce student attrition. Bean (1980) pointed out that Tinto’s (1975) model
failed to adequately address the importance of the external environment as well as student attitudes and values in student attrition.

Bean (1980) viewed student withdrawal similar to employee turnover in an organization, which suggests that both student and employee satisfaction levels are based upon organizational factors. Bean’s model of student attrition included the role of student attitudes and intentions in the attrition process. In this model, Bean proposed five sets of variables: a) background b) organizational, c) environmental, d) intention to leave, and e) attitudinal. Bean suggested that these variables and their interactions influence student retention.

Cabrera, Casteneda, and Nora (1993) improved upon Tinto’s student integration model by including external factors that impact student persistence, such as finances, transfer opportunity, and outside encouragement. These researchers found that intent to persist had the largest impact on persistence, followed by GPA, institutional commitment, encouragement from family and friends, goal commitment, academic integration, finance attitudes, and social integration. Cabrera et al. suggested an integrated model of student retention that included intent to persist, encouragement from family, institutional commitment, and goal commitment.

Bean and Eaton (2001) based their psychological model of college student retention on four psychological theories: a) attitude-behavior, b) coping behavior (approach-avoidance), c) self-efficacy, d) attrition, and locus of control. These authors have asserted that the factors affecting the decision to remain in college are ultimately individual and that individual psychological processes form the foundation for these decisions. Further, they suggested that given an understanding of the psychological processes involved in developing academic and social integration, an institution can create programs and environments that increase academic and social integration, thereby increasing student success.
Similarly to Tinto’s ideas, Pascarella’s (1991) theory of student change addressed how the organizational characteristics of higher education institutions influence the overall environment. Pascarella (1991) suggested that growth is a function of the direct and indirect effects of five major sets of variables. According to Pascarella, students’ backgrounds and pre-college traits, as well as the structural/organizational characteristics of institutions, shape the institutional environment. Together, these factors influence the frequency and content of students’ interactions with members of the institution. These interactions, as well as the level of student effort, then influence students’ learning and development. According to Pascarella and Terenzini (2005), students’ learning and development are also influenced by institutional environments and students’ background/pre-college traits.

Building upon this assertion that multiple forces operate in multiple settings to influence student learning and persistence, Terenzini and Reason (2005) offered a conceptual framework beyond Astin (1993), Tinto (1975, 1993), and Pascarella (1985) and concluded that the existing models were too narrowly focused on a few student outcomes and suggested that researchers to look more broadly at the multiple forces affecting college student outcomes (Reason, Terenzini & Domingo, 2006). Terenzini and Reason (2005) comprehensive conceptual framework guided by Astin’s I-E-O model suggest that students come to college with a variety of personal, academic and social background characteristics and experiences and their entire college experience is influenced by three primary influences: the institution’s internal organizational factors, the student peer environment, and the students’ individual experiences.
Student Input Characteristics

Gender

During the past 40 years, a gender shift has taken place among the college population. Females accounted for 55% of all undergraduates in 1976, but that percentage has increased to 66% in 2010 (National Center for Education, 2011). In 2011, the college enrollment rate for recent high school graduates was 68% with significant variance among gender, 65% for males and 72.3% for females (Mortenson, 2012b). College enrollment rates have increased by 10% for males and more than 33% for females since the late 1950s. This trend has continued as more females have enrolled in higher education and subsequently earn bachelor’s degrees at a higher rate than men.

The study of the relationship between gender and student retention has often resulted in mixed outcomes. In some instances, research studies have demonstrated differences in attrition between genders. According to Astin (1975), men are more likely to leave for academic reasons, while women are more likely to withdraw for personal reasons. Pascarella, Smart and Ethington (1986) conducted a study based upon Tinto’s model and found that the level of institutional commitment/satisfaction had a direct influence on the persistence of men and that socioeconomic status had a direct effect on the persistence of women. Similarly, Leppel (2002) studied the factors that influence the persistence of men and women using more than 5,000 student records from the Beginning Postsecondary Survey (BPS). This longitudinal study followed students from their initial entry into higher education. The study revealed that both differences and similarities exist in the factors that influence the persistence of men and women. In addition, this study reported that age, marital status, and hours worked had a negative impact on persistence for both men and women.
Race and Ethnicity

The rates of college attainment among students of color have been significantly lower than the rates of college attainment among non-minority students. A special report by the Lumina Foundation (2011) reported that only 18% of African Americans and 12% of Hispanics have received at least four years of college compared to more than 30% of white Americans. Further, despite the gains in minority enrollment during the last four decades, African American and Hispanic students accounted for only 13.1% and 11.4%, respectively, of enrollment at degree-granting institutions in 2007.

For students of color, integrating into the academic environment of an institution of higher education, as well as achieving academic success, can be very difficult, especially at institutions in which the majority of students are White. Much of the existing research on student retention was conducted before minority students became a “critical mass” on college campuses (Rendon, Jalomo, & Nora, 2000). Consequently, the research often was based on White male students (Tierney, 2009) and produced a one view of students that does not include issues of race and ethnicity, culture, gender, politics, and identity (Harper & Hurtado, 2007).

Much of the literature aimed at exploring the persistence of minority students addresses the barriers to degree attainment (Cabrera & La Nasa, 2000; Jones & Watson, 1990; Strayhorn & Terrell, 2010). Minority students are more likely to arrive on college campuses academically underprepared, come from low-socioeconomic groups, and be the first in their family to attend college (Kaba, 2005; Pascarella & Terenzini, 2005; Watson, 2003). In particular, studies have shown that black and Hispanic students graduate from high school less prepared than their white and Asian counterparts and must make a number of adjustments during their college experience. (Astin, 1993; Bahr, 2008; Lynch & Engle, 2010; Strayhorn & Terrell; Tinto, 1993; Walpole,
For example, many students of color lack “college survival skills.” Time management skills, study strategies, public speaking ability, and the self-confidence to interact with faculty and administration are vital to the success of college students. Students of color fall behind their White counterparts in the areas of reading, math, and computer skills (Engle, 2007; Harper & Hartado, 2007; Strayhorn, 2012). However, students of color are more likely to persist when their specific needs are addressed. For example, a study by the College Board Advocacy and Policy Center (Lee & Ransom, 2011) asked students color about their experience at college. The findings suggested that students of color are more engaged and persist longer when they are encouraged to be goal-oriented and make long-term plans.

In addition to pre-college factors that prevent persistence of students of color, other researchers have examined how students of color make the transition to college. For example, Fischer (2007) explored the difference in adjustment to college between racial and ethnic differences on college outcomes. Using data from the National Longitudinal Survey of Freshmen, Fischer’s study examined whether students left the institution by the end of their junior year. Campus environment and school-level characteristics were used to examine the transition to college for students among different racial and ethnic groups. Fischer found that first-generation minority students had earned lower grades and that lower high school grades were significant predictors of grades in college. The researcher also identified a negative correlation between enrichment and GPA among all groups. In particular, Fischer found that a) using academic enrichment services was beneficial for African American and Hispanic students in improving grades, b) high school grade point average had a significant influence on retention, and c) students who entered college with higher high school grades were less likely to leave college.
Similarly, Walpole (2008) studied how social class influences the college experiences and outcomes for African American students in four-year colleges and universities. Using Astin’s I-E-O model, Walpole conducted the study using data from the national study of the Cooperative Institutional Research Program (CIRP). The findings indicated that African American students of low socioeconomic status have less contact with faculty, study less, and are less involved with student organizations. According to Walpole, African American students are more likely to be employed and have lower grades than African American students from higher socioeconomic backgrounds. Walpole (2008) found that after entering college, African American students from low socioeconomic backgrounds reported lower incomes, lower rates of degree attainment, and lower aspirations. They also were less likely to have attended graduate school. This study also revealed that the type of institution a student of color attends may have an impact on their persistence and academic achievement. For instance, minority students attending predominantly white institutions (PWIs), researchers have indicated that race and ethnicity are significant factors when comparing how students of color are retained at historically Black colleges and universities (HBCUs) and Hispanic-serving institutions (HSIs).

Strayhorn (2008) had similar findings, as his studied measured the relationship between resilience, academic self-efficacy, and academic success among a sample of low-income African American students attending PWIs. He defined academic success using three outcome variables: first-year GPA, intent to remain enrolled, and sense of belonging. The results showed students reported low to moderate levels of sense of belonging. However, a large majority expected to stay in college and had no intentions of leaving before earning their degrees. Strayhorn (2008) found high school GPA and first-year GPA were statistically related. Academic self-efficacy and resilience were strong predictors of the first-year GPA despite the students’ pre-college academic
ability. Jehangir (2009) examined how first-generation, low-income students who in a multicultural learning community persist during the first year. In this qualitative study, Jehangir found that students face multiple challenges in academic and social integration during their first year. Students indicated the following barriers toward remaining enrolled at the university: feeling undervalued by the university, a sense of inhibition about engaging in authentic learning, and role confusion between home and school.

**First-Generation and Low-Income Students**

While access to higher education for first-generation and low-income students has increased in the U.S., the four-year completion gaps between students from lower-income backgrounds have seemed to increase somewhat between 1994 and 2007 (Engle, 2009). Additionally, previous researchers have shown that first-generation students have lower levels of academic and social integration in college, which are critical factors that shape students’ college experience and influence student departure decisions (Astin, 1993; Tinto, 1993).

First-generation college students are less likely to be academically prepared for college; lack knowledge of institutional procedures; are heavily dependent on financial aid; and may find it difficult to balance family, friends, and educational demands; (Pascarella & Terenzini, 2005; Peabody, Hutchens, Lewis & Deffendall, 2011; Strayhorn, 2006; Walpole, 2007).

First-generation students were studied to determine whether the characteristics of age, income, marital status, responsibility for dependents, institution attended, factors that influenced attendance at a particular institution, and kind of classes they enrolled in impacted persistence and retention (National Center for Education Statistics, 2011). In addition, studies have been conducted to determine the difference between students who were first-generation and those who do not fall within this category (Brown & Burkhardt, 1999; Jenkins, Miyazaki & Janosik, 2009;
Lynch, Engle & Cruz, 2011; Mehta, Newbold, & O’Rourke, 2011; Murphy & Hicks, 2006). These studies identified differences between first-generation students and non-first-generation students. Some studies included all first-time freshmen, while others included only students in special programs. Various researchers identified many different independent variables for analyses. Findings regarding enrollment characteristics and academic performance of first-generation students were in some cases very similar and other studies had different findings. The results researchers concurred with each other were students were had lower incomes. Lynch et al (2011) revealed that over 80% of students with a family income of less than $30,000 received federal aid to fund their education. Murphy and Hicks (2006) found students in this group have a job working more than 20 hours and are less likely to interact with faculty and be involved on campus.

In an earlier study Perna (2000) examined the role of the parents of first-generation college students and found parents did not have the knowledge or experience to adequately advise their children about college processes because the parents usually did not have the information-sharing channels, networking skills, contacts, social norms, values, and expected behaviors that parents with a college education typically possess. Pascarella et al. (2004) determined through a longitudinal study of college students who participated in the National Study of Student Learning (NSSL) that first-generation college students have significantly lower grades after three years of college, worked more hours per week, took more development courses, and had a greater need for financial aid.

In addition, Riehl (1994) conducted an empirical study and administered a Student Information Questionnaire to 2,190 first-year students at Indiana State University during the fall semester of 1992, which represented 93% of the entering freshman class. Riehl concluded that
first-generation students were more likely than non-first-generation students to withdraw during the first semester. Riehl also noted that first-generation students are in need of more developmental classes, lack confidence in their academic abilities, and have lower self-expectations about achievement levels and grades. The results showed that first-generation students expected to achieve much lower GPAs, had lower academic degree aspirations, were more likely to drop out during the first semester, and had low second-year return rates. However, each study concluded that in order to enable students to succeed, colleges and universities must provide academic support services.

Environmental Characteristics

Academic Advising

Academic advising is the process by which professional staff or faculty members assist their advisee(s) in course selection and can be provided in multiple forms. However, regardless of the form in which academic advising is provided, the cornerstone of this process is meaningful relationships: According to Drake (2011), students who are the happiest and academically the most successful have developed a solid relationship with an academic advisor, a faculty member, or an administrator who help them navigate the academic and social aspects of the institution. Naturally, then, according to Heisserer and Parette (2002), “higher education professionals who come in direct contact with students and understand the challenges they face are primary candidates for advisor/mentor roles” (p. 69).

One of the most effective forms of advising through meaningful relationships is one that has been referred to as “intrusive” advising. For example, Chaney, Muraskin, Cahalan and Rak (1997) have suggested that intrusive advising is an essential service for students who are performing poorly academically. This form of advising is intensive, ongoing, and suited for
students who are experiencing academic difficulty or who have been identified as at-risk prior to enrollment. Other researchers have stated that intrusive advising has positively influenced student grade point averages and retention rates, but they also have cautioned that the value of intrusive advising wholly depends on the students’ motivation to make use of this assistance (Chaney et al.) To this end, intrusive advising “provides long-term benefits for the advisors, the students, the advisor-student relationship and, ultimately, for the institution” (Garing, 1993, p. 103).

Garing (1993) has suggested that intrusive advising requires personalized student-advisor relationships and that these personalized relationships provide a context in which structured intervention strategies can be implemented throughout students’ academic careers. Garing (1993) further explained that “advising can be divided into two major periods: inquiry to enrollment and enrollment to graduation” (p. 97). Inquiry-to-enrollment advising includes activities such as admission, testing, registration, and orientation. This period is important because it is the time when students make initial contact with the college and the administration. This stage of advising may in fact ultimately determine the degree to which students experience academic success or failure. Enrollment-to-graduation advising involves periodic meetings that serve as early-alert systems or mid-semester progress reports. This stage involves counseling students about options they have for modifying their current course schedules, registering for the subsequent semester, changing majors, seeking tutorial assistance, and addressing other academic concerns.

Vander Schee (2007) examined the effectiveness of an intrusive academic advising approach with students who were on academic probation. Vander Schee predicted that students who attended three to eight intrusive advising sessions would significantly improve their end-of-
semester GPA. Students on academic probation who attended only one to two intrusive advising sessions did not experience a significant change in their semester GPA. However, students who attended three or more intrusive advising sessions experienced an increase in their end-of-semester GPA. According to Vander Schee, these intrusive advising sessions should begin during the first week of the semester and continue on a biweekly basis.

Other scholars have examined various advising styles and investigated how these styles impact students. In particular, Museus and Ravello (2010) examined the role academic advisors play in facilitating success among students of color at predominantly white institutions. Three themes emerged from their research:

1. Humanized Academic Advising: This type of advising includes academic advisors being seen (a) as human beings, (b) as caring about and being committed to racial/ethnic minority student success, and (c) not being a part of the institution’s staff.

2. Holistic Academic Advising: From this perspective, students’ problems are viewed as one component of a larger “life picture,” and advisors have access to a number of support services that are able to meet students’ needs. In this type of advising, academic advisors are closely connected to other campus resources and draw upon the expertise of other professionals.

3. Proactive Academic Advising: This type of advising requires advisors who proactively make a concerted effort and willingly assume the responsibility of connecting with minority students and providing these students with the resources required for success. These advisors practice what has been referred to as “intrusive” academic advising.
Museus and Ravello (2010) found that advisors who humanized the practice of academic
advising, used multiple advising styles, and were proactive contributed to the success of racial
and ethnic minority students. Likewise, Ender and Wilkie (2000) asserted that developmental
advising should focus on three major themes of academic competence: personal involvement,
developing life purpose, and validating life purpose particularly for first-generation college
students. “This [focusing on these three major themes] requires that the relationship between
advisors and students be (1) ongoing and purposeful; (2) challenging for the student but also
supportive; (3) goal oriented; and (4) intentional as it maximizes the use of university resources”

Researchers and scholars have agreed that issues facing first-generation students are
varied and include low-academic self-esteem, unrealistic grade and career expectations, low self-
efficacy, inadequate study skills for college success, and a history of passive learning. Moreover,
advising among special populations, such as the first-generation student population, requires a
different skill set and a different approach than does advising for other students on campus. For
example, many first-generation college students are not likely to seek academic assistance, and
they are likely to require active interventions by the advisors if these students are to succeed in
college (Ender & Wilkie, 2000). Therefore, for the advising process to be successful among first-
generation students, advising must be a coordinated effort, and an established level of trust must
exist among all levels of administration.

In order to investigate students’ level of trust, Hale, Graham, and Johnson (2009) used
the Academic Advising Inventory to assess student perceptions of their current academic
advising situation. These researchers examined students’ perception of (a) their current advisor’s
academic advising style and (b) their preferred advisor’s academic advising style. Students
perceived the advising style used by their current advisor as “developmental advising” and expressed a strong preference for advisors who used a developmental advising approach over a prescriptive model. Students were more satisfied with the advising process when the advisors’ styles and the students’ expected styles were congruent. Students who have experienced a sense of congruence between their advisor’s style and their own preferred advising style reported significantly higher satisfaction levels with the advising process than students who experienced a sense of incongruence (Hale, Graham, & Johnson, 2009). King (2000) reported that academic advising is the only structured service on many college campuses that allows students to have some form of concerned dialogue and interaction with the administration. Advising is oftentimes the mechanism through which students develop a meaningful and consistent relationship with a member of the institution (Drake, 2011).

In addition to helping students achieve their academic goals, effective academic advising has been shown to be an important institutional factor influencing retention of at-risk students and should be examined in multiple ways (Bahr, 2008; Hale, Graham, & Johnson, 2009; Heisserer & Parette, 2002; Pascarella & Terenzini, 2005; Smith 2007). For example, Smith (2007) used multiple methods to examine data from faculty advisors and first-year, at-risk, non-traditional community college students to determine whether intrusive advising successfully help students transition to college and assists in retaining students through graduation. Results suggested students expected to be highly engaged in their college experience and were highly motivated to reach their academic goals. Bahr (2008) also agreed that advising students with academic deficiencies increases the likelihood of their success. Bahr examined the effect that advising has on students’ academic achievement and whether this effect is dependent upon students, academic preparation, race, and or ethnicity. According to Bahr, the effect of advising
on students enrolled in remedial math and English courses was positive and significant. He reported that these students benefit more from advising than students enrolled in college-level math and English courses. Bahr concluded that advising is more beneficial for students who face greater disadvantages with respect to academic preparation than for better-prepared students. This conclusion aligns with Drake’s (2011) assertion that “advising helps students to value the learning process, to apply decision-making strategies, to put the college experience into perspective, to set priorities and evaluate events, to develop thinking and learning skills, to make choices, and to value the learning process” (p. 10). Additionally, making connections with their academic institutions early on through solid academic advising, with advising positioned squarely in the center of their experience, is a vital component in the retention equation (Drake, 2011).

Chaney et al. (1997) suggested that personal or non-academic counseling is often used as a means to stimulate academic and/or social integration. The option of having access to someone with whom to discuss one’s concerns helps build a positive and meaningful connection to the institution; in other words, career, financial, and personal counseling all have positive effects on student retention and persistence. Students’ chances of successfully completing college are increased when they have more information about these types of services (Astin, 1993).

Astin (1975, 1993) and Bishop, Gallagher, and Cohen (2000) rightly agreed that not all students’ concerns and problems are severely psychological in nature. All too often, counseling, particularly for freshman, has been limited to the medical model, which focuses on identifying the problem, diagnosing the problem, and treating the problem. Many students may form images of counselors in white jackets or expect to be asked to lie down on a couch and reveal their problems and innermost secrets. Fortunately, this is not the method by which counseling is
typically conducted in academic settings (Bishop, Gallagher, & Cohen, 2000). Rather, Bishop et al. (2000) suggested that a more proactive approach to help students succeed is helping them in three key areas: (1) personal development, (2) academic development, and (3) career development. They also identified other problematic issues that students face, including time management, public speaking, test anxiety, fear of academic failure, and career uncertainty. All of these issues suggest that many college students need assistance as they move through the normal developmental crises of their age group (Bishop et al., 2000).

Perhaps the most overlooked issues for students, especially for the majority of first-year students, is the fact that they tend to enter college unsure of their major and/or academic goals. This finding is not surprising to administrators, counselors, or teachers within higher education. During the first or second year of college, many students are still exploring their academic preferences as well as their interests and strengths. Astin (1993) has suggested that prolonged delays in determining goals often lead students to question their existence on campus. This feeling of uncertainty subsequently causes some students to withdraw. Effective advising and counseling programs help students chart an academic path that is ideal for their individual circumstances and preferences. Astin explained that counseling is enhanced when it is an integral part of the educational processes in which all students are able to participate.

**Tutoring**

Many researchers have shown that peer tutoring has a positive impact on student retention (Fowler & Boylan, 2010; Kostecki & Bers, 2008; Laskey & Hetzel 2011; Reinheimer & McKenzie 2011; Stebleton & Soria 2012). For example, Kostecki and Bers (2008) found that when controlling for gender; age; race/ethnicity; highest level of education; and reading, writing, and mathematics competency, students who accessed tutoring services were more academically
successful than students who did not. These researchers defined student success in three ways: term GPA, success in specific courses, and persistence from the fall semester to spring semester. Kostecki and Bers (2008) found that students who received tutoring were more successful in terms of successful course completion, term GPA, and persistence to the next semester. Similarly, both Laskey and Hetzel (2011) and Reinheimer and McKenzie (2011) found that tutoring had a positive influence on retention and graduation for students from special populations, such as conditionally admitted students who had low high school GPA and college entrance examination scores. They also found that tutoring had a positive influence on undecided students—i.e., those who had not declared an academic major. Laskey and Hetzel (2011) findings revealed that regular use of tutoring had a positive effect both on retention and GPA of conditionally admitted at-risk students. Fowler and Boylan (2010) had similar findings after an examination of the factors that impact student success. That study revealed one-to-one tutoring from a professional math specialist significantly and positively impacted students’ cumulative GPA. While Reinheimer and McKenzie’s (2011) study focused on the influence of tutoring among undecided students (rather than at-risk students), they nevertheless found that tutoring significantly influenced their persistence, retention and graduation.

In addition to the impact that tutoring has on retention among conditional and undecided students, researchers also has indicated that first-generation students also seek tutoring services and that they face additional obstacles. For example, Stebleton and Soria (2012) examined the academic obstacles faced by first-generation students in comparison to those faced by non-first generation students and their use of academic support services, such as tutoring. The obstacles to academic success were defined as looking for employment, addressing family responsibilities, academic ability in English, insufficient math skills, poor study skills, non-supportive study
environment, and personal health and wellness. The results suggested that first-generation students more frequently encounter specific obstacles that compromise their academic success compared to non-first-generation students. Researchers have further suggested that students are aware of their need for help in addressing the barriers to academic success through tutorial services and other high-impact educational practices (Arendale, 2010; Engle & Tinto, 2008; Jehangir, 2009).

**Outcome Characteristics: Academic Achievement and Persistence**

According to Astin (1993, 2012), outcomes can be categorized as cognitive psychological and behavioral data such as academic achievement and educational attainment. It is clear that first-generation and low-income students encounter a number of social and academic challenges that impact their persistence and degree completion (Astin, 1993; Boden, 2011; Engle, 2010; Pascarella et al., 2004; Riehl, 2004; Strayhorn, 2010; Tinto, 1993). Moreover, the research on these students suggest the need for additional academic support services to impact their academic achievement and persistence. The Federal TRIO Student Support Services program is a grant-funded program offered by many universities and colleges to meet the needs of first-generation and low-income students. During the 2011-12 year there are over 200,000 students participants in 1029 Student Support Services programs across the country (Mortenson, 2011). The federal government provides funding for these programs to provide support services to SSS participants.

Through a grant competition, funds are awarded to institutions of higher education to provide opportunities for academic development, assist students with basic college requirements, and to motivate students toward the successful completion of their postsecondary education. Student Support Services (SSS) projects also may provide grant aid to current SSS participants who are receiving Federal Pell Grants. The goal of SSS is
to increase the college retention and graduation rates of participants. All SSS projects must provide academic tutoring, which may include instruction in reading, writing, study skills, mathematics, science and other subjects; advice and assistance in postsecondary course selection, assist students with information on both the full range of student financial aid programs, benefits and resources for locating public and private scholarships; and assistance in completing financial aid applications. (U.S. Department of Education, 2008).

In terms of national outcomes of SSS programs, Mortenson, (2011) reported that the Office of Postsecondary Education (OPE) SSS annual performance reports (APR), which includes data from funded projects. An analysis of the 2007-08 APRs found that the overall persistence rate for all projects was 81% and exceeded the OPE goal of 73%. The six-year graduation rate for all full-time SSS first-year participants at a 4-year institutions was 32.3% when compared to the OPE goal of 29%. Further, SSS has impacted the educational experience of TRIO eligible students. For example, in a three-year longitudinal study by Chaney et al. (1997) revealed that SSS participants were twice as likely to graduate than non-participants, more likely to persist in higher education and have higher grade point averages.

A number of scholars have studied the impact of SSS programs on the student development. Specifically, Olive (2008) examined the motivation to attend college among first-generation Hispanic students participating in a Student Support Services program. The researcher found that there are external and internal factors student participated in the program. For example, the Hispanic students in this study received encouragement and support for others and participants experienced an increased comfort in the higher education environment and increased self-confidence. Other outcomes included: (1) the way students view college such as, an
opportunity to experience more and not settle for less; (2) not make the same mistakes as older family members; and (3) increase the opportunity for greater financial security. Olive suggests that the effectiveness of the SSS program is: (1) an opportunity to identify roles of self-efficacy; (2) a desire for improved socioeconomic status; (3) a need to contribute to the well-being of others; (4) a break with tradition, and the influence of respected role models facilitated a desire for higher education in Hispanic students. Likewise, Hand and Payne (2008) sought to find the meaning of the experience of being a first-generation SSS student from Appalachia and the factors that impact their academic persistence. Student indicated the importance of home and family, which is the need to not let the family down. Financial concerns, which include whether there is enough to pay for college, finding a job to pay for college, maintaining good academic standing as not to loose their financial aid. Students took responsibility for their own success and exhibited a strong sense of locus of control by setting and monitoring goals. Additionally, the SSS program provided an opportunity to where students were able to develop a network of relationships to provide the emotional support and finally, continuous communication of information. Students indicated that information on scholarships and university and program academic support services from their SSS advisor was helpful. The researchers’ study further supported Tinto’s (1993) work that the integration of social and academic needs is important to student academic persistence. Furthermore, Felix (2003) examined the qualitative factors that influenced retention rates among students who had participated in a TRIO program at Colorado State University. The study revealed four major categories:

1. Pre-college experiences: The students’ high school experiences, both positive and negative, had an effect on college academic achievement.
2. Struggles: The challenge of being first-generation students resulted in struggles related to uncertainty, lack of parental support, and academic achievement due to poor integration into the university environment.

3. Positive campus experience and support: Students pointed to key factors that helped them remain engaged both socially and academically.

4. Student growth: The students were able to learn from their struggles; increase their self-esteem; and develop pride, confidence, and independence. Students also developed successful life skills, such as collaboration and self-discipline.

Felix’s study revealed that these students have a certain level of resiliency, which led to their academic success. The researcher further suggested that institutions develop and offer effective strategies and services, such as academic advising, academic counseling, and other supportive services, to create an environment in which students can thrive.

Other scholars have explored the students’ perceptions of the TRIO SSS program. For example, Gill (1992) studied the perceived support services needs of newly admitted students at an HBCU. He reported that of the 103 respondents, all indicated they might need some form of support services in order to succeed academically. According to Gill, 73.8% indicated they might need a tutor, 59.2% indicated they might need counseling, 82.5% reported that they might need advising, and 77% indicated they might need financial aid. Twenty-three of the respondents were participants in TRIO programs. The findings in this study suggest that support services are important to students in their persistence quest toward graduation. A number of studies have documented the importance of academic support services, such as those provided by TRIO programs. For example, a program overview and performance report conducted at Wichita State University on the SSS program revealed some interesting results. The three
highest-ranking services that provided the most benefit to the 47 SSS participants were tutoring, academic counseling, and financial aid information and assistance. Almost all of the participants attributed their grade point average increase, academic confidence, and knowledge of campus resources to participating in the program services (DeSilva, 1998).

While not all institutions have TRIO SSS Programs, Cerna and Morris (2011) tracked the success of low-income students in at-risk program offering the similar TRIO SSS program services at the University of New Mexico. The researchers found that an increase in advising through the one-on-one relationship with their advisor improved confidence and allowed the advisor to learn more about each student. Additionally, participants were more likely to earn more college credits within a year and received more federal aid and less likely to have student loans. Overall 78% of participants persisted to the next year. And when reviewing research on institutions with high population of first-generation and low-income students, a study conducted by the Pell Institute (2011) examined what services are needed to best support first-generation and low-income students at an urban institution. The researcher found through interviews with faculty and staff and focus groups with students that in the area of academic support, low-income students would benefit from services such as integrated advising and supplemental instruction.

Overall, it is important that institutions that sponsor programs that serve low-income and first-generation college students need to collect, analyze, and disseminate basic outcome data on cohort graduation rates. Many efforts fall short of a true impact analysis, which would provide insights into the extent that specific or combined services had a statistically significant effect on graduation rates (Thomas & Van Farrow, 1998; Tinto, 2008).
Summary

Higher education institutions have addressed and will continue to address the issue of student retention for many years to come. Researchers recognize that students have different characteristics, different backgrounds, and different levels of commitment to their college experience. Tinto (1993) concluded that students’ academic and social integration into the college environment were the most significant predictors of whether students were successful in college.

Students’ withdrawal from college can seldom be attributed to just one variable; instead, withdrawal is influenced by an interaction of many variables. Researchers also have shown that first-generation students are more likely to need academic support services, such as the TRIO programs, to help them achieve academic success. Many of these programs provide valuable resources to undergraduate students. However, a comprehensive review of the literature suggests that little, if any, research exists that identifies which services, or combination of services, most accurately predict TRIO students’ outcomes, such as GPA and, ultimately, graduation.
CHAPTER III. METHODOLOGY

Introduction

Persistence, retention, and attrition are three important issues that are crucial for institutional planning and funding in higher education (Jones & Watson, 1990). Identifying specific services or interventions that lead to student persistence and that facilitate higher completion rates for first-generation and low-income students is an important task for higher education institutions. The purposes of this study were (1) to identify the services or combination of services offered by the Bowling Green State University Student Support Services (SSS) program that predict student persistence and achievement and (2) to identify the subset of services offered by the BGSU Student Support Services programs that show a statistically significant relationship with persistence as measured by enrollment records. More specifically, this study sought to determine whether a statistically significant relationship exists between (1) SSS program services usage and persistence and (2) academic achievement of students participating in the SSS program in the 2005-2011 academic years. On the basis of these potential relationships, regression models will be developed identifying student characteristics and SSS services that best predict persistence and academic achievement.

Research Questions

The specific research questions were the following:

1. What identifiable student demographics and BGSU SSS programs services can be used to predict persistence?

2. What identifiable student demographics and BGSU SSS program services can be used to predict academic achievement?
Research Design

This research study employs a correlational predictive design using existing data, also referred to as a retrospective design.

Population and Sample

Participants for this study included all students in the most recent SSS cumulative database. Participants included students who met the following criteria: (1) participated in a BGSU SSS program; (2) have been identified as first-generation and/or low-income students; (3) have a need for academic assistance; (4) have been enrolled in the program for at least one year since the 2005-2006 year; (5) graduated, if applicable from BGSU after 2005; and (6) left BGSU, if applicable, between the 2005-2011 academic years. Overall, data were gathered on 1122 participants who are currently in the SSS database and who are enrolled at BGSU, has graduated, or has been categorized as non-persisting.

Instrumentation

The data for this research study consisted of records housed within the Bowling Green State University SSS computer database that were accumulated during the six-year period from 2005 to 2011. This system includes academic, demographic, eligibility, and personal information for each student in the SSS program. A unique feature within the database records allows viewers to identify the various SSS services provided for each individual student. The SSS services used as variables in this study include academic tutoring, academic advising, math and writing assistance, and grade point average. An output format was created to examine which services each student in the sample used. The SSS software application features four separate data fields in which to log the amount of program service usage for advising, peer tutoring, math
assistance, and writing assistance. At the end of each program year, the software application compiles the data for the Annual Performance Report (APR) from the SSS database.

The 2011-2012 primary database used for this study is modeled after the Student Support Services Program Record Structure for Participant List developed by the U.S. Department of Education, revised in 2010 (see Appendix A), and utilized by every SSS program. This software application has been used to collect federally required information about SSS participants for the purpose of submitting annual electronic reports. This information was gathered from the Student Support Services application and recorded in the departmental database by the departmental office manager and records for student usage was recorded by program staff and entered in the database by student office assistants. The study used 11 items from the SSS APR and records from services log to identify the variables for this study.

Variables

This study examined a number of independent and dependent variables. These variables were organized according to Astin’s I-E-O model (see Figure 1) and are key to successful models of assessment and yield results that are optimal for connection causal relationships between variables and outcomes while minimizing the chance of incorrect causal inferences (Astin & Antonio, 2012). Moreover, Astin’s I-E-O model is specifically designed to help college faculty and administrators produce information on how outcomes are affected by particular educational programs and services. This model allows for the use of longitudinal data to examine the influence of student demographic factors such as first-generation and low-income status and the impact of the educational environmental program services on college outcomes such as academic achievement and persistence that were central to the study.
### Figure 1. Organization of independent and dependent variables based on Astin’s I-E-O model.

**Input variables.** To investigate and identify the SSS services that may influence student persistence and academic achievement, the following four input variables were examined in this study and outlined below as how the variables will be operationalized or defined in the analysis.

1. **Gender**
   - Female
   - Male

2. **Race/ethnicity as reported by the student on the Student Support Services application**
   - Black or African American
   - Hispanic
   - White
   - Other

3. **Eligibility**
   - First-generation
   - Low-income
   - First-generation/Low-income

<table>
<thead>
<tr>
<th>Input Variables</th>
<th>Independent Variables</th>
<th>Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eligibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Need</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Variables</td>
<td>Advising Tutoring Writing Assistance Math Assistance</td>
<td>NA</td>
</tr>
<tr>
<td>Output Variables</td>
<td>NA</td>
<td>Persistence Academic Achievement</td>
</tr>
</tbody>
</table>
4. Academic need (as defined by U.S. Department of Education and determined by the program staff after a review of each student’s application at the time of entry in the SSS program). It should be noted that after an assessment of the application, students were often identified as meeting more than one category of need. However, the required APR only permitted one option to be entered per student. This included one of the following reasons for need:

   a. Low High School Grades (defined as a high school GPA lower than the average high school GPA for entering first-time, full-time students).
   b. Low Admission Test Scores (defined as a ACT or SAT score lower than the average test scores for entering first-time, full-time students).
   c. Need for Academic Support To Raise grades (defined when a continuing student who enters the program because of poor academic performance).
   d. Out of pipeline >5 years (defined when a student has not being enrolled in a postsecondary institution for more than five years).
   e. Lack Academic Preparedness (defined when a student who has placed into at least one remedial course).

**Environmental variables.** The following four academic support services specific to the BGSU Student Support Services were examined to determine whether they influence persistence and academic achievement. These variables were examined independently, and participation will be measured by frequency of use as determined by the total number times (frequency) students used each service as tracked by the Student Support Services staff after each use of services. Program staff members enter service usage in the SSS database.

1. Academic advising
2. Tutoring
3. Writing assistance
4. Math assistance

**Output or Outcome Variables.** Dependent or output variables included persistence, which was indicated by the persistence status of each individual SSS participant and academic achievement as measured by GPA at the end of each of year in the program.

0= non-persisted, indicated only a student’s status of withdrawal from BGSU at the time of the data analysis.

1= persisted, indicated by a student’s continuing status or graduation.

**Procedures**

The researcher obtained approval from the Bowling Green State University Human Subjects Review Board (see Appendix B). After approval, the researcher, with the assistance of the SSS Office Manager, accessed the pre-existing data set of all students who used the services in the BGSU SSS program over a six-year period (2005-2011). Program staff members logged contact hours for each service provided to students in the SSS database. These data were compiled and formatted into an Excel spreadsheet, placed on a CD by the SSS Office Manager, and provided to the researcher. Data were collected on: (a) gender; (b) race and ethnicity (i.e., Hispanic, Black or African American, White, or Other); (c) participants’ eligibility status (i.e., first-generation/low-income, first-generation only, or low-income only); and (d) participants’ academic need for program services (i.e., low high school grades, low admission test scores, low academic placement test, or lack of preparedness for college level course work). Data were also collected regarding the number of times students utilized advising, tutoring, math, or writing
assistance. The participants were randomly divided into two sub-samples, one half to generate a model and one half to cross-validate the model.

**Data Analysis**

Multiple regression analysis was used to determine whether any statistically significant relationships exist between the independent variables and academic achievement, and if so, which of these independent variables best predict academic achievement. To best predict persistence, a dichotomous dependent variable, logistic regression was used.

The data collected by the SSS Office Manager were organized, verified, and entered into the Statistical Analysis System (SAS) by staff in the Center of Business Analytics at Bowling Green State University. As suggested by Earley (2012), the data were screened to verify whether they meet the following criteria for regression analysis:

1. The dependent variable is mutually exclusive; that is, individuals must be categorized into one group or the other.
2. There must be a lack of multi-collinearity among the independent variables.
3. The traditional issues of outliers and measurement errors. (Earley, 2012, p. 86)

A regression model was generated and then cross-validated with a control sample. This was completed to determine how well the initial model replicated through cross-validation. The intent was to create a regression equation from an independent sample of the sample population to test the predictability of the dependent variable values for individuals in the population (Mertler & Vannatta, 2009). Any discrepancies between models were analyzed.
CHAPTER IV. RESULTS

The purpose of the study was to determine which specific sets of Student Support Services (SSS) variables predict persistence and academic achievement. The data used in these analyses were obtained from the BGSU Student Support Services Annual Performance Reports (APR) from the years of 2005 through 2011 and the individualized usage records of four SSS services from the SSS departmental database. Two research questions guided this study and the results of the data analyses are reported in this chapter and are organized in sections. The first section consists of the description of the demographic or input variables of students who participated in the SSS program. These variables included gender, ethnicity, first-generation and income status, and demonstrated need for the participation in the SSS program. Additionally, this section includes a description of the environmental variables, which include the SSS services of advising, tutoring, and assistance in math and writing. The second section consists of the logistic regression results for the first research question: What identifiable student demographics and BGSU SSS programs services can be used to predict persistence? The third section consists of the multiple regression results for the second research question: What identifiable student demographics and BGSU SSS programs services can be used to predict academic achievement?

Participant Demographics

A total of 1122 individual students were enrolled at the institution and members of the SSS program from 2005 to 2011. At the time in the study, participants were at different grade levels. See Table 1.
Table 1

**Demographic Characteristics of BGSU SSS Participants**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>( n )</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong> (( n = 1122 ))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>388</td>
<td>34.6</td>
</tr>
<tr>
<td>Female</td>
<td>734</td>
<td>65.4</td>
</tr>
<tr>
<td><strong>Ethnicity/Race</strong> (( n = 1118 ))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>602</td>
<td>53.9</td>
</tr>
<tr>
<td>Hispanic</td>
<td>66</td>
<td>5.9</td>
</tr>
<tr>
<td>Other*(see below)</td>
<td>35</td>
<td>3.1</td>
</tr>
<tr>
<td>White</td>
<td>415</td>
<td>37.1</td>
</tr>
<tr>
<td><strong>Eligibility</strong> (( n = 1118 ))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-generation</td>
<td>271</td>
<td>24.3</td>
</tr>
<tr>
<td>Low-income</td>
<td>97</td>
<td>8.7</td>
</tr>
<tr>
<td>First-generation and Low-income</td>
<td>744</td>
<td>67.0</td>
</tr>
<tr>
<td><strong>Academic Need</strong> (( n = 1111 ))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low High School Grades</td>
<td>91</td>
<td>8.2</td>
</tr>
<tr>
<td>Low Admission Test Scores</td>
<td>832</td>
<td>74.9</td>
</tr>
<tr>
<td>Low College Grades</td>
<td>74</td>
<td>6.7</td>
</tr>
<tr>
<td>Failing Grades</td>
<td>21</td>
<td>1.9</td>
</tr>
<tr>
<td>Out of the pipeline &gt;5 years</td>
<td>12</td>
<td>1.1</td>
</tr>
<tr>
<td>Lack Academic Preparedness</td>
<td>59</td>
<td>5.3</td>
</tr>
<tr>
<td>Need for Academic Support To Raise grades</td>
<td>22</td>
<td>2.0</td>
</tr>
</tbody>
</table>

*Note: Other includes ethnicity/race identified 9 American Indian, 21 Asian and 8 Pacific Islanders*
Participants were approximately 65% female and 35% male. The majority of the participants identified as Black (54%). Additionally, 37% of the participants identified as White, 6% as Hispanic, and 3.1% as Other. With respect to eligibility for participation in the SSS program, two-thirds of participants came from both low-income and first-generation backgrounds (67%). Furthermore, approximately 25% of the participants indicated their parents did not graduate from college and close to 9% had at least one parent graduate from college and their parental income classified them as low-income only. In terms of academic need for the program services, the majority of the participants’ need for participation in the SSS program was a result of low admission test scores (75%). Approximately 7% of participants’ need for the use of SSS services included the need to raise existing grades, with 8% entering the program with low high school grades and 5% were not prepared for college level coursework. At least 2% of students’ need for participation for services included failing grades and need for academic support to raise grades and small number of students (12) were identified as needing assistance due to being out of school for more than five years.

A Chi-square test of independence was used to test whether a significant relationship exists between eligibility and need for program services. Table 2 shows the results of this analysis. The results of the data analysis revealed that eligibility and need were not independent, $X^2 (12, N = 1110) = 37.80, p < .001$. First-generation and low-income students were more likely to enter the program because of their low ACT or SAT scores than those who entered the program for other reasons.
Table 2

Cross Tabulation: Eligibility Level by Need Level

<table>
<thead>
<tr>
<th></th>
<th>Low School Grades</th>
<th>Low Admission Scores</th>
<th>Low College Grades</th>
<th>Failing Grades</th>
<th>Out of Pipeline &gt; 5 years</th>
<th>Lack Academic Preparedness</th>
<th>Need Academic Support to Raise Grades</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-generation/Low Income</td>
<td>61</td>
<td>566</td>
<td>48</td>
<td>14</td>
<td>7</td>
<td>32</td>
<td>14</td>
<td>742</td>
</tr>
<tr>
<td></td>
<td>5.5%</td>
<td>51.0%</td>
<td>4.3%</td>
<td>1.3%</td>
<td>0.6%</td>
<td>2.9%</td>
<td>1.3%</td>
<td>67%</td>
</tr>
<tr>
<td>Low-income only</td>
<td>10</td>
<td>56</td>
<td>12</td>
<td>2</td>
<td>5</td>
<td>11</td>
<td>1</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>0.9%</td>
<td>5.1%</td>
<td>1.1%</td>
<td>0.2%</td>
<td>0.5%</td>
<td>1.0%</td>
<td>0.1%</td>
<td>8.7%</td>
</tr>
<tr>
<td>First-generation only</td>
<td>20</td>
<td>210</td>
<td>14</td>
<td>5</td>
<td>0</td>
<td>15</td>
<td>7</td>
<td>271</td>
</tr>
<tr>
<td></td>
<td>1.8%</td>
<td>19.0%</td>
<td>1.3%</td>
<td>0.5%</td>
<td>0.0%</td>
<td>1.4%</td>
<td>0.6%</td>
<td>24.4%</td>
</tr>
<tr>
<td>Total</td>
<td>91</td>
<td>832</td>
<td>74</td>
<td>21</td>
<td>12</td>
<td>58</td>
<td>22</td>
<td>1110</td>
</tr>
<tr>
<td></td>
<td>8.2%</td>
<td>75.0%</td>
<td>6.7%</td>
<td>1.9%</td>
<td>1.1%</td>
<td>5.2%</td>
<td>2.0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Student Support Services Environmental Descriptive Statistics

Students participating in the Student Support Services used one or more of the following services selected for this study: advising, tutoring, math, and writing. The total use of these services over the course of their participation in the program was recorded in the departmental database. Table 3 highlights a description of the services used by participants through the study. Students used advising with over 4,500 visits between 2005-2011 years. The average number of advising appointments per student was a little over 4 visits while enrolled in the program (M=4.10, SD=3.83). Tutoring was available for students to either maintain good academic progress or receive assistance if they experience academic difficulties. Assistance was available in the majority of subject area such as psychology, biology, chemistry, geology, geography, sociology, and physics and was available on an individual basis. Participants had on average between 0 and 83 individual tutoring sessions. Members of the SSS program tutoring used on
average, nearly four meetings while participating in the program \( (M=3.65, SD=8.08) \). The sessions with the writing specialist consisted of assistance on writing assignments ranging from University required writing courses, research papers to specialized essays for applications to graduate school and scholarships with an average of one session while a participant in the program \( (M=1.27, SD=3.47) \). Similarly, an average of one session \( (M=1.26, SD=3.79) \) was used for assistance in Math, which consisted of support in developmental and foundation courses needed for successful completion in the academic major. SSS participants had an average of 10 visits for one of the four program services throughout the 2005-2011 time periods \( (M=10.29, SD=12.82) \).

Table 3

<table>
<thead>
<tr>
<th>Service</th>
<th>Minimum</th>
<th>Maximum/Year</th>
<th>Mean visits/student</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advising</td>
<td>0</td>
<td>25.75</td>
<td>4.10</td>
<td>3.83</td>
</tr>
<tr>
<td>Tutoring</td>
<td>0</td>
<td>83.25</td>
<td>3.65</td>
<td>8.08</td>
</tr>
<tr>
<td>Math</td>
<td>0</td>
<td>59.00</td>
<td>1.25</td>
<td>3.79</td>
</tr>
<tr>
<td>Writing</td>
<td>0</td>
<td>44.50</td>
<td>1.27</td>
<td>3.46</td>
</tr>
<tr>
<td>Total Service</td>
<td>0</td>
<td>110.00</td>
<td>10.29</td>
<td>12.82</td>
</tr>
</tbody>
</table>

The environmental variables were further examined based on the eligibility level of each participant. Table 4 contains the descriptive data on the four types of service students used for three eligibility levels. Overall, higher mean usage for all services, with exception of Tutoring, was for low-income only students, Advising \( (M = 4.65, SD = 3.66) \), Math \( (M = 1.90, SD = 6.94) \) and Writing \( (M = 1.82, SD = 5.52) \). Students identified as First-generation/Low-income had a slightly higher mean usage for Tutoring \( (M = 3.75, SD = 8.36) \) than First-generation only and Low-income only students.
To more fully explore these findings, a one-way analysis of variance (ANOVA) was conducted to determine if there were significant differences in mean environmental variables among the three eligibility levels. As illustrated in Table 5, the results of this analysis revealed there is a statistically significant difference in the number of advising appointments among eligibility levels ($F (2, 1103) = 4.50, p < .05$). Tukey’s post hoc tests were conducted to determine where the significance lies. The number of tutoring, math and writing appointments did not show any statistical differences across eligibility levels. The mean number of advising visits for the eligibility of first-generation only was significantly lower than both low-income only and first-generation/low-income eligibility levels.

Table 4

*Mean and Standard Deviation for Number of Visits with the Four Environmental Variables and Three Levels of Eligibility (N=1106)*

<table>
<thead>
<tr>
<th>Eligibility</th>
<th>Advising*</th>
<th>Tutoring</th>
<th>Math</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-generation only ($n = 270$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>3.55</td>
<td>3.53</td>
<td>1.35</td>
<td>1.17</td>
</tr>
<tr>
<td>$SD$</td>
<td>3.66</td>
<td>8.05</td>
<td>3.97</td>
<td>3.67</td>
</tr>
<tr>
<td>Low-income only ($n = 95$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>4.65</td>
<td>3.54</td>
<td>1.90</td>
<td>1.82</td>
</tr>
<tr>
<td>$SD$</td>
<td>4.49</td>
<td>6.06</td>
<td>6.94</td>
<td>5.52</td>
</tr>
<tr>
<td>First-generation/Low-income ($n = 741$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$M$</td>
<td>4.27</td>
<td>3.75</td>
<td>1.15</td>
<td>1.26</td>
</tr>
<tr>
<td>$SD$</td>
<td>3.79</td>
<td>8.36</td>
<td>3.12</td>
<td>3.05</td>
</tr>
</tbody>
</table>

* The mean number of advising visits for the eligibility of first-generation only was significantly lower than both low-income only and first-generation/low-income eligibility levels.
Table 5

*One-way ANOVA for Overall Use of Advising, Tutoring, Math and Writing Services and Eligibility*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>131.64</td>
<td>2</td>
<td>65.82</td>
<td>4.50</td>
<td>.01</td>
</tr>
<tr>
<td>Within</td>
<td>16118.32</td>
<td>1103</td>
<td>14.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16249.96</td>
<td>1105</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Student Input and Environmental Variables on Persistence**

**Logistic Regression Analysis**

The first research question aimed to determine what identifiable SSS student demographics and BGSU SSS program services can be used to predict student persistence. To answer Research Question 1, four input variables of gender, ethnicity, eligibility and need were entered in the analysis. Logistic regression analyses were used to examine significance differences between participant demographics to ascertain what factors were a significant predictor of persistence. Forward logistic regression was conducted to determine which independent variables (advising; tutoring; math; writing; gender; ethnicity; eligibility; need) were predictors of persistence (enrolled or graduated). Regression results indicated the overall model of two predictors (eligibility and need) were significant in predicting student persistence (-2 Log Likelihood=1170.741, Goodness of Fit=1204.741); $X^2 (16)=37.548$, $p < .05$). The model correctly classified 98.13% of the cases. Regression coefficients are presented in Table 4.3. Wald statistics indicated that *first-generation only* and *low-income only* students, *students with failing college grades* and *low high school grades* most strongly predict persistence.

More specifically, low-income only students were 2.5 times more likely to persist than *first-generation only* students and 2.1 times more than students who were *first-generation and...*
low-income. Students with the eligibility level of first-generation only were actually inversely related to persistence with a slight decrease in the odds of persisting when identified as such. Students’ likelihood for persistence differed slightly with respect to their need for participation in the program. Students who entered the program with a need to improve failing grades were less likely to persist than students who were in need of program services because of low high school grades. While not a significant category of need in predicting persistence, students who were identified as having a need for academic support were 2.1 times more likely to persist than other students who were identified as having a need for participation in SSS because of low admission test scores, lack academic preparation for postsecondary education, have low college admission test scores, and being out of the educational pipeline for more than five years.

Table 6

Summary of Logistic Regression Analysis Predicting Persistence in Student Support Services

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>OR</th>
<th>p</th>
<th>Wald statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advising</td>
<td>-0.03</td>
<td>0.02</td>
<td>0.98</td>
<td>.1016</td>
<td>2.68</td>
</tr>
<tr>
<td>Tutoring</td>
<td>0.004</td>
<td>0.001</td>
<td>1.00</td>
<td>.6749</td>
<td>0.18</td>
</tr>
<tr>
<td>Math</td>
<td>-0.01</td>
<td>0.02</td>
<td>0.99</td>
<td>.7591</td>
<td>0.09</td>
</tr>
<tr>
<td>Writing</td>
<td>0.003</td>
<td>0.02</td>
<td>1.00</td>
<td>.8986</td>
<td>0.02</td>
</tr>
<tr>
<td>Gender (Female)</td>
<td>0.08</td>
<td>0.08</td>
<td>1.18</td>
<td>.2825</td>
<td>1.16</td>
</tr>
<tr>
<td>Ethnicity (Black)</td>
<td>0.16</td>
<td>0.15</td>
<td>1.10</td>
<td>.2776</td>
<td>1.18</td>
</tr>
<tr>
<td>Ethnicity (Hispanic)</td>
<td>-0.12</td>
<td>0.24</td>
<td>0.83</td>
<td>.6281</td>
<td>0.23</td>
</tr>
<tr>
<td>Ethnicity (Other)</td>
<td>-0.11</td>
<td>0.31</td>
<td>0.84</td>
<td>.7247</td>
<td>0.12</td>
</tr>
<tr>
<td>Eligibility (First-generation only)</td>
<td>-0.35</td>
<td>0.15</td>
<td>0.87</td>
<td>.0170*</td>
<td>5.69</td>
</tr>
<tr>
<td>Eligibility (Low-income only)</td>
<td>0.55</td>
<td>0.22</td>
<td>2.14</td>
<td>.0108*</td>
<td>6.50</td>
</tr>
</tbody>
</table>
Table 6 (Continued)

Summary of Logistic Regression Analysis Predicting Persistence in Student Support Services

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>SE</th>
<th>OR</th>
<th>p</th>
<th>Wald statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need (Failing Grades)</td>
<td>-1.33</td>
<td>0.44</td>
<td>0.13</td>
<td>.0030**</td>
<td>8.81</td>
</tr>
<tr>
<td>Need (Lack Academic Prepare)</td>
<td>0.29</td>
<td>0.42</td>
<td>0.65</td>
<td>.4803</td>
<td>0.50</td>
</tr>
<tr>
<td>Need (Low Admission Test Scores)</td>
<td>-0.46</td>
<td>0.25</td>
<td>0.30</td>
<td>.0624</td>
<td>3.47</td>
</tr>
<tr>
<td>Need (Low College Grades)</td>
<td>0.17</td>
<td>0.38</td>
<td>0.57</td>
<td>.6532</td>
<td>0.20</td>
</tr>
<tr>
<td>Need (Low High School Grades)</td>
<td>-0.88</td>
<td>0.30</td>
<td>0.20</td>
<td>.0037**</td>
<td>8.43</td>
</tr>
<tr>
<td>Need (Support to raise grades)</td>
<td>1.47</td>
<td>0.90</td>
<td>2.10</td>
<td>.1009</td>
<td>2.69</td>
</tr>
<tr>
<td>Constant</td>
<td>1.78</td>
<td>0.28</td>
<td>0.00</td>
<td>&lt;.0001***</td>
<td>39.90</td>
</tr>
</tbody>
</table>

*p < .05 **p < .01 ***p < .001

Student Input and Environmental Variables on Academic Achievement

Correlational Analysis and ANOVA

A correlation was calculated to examine the relationships between the environmental variables of SSS services and GPA. Table 7 presents the correlation matrix. The results indicated that the only significant relationship of service with GPA is writing at the .001 level. Although the Pearson correlation matrix found writing to be statistically significant, the association observed was small. A further examination of the data based on GPA by need classification revealed students who were identified as having a lack of academic preparation for college had the highest GPA ($M = 2.47, SD = .72$) with students who were classified as having failing grades had the lowest GPA ($M = 1.63, SD = .80$). However, 75% of students with a need for program services as a result of low admission scores had a GPA of 2.26, which is lower than...
students with a need for academic support ($M = 2.35, SD = .84$) or out of the pipeline greater than 5 years ($M = 2.39, SD = 1.10$). See Table 8.

The one-way analysis of variance was conducted to investigate if there is a statistically difference in the GPA among the level of need. ANOVA results, presented in Table 9, showed a significant difference for need ($F(6,1080) = 2.67, p < .0001$). Results revealed that the GPA for students with a lack of academic preparation is significantly higher than that for failing grades and low high school grades. The sample size for students out of the pipeline for more than five years was too small and no comparisons were made. The GPA for need for academic support is significantly higher than that for failing grades. In addition, the GPA for low admission test scores is significantly higher than that for failing grades.

Table 7

*Correlations Between Environmental Variables and Academic Achievement*

<table>
<thead>
<tr>
<th>Service</th>
<th>GPA ($r$)</th>
<th>Significance ($p$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advising</td>
<td>-.565</td>
<td>.06</td>
</tr>
<tr>
<td>Tutoring</td>
<td>-.013</td>
<td>.68</td>
</tr>
<tr>
<td>Math</td>
<td>-.007</td>
<td>.82</td>
</tr>
<tr>
<td>Writing</td>
<td>.099</td>
<td>.001</td>
</tr>
</tbody>
</table>
Table 8

*Mean and Standard Deviation GPA and Need for Student Support Services*

<table>
<thead>
<tr>
<th>Need</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failing Grades</td>
<td>20</td>
<td>1.63</td>
<td>.80</td>
</tr>
<tr>
<td>Lack of Academic Preparation</td>
<td>57</td>
<td>2.47</td>
<td>.72</td>
</tr>
<tr>
<td>Low Admission Test Scores</td>
<td>816</td>
<td>2.26</td>
<td>.76</td>
</tr>
<tr>
<td>Low College Grades</td>
<td>70</td>
<td>2.24</td>
<td>.54</td>
</tr>
<tr>
<td>Low High School Grades</td>
<td>90</td>
<td>2.02</td>
<td>.80</td>
</tr>
<tr>
<td>Need for Academic Support</td>
<td>22</td>
<td>2.35</td>
<td>.84</td>
</tr>
<tr>
<td>Out of Pipeline &gt; 5 Years</td>
<td>12</td>
<td>2.39</td>
<td>1.10</td>
</tr>
</tbody>
</table>

Table 9

*One-way ANOVA for Need for SSS Program Services and Academic Achievement*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between treatments</td>
<td>16.01</td>
<td>6</td>
<td>2.67</td>
<td>4.27</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Within treatments</td>
<td>610.72</td>
<td>1080</td>
<td>0.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>626.73</td>
<td>1086</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Multiple Regression Analyses**

The second research question asked: What identifiable student demographics and BGSU SSS programs and service can be used to predict academic achievement? Standard multiple regression was conducted to determine the accuracy of the independent variables (advising, tutoring, math, writing, gender, ethnicity, eligibility, and need) predicting grade point average. Regression results indicated that the overall model of four predictors (advising, writing, gender, and need) significantly predict grade point average, $R^2 = .058$, $F(16,1067) = 4.16$, $p < .0001$.

This model accounted for only 6% of variance in grade point average. A summary of regression
coefficients is presented in Table 10 and indicates that only four (advising, writing, gender and need) of the several variables significantly contributed to the model. However, this statistic does not indicate a strong relationship between the dependent variable of GPA and independent variables of advising, writing, gender, and need.

Further, the regression analysis indicated an inverse relationship between the input characteristic of need (failing grades) and GPA, while being female positively related to academic achievement. However, the significant environmental variables revealed use of writing services was positively related to changes in GPA, while advising was negatively related to students’ academic achievement. Therefore, the estimated regression equation for academic achievement is as follows: $\text{GPA} = 2.386 + (-0.015)_{\text{Advising}} + 0.025_{\text{Writing}} + 0.201_{\text{Gender}} + (-0.746)_{\text{Failing Grades}}$ as shown in Table 10.

Table 10

*Coefficients for Model Variables*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advising</td>
<td>-0.015</td>
<td>-2.34</td>
<td>0.019*</td>
</tr>
<tr>
<td>Tutoring</td>
<td>-0.002</td>
<td>-0.71</td>
<td>0.477</td>
</tr>
<tr>
<td>Math</td>
<td>-0.002</td>
<td>-0.42</td>
<td>0.671</td>
</tr>
<tr>
<td>Writing</td>
<td>0.025</td>
<td>3.73</td>
<td>0.0002**</td>
</tr>
<tr>
<td>Gender (Female)</td>
<td>0.201</td>
<td>4.15</td>
<td>&lt;.0001***</td>
</tr>
<tr>
<td>Ethnicity (Black)</td>
<td>-0.060</td>
<td>-1.18</td>
<td>0.236</td>
</tr>
<tr>
<td>Ethnicity (Hispanic)</td>
<td>0.016</td>
<td>0.16</td>
<td>0.870</td>
</tr>
<tr>
<td>Ethnicity (Other)</td>
<td>-0.152</td>
<td>-1.14</td>
<td>0.252</td>
</tr>
<tr>
<td>Eligibility (First-generation only)</td>
<td>-0.045</td>
<td>-0.82</td>
<td>0.411</td>
</tr>
</tbody>
</table>

*Note. $R^2 = .058 *p < .05, **p <.001, ***p < .0001*
Table 10 (Continued)

*Coefficients for Model Variables*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligibility (Low-income only)</td>
<td>-0.011</td>
<td>-0.14</td>
<td>0.889</td>
</tr>
<tr>
<td>Need (Failing Grades)</td>
<td>-0.746</td>
<td>-2.70</td>
<td>0.007**</td>
</tr>
<tr>
<td>Need (Lack Academic Prepare)</td>
<td>0.026</td>
<td>0.11</td>
<td>0.912</td>
</tr>
<tr>
<td>Need (Low Admission Test Scores)</td>
<td>-0.176</td>
<td>-0.80</td>
<td>0.422</td>
</tr>
<tr>
<td>Need (Low College Grades)</td>
<td>-0.110</td>
<td>-0.47</td>
<td>0.639</td>
</tr>
<tr>
<td>Need (Low High School Grades)</td>
<td>-0.377</td>
<td>-1.61</td>
<td>0.106</td>
</tr>
<tr>
<td>Need (Support to raise grades)</td>
<td>-0.028</td>
<td>-0.10</td>
<td>0.916</td>
</tr>
<tr>
<td>Constant</td>
<td>2.386</td>
<td>-1.18</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

*Note. R^2 = .058  *p < .05, **p <.001, ***p < .0001*

**Summary**

A number of statistical analyses were used to determine which specific set of input and environmental variables can best educational outcomes of predict student persistence and academic achievement. The results of the logistic regression in this study indicated that the only independent variables of eligibility (first-generation only, low-income only and first-generation/low-income) and need (low high school grades and failing grades) were significant in predicting persistence. Advising was also significant and had a negative relationship with GPA. An inverse relationship between *first-generation only, failing grades, low high schools* and persistence was identified by a regression coefficient value for *eligibility* and *need*. The environmental variables of *tutoring, math* and *writing* were not significantly related to persistence.
Multiple regression was used to examine relationships between the same set of input and environmental variables and the dependent or output variable of academic achievement. Linear regression revealed that the only input and environmental variables of gender, need, advising and writing were significant predictors of academic achievement. The four variables accounted for only 5.8% of the variance associated with academic achievement. Females who persisted had a higher GPA than males. Findings also revealed the environmental variable of writing positively predicted GPA and students with failing grades and low high school grades do worse than others. Overall, both models did not provide a substantial fit to predict persistence or academic achievement. Chapter 5 is a discussion of the results, the implications for higher education leadership and future research.
CHAPTER V. DISCUSSION AND CONCLUSIONS

Introduction

In the preceding chapter the presentation and analysis of the data have been reported. Chapter V consists of a summary of the study, discussion of the findings, implications for practice, recommendation for further research and conclusions. The purpose of the latter sections is to expand upon certain student characteristics. The program services and their outcomes were studied in an effort to provide a further understanding on the persistence and academic achievement of first-generation and low-income students in the BGSU Student Support Services program.

Summary of the Study

The purpose of this research study was to identify which Bowling Green State University TRIO Student Support Services student demographic and program services predicted students’ persistence and academic achievement for students who were identified as first-generation and low-income. Previous research on college persistence of first-generation and low-income students has shown college participation and degree attainment are significantly different from those of students from higher socioeconomic levels (Engle 2007; Pascarella & Terenzini, 2005; Walpole, 2007). In the present study, data from a six-year period (2005-2011), a total of 1122 SSS students, were analyzed to determine which of their program characteristics and the usage of four program services were statistically significant predictors of persistence and academic achievement. The analyses examined four input variables of gender, race, eligibility and need and a total of four environmental variables of advising, tutoring, writing and math.

Descriptive statistics were used to report the profile of participants using both demographic and student characteristics. Logistic regression analysis was conducted to
determine which of the input and environmental variables predict student persistence and multiple regression analysis was conducted to examine the data for factors that impact academic achievement (GPA). This produced a model of four factors that impact persistence and an additional four that predict academic achievement. This study included two research questions. Astin’s Input-Environment-Outcome (I-E-O) model was used as the framework to address the two research questions.

**Discussion of the Findings**

This section discusses the implications of the findings for each part of the two research questions and two prediction models.

**Research Question 1**

What identifiable student demographics and BGSU SSS programs services can be used to predict persistence?

The findings resulting from research question one indicated only a positive and significant relationship between persistence and students who were identified as eligibility low-income only. This finding supports the existing literature that students who come from both first-generation and low-income backgrounds persist at lower rates than students who come from higher socioeconomic backgrounds (Pascarella & Terenzini, 2005; Strayhorn, 2008; Walpole, 2007). Even though first-generation and low-income students may not be performing or persisting at high levels, even with SSS services, the particular students who do participate may be doing better than they would if they did not have SSS. Oftentimes with the availability of academic supportive services, students have much academic ground to recover and achieve greater gains in persistence. This merits further investigation, as persistence can be viewed as a
zero-sum game, which suggests winners and losers and does not take into account student growth throughout participation in the program (Astin & Antonio, 2012).

Conversely, there was a significant but negative relationship between persistence and first-generation only students. This finding further suggests students who come from families with neither parent earning a bachelor’s degree are ill-prepared for success in postsecondary education and have longer time-to-degree rates than students who come from families with college-educated parents (Engle, 2008; Oldfield, 2007). These students lack the necessary cultural capital to navigate the institution and require more time to navigate the institution and make the appropriate campus connections. Cultural capital refers to the advantages such as the knowledge, skills, education students possess that make the educational system a comfortable, familiar environment in which one can succeed (Oldfield, 2007).

Further, SSS participants with an academic need because of failing grades and low high school grades had a negative relationship with persistence and suggest they were less likely to persist through the program. This finding is also consistent with the persistence literature (Engle & Tinto, 2008; Metha, Newbold & O’Rourke, 2011; Tinto 2007). Students who fall into one of these categories entered the program with multiple academic deficiencies. Typically, SSS students with low high school grades are more likely to be conditionally admitted to the University and may need developmental coursework as well as tutoring and other supportive services. Students who entered SSS because of failing grades were more likely continuing students and may have been identified as a participant after being enrolled at the University for more than one semester. Thus, the timing in which the student sought out or was referred to SSS could be contributing to the inverse relationship to persistence, which is germane to the SSS
student population. As a result, the amount of time required to make improvements and impact their persistence was limited and required more time to measure the relationship to persistence.

The logistic regression model for SSS participant persistence revealed a student’s academic need and eligibility as the strongest predictors of persistence. However, the model did not account for students with multiple levels of need. For example, first-year SSS students oftentimes are identified to become program participants for more than one level of need, such as having a low ACT score and low GPA along with not being prepared for postsecondary coursework. However, the federal reporting requirement retains only one level of need per student in the report. This is problematic to the extent that the model may not have accurately assessed the varied and complex set of inputs (characteristics) first-generation and low-income students have when entering the program. Approximately 75% of students entered the program because of low admission test scores as opposed to only 8% of participants who entered because of low high school grades and less than 2% who were identified as having failing grades. Rarely are there instances when a student enters the program as having just one level of need for program services. Moreover, this finding is important because colleges and universities must demonstrate a significant number of students who fall into these categories as a requirement to receive a multi-year Student Support Services grant and provide these important services to the first-generation and low-income students.

The model revealed that none of the program services of advising, tutoring, writing and math assistance were significant in predicting student persistence. Previous researchers have indicated that first-generation and low-income students were more likely to persist when they use these types of services (Cerna & Morris, 2011; Chaney, 1997; Felix, 2003; Olive, 2008). However, this study did not take into consideration year in college. The US Department of
Education (2010) states that the greatest effect of SSS services is felt when received after the first year. Unfortunately, this is not when most of the services in SSS are provided. This could explain why the BGSU SSS program did not show a significant relationship with persistence. Another explanation for this outcome could be that students have an opportunity to receive similar services elsewhere on campus, for example, in the BGSU Learning Commons. In the Learning Commons, students can receive individual or group assistance in the areas of math, writing and reading while being participants in the SSS program. Similarly, SSS students also receive advising from their college or faculty advisor, even though the SSS advising provided to students goes beyond course selection and registration and is comprehensive, developmental, intrusive, and designed to help the students integrate into university life. The students in this study were actively involved in using these services, but the lack of significance between using these services and persistence may suggest that their participation does not increase the likelihood of persistence. To better understand this outcome, SSS needs to further assess the services in terms of students’ satisfaction and in which the manner the services are offered.

**Research Question 2**

What identifiable student demographics and BGSU SSS program services can be used to predict academic achievement?

The findings for research question two revealed a significant positive relationship between GPA and females and students using SSS writing services. As evidenced in the review of literature, female students have higher GPAs than their male counterparts (Mortensen, 2011). The majority (65%) of SSS participants were female, which is reflective of the overall BGSU student population. Furthermore, female students tend to seek out academic support services
more than male students (Leppel, 2002). In the present study, the GPAs of female students were significantly higher than the GPAs of male participants.

An additional positive relationship with writing was revealed. The students who engaged with assistance from the SSS Writing Specialist were most likely to have a higher GPA. This finding is not surprising and is consistent with extant literature (Diederich & Schroeder, 2010; Pistone, 2010; Simpson, Hynd, Nist & Burrell, 1997; Wilmer, 2009). The approach to writing assistance in the SSS program is student-centered and with a lesser focus on the product and a greater emphasis on the writing process, which is transferable to other courses, assignments and activities. Further, repeated use of writing services resulted in success in overall academic achievement. On the other hand, academic advising in the program was also found to be significant but was negatively related to academic achievement. This was quite surprising given the type of advising students receive in the program, which is developmental, provided as a coordinated effort and there is a level of trust established with the students (Bahr, 2010; Smith, 2010; Vander Schee, 2007). SSS students receive advising that consists of guidance with course selection in meeting the academic major requirements, counseling on addressing personal issues, financial aid counseling, assistance with choosing a major, and preparing for cooperative education, and internship opportunities, and preparation for admission to graduate and professional school. This finding is contrary to existing literature. Academic advising provided to students who need additional academic support services had a positive and significant influence on academic achievement and persistence (Bahr, 2010; Museus & Ravello, 2010; Smith, 2010).

One explanation for this finding may be that those students who used academic advising at a higher rate are the most academically underprepared students, so that the positive statistical
relationship did not exist in this sample. Typically, these students take longer to earn their degrees, require more tutoring, and may have to retake courses to raise grades and meet academic program requirements. Another explanation is that SSS students may be receiving academic advising services from other institutional programs designed for academic success. For example, students of color may be receiving advising and similar services from the Office of Multicultural Affairs or the President’s Leadership Academy. Also, conditionally admitted SSS students are a part of students in the University Program for Academic Success, which is an academic intervention consisting of mandatory advising and utilization of services offered in the BGSU Learning Commons with a specific GPA requirement at the end of the first-year. As a result, the redundancy of these program services offered to students may be an overabundance to students and attendance to advising sessions may be viewed by students as a requirement only and not seen as beneficial. Moreover, the duplication of efforts may account for the low number of average advising sessions students had with their SSS advisor. It should be noted; the use of SSS services was measured by the number of visits and did not reflect the amount time students spent in an advising or tutoring session.

In this study, the need for the use of program services was also significant and negatively related to academic achievement. More specifically, students who entered the program with failing university grades achieved lower GPAs. One explanation is students who fall within this category become a participant as a result of referrals from another student or a member of the BGSU faculty and staff. These students are more likely to experience a greater level of academic difficulty and enter the program with a university GPA below a 2.00. This further explains the negative relationship with GPA. However, students who fall within this category with low GPAs do use program services but not with positive results.
Similar to the model that predicted the outcome of persistence, SSS students have multiple levels of need and that total need is used to determine participation in the program and subsequently, a determination on the level and type of services a student receives as a SSS participant. However, the data set used in this study is from the Annual Performance Reports and accounts for only one level of need. Program staff by default, select the low admission scores as the need option for reporting purposes, as the majority of students selected for the program had an ACT score lower than the average first-year ACT score of 21. First-year students’ ACT composite scores of SSS participants can be as low as 16. Further assessment of the full description of need for program participation is required to better understand the necessity for program services relates to academic achievement.

Neither model from research question one nor research question two examined other demographic and environmental variables that affect the lives of SSS participants. Astin’s I-E-O Model suggest that students’ demographic characteristics served as an excellent source for input variables and researchers should be sure to assess some aspect of the student environment (Astin & Antonio, 2012). For example, the actual point of entrance in the SSS program was not examined in this study. Moreover, environmental variables such as experiences in the SSS first-year experience and developmental courses were not a part of the present study. Also not considered in this study is the factor that the program provides financial assistance to students and this aid is tied to attendance at workshops on career planning, graduate school preparation, and financial literacy, and these variables were not a part of either model. These variables may show a different picture and possibly have a positive and significant relationship on student persistence and academic achievement.
Other researchers using Astin’s I-E-O model to predict academic achievement or persistence had similar and different outcomes (Heaney & Fisher, 2008; Kim & Bragg, 2008; Strayhorn, 2006, 2008). In some cases, these studies examined larger samples of students which involved different student input characteristics such as pre-college factors of ACT score and high school GPA, as well survey data that measured students study habits and learning styles, how well the student has connected with faculty and students’ social integration. As a result, the researchers had somewhat similar results on the impact on GPA. However, the combination of these input and environmental variables did explain the variance in GPA at a greater level. In comparison, the present study was limited to one program and did not measure any non-academic factors. This is important as the present study explored the role academic factors play in the relationship to GPA and persistence of a TRIO program housed in the division of student affairs, while similar university programs are placed in academic affairs. Oftentimes, SSS students are at a greater disadvantage, as program service offerings may not be viewed as credible given the organizational placement of the program. Typically, academic support services such as advising, tutoring and assistance with math and writing are academic functions strategically aligned to the academic major and the faculty. Finally, the findings of this college impact study may have been different provided the models to predict academic achievement and persistence included factors that examined the academic experience and student experience.

**Implications for Higher Education Policy and Practice**

The era of higher education accountability in the United States continues to increase and the need for more college-educated individuals is higher than ever (Engle, 2007). A 2012 Lumina Foundation Report indicates state and federal lawmakers have mandated college and universities to increase student retention and graduation rates which are now tied to institutional
funding. This funding model includes goals toward course completion, retention and graduation with specific benchmarks for the success of at-risk students, which include first-generation and low-income students (Ohio Board of Regents, 2013).

According to *The Chronicle of Higher Education*, College of 2020 Report, we can expect for the first time in American history an increase in the number of students historically underrepresented in higher education to grace U.S. colleges and universities. So much so, that there will be more minority students than white who attend college, during the second decade of the century. Also, there will be a higher number of academically unprepared students enrolling in institutions. This suggests that more academic underprepared students will enter college with a need to receive support services to ensure their survival. A coordinated effort within the institution to provide support services would benefit not only students but also universities strapped with restricted budgets. This approach could include all supportive services under one umbrella, using Federal funds as a catalyst to supportive services, coupled with institutional funds to bolster the scope of students served. Further, the Obama Administration has an ambitious goal to improve our country’s standing in educational achievement (Engle & Lynch, 2009). To ensure this happens, continued support is needed to assist first-generation and low-income students in persisting to graduation. As referenced in this study, the U.S. Department of Education awards college and university five-year grants to aid to help this retain this population. Services are provided to students as complementary to existing BGSU services and in some cases duplicative in nature. The coordinated effort could reduce duplication, expand services and create an optimal climate for learning for all students.

The findings of the present study have some implications for the way institutions create an inviting and engaging environment for SSS eligible students. Strange and Banning (2001) are
key figures in the campus environment discussion. They outline the “optimum” campus climate, which is defined as one having three fundamental conditions: a sense of security and inclusion, mechanisms for involvement, and an experience of community. Strange and Banning’s model has at its base a need of safety and inclusion. They state that when this need is in jeopardy the pursuit of a fulfilling educational experience is difficult at best. Additionally, the campus environment must provide options for participation and involvement and the creation of a community.

Currently, SSS students at BGSU are pulled in a variety of directions. They have a convoluted path to navigate as it relates to persistence to graduation. Competing factors include a college advisor and an SSS advisor and limited tutoring from their program department and extensive tutoring from SSS. While many may view these options as ideal, these factors often serve to create a confusing and conflicting place for students to learn. Universities can aid in creating a secure and inclusive environment for first-generation and low-income students by removing any perceived stigma associated with the SSS program. In this present study, the link between services and persistence was not existent; however, for college enrollment and orientation personnel, this evidence could show that students in this program may need to be identified and assigned to a specific learning community or other programs with the SSS staff as the students’ primary university contact. First-generation and low-income students would benefit from being apart of even greater programmatic efforts, which removes any sense of being marginalized with clear expectations as a part of a shared community. Likewise, having a policy that assigns students to the SSS program exclusively may increase the frequency of services used by SSS participants. Additionally, the intent of the SSS program staff would be to focus on
continuous improvement measures to ensure the quality of services are at a level to where students are satisfied with their SSS experience.

An additional complexity to students is that the program services are voluntary and students are not required to participate in the program. Establishing university policies that make participation in the SSS program as mandatory and not optional could also provide an optimal environment for these students. Moving in this direction would require a change in the organizational structure at BGSU. The SSS program in this study is administratively housed in the division of student affairs, yet the programmatic efforts have a strong academic focus while operating in a manner that integrates both the social and academic environments. A consideration for student affairs and academic affairs leadership is to form stronger partnerships to fully operationalize program services across divisions. As a result, assistance would be directed to a greater number of students who are first-generation and low-income with low high school grades and/or who have failing university grades that could benefit from support services similar to those provided by SSS.

Further, such partnerships could result in the coordination of similar program services with other departments. This would provide a holistic approach to the success of TRIO students. For example, a model could be developed to integrate the SSS tutoring service with the tutoring offered by the Learning Commons. This collaboration would allow SSS students to receive tutoring in the Learning Commons through an agreement between both departments. The SSS program would maintain its identity as a TRIO program. However, such a partnership could prove to help students better navigate the programs and services of the institution and provide a higher level of support to all students.
The findings in this study further suggest that colleges and universities develop partnerships with K-12 systems to develop strategies to improve incoming student preparation before enrolling into postsecondary institutions. First-generation and low-income students are less prepared and enroll with lower grade point averages and have less cultural capital than second-generation students. In particular, SSS coordination with other TRIO Programs such as the pre-college outreach initiatives of Educational Talent Search and Upward Bound could create a pipeline of academically prepared first-generation and low-income students to enter college (Engle, 2007). One such collaboration could be a summer bridge effort that allows for SSS staff to interview potential students, explain program services, ease the anxiety of parents of first-generation students, and influence initial semester scheduling by enrolling participants in specific bridge courses designed to promote success at the undergraduate level (Strayhorn 2008).

A final implication from this study relates to how BGSU faculty and staff develop stronger partnerships with SSS staff to create strategies to improve the environment for their success. This could include specific goals to increase persistence and graduation benchmarks for this population. For example, this effort could include the creation of an institution-wide retention committee of staff from across campus working as a unified front toward common persistence goals.

**Recommendations for Further Research**

The goal of this study was to explore input and environment variables that predict persistence and academic achievement for student participants in the Student Support Services program. Data were analyzed to test the two research questions relating to these goals. The information was studied and several significant findings resulted from the examination of the data. The findings, although significant, have some limitations. One limitation is the findings
explain only a small number of the demographics and program services that impact student persistence and academic achievement. Another limitation is the design of the study. The study’s focus on persistence and academic achievement of students and the researcher could not explain in any detail what aspect of services, with the exception of advising and writing, had on academic achievement had on either of the outcomes.

It was found that none of the services predicted student persistence and only advising and writing were significant factors in predicting academic achievement. The problem is that the statistical methods used to analyze the data could not provide complete answers to the complex relationship between services and academic achievement as well as the college student experience. Further research along these lines should use a variety or mixed method of data collection. Qualitative studies can be used to examine the total student experience in the Student Support Services program. This could account for non-cognitive and non-academic student factors such as student motivation, attitudes, and commitment as well as provide further insight as to why students participate in the program and how their experiences in addition to their use of program services affect their success in the program. A further examination of the ‘valued-added’ impact of the program is warranted as students may enter at a certain level and have substantial progress while participating in the program but this growth should be measured to inform and provide additional support as needed.

The issues facing first-generation and low-income students are complex and suggest that research efforts should be in place to update our understanding of variables that predict persistence and academic achievement. As an increasing number of students from first-generation backgrounds continue to enroll in postsecondary institutions, the need for academic support services will increase and the variables will change. New studies must reexamine our
understanding of the multiple inputs characteristics and the environments that impact persistence and academic achievement. With respect to Astin’s I-E-O Model, this study could be extended to examine the interaction effects of multiple independent variables on the dependent variables. That is, a further review of the date for when SSS students used program services by students of demographic groups and of different eligibility levels. For example, investigating the interaction of students’ race and writing usage on GPA.

Additional research is warranted on the difference between students who persist and those who do not. For example, an institutional level longitudinal study that directly tracks first-generation and low-income students for longer periods of time is needed. Similar to the National Evaluation of SSS conducted for the US Department of Education (2010), which assessed data six years after the freshman cohort of 1991-1992 for all programs. It has been documented that this population of students have longer time-to-degree rates than other populations (Pasceralla & Terenzini, 2005; Tinto, 1993; Walpole, 2007). This will help the institution gain a better understanding of student persistence patterns across terms and years. This should involve identifying one or more cohorts of students based on the common characteristic of first-generation and low-income status and assembling a database that collects information about these characteristics and whether the student returns to the institution in subsequent terms and academic years (Astin & Antonio, 2012).

Finally, the present study solely focused on one TRIO Student Support Services program at a single institution and examined those factors that impacted the first-generation and low-income students. This limitation warrants a greater examination of persistence and academic factors on a larger scale, involving multiple SSS programs at similar institutions. Also, comparable independent studies could replicate the present study at other institutions, keeping in
mind the distinct variations in terms of which SSS program services they offer, operationalize and the placement of the TRIO program within the organizational structure. Irrespective of these concerns, an examination of TRIO practices at other institutions should serve as a means to identify best practices that significantly impact student success for this population.

**Concluding Thoughts**

The assessment of the success of first-generation and low-income students at institutions of higher education is critical to our survival. The intent of this study sought to assess TRIO student factors that successfully impact persistence and academic achievement. While the persistence literature consistently directs institutions to have a comprehensive understanding about their students, which includes how they arrive to the institution, how colleges and universities engage with them academically and socially during their time with us. The TRIO Student Support Services program is one programmatic effort designed to specifically work with first-generation and low-income students and ensure this most vulnerable population is able to persist and meet university academic requirements. The first-generation and low-income students in this study, like so many other students with the same background enter the program with a myriad of needs. This dissertation points out those various needs and a set of academic supportive services available to assist in their success. While the results of the study may not have told the full story in terms of predictions of persistence and academic achievement, the outcomes nonetheless informs TRIO personnel and other higher educational professionals and provides critical feedback to enhance the types and possibly the delivery program services for first-generation and low-incomes students. However, the efforts will be made to investigate further the existing relationships with all BGSU TRIO Student Support Services program offerings and the impact on student success.
Even though the findings in this study were not entirely congruent with existing persistence and academic achievement literature, it is the researcher’s hope this study provides a responsiveness to change in terms of the manner Student Support Services report on the multiple characteristics of first-generation and low-income students who enter the program each year and how their progress toward program outcomes are measured. However, consistent with previous research on persistence is the illumination of the complex needs of first-generation and low-income students and the challenges these students encounter. Their needs are great and require college and university personnel to develop stronger partnerships with TRIO personnel to create strategic educational purposeful activities to reinforce the message that all students enrolled at the institution are a part of a university community where the student can not only survive but also, thrive.
REFERENCES


Chaney, B. (2010), National evaluation of Student Support Services: Examination of Student Outcomes after six years, final report. Rockville, MD: Westat, Inc.


http://baywood.metapress.com/link.asp?target=contribution&id=G238RG01L7730046


http://newforums.metapress.com/content/52l1j26763431416/?p=092b62d70ac943fe9d60e843071bd36d&pi=1


Pistone, R. A. (2010). Writing center tutors have the luxury to focus on individual student care giving as opposed to formal classroom settings that are less care centered. *English Language Teaching, 3*(2), P10.


http://fyesit.metapress.com/content/15vm25112419w5tg/?p=b51dd9f59bd8407cb979235038cabf39&pi=2


*Research & Teaching in Developmental Education, 6*(1), 21-32.


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A grantee must submit student records in Excel or CSV format. For additional information regarding data submission, please see the instructions under "HOW MAY THE REPORT BE SUBMITTED?"  

**REPORTING REQUIREMENT:** The Department requires grantees to submit participant records for all students served by the project in the past six years (i.e., cohort years 2006-07 through 2011-12) in the case of a 4-year institution and four years (i.e., cohort years 2008-09 through 2011-12) in the case of a 2-year institution. For additional information on data submission requirements, please see the instructions.

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| 3       | Social Security Number      | SSN                  | 001010001 to 999999998  
Unknown = 000000000  
**NOTE:** Please format the SSN in nine digits greater than 0. If using EXCEL, you may use dashes (e.g., 123-45-5667 or 123456789). Do not use letters. The information in this field should be the same as provided in the previous reporting period and also should not be changed in future reporting years. |
| 4       | Student’s Last Name         | LastNM               | 0 to 9  
Uppercase A to Z . (period)                                                                                                                    |
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First position will be justified with an uppercase A-Z. **No blanks will be accepted.**                                                                 |
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| 5      | Student’s First Name        | FirstNM              | 0 to 9
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First position will be justified with an uppercase A-Z. **No blanks will be accepted.**                                                                 |
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| 6      | Student’s Middle Initial    | MI                   | Uppercase A to Z
Blank = No response                                                                                                                                 |
| 7      | Student’s Date of Birth     | DOB                  | **Participant’s date of birth is:**
**Format is MM/DD/CCYY**
MM = 01 – 12
DD = 01 – 31
CC = 19 – 20
YY = 00 – 99
00/00/0000 = No response/Unknown                                                                                                                                |
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| 8       | Gender     | GenderCD             | **Participant is a:**  
1 = Male  
2 = Female  
0 = No response/Unknown |
| 9       | Ethnicity—Hispanic | Hispanic | **Participant is identified as Hispanic/Latino.**  
1 = Yes  
2 = No  

Hispanic/Latino refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. As such, every Hispanic/Latino person has an associated race(s).

Please see instructions for additional details on this field. |
| 10      | Race—American Indian/Alaskan Native | AmlIndAK | **Participant is identified as American Indian/Alaskan Native.**  
1 = Yes  
2 = No  

American Indian/Alaskan Native refers to a person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment. |
| 11      | Race—Asian  | Asian               | **Participant is identified as Asian.**  
1 = Yes  
2 = No  |
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<td>Asian refers to a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.</td>
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| 12     | Race—Black or African American           | BlackAfrAm           | **Participant is identified as Black or African American.**  
1 = Yes  
2 = No  
Black or African American refers to a person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American." |
| 13     | Race—White                               | White                | **Participant is identified as White.**  
1 = Yes  
2 = No  
White refers to a person having origins in any of the original peoples of Europe, the Middle East, or North Africa. |
| 14     | Race—Native Hawaiian or Other Pacific Islander | HIPacIslndr         | **Participant is identified as Native Hawaiian or Other Pacific Islander.**  
1 = Yes  
2 = No  
Native Hawaiian or Other Pacific Islander refers to a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. |
| 15     | Eligibility                              | EligibilityCD        | **Participant is:**  
1 = Low-Income and First-Generation  
2 = Low Income only  
3 = First-Generation only  
4 = Disabled |
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<td></td>
<td></td>
<td>5 = Predictive indicator</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 = Academic proficient tests</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 = Low college grades</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8 = High school equivalency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9 = Failing grades</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 = Out of the academic pipeline for 5 or more years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 = Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 = Limited English proficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13 = Lack of educational and/or career goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14 = Lack of academic preparedness for college level course work</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15 = Need for academic support to raise grade(s) in required course(s)/academic major</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 = No response/Unknown</td>
</tr>
</tbody>
</table>

**NOTES:** Select from the options provided the one that best describes the participant’s academic need. Since many students may qualify for project services based on more than one criterion, please select from the list provided only the main category used to determine the individual’s need for project services. Please use option #11, “Other” sparingly.

**Predictive indicator** is a composite variable for estimating the potential success of a student in college using a variety of factors that may include indicators such as high school GPA, SAT or ACT test scores, high school preparedness, etc.
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Academic proficient tests</strong> include tests used for clinical purposes such as to determine learning disabilities as well as placement tests and study skills inventories.</td>
</tr>
<tr>
<td>17</td>
<td>First Enrollment Date (at grantee institution)</td>
<td>FirstEnrollDT</td>
<td><strong>Participant’s first enrollment date at the grantee institution is:</strong>&lt;br&gt;<strong>Format is MM/DD/CCYY</strong>&lt;br&gt;MM = 01–12&lt;br&gt;DD = 01–31&lt;br&gt;CC = 19–20&lt;br&gt;YY = 00–99&lt;br&gt;00/00/0000= No response/Unknown</td>
</tr>
<tr>
<td>18</td>
<td>Date of First Project Service</td>
<td>FirstServiceDT</td>
<td><strong>Participant’s date of first project service is:</strong>&lt;br&gt;<strong>Format is MM/DD/CCYY</strong>&lt;br&gt;MM = 01–12&lt;br&gt;DD = 01–31&lt;br&gt;CC = 19–20&lt;br&gt;YY = 00–99&lt;br&gt;00/00/0000= No response/Unknown</td>
</tr>
<tr>
<td>19</td>
<td>College Grade Level (entry into project)</td>
<td>EnterGradeLV</td>
<td><strong>Participant’s college grade level at entry into the project is:</strong>&lt;br&gt;1 = 1st yr., never attended&lt;br&gt;2 = 1st yr., attended before&lt;br&gt;3 = 2nd yr./sophomore&lt;br&gt;4 = 3rd yr./junior&lt;br&gt;5 = 4th yr./senior&lt;br&gt;6 = 5th yr./other undergraduate&lt;br&gt;0 = No response/Unknown&lt;br&gt;&lt;br&gt;<strong>NOTE:</strong> Use options 3, 4, 5, and 6 only for students who have the required number of credits and GPA to be classified at the institution as sophomore, junior, senior, and other undergraduate, respectively.</td>
</tr>
<tr>
<td>Field #</td>
<td>Field Name</td>
<td>Database Column Name</td>
<td>Valid Field Content</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------</td>
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<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 20     | Enrollment Status                 | FirstServEnrollCD    | **Participant enrollment status in the year first served is:**  
1 = Full-time (at least 24 credit hours or 36 clock hours in an academic year)  
2 = 3/4 time (at least 18 credits hours or 27 clock hours in an academic year)  
3 = 1/2 time (at least 12 credit hours or 18 clock hours in an academic year)  
4 = Less than 1/2 time (fewer than 12 credit hours or less than 18 clock hours in an academic year)  
9 = Not applicable (prior year participants no longer enrolled)  
10 = Not applicable (New participant—summer session participants who did not earn college credits)  
0 = No response/Unknown  
**NOTE:** If a participant is “New” in this reporting period, then the Enrollment Status in the academic year first served (field #20) and the
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Enrollment Status at the end of the reporting period (field #23) are the same. If the participant is a new summer participant who did not earn college credits in this reporting period, please select option #10.</td>
</tr>
<tr>
<td>21</td>
<td>Student Cohort Year</td>
<td>StuCohortYR</td>
<td><strong>Participant’s Student Cohort Year is:</strong> 1 = Other (prior to 2005-06) 2 through 6 = No longer used 7 = 2005-06 8 = 2006-07 9 = 2007-08 10 = 2008-09 11 = 2009-10 12 = 2010-11 13 = 2011-12 14 = 2012-13</td>
</tr>
</tbody>
</table>

II.C. Participant’s Status and Academic Status

The following fields (#22 - #25) may require annual updates, dependent on a per-participant basis.

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Participant Status <em>(during academic year)</em></td>
<td>PartCD</td>
<td><strong>Participant is a:</strong> 1 = New participant (part of 2011-12 cohort for this reporting period) 2 = Continuing participant 3 = Prior-year participant (enrolled but not receiving SSS services) 4 = Prior-year participant (no longer enrolled at grantee institution) 5 through 7 = No longer used 8 = New Summer participant—Earned College Credits (2012 summer session only; part of 2012-13 cohort)</td>
</tr>
<tr>
<td>Field #</td>
<td>Field Name</td>
<td>Database Column Name</td>
<td>Valid Field Content</td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
<td>----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9 = New Summer participant—Did not Earn College Credits (2012 summer session only; part of 2012-13 cohort)</td>
</tr>
</tbody>
</table>

A **new participant** is an individual who was served by the SSS project for the **first time** in this reporting period (PY 2011-12) and meets the definition of participant in 34 CFR 646.7(b) of the SSS program regulations.

A **continuing participant** is an individual who was served by the SSS project for the first time in any prior reporting period and also received services in the 2011-12 reporting period. For APR reporting purposes, a participant who left the grantee institution in a previous reporting period but reentered the institution and was served by the project in 2011-12, is considered a “continuing” participant.

A **prior-year participant enrolled at grantee institution** is an individual served by the SSS project in any prior reporting period that was enrolled at the grantee institution during the current reporting period but did not receive project services on a continual basis during the reporting period. This definition includes a prior-year participant who received a certificate/diploma from a program that is less than two years in duration and is pursuing an associate’s degree at the grantee institution. A participant who left the grantee institution in a previous reporting period but reentered the institution and **was not** served by the project in 2011-12, is considered a “prior-year participant enrolled at grantee institution”.

A **prior-year participant not enrolled at the grantee institution** is an individual who was not enrolled at the grantee institution during the current reporting period (2011-12).

A **new participant--summer session only who earned college credits**
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>is an individual served by the SSS project for the first time during the summer session preceding the participant's first academic year at the grantee institution (i.e., served during summer 2012 prior to the 2012-13 academic year) and earned college credits. This student is thus part of the next year’s cohort (i.e., 2012-13, option “14”, field #21). This definition does not include a student enrolled at the grantee institution prior to the summer session but who received services from the SSS project for the first time during the summer 2012. This individual would meet the definition of “new participant” (option “1”, field #22 and would be in the 2011-12 cohort (option “13”, field #21).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A new participant--summer session only who did not earn college credits is an individual served by the SSS project for the first time during the summer session preceding the participant’s first academic year at the grantee institution (i.e., served during summer 2012 prior to the 2012-13 academic year) and did not earn any college credits. This student is thus part of the next year’s cohort (i.e., 2012-13, option “14”, field #21). This definition does not include a student enrolled at the grantee institution prior to the summer session but who received services from the SSS project for the first time during the summer 2012. This individual would meet the definition of “new participant” (option “1”, field #22 and would be in the 2011-12 cohort (option “13”, field #21).</td>
</tr>
</tbody>
</table>
| 23     | Enrollment Status (at the end of the academic year) | EnrollCD | Participant’s enrollment status at the end of the academic year is:  
1 = Full-time (at least 24 credit hours or 36 clock hours in an academic year)  
2 = 3/4 time (at least 18 credits hours or 27 clock hours in an academic year)  
Note: The sum of the number of new (option #1); continuing (option #2); and new summer session only (options #8 and #9) should equal the total number of participants the project served during the 2011-12 academic year. |
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
</table>
| 24      | Academic Standing| AcamStandCD          | Participant’s academic standing is:  
1 = Good standing  
2 = Not in good standing  
9 = Not applicable (prior-year participant no longer enrolled)  
10 = Not applicable (New participant—2012 summer session participants who did not earn college credits)  
0 = No response/Unknown  

NOTE: Use your institution’s definition of good academic standing. Please complete for all new, continuing participants, prior-year participants still enrolled, and new summer participants who earned college credits. Use option “9” (Not applicable) for prior-year participants no longer enrolled. Use option “10” for new summer only participants who did not earn any college credits. |
| 25      | Cumulative GPA   | CumGPA               | Participant’s cumulative GPA is:  
0.000 to 5.000  
9.999 = Not applicable (prior-year participant no longer enrolled and new summer participants who did not earn college credits)  

academic year  
3 = 1/2 time (at least 12 credit hours or 18 clock hours in an academic year)  
4 = Less than 1/2 time (fewer than 12 credit hours or less than 18 clock hours in an academic year)  
9 = Not applicable (prior year participants no longer enrolled)  
10 = Not applicable (New participant—2012 summer session participants who did not earn college credits)  
0 = No response/Unknown  

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blank = No response/Unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NOTE: Complete for all new, continuing, prior-year participants still enrolled, and new summer participants who earned college credits. Use “9.999” for prior-year participants no longer enrolled and new summer participants who did not earn any college credits.</td>
</tr>
</tbody>
</table>

**II.D. Academic Progress/Persistence**

The following fields (#26 - #34) may require annual updates, dependent on a per-participant basis.

<table>
<thead>
<tr>
<th>26</th>
<th>College Grade Level (at the beginning of the academic year)</th>
<th>BegCurrentGradeLV</th>
<th>Participant’s college grade level at the beginning of the academic year was:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 = 1st yr., never attended</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 = 1st yr., attended before</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 = 2nd yr./sophomore</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 = 3rd yr./junior</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 = 4th yr./senior</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 = 5th yr./other undergraduate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 = Dual degree program</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8 = Graduate/Professional Student</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15 = Not applicable (New summer participant—2012 summer session)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>99 = Not applicable (prior-year participant no longer and bachelor’s degree recipients)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 = No response/Unknown</td>
</tr>
</tbody>
</table>

Use grade level options 3, 4, 5, and 6 only for students who have the required number of credits and GPA to be classified by the participant’s grantee institution as a sophomore, junior, senior, and other undergraduate respectively. Use option “7” for an individual enrolled in a program that awards both the bachelor’s and a graduate degree upon successful completion of the program of study. Use option “8” for a student who graduated with a bachelor’s degree and then entered graduate/professional school during the academic year. Use option “15” for an individual who is a new summer participant.
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(i.e., field #22, options 8 or 9). Use option “99” for an individual who is a prior-year participant no longer enrolled at the grantee institution including students who received a bachelor’s degree or equivalent in a previous reporting period.</td>
</tr>
<tr>
<td>27</td>
<td>College Grade Level (at the end of the academic year)</td>
<td>CurrentGradeLV</td>
<td>Participant’s college grade level at the end of the academic year is: 1 = No longer used 2 = 1st yr. 3 = 2nd yr./sophomore 4 = 3rd yr./junior 5 = 4th yr./senior 6 = 5th yr./other undergraduate 7 = Dual degree program 8 = Graduate/Professional Student 10 = Not applicable (New summer participant—2012 summer session only not earning college credits) 99 = Not applicable (prior-year participant no longer enrolled) 0 = No response/Unknown</td>
</tr>
</tbody>
</table>

Use grade level options 3, 4, 5, and 6 only for students who have the required number of credits and GPA to be classified by the participant’s postsecondary institution as a sophomore, junior, senior, and other undergraduate respectively. Use option #6 if a student received a bachelor’s degree or equivalent in this reporting period. If the student received a bachelor’s degree or equivalent in a previous reporting period, use option “99”. Use option “7” for an individual enrolled in a program that awards both the bachelor’s and a graduate degree upon successful completion of the program of study. Use option “8” for a student who graduated with a bachelor’s degree and then entered graduate/professional school during the academic year. Use option “10” for participants who were served by the SSS project for the first time during the summer session preceding the
<table>
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<th>Database Column Name</th>
<th>Valid Field Content</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>participant’s first academic year at the grantee institution and did not earn any college credits. Use option “99” for an individual who is a prior-year participant no longer enrolled at the grantee institution including students who received a bachelor’s degree or equivalent in a previous reporting period.</td>
</tr>
</tbody>
</table>
| 28      | Date of Last Project Service | LastSerDT | **Participant’s date of last project service is:**  
**Format is MM/DD/CCYY**  
MM = 01 – 12  
DD = 01 – 31  
CC = 19 – 20  
YY = 00 – 99  
88/88/8888 = Not applicable, still enrolled in project  
00/00/0000 = No response/Unknown |
| 29      | Reason for Withdrawal or Not Returning | ReaforWith | **Reason participant withdrew/did not return is:**  
1 = Academic dismissal  
2 = Dismissal for non-academic reasons  
3 = Withdrew/Did not return for financial reasons  
4 = Withdrew/Did not return for health reasons  
5 = Withdrew/Did not return for academic reasons  
6 = Withdrew/Did not return for personal reasons  
7 = Not applicable (called for military service or deceased)  
8 = Not applicable (student still enrolled, completed certificate program, graduated or transferred)  
0 = No response/Unknown |
| 30      | Transfers | Transfers | **Participant’s transfer status is:**  
1 = Transferred from a 2-year institution to another 2-year institution  
2 = Transferred from a 2-year institution to a 4-year institution  
3 = Transferred from a 4-year institution to another 4-year institution  
4 = Transferred from a 4-year institution to a 2-year institution  
8 = Did not transfer, still enrolled or graduated (participant is still enrolled at the grantee-institution, graduated with a bachelor’s |
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
</table>
| 31     | Undergraduate Degree/Certificate Completed at Grantee Institution | DegreeCD             | **Participant's degree/certificate status is:**  
1 = Certificate/diploma for occupational, educational program (less than two-year program)—**Did not transfer from a 2 to a 4 year institution**  
2 = Certificate/diploma for occupational, educational program (at least two-year program)—**Did not transfer from a 2 to a 4 year institution**  
3 = No longer used  
4 = 1st Bachelor’s degree  
5 = No longer used  
6 = Equivalent of Bachelor’s Degree  
7 = No longer used  
8 = No degree/certificate, still enrolled at grantee  
9 = No degree, not enrolled (withdrew from grantee institution prior to obtaining degree/certificate, did not return to grantee institution including those students who transferred without getting a degree/certificate and second bachelor’s degree without receiving a first bachelor’s degree from the grantee institution)  
10 = Associate’s degree only—**Did not transfer from a 2 to a 4 year institution**  
11 = Associate’s degree **AND** transferred from a 2 to a 4 year institution within the academic year or by the beginning of the next academic year.  
12 = Certificate **AND** transferred from a 2 to a 4 year institution within the academic year or by the beginning of the next academic year. |
<table>
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<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
</table>

0 = No response/Unknown

**NOTES:** Options #1 and #2 are for participants who received a certificate and did not transfer from a 2 to a 4 year institution.

If the participant received a certificate and transferred to a 4-year institution within the academic year or by the beginning of the next academic year, select option #12.

Select option #4 if a student received a first bachelor’s degree. Once you report the first bachelor’s degree, please do not update this information in subsequent reporting periods.

If the participant received a first bachelor’s degree and later on received a second bachelor’s degree within the six year time frame, please select option #4 and provide the date the first bachelor’s degree was awarded in field #32. Once a first bachelor’s degree has been reported, please do not change this response in subsequent reporting years.

If the participant did not receive a first bachelor’s degree from the grantee institution but received a second bachelor’s from the grantee institution, please select option #9.

For a student enrolled in a dual degree program who has completed four years of instruction, use option “6” to indicate the student has obtained the equivalent of a bachelor's degree, even though a bachelor's degree was not awarded.

For students still enrolled at grantee institution but who have not yet
<table>
<thead>
<tr>
<th>Field #</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>completed their undergraduate program of study, use option “8”.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>For a student who received an associate’s degree only <em>(did not transfer from a 2 to a 4 year institution)</em>, please select option #10.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>If the participant received an associate’s degree AND transferred to a 4-year institution by the beginning of the next academic year, that is, after attaining an associate’s degree, please select option #11.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>If the participant received a certificate AND transferred to a 4-year institution by the beginning of the next academic year, that is, after attaining a certificate, please select option #12.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Otherwise, if the participant did not transfer by the beginning of the next academic year after receiving a degree or certificate, please select options 1, 2, or 10, accordingly.</td>
</tr>
</tbody>
</table>
| 32     | Date of Undergraduate Degree/Certificate        | DOUD                 | **Date the participant attained the degree or certificate:**  
|        |                                                |                      | Format is MM/DD/CCYY, e.g., 05/23/2010  
|        |                                                |                      | MM = 01 - 12  
|        |                                                |                      | DD = 01 - 31  
|        |                                                |                      | CC = 20  
|        |                                                |                      | YY = 00 - 99 (e.g., 10 = 2010)  
|        |                                                |                      | 88/88/8888 = No degree earned yet  
|        |                                                |                      | 00/00/0000 = No response/Unknown  
|        |                                                |                      | **NOTE:** This date must be the date of the degree/certificate noted in field #31. If you do not know the exact date, use 15 for the day and use your best estimate for the month. |
| 33     | Field of Study Degree/Certificate Earned        | DegCertFieldErnd     | **Participant earned degree in:**  
|        |                                                |                      | 1 = Humanities  
<p>|        |                                                |                      | 2 = Social/Behavioral Sciences |</p>
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 = Life Sciences</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 = Physical Sciences</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 = Mathematics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 = Computer/Information Science</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7 = Engineering</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8 = Teacher Education (Teacher Prep)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9 = Education-Research &amp; Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 = Business/Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 = Health Professions &amp; Related Sciences</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12 = Vocational/Technical</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13 = Communication/Journalism/Technologies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14 = General Studies/Transfer Degree</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15 = Other technical/professional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16 = Has not earned a degree/certificate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 = Unknown</td>
</tr>
</tbody>
</table>

If the participant (i.e., all current and prior-year participants) received a certificate or degree, please select the field of study (options 1 - 15) in which the degree or certificate was earned. If the participant has not earned a degree/certificate, select option “16”. If you do not know the field of study in which the degree or certificate was earned, select option “0—Unknown.”

If your institution (e.g., some 2-year institutions) offers a degree or certificate in general education studies or a transfer degree to indicate that the student has met all of the institution’s academic requirements, please select option “14”; otherwise, select the field of study in which the degree or certificate was earned.

<table>
<thead>
<tr>
<th>34</th>
<th>Persistence Status (at the beginning of the 2012-13 academic year)</th>
<th>CurPerstStatus</th>
<th>Participant's enrollment status at the beginning of the 2012-13 academic year was:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 = Enrolled at grantee institution</td>
</tr>
<tr>
<td>Field #</td>
<td>Field Name</td>
<td>Database Column Name</td>
<td>Valid Field Content</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td>----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 = Has graduated from the grantee institution with an associate’s degree or received a certificate <strong>and</strong> transferred from a 2 to a 4-year institution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 = Has transferred from the grantee institution (i.e., 2-year) to a 4-year institution without receiving an associate’s degree or certificate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 = Has graduated from the grantee institution with an associate’s degree or received a certificate <strong>but did not transfer</strong> to a 4-year institution.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 = Has graduated from the grantee institution with a bachelor’s degree or equivalent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 = Not enrolled at grantee institution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 = No response/Unknown</td>
</tr>
</tbody>
</table>

**NOTE:** Use option “1” if the student is still enrolled at the grantee institution at the beginning of the 2012-13 academic year. Use option “2” only if the student graduated from the grantee institution with an associate’s degree or received a certificate **and** transferred from a 2 to a 4-year institution. Use option “3” for students who transferred from a 2 to a 4 year institution **but did not** receive an associate’s degree or certificate from the grantee institution. Use option "4" for students who received an associate’s degree or certificate from the grantee institution **but did not** transfer to a 4-year institution. Use option “5” for students who graduated with a first bachelor’s degree or equivalent at the grantee institution. Use option “6” for students who are no longer enrolled at the grantee institution.

**II.E. Student Financial Assistance**

**Fields #35 and #36 require annual updates and should be completed for current year participants and prior-year participants still enrolled.**

<p>| 35     | Amount of Financial | FinAidRecvd | Amount of financial aid received by the participant is: |</p>
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Database Column Name</th>
<th>Valid Field Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aid Received</td>
<td></td>
<td>00000 to 99999 (e.g. 05000 for $5,000) Leave this field blank for prior-year participants no longer enrolled.</td>
</tr>
<tr>
<td></td>
<td>Amount of SSS Grant Aid Awarded</td>
<td>SSSGrantAid</td>
<td>Amount of grant aid awarded to the participant is: 00000 to 99999 (e.g. 05000 for $5,000) Leave this field blank for prior-year participants.</td>
</tr>
</tbody>
</table>

**NOTE:** Provide the dollar amount (whole dollars only) of the financial aid received of each participant as determined by the financial aid office. Do not include the amount of SSS Grant Aid awarded.

**NOTES:** Provide the amount of SSS grant aid awarded (whole dollars only) for the academic year.

For this reporting period, individual grant aid awards should not be less than the minimum Pell Grant award of $555 nor exceed the maximum Pell grant award of $5,550.

(***Note to Data Collector:** Please ensure that when you are collecting this information from students that they are informed of why they are being asked to provide their Social Security numbers.)

**PRIVACY ACT**

In accordance with the Privacy Act of 1974 (Public Law No. 93-579, 5 U.S.C. 552a), you are hereby notified that the Department of Education is authorized to collect information to implement the Student Support Services Program under Title IV of the Higher Education Act of 1965, as amended (Pub. Law 102-325, Sec. 402D). In accordance with this authority, the Department receives and maintains personal information on participants in the Student Support Services program. The principal purpose for collecting this information is to administer the program, including tracking and evaluating participant progress. Providing the information on this form, including a social security number (SSN) is voluntary; failure to disclose a SSN will not result in the denial of any right, benefit or privilege to which the participant is entitled. The information that is collected on this form will be retained in the program files and may be released to other Department officials in the performance of their official duties.)
DATE: June 21, 2012

TO: Sidney Childs, MPA
FROM: Bowling Green State University Human Subjects Review Board

PROJECT TITLE: [330989-2] Impact of the Student Support Services?TRIO Programming on Persistence and Academic Achievement

SUBMISSION TYPE: Revision

ACTION: DETERMINATION OF NOT RESEARCH

DECISION DATE: June 21, 2012

Thank you for your submission of Revision materials for this project. The Bowling Green State University Human Subjects Review Board has determined this project does not meet the definition of human subject research under the purview of the HSRB according to federal regulations.

Based upon the information provided by Jill Carr, the HSRB has determined that this study does not meet the federal definition of research with human subjects.

We encourage you to continue to confirm with the HSRB whether future projects of this nature require review.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact the Office of Research Compliance at 419-372-7716 or hsr@bgsu.edu. Please include your project title and reference number in all correspondence regarding this project.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Bowling Green State University Human Subjects Review Board's records.