

**Effects of TRIO Student Support Services Grant Aid on Student Outcomes**

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## **Abstract**

The focus of this study was an investigation of the impact of TRIO Student Support Services supplemental grant aid on the persistence, 6-year degree completion, time to graduation, and loan debt burden outcomes on grant aid recipients. The study was conducted using a quantitative analysis of archival data from a regional public university. The sample ( $n = 373$ ) included recipients of SSS grant aid and eligible non-recipients. Chi-square tests of independence were conducted to analyze the variables of persistence and 6-year completion outcomes. Independent samples  $t$  tests were conducted to analyze the variables of time to degree and loan debt burden. Results of the analyses indicated that recipients of grant aid recipients are more likely to persist and graduate within six years, graduate in fewer semesters, and complete college with less loan debt than comparable non-recipients.

## **Dedication**

This study is dedicated to TRIO students, for whom I will always advocate.

## **Acknowledgements**

My sincerest gratitude goes to my committee members and other supportive Baker University faculty. Committee chair Dr. Tes Mehring and committee members Dr. Kathy Ermler and Dr. Cassy Bailey offered honest, objective, constructive feedback to help me craft this final document. Both research analysts – Dr. Katie Hole and Dr. Li Chen-Bouck – deserve credit for helping me put my inspiration into numeric terms and make sense of the analyses. All five exhibited patience when I struggled and support when I deserved it.

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## **Chapter One**

### **Introduction**

For low-income students, the ability to finance a college education is decreasing rapidly. The cost of attending college is rising and the relative value of the Pell Grant is not keeping pace (Heller, 2013). Students are turning to student loans to finance their education more frequently (Baum, Ma, Pender, & Bell, 2015; Wei & Skomsvold, 2011; Woo, 2013). Excluding mortgages, student loan debt is the nation's largest form of consumer debt, having surpassed both auto loan and credit card debt. Student loan debt topped a trillion dollars during the third quarter of 2013 and is the only type of consumer debt to have continued increasing since the economic downturn of 2008 (Federal Reserve Bank of New York, 2013).

In December 2000, an update to the Higher Education Act was published in the Congressional Record authorizing TRIO Student Support Services (SSS) projects to expend up to 20% of their grant funding in direct financial support to eligible students at the projects' discretion with the purpose of alleviating loan burden and encouraging student persistence. Since that time, SSS projects across the nation have been providing supplemental grant funding to Pell-eligible students in their first or second year of college who have unmet need. Projects report annually, via their Annual Performance Report to the USDE, the details of such expenditures, including which students receive funds and the amount disbursed to each, along with current enrollment status and a host of other criteria for all participants – grant aid recipients and non-recipients. Yet, there is a dearth of published outcome data on the effects of this grant aid on student persistence, graduation, and loan debt burden. No entities (e.g., the USDE, independent reviewers, or

individual projects) have published information on the effectiveness of the grant aid program.

## **Background**

Recognizing that disadvantaged undergraduate students needed academic and transitional support as much as they needed financial support to successfully matriculate into and through postsecondary programs, the 1968 Amendments to the HEA of 1965 authorized the creation of Special Services for Disadvantaged Students, the name of which was later changed to Student Support Services (USDE, Office of Postsecondary Education, 2011). The third in a group of federal grant programs authorized under the HEA, SSS aimed to provide academic support for undergraduate students historically underrepresented in higher education due to socioeconomic and family educational background. SSS and the two existing pre-college programs were thereafter referred to collectively by the moniker TRIO.

By legislation, SSS projects at 4-year institutions must provide academic tutoring, assistance in course selection, information on the full range of student financial aid opportunities and assistance in completing aid applications, services to improve the financial and economic literacy of students, and assistance in applying for graduate and professional programs (HEA, 1965). In addition, The Omnibus Consolidated Appropriations Act of 2001 authorized TRIO SSS projects to expend grant funds in the form of direct financial assistance for Pell-eligible students who are utilizing a project's services (USDE, Office of Postsecondary Education, 2011).

## **Statement of the Problem**

Several studies have shown that nominal increases of gift aid can have a significant effect on persistence of low-income students (Alon, 2011; Bettinger, 2004; Castleman & Long, 2013; DesJardins, Ahlburg, & McCall, 2002; Paulsen & St. John, 2002). These same studies have called for reconsideration of aid distribution away from the current trend of merit-based aid to greater emphasis on programs that benefit low-income students. The SSS grant aid initiative answers this call, but so far lacks data to prove its effectiveness at doing so.

This study occurred at a 4-year Masters L Carnegie classification public institution in the Great Plains of the Midwest. The institution, henceforth referred to as Great Plains University (GPU), has been disbursing grant aid to eligible TRIO SSS participants since 2003, collecting data on both recipients and non-recipients each academic year, and reporting this information to the USDE as required. However, an analysis of the effects of the grant aid program on student persistence, graduation, and loan debt burden has never been undertaken at the institution. Likewise, the USDE has not issued updated guidelines for disbursement of grant aid based on collected data. As SSS grant budgets shrink in real dollars, the necessity of maximizing efficiency of each dollar becomes ever more important. The parameters of the SSS grant aid initiative are broad. Lacking outcomes data, best practices for allocation of limited funds within broad parameters cannot be established.

## **Purpose of the Study**

The purpose of this study was to determine whether the receipt of SSS grant aid affected student persistence, baccalaureate degree completion, and time to baccalaureate

degree completion among eligible students at GPU. A second purpose was to determine whether the receipt of SSS grant aid had any correlation to low-income students' loan burden upon exit from the institution.

### **Significance of the Study**

Studies on benefits of increased gift aid for low-income students are plentiful (Alon, 2011; Bettinger, 2004; Castleman & Long, 2013; DesJardins et al., 2002; Paulsen & St. John, 2002), but there is no existing research on this specific grant aid initiative within SSS projects. For individual SSS projects, information on the effects of grant aid on student outcomes could inform decision-making on the most efficient use of project funds. These data could also assist institutions and the USDE in determining whether the supplemental grant aid affects persistence and graduation or reduces loan burden. Because SSS projects are taxpayer-funded, project directors must be held accountable for their funding decisions and have the ability to demonstrate with data the effectiveness of their decisions.

The results of this study could provide SSS projects and university administrators with empirical data that can inform decision-making about grant aid distribution in future years and may act as a catalyst and tool by which other TRIO SSS administrators can likewise measure the effects within their own projects. Project directors have many students to serve, and access to such information could improve efficiency and impact outcomes for all.

### **Delimitations**

The scope of this study was limited to low-income first and second year SSS participants at a single institution: GPU. At GPU, the grant aid initiative began in 2003,

so data included in this study were limited to spring of 2003 through spring 2015. No attempt was made to identify reasons non-persisting students left the institution or account for the myriad other factors impacting student persistence.

### **Assumptions**

Assumptions were made that all archived data utilized in this study were entered accurately into GPU's information system and then accurately extracted and transferred into the data set for this study. As the intent of conducting the study was to determine the extent to which increased gift aid impacted low-income students' educational outcomes, it was assumed that the SSS grant aid was used by recipients for legitimate educational expenses. Further, it was assumed that students' financial aid award letters, by which unmet need was determined, fully reflected their existing gift aid and unmet need.

### **Research Questions**

In seeking to determine the effect of SSS grant aid, the following research questions guided the direction of this study:

**RQ1.** To what extent is there a relationship between receipt of SSS grant aid and persistence to the next academic year at GPU?

**RQ2.** To what extent is there a relationship between receipt of SSS grant aid and 6-year baccalaureate degree completion at GPU?

**RQ3.** To what extent is there a difference in time to baccalaureate degree completion at GPU between SSS grant aid recipients and eligible non-recipients?

**RQ4.** To what extent is there a difference in loan debt burden between graduating SSS grant aid recipients and eligible non-recipients at GPU?

## **Definition of Terms**

Several terms used within this study may have different definitions in other contexts. Definitions of terms as utilized in this study are provided for clarity.

**First generation student.** For the purposes of determining eligibility for participation in a federal TRIO program, a first generation student is:

- (a) an individual both of whose parents did not complete a baccalaureate degree;
- or (b) in the case of an individual who regularly resided with and received support from only one parent, an individual whose only such parent did not complete a baccalaureate degree. (HEA, 1965, §1070a-11, (h)(3))

**Grant aid.** For the purposes of this study, grant aid refers to the funds gifted to the SSS participant from the SSS project budget in cooperation with GPU's financial aid office. The amount may not exceed the Pell Grant amount for which the student is eligible but must be at least equal to the minimum Pell Grant amount for the academic year in which it is awarded.

**Loan debt burden.** For the purposes of the current study, loan debt burden is the total amount of federal student loan debt a student has accumulated upon graduation from GPU. Because students who withdraw prior to graduation do so at varying times, no adequate comparative measure is possible among those who leave prior to graduating.

**Low income student.** For the purposes of determining eligibility for participation in a federal TRIO program, a low income student is "an individual from a family whose taxable income for the preceding year did not exceed 150 percent of an amount equal to the poverty level determined by using criteria of poverty established by the Bureau of the Census" (HEA, 1965, § 1070a-11, (h)(4)).

**Persistence.** In this study, persistence refers to the re-enrollment of a student at GPU in the fall semester of the academic year subsequent to the last semester in which the student received grant aid. For almost all aid recipients, grant aid was last received during the second year of study, so persistence was measured by re-enrollment into the fall semester for the third year. The persistence of the comparison group of eligible non-recipients was measured by enrollment in the fall semester of their third year.

**Unmet financial need.** For the purposes of this study, unmet financial need is the difference between a student's cost of attendance and the gift aid on the student's financial aid award letter prior to the receipt of SSS grant aid.

### **Organization of the Study**

Provided in this chapter was background information on the TRIO SSS program and its grant aid component. A statement of the problem and the purpose of the study, as well as its significance to the existing body of knowledge, were also provided. Delimitations and assumptions were noted to frame the boundaries within which the study was conducted. The guiding research questions, definitions of key terms, and an overview of the methodology provided further structure for the study. Chapter two is a review of the existing literature of college access and success interventions, need-based financial aid and its relation to student persistence, and current trends in student financial aid. Detailed in chapter three is the methodology used to conduct the study, including the research design, selection of participants, measurement, data collection procedures, data analysis and hypothesis testing, and limitations of the study. Chapter four is a presentation of the results of the data analysis and hypothesis testing. Included in chapter

five are an interpretation of the results, summary of the findings in relation to the current literature, implications of the findings, and recommendations for further areas of study.



## **Chapter Two**

### **Review of the Literature**

Examined in this chapter are the historical and current challenges of college opportunity and success of low-income students. First, the historical context and current climate regarding college access and opportunity in the United States is presented. Second, the complexity of college persistence is examined with particular emphasis on challenges specific to low-income students and the role financial aid plays in persistence of students. Third, an examination of SSS programs is presented followed by an overview of the effectiveness of programs providing supportive academic services in conjunction with financial aid. Finally, recent trends in student financial aid impacting the current educational climate are explored.

### **College Access and Opportunity Background**

The concept of student-aid driven equity in higher education originated with the College Scholarship Service (CSS), an arm of the College Board, in 1954. The CSS was the first entity that sought to create a common metric for how much families could afford to pay for a student's education and determine how this gap – now widely referred to as unmet need – should be closed (McPherson & Schapiro, 1998). Though federal financial support for postsecondary education began in 1944, it was limited to military veterans through the Servicemen's Readjustment Act (Gladieux & King, 1999). It was the CSS needs analysis framework, developed by a cooperative of primarily northeastern private schools, which helped spur public support for federal aid for the general population and the eventual incorporation of need analysis elements into federal statute (McPherson & Schapiro, 1998).

Yet another decade would pass before federal financial aid actually became available to any eligible civilian with the passage of the HEA of 1965. The Educational Opportunity Grant and College Work-Study programs implemented with Title IV of the HEA were the first to provide federal aid to poor students who had previously been shut out of the higher education system (Gladieux & King, 1999). The original Educational Opportunity Grant program was specifically articulated to assist “students who ‘but for such aid’ would not be able to attend college” and participating institutions had to institute “‘vigorous’ efforts to identify and recruit students with ‘exceptional financial need’” (Gladieux, 2002, p. 54). The Pell Grant program was added to the HEA in the 1972 reauthorization. The impetus of each of these aid programs was the acknowledgement that, were it not for such assistance, a great portion of capable, desiring students in our nation would not have access to the postsecondary education necessary to escape poverty and contribute their talents to society. In his comments upon signing the HEA on November 8, 1965, President Lyndon B. Johnson remarked:

The President’s signature upon this legislation passed by this Congress will swing open a new door for the young people of America. For them, and for this entire land of ours, it is the most important door that will ever open – the door to education. ...this act means the path of knowledge is open to all that have the determination to walk it. ...It means that a high school senior anywhere in this great land of ours can apply to any college or university in any of the 50 States and not be turned away because his family is poor. ...[It] will provide scholarships and loans and work opportunities to 1 million of that 1.3 million that did not get to go on to college [last year]. ...education is no longer a luxury.

Education in this day and age is a necessity. ... We will reap the rewards of their wiser citizenship and their greater productivity for decades to come. ... it is the obligation of your Nation to provide and permit and assist every child born in these borders to receive all the education that he can take. (Johnson, 1965, paras. 1, 3, 5, 8, 9, 14, 45)

The HEA also authorized the first of the programs that, over time, became known as TRIO. The HEA chapter on Student Assistance – commonly referred to as Title IV – from which both student financial aid and TRIO programs originated, is “one of the HEA’s most enduring influences on federal education policy” (Brown, 2016, p. 5).

**Continuing disparities.** Despite the promises of the HEA – and the resources committed to it, there is overwhelming evidence that disparities in college opportunity still exist between the wealthy and the poor:

Today’s challenges bear a striking resemblance to those faced... when the nation’s first comprehensive commitment to access to higher education was articulated in the Higher Education Act of 1965. This legislation was propelled by concerns that are virtually identical to the challenges that face our nation today. (Fitzgerald & Delaney, 2002, p. 4)

Census data from 1960 showed wealthy students were more than four times as likely to attend college compared to their low-income peers (Fitzgerald & Delaney, 2002). More recently, Calahan and Perna (2015) found that only 45% of 18- to 24-year-olds from families in the lowest income quartile were enrolled in college in 2012, though 81% of individuals in the same age range from the top income quartile were enrolled. Gladieux (2004) noted the disparity in overall college-going rates and in selectivity of

institutions attended, with higher-income students overwhelmingly outpacing lower-income students in selective baccalaureate programs and lower-income students being disproportionately represented at community colleges. He further asserted that “the most important question is whether students complete their programs – at whatever level – and receive their degree” (Gladieux, 2004, p. 21). Disparities continue to grow, as well, in the extent of financial burden that college attendance places on families of differing income levels. In 2012, the average net price equated to 84% of annual family income for students from the lowest income quartile, yet only 15% of annual family income for students from families in the top income quartile, representing a significant growth in the gap from 1990, when the amounts were 45% and 10%, respectively (Calahan, Perna, Yamashita, Ruiz, & Franklin, 2016).

**Aspirations.** Disparities in attainment are not for lack of aspiration by students from all income levels. There is not an aspiration gap between low-income students and others with regard to desire to attain a bachelor’s degree, but rather in their opportunities to realize their aspirations (Bowen, Chingos, & McPherson, 2009). Yet, while parental income has no correlation to students’ educational aspirations upon entry into high school, parental income does correlate to a student’s actual likelihood of entering postsecondary education as well as what type of institution a student is most likely to attend (Hossler, Schmit, & Vesper, 1999).

In the 51 years since the enactment of the HEA, the U.S. has not been able to overcome the challenges the legislation was intended to combat. “While the idealism and promise of college as a ‘path of knowledge’ to a brighter future live on, so too do the conditions that the Higher Education Act was meant to combat” (Brown, 2016, p. 3).

## **Complexity of Persistence**

College completion rates are a source of consternation for a myriad of college administrators and public officials and have been for decades. As early as 1975, theories were developed regarding student persistence. Astin (1975) conducted a seminal study that was “longitudinal and multiinstitutional” (p. 3) investigating why students drop out. He categorized students as persisters, dropouts, and stopouts, acknowledging “the complexity of the dropout phenomenon” (p. 14) in identification of 110 variables in six general categories - academic background and ability, family background, educational aspirations, study habits, expectations about college, and other student characteristics – that may contribute to a student’s persistence decisions. Astin (1975) concluded that simply comparing groups of students who drop out to those who do not based on a single criteria is a “crude approach” (p. 23) and likely biased unless it is also “possible to develop independent estimates of each student’s proneness to dropping out” (p. 23) and that, in the absence of true experimentation, any correlational study should be cognizant of the myriad factors affecting students beyond those being studied.

Educational theorist Tinto has extensively studied student departure from higher education. He asserted that a significant amount of research on student retention and attrition is based upon a flawed assumption that understanding why some students leave is equivalent to understanding what makes others persist (Tinto, 2012). Too often, administrators try to increase student persistence based on what they learn about retention. “Retention is not the mirror image of drop-out; the factors that help explain why students leave are not the same as those that explain an institution’s ability to help students stay and graduate” (Tinto, 2003, p. 2). Studies on strategies that garner results in

persistence, which are often limited in scope, leave administrators with a knowledge base that is often “fragmented and poorly organized” (Tinto, 2012, p. 5).

Tinto (2005) noted that, too often, institutions seek to narrow the gaps between access and completion with add-on services at the fringe of the institution rather than overhauling their approach to student persistence and completion. As a result of marginalization, these programs have limited impact (Tinto, 2012).

To promote greater student success, institutions have to take seriously the notion that the failure of students to thrive in college lies not just in the students but also in the ways they construct the environments in which they ask students to learn. Institutions have to believe that all students, not just some, have the ability to succeed under the right set of conditions—and that it is their responsibility to construct those conditions. (Engstrom & Tinto, 2008, p. 50)

Attewell, Heil, and Reisel (2011) determined that each of eight distinct variables were statistically significant in contributing to non-completion of students attending 4-year institutions: race and gender, family socioeconomic status, academic preparation, nontraditional student status, (need-based) financial aid, academic and social integration, and hours worked. Chen and St. John (2011) also found social integration to be an important predictor in student persistence. While noting that high school preparation was the strongest predictor of bachelor’s degree completion, Attewell et al. (2011), like Astin (1975) and Tinto (1993), pointed to the complexity of persistence for students with one or more risk factors. Attewell et al.’s (2011) measurement of financial aid included need-based aid only. Merit-based aid was excluded.

Breier (2010) challenged the relative lack of consideration given to financial matters in Tinto's (1993) theory of student departure, noting that financial factors are more complex and situational-specific than acknowledged by Tinto. Breier (2010) disagreed with Tinto's (1993) assertion that "citing financial reasons for leaving is simply another way of stating...benefits...do not outweigh costs" (qtd. in Breier, 2010, p. 659). In a mixed-methods study, Breier confirmed some tenets of Tinto's theory, specifically noting that finances are a strong consideration for students in low-socioeconomic groups not only in choice of institution but also persistence and that work-study opportunities are beneficial. However, Breier concluded that Tinto's theory, overall, lacked sufficient consideration of the significant role of finances for students from the lowest socioeconomic backgrounds.

St. John, Cabrera, Nora, and Asker (2000) also delved into the role that finances play in students' persistence decisions, noting that economic studies of student departure consider not only ability to pay, but also perception of ability to pay. Economic theories alone fall short of capturing the clear picture of why students leave. Finances interact with other factors in a complex way that cannot be distilled into simply 'economic factors' in most cases.

### **Challenges Specific to Low-Income Students**

While persistence is a complex phenomenon, low-income students face more known risk factors than their wealthier peers and their outcomes are abysmal in comparison. As recently as the late 20<sup>th</sup> century, students from families in the lowest income bracket were eight times less likely to complete a bachelor's degree than those from wealthier families (Zusman, 1999). The completion rates of privileged college

students have been reported to range from 55% to 60% in several recent studies (Cabrera, Burkum, & La Nasa, 2005; Calahan & Perna, 2015; Kena et al., 2015). However, baccalaureate degree attainment rates are substantially lower for low-income students, ranging from 26% (Calahan & Perna, 2015) to only 7.5% (Castleman & Long, 2013; Tinto, 2012). Bowen et al. (2009) found stark disparities between low-income students and their wealthier peers not only in degree completion rates but in time to degree, noting that, even when controlling for pre-college standardized test scores, gaps remain between equivalent scoring students from the two ends of the income spectrum. Regardless of actual disparities, it is clear that poor students both enter and complete college at substantially lower rates than their wealthier peers. In fact, Tinto (2012) compared TRIO-eligible students to those who are not eligible for TRIO services to explore differences in student persistence and completion rates. Tinto (2012) found that:

Among four-year institutions there were too few first-generation college and low-income students of middle-high or high ability to be included in the data. That fact alone is a telling reminder of the association between social status broadly understood and the ability of students to acquire academic skills. (p. 131)

Of the many persistence factors aforementioned, low-income students are most likely to experience a far greater number of them than their wealthier peers and financial considerations serve to exacerbate other persistence-related factors. For example, in an effort to reduce expenses, low-income students are more likely than high-income students to live off-campus, whether at home with parents or in an apartment, during their first year of college (Bozick, 2007). Bozick found that students who live with their parents are 41% less likely to complete even their first year of college than those who live on



campus, because they are less integrated into the campus culture and have less access to campus resources. Gladieux (2004) reported similar findings:

To fill the gap, students with unmet need often must make extraordinary efforts to stay in their programs, attending part time and intermittently, stretching out their education, living off campus, working long hours, and going into debt. Yet, the probability of their persisting and completing their degrees declines as a result of such patterns. (p. 28)

As a result of socioeconomic background, low income students are more cost-sensitive, have a greater susceptibility to opportunity costs and tend to have a longer time to degree completion relative to their middle- and upper-income peers.

**Cost sensitivity.** Low-income students are more responsive to changes in tuition and net price than their higher income peers, and, for this population, perceived financial barriers can be just as daunting as actual financial barriers (Douglass & Thomson, 2012; Gladieux, 2004). Chen and St. John (2011) found “a one percent increase in the ratio of state need-based aid to tuition is related to a 2% increase in the odds of persistence” among students with financial need (p. 653). Conversely, several studies have found that each \$1,000 increase in cost equated to a decreased likelihood of persistence and graduation among low-income students (Bowen et al., 2009; Jones-White, Radcliffe, Lorenz, & Soria, 2014; McPherson & Schapiro, 1998; Paulsen & St. John, 2002). Bowen et al. (2009) concluded that “policy choices about pricing and aid can make a material difference in students’ likelihood of completing college” (p. 184).

Paulsen and St. John (2002) further found that low-income students are also not likely to persist when financial aid is inadequate. Evidence suggested that students are

not always aware of aid available to them. Even when aware of financial aid options, low-income students often are resistant to student loans (Bozick, 2007). Low-income students are less likely to borrow student loans than other students and, when they do borrow, they borrow lower amounts (Burdman, 2005). The debt-aversion mindset of many impoverished families reduces access to higher education for low-income students. These families' lack of understanding about the complexity of student loans and their apprehension about loan debt burden both act as disincentives to attending college (Burdman, 2005). According to Calahan et al. (2016), while some low-income families may be debt-averse, low-income students, on average, borrowed more in 2012 than did students from other income groups. This finding contradicts what Burdman (2005) previously found. Calahan et al. (2016) claimed Pell grant recipients who borrowed loans owed, at the time of bachelor's degree completion, an average of \$31,007, while non-Pell recipients owed \$27,443.

The financial factor often means that low-income students experience constrained choices of institutions. They choose schools with lower tuition and fees that are closer to their geographic location than their more affluent peers (Douglass & Thomson, 2012; Paulsen & St. John, 2002). Douglass and Thomson (2012) also found that financial factors cause students to choose less-competitive schools or delay college-going altogether. Paulsen and St. John (2002) found that pricing and aid have an impact on time to degree completion, noting that "even temporary financial disruptions are likely to prove real set-backs for students seeking to graduate in four years who are struggling to make ends meet" (p. 184). The ultimate outcome of both these studies is that fewer low-income students ever attain a bachelor's degree. Even so, while net costs can and do

influence student persistence, they do not explain all differences in persistence based on socioeconomic status (Ehrenberg, 2007).

**Opportunity costs and workload.** Opportunity cost is the largest cost to students who fail to complete a degree after enrolling in postsecondary education, particularly for those students from low-income families and independent, working adults who return to school (Baum, 2015). Low income students are apt to weigh not only the costs of attendance, but also the significant opportunity costs associated with enrollment and persistence. Opportunity costs, including lost income by not pursuing immediate full-time employment, far exceed the out of pocket expenses incurred (Schwartz, 2007). These opportunity costs – real or perceived – combined with unmet need often result in a decision to discontinue postsecondary education or to assume an ill-advised workload while enrolled.

Working more than half-time has consistently been shown to have a negative impact on persistence (Astin, 1975; Bozick, 2007; Corrigan, 2003). Combining excessive work hours with off-campus housing further diminishes a low-income student's likelihood of persistence through the first year of college (Bozick, 2007). Williams (2013) succinctly concluded that “you don't need a PhD to realize that neither debt nor excessive work during school cultivates good educational outcomes” (p. 64).

**Time to degree.** Gladieux (2004) noted that low-income students are “much more likely than not” (p. 22) to delay college entry or attend part-time, both of which are associated with lower persistence rates. Students who are able to persist continuously without stopping out are more likely to graduate than those who stop out one or more times, and the longer a student can stay enrolled without stopping out, the greater the

student's chance to graduate (DesJardins & McCall, 2010). A study of the Rutgers University SSS program indicated that, while the USDE measures 6-year graduation rates, a substantial number of students complete their undergraduate work in an even longer time-frame. Over a 13-year period, the mean 6-year graduation rate of SSS students was 56.2% (Thomas, Farrow, & Martinez, 1998). However, more than 10% of the eventual graduates took longer than six years. Time to degree completion is a significant challenge for low-income students. They often experience periods of stop-out on their way to eventual degree completion which further subjects them to increased loan burden. A strong correlation exists between time to degree and student debt level (Baum et al., 2015). Thirty-six percent of 2011-2012 college graduates who completed within four years of entry accumulated no loan debt and only 19% had \$30,000 or more debt. In contrast, only 25% of those who took six years to complete were debt-free, and 33% had over \$30,000 loan debt (Baum et al., 2015).

### **Financial Aid as a Factor in Student Persistence**

The true purpose(s) of financial aid have not always been clear. Astin (1975) identified several possible purposes, among which there is significant incongruence: to provide access, assure that students complete studies, reward merit, incentivize performance, influence choice, or redistribute wealth. Alon (2011) asserted there is a dual purpose: to reduce financial constraints to access and also increase the amount of time that can be dedicated to academics by reducing the amount of time a student has to spend working. Yet, as the costs of attendance rise and financial aid fails to match tuition hikes, resources are depleted, increasing low-income students' unmet need and their pressure to exit college (Alon, 2011).

The complexities of analyzing the effects of financial aid on student persistence because of many other factors have not gone unnoticed (Alon, 2005; Astin, 1975; Castleman & Long, 2013; Chen & DesJardins, 2008; DesJardins et al., 2002; Dynarski & Scott-Clayton, 2013). Specifically, Astin (1975) explored the complexities of analyzing the effects of scholarship aid on a student's persistence, noting that each student's proneness toward dropping out, determined by examining 110 personal characteristics, would have to be calculated before factoring in gift aid information to establish a true causality of the aid toward persistence. Determining whether aid impacts a student's decision to persist or drop out of college cannot be made easily. Even a single variable, such as the receipt of financial aid, does not occur in isolation. As Castleman and Long (2013) asserted, it is "methodologically difficult to separate out the unique effect of grant eligibility from all of the other factors that influence whether students succeed in college" (p. 6). DesJardins et al. (2002) and Dynarski and Scott-Clayton (2013) noted the effects of any one aid program on student outcomes is difficult to extrapolate from others when differing types of aid are packaged together. Yet the viability of a given aid program is predicated on its ability to prove effective in an economic and political environment in which accountability is demanded.

Given the complexity of correlating aid receipt to persistence and completion, it is not surprising that the attempts to do so have resulted in widely varying outcomes. Astin (1975) was one of the first to investigate the effectiveness of aid in increasing persistence. At the time of Astin's study, evidence indicated that grant aid could be credited for only slight increases in student persistence, and it was more likely to be effective as a greater, sole source of aid rather than packaged as one of several sources in

an aid package. Aid packages that combined more than one type of aid, and specifically those that combined loans and grants, had a negative effect on persistence. In Astin's study, work-study was the type of aid associated with the greatest student persistence.

The composition of aid packages has also been explored by others. Hossler, Ziskin, Kim, Cekic, and Gross (2008) posited several findings regarding effects of aid on persistence. Notable among them was a positive correlation between amount of aid and persistence, with single-source aid having a more positive effect than a compiled aid package. Cabrera et al. (2005) found students receiving grants and loans were more likely to persist to completion than those who do not. Nora, Barlow, and Crisp (2006) followed an entering class of first-time freshman for six years and discovered that, while grant aid remained relatively constant throughout the 6-year period, the dollar amount of loans received, and percentage of aid package comprised of loan dollars, increased significantly over time and became the primary source of aid by year four. Those who persisted were the ones who had lower loan amounts, proportionate to their overall aid package, than did those who departed each year.

Loan debt and persistence has been a common topic of study. DesJardins et al. (2002) found a positive correlation between loan burden and likelihood of students stopping out, but a negative correlation between gift aid and likelihood of stopping out. There was no direct correlation between financial aid of either type and graduation, though the negative correlation between stopping out and graduating resulted in an indirect relationship between aid and graduation. Paulsen and St. John (2002), however, found that both grants and loans were negatively correlated with persistence. They concluded this was an indication that these aid sources were inadequate to meet the

students' needs. The Maryland Higher Education Commission (2014) found that, statewide among students enrolled at 4-year public institutions, loan debt was not correlated to completion rates in any income group. However, unmet need had a demonstrated negative correlation to graduation. Low-income students who borrowed enough in student loans to negate unmet need had better graduation outcomes than those students whose need remained unmet. Alternately, in a study of a single institution, Jones-White et al. (2014) found higher levels of unmet need and debt were correlated to declining completion rates and that students with significant debt were more likely than debt-free students to discontinue their education.

Scott-Clayton (2011) found in a state-wide study of West Virginia's PROMISE grant program that aid had no effect on persistence, but did have a statistically significant positive impact on bachelor's degree completion. Results also showed the grant aid increased credits earned in the first year and decreased both time to completion and loan burden. No differences in outcomes were noted with regard to recipients' financial need.

Cabrera, Nora, and Castaneda (1992), Nora et al. (2006), and Hossler et al. (2008) all explored the relationship between aid and persistence. These researchers determined aid to be an indirect psychosocial benefit in that aid allows students the opportunity to become more fully engaged in social and academic aspects of the university experience by reducing unmet need and freeing time from work, thus promoting performance and commitment to persistence.

### **Need-Based Aid and Persistence**

Because of the historical, and potentially current, role of financial aid as a way to level the field among the rich and poor with regard to educational opportunity,

researchers (Alon, 2005, 2011; Braunstein, McGrath, & Pescatrice, 2000; Marx & Turner, 2015; Mundel, 2008) have sought to determine whether need-based aid does, in fact, play a role in reducing persistence and attainment gaps. As with studies of financial aid in general, there are conflicting study results as to whether need based aid is effective in helping students persist through graduation. Mundel (2008) noted that, of the existing studies, the ones that were the most rigorous in methodology have been the ones that showed the greater impact on persistence.

Braunstein et al. (2000) studied the impact of financial aid on persistence of first year low-income students to the second year of study at a single 4-year institution and found that financial aid had no statistically significant relationship to persistence. Their study was done in light of the lack of single-institution studies on the topic, noting that “well-conceived institutional research on the impact of aid is needed” (p. 194) since most studies use national data. Institutional research also allows for nuances of specific aid distributions in specific settings.

Alon (2005) found that receipt of grant aid based on financial need helped to partially mitigate the difference in lower rates of persistence and completion that low-income students experienced compared to more affluent peers. In another study, Alon (2011) also found a gap in degree attainment between low-income students and their wealthier peers even with financial aid, but concluded that the difference would have been greater without the aid. Marx and Turner (2015), however, found that additional grant funding had no statistically significant impact on student attainment as measured in credit hours or performance.



Several experimental or quasi-experimental studies have examined how an increase of \$1,000 in grant aid can impact persistence (Alon, 2011; Bettinger, 2004; Castleman & Long, 2013; Goldrick-Rab, Harris, Kelchen, & Benson, 2012). Castleman and Long (2013) found that additional gift aid in the amount of \$1,000 during a student's first year increased not only enrollment in 4-year institutions of postsecondary education, but also persistence and bachelor's degree completion rates. They concluded that there could be positive impacts on college persistence and completion, and thus return on investment, for institutions increasing the amounts of need-based awards for lower-income students. Similarly, Bettinger (2004) found that a \$1,000 increase in a student's Pell Grant award decreased likelihood of withdrawal between the first and second year of postsecondary education. Goldrick-Rab et al. (2012) studied a private, last-dollar, need-based grant program in its initial years of implementation and found that increased aid of at least \$1,000 had a positive effect on student retention from first to second year, though the impact did not appear as strong in persistence to the third year. They further found that the aid program reduced, on average, approximately \$1,000 in student loans. The greatest impacts were seen in those students who had increased total aid by loans not being crowded out, concluding that "Pell recipients benefit from having more dollars in hand during college, even though down the road it means they will have more debt as well" (Goldrick-Rab et al., 2012, p. 20). DesJardins and McCall (2010) found all types of financial aid, provided in increments of \$1,000, to be correlated with preventing stopout, though grant aid and merit aid showed larger reductions in likelihood than did loans or work study. Grant aid was particularly beneficial to preventing stopout early in the college experience. Frontloading aid into the first two years slightly reduced the

likelihood of graduating. Additionally, Alon (2011) found the persistence of those who are just on the cusp of being aid-eligible to be particularly reactive to incremental changes in aid, with a 13% increase in persistence with the addition of \$1,000.

Noel-Levitz (2007) found low-income students attending public institutions persisted from the first to second year at a rate of 80% when sufficient need-based aid (gift aid or subsidized loans) was offered to cover 72% of their need, whereas only 67% persisted if less than 72% of their need was covered with need-based aid. A later study (Crockett, Heffron, & Schneider, 2011) confirmed that, the greater the percent of need covered with gift aid, the more likely a low-income student was to persist. However, the return on benefit to grantors began to diminish after 60% of individual students' need was met. The authors found that those students who received a very high percent of gift aid were most likely to persist regardless, as they were higher achievers receiving merit-based gift aid in addition to need-based gift aid. For maximum retention benefit at the institutional level, Crockett et al. (2011) concluded that need-based aid is more wisely invested in those students who have not yet met a 60% threshold of need covered rather than supplementing those for whom 60% or more is already covered.

A study of effects of a scholarship provided to low-income community college students showed statistically significant differences in credit accumulation and associate's degree completion between treatment and control groups, with potential implications for need-based aid reducing time to graduation (Mayer, Patel, & Gutierrez, 2015). Treatment group students also reduced loan burden during the year they received additional gift aid. However, the study showed no impact on students' persistence to the next academic year. Mayer, Patel, Rudd, and Ratledge (2015) examined performance-

based scholarship (PBS) programs for low-income students in six states and found that, as a whole, PBS programs increased students' credit accumulation, had a modest but positive impact on degree attainment while increasing aid overall and decreasing loan debt.

Chen and DesJardins (2008) found that academic integration during the first year of study and receipt of need-based gift aid mitigated the persistence rate differences between low-income students and their wealthier peers. Specifically, Chen and DesJardins (2008) found that “the negative relationship between parental income and the risk of student departure was moderated by receipt of the Pell grant” (p. 14). Chen and DesJardins (2008) noted:

Among students who do not receive a Pell grant, low-income students have higher probabilities of dropping out than their middle-income peers. However, conditional on Pell grant receipt, the predicted probability of dropping out for low-income students is actually lower than that of their middle-income counterparts. (p. 14)

A relevant finding of the Chen and DesJardins research was that academic integration, and not gift-aid alone, impacted the likelihood of persistence.

### **Student Support Services**

Institutions of higher education offer a menagerie of academic support programs with sources of funding that are just as varied. The TRIO SSS grants serving students at approximately 1,000 institutions nationwide are one such support system, but they serve only a fraction of the total population of eligible students.

**Success of Student Support Services program.** SSS services vary widely, both among SSS projects at different institutions and in individual services provided to different students within one SSS project at a single institution. It is difficult, at best, to measure an average effect of SSS on student outcomes because of the variance in services and programs (Chaney, Muraskin, Cahalan, & Goodwin, 1998). Chaney et al. (1998) classified SSS projects into three types: dominant service, which focuses primarily on a single service while offering other services as needed but with much less emphasis; all-service programs, in which the SSS project is the only provider of supplemental services at an institution; and home-based projects, which provide an array of services for development of the student holistically from one location on the campus. Differences exist among individual projects in the extent and variety of services and the degree to which services are blended with other institutional services. Differences also exist in the number and frequency of services students utilize from one SSS project to another.

In 2010, the final report of a longitudinal study of SSS students compared to non-SSS students revealed that participation in SSS had a positive effect on retention and degree attainment (Chaney, 2010). Chaney (2010) found that 37% of the SSS participants had completed a bachelor's degree within six years, compared to 25.7% of low income students during the same time period. Another 25% of SSS participants were still enrolled in college at the 6-year mark. Not all of the outcomes between SSS students and non-SSS students, however, could be definitively attributed to services received by SSS. Home-based SSS programs, characterized as those offering participants a wide range of services for a holistic experience all from one centralized location, were shown to produce statistically significant results in helping students persist (Chaney, 2010).

A descriptive comparison of SSS participants compared to similar students from a national sample was published by the USDE Office of Postsecondary Education (2015) indicating that students who participated in SSS at 4-year institutions had a higher rate of persistence from first to second year than eligible students from a national sample (93% compared to 79%) and a higher rate of bachelor's degree completion within six years (48% to 40%, respectively). By extracting only those students who attended public institutions, the disparity grew larger, with 50% of SSS participants completing a degree and only 39% of the students in the national sample. The report also acknowledged that "the percentage of SSS participants who completed a bachelor's degree by the end of the sixth year of college may be underreported" (USDE, Office of Postsecondary Education, 2015, p. 13). It was concluded that SSS participants persist and achieve bachelor's degrees at higher rates than similar students who did not use SSS services.

**Proven interventions and services in TRIO SSS projects and other EOP programs.** Chaney et al.'s (1998) longitudinal study indicated that participation of first-year students in SSS courses and peer tutoring services had positive effects on retention to the second and third year. Counseling alone was found to be ineffective in increasing retention but, in conjunction with other services, counseling was shown to be effective in increasing retention.

Chaney (2010) also noted in the USDE report on the SSS program the impact of specific services provided. Specific services that were statistically significant in improving one or more distinct outcomes included counseling, tutoring, and contacts with service providers after the first year of enrollment. Supplemental services provided to students after the first year of college enrollment had a stronger correlation to long-term

outcomes than those provided in the first year (Chaney, 2010). One explanation provided for this finding was that, due to the emphasis institutions placed on the first year experience, the array of SSS and non-SSS services provided to first year students at an institution was greater than those provided in subsequent years. Therefore, it was more difficult to differentiate the effects of SSS services from non-SSS supplemental services in the first year. The report on the longitudinal study also indicated that a tailored combination of services was more beneficial than any single service (Chaney, 2010).

Beyond the USDE's reports (Chaney, 2010; Chaney et al., 1998) on the SSS program, literature published about empirical studies of SSS is scarce. Ruiz (2008) reviewed the existing literature on SSS programs and lamented the "dearth of research, conflicting educational outcomes, and policy implications" (p. 629). The vast majority of studies into specific SSS projects and services have focused on projects located in community colleges, where the outcomes are, by their very nature, different than those of 4-year institutions.

Thayer (2000) noted that successful interventions are the ones that intentionally address the obstacles facing first-generation, low-income SSS students, such as lack of financial resources, knowledge of the campus environment, and family support. Interventions must be multi-faceted, easing the transition and cultural conflict students experience. Structured interventions promote positive academic experiences and a sense of social competence. The development of learning communities tailored to the institutional environment was identified as among the most effective strategies of SSS programs for promoting persistence (Thayer, 2000).

Engstrom and Tinto (2008) conducted a longitudinal study of both 2- and 4-year institutions, finding that low-income students who were academically under-prepared at the time of college entry were more engaged, felt more supported, perceived greater intellectual growth, and were more likely to persist if they participated in a learning community than if they did not. Though this study was not specific to SSS students, the populations and services were similar. Specific factors in the success of learning communities were identified as students feeling supported and validated by peers and faculty whom they came to trust, the willingness to take risks in a supportive environment, and linking to other campus support services (e.g., weekly tutoring). In combination, these services led to a greater sense of belonging and confidence by the students (Engstrom & Tinto, 2008).

Filkins and Doyle (2002) found that, in addition to high impact practices such as collaborative learning and interaction with faculty, the perceptions TRIO-eligible students have of the support they receive for both their academic and co-curricular pursuits has great influence on the students' gains in both intellectual and personal development. Grant-Vallone, Reid, Umali, and Pohlert (2003) found a positive correlation between the frequency of use of educational opportunity program (EOP) services and the level of social adjustment low-income students experience. However, there was no direct relationship between academic adjustment reported by students and their use of EOP services. Grant-Vallone et al. (2003) concluded that it is vital for educational support services on campuses to ensure that they either provide social activities or help connect students to such activities available elsewhere on their campuses to maximize the social adjustment necessary for persistence.

## **The Intersection of Financial and Non-Financial Support**

Title IV of the HEA authorized both financial supports, by way of financial aid programs, and academic supports, by way of TRIO programs, in recognition of the need for both financial and non-financial support structures to ensure successful college completion for low-income, often underprepared, students. Baum (2015) noted that one of the deficiencies of the Pell Grant program alone is that it provides funding without any support mechanisms to ensure students' academic success and completion. It is not solely the federal government, however, that recognizes this important combination of supports.

Deming and Dynarski (2009) reviewed a variety of educational opportunity programs and found that the greatest persistence outcomes by low income students occurred when interventions such as mentoring, participation in learning communities, and extensive monitoring were provided in conjunction with increased gift aid. The combination of aid and services was noted to be more effective than either aid alone or services alone. Likewise, Dynarski and Scott-Clayton (2013) concluded that gift-aid programs tied to academic incentives were particularly effective.

Clotfelter, Hemelt, and Ladd (2016) investigated the outcomes of the Carolina Covenant, an institutional initiative for low-income students that combines financial assistance – meeting all financial need for participating students – with supporting services such as enhanced advising, faculty or peer mentoring, academic success workshops, financial literacy, and personal and career development opportunities. They found that the Carolina Covenant increased persistence to the fourth year of college and that participating students were almost 8% more likely to graduate in four years



compared to their non-participating peers. By comparing outcomes of students in the early years of the program during which the financial assistance was the primary service to more recent cohorts of students who benefited from re-designed academic and social supports, Clotfelter et al. (2016) concluded that it is the combination of financial assistance and non-financial services together that boosted the outcomes:

It is the interaction of appreciable additional need-based aid and non-financial (academic and social) supports that can improve graduation rates and academic performance of low-income, high ability students.... (p. 25)

Clotfelter et al. (2016) further calculated that, on average, the additional costs incurred for such a program at a state institution are recovered within two years by each graduate's employment differential compared to that of a non-graduate, concluding that "though programs that combine need-based financial aid with an array of non-financial supports are usually more costly than initiatives that employ only one type of support, the investment in such mixed aid programs appears to be justified" (p. 29).

In an experimental study comparing persistence and performance of students offered academic support, a financial incentive of \$1,000-\$5,000, both, or neither, Angrist, Lang, and Oreopoulos (2009) found that service use was higher among those students who were also offered the financial incentive – even though the financial incentive was not predicated on use of services – compared to those who were offered services alone. The researchers suggested that the opportunity for increased financial support was motivational to students. Differences in academic performance, as measured by grade point average (GPA), were statistically significant only for students offered services and financial incentive. In addition, though the interventions were offered only

during the first year of study, the students who received both academic and financial support had higher GPAs at the end of their second year, suggesting that the combination of supports had a lasting impact, though the study did not follow students beyond the end of the second year to measure completion outcomes.

The Vision Inspired Scholarship Through Academic Achievement (VISTA) program at the University of New Mexico combined supplemental gift aid with enhanced advising services for low-income students during the first two years of enrollment (Binder, Krause, Miller, & Cerna, 2015). The VISTA program offered an immediate, direct financial incentive to enroll in and successfully complete additional credit hours (a minimum of 15 per semester). Outcomes of the VISTA randomized control trial demonstrated no increase in student persistence for the treatment group from the first to second year. However, the number of credit hours attempted and earned over the course of the first four semesters of enrollment increased. A statistically significant difference in the 5-year graduation rate was also observed between the treatment and control groups. The VISTA treatment group also had reduced loan debt burden compared to the control group, though aid packages during semesters subsequent to VISTA eligibility were “indistinguishable” (Binder et al., 2015, p. 24) from those of the control group. Differences observed between treatment and control group members, as reported via surveys and focus groups, primarily included the advising experience, with treatment group members reporting being more satisfied with advising. The treatment group also found the advising process to be more beneficial. The researchers suggested that similar outcomes could even be achieved with the same enhanced advising and enrollment requirements but less aid per student.

## **Trends in Student Financial Aid**

Recent trends in student financial aid include a shift away from need-based aid toward both merit-based aid and loans. Spencer (2002) noted “The antipoverty origins of the 1960s legislation have faded into history, as eligibility for federal assistance has been extended up the economic scale” (p. 166). Douglass and Thomson (2012) noted the inadequacies of our nation’s financial aid system for low-income students, particularly as demand for access has increased. As the economy plummeted in 2008, the number of Free Application for Federal Student Aid (FAFSA) applicants eligible for Pell Grants exceeded anticipated demand by 800,000. Meanwhile, costs continued to outpace aid, particularly for low-income students. Average cost of attendance for full-time students living on campus at public, 4-year institutions in 2013-2014 was \$22,190 and the average net price was \$12,890 (Kena et al., 2015). The average net price for students in the lowest income bracket was \$9,530, yet the average federal grant for students attending public institutions was only \$4,579.

In 1987, the Pell grant covered 50% of total expenses at a public 4-year institution, but by 2009, the portion covered had declined to only 35% (Alon, 2011). By 2015-2016, the maximum Pell Grant covered, on average, only 30% of total direct costs inclusive of room and board (Baum et al., 2015). Eight point two million students – approximately 35% of all undergraduates – received Pell grants in 2014-2015, up from 5.3 million a decade earlier (Baum et al., 2015). In 2014-2015, total student aid inclusive of all types totaled approximately \$250 billion (Baum et al., 2015).

**Shift from need-based to merit-based aid.** Changes over time to the HEA have eroded the original intent of federal financial aid as assistance for those who, without the

aid, could not attend college. “The result has been to spread available aid more thinly, shifting scarce aid dollars up the income scale, at the expense of less well-off students” (Gladieux, 2004, p. 34). One such addition to the conglomerate of student financial aid programs included tax incentives beginning in the 1990s. Incentives included both non-refundable tax credits, such as the Hope (later renamed American Opportunity Tax Credit) and Lifetime Learning Credit, and tax deductions (Dynarski & Scott-Clayton, 2013). These programs began with the Taxpayer Relief Act of 1997, which created the mechanism for tuition tax benefits (Gladieux, 2002). Government support of college expenses also expanded to include tax-sheltered savings programs. Together, these regressive policies that disproportionately benefit middle- and high-income families with the lowest need combine for a total cost approaching that of the Pell Grant program (Deming & Dynarski, 2009; Zhan & Lanesskog, 2013). By 2014-2015, subsidies in the form of tax credits and deductions accounted for nearly 40% of the total amount of federal grant aid (Baum et al., 2015). This is a direct counter to the HEA’s direct appropriations for students based on need.

Grant aid offered by state programs has more than doubled since 1980 (Dynarski & Scott-Clayton, 2013), though much of the funding is merit-based rather than need-based. In 1981, 91% of state grants were need-based, but that rate dropped to 72% by 2007 (Alon, 2011) as political pressure from more affluent constituents influenced a shift toward merit-based aid. Merit aid is no longer exclusively for only the highest-achieving students, yet statewide programs aimed at increasing college-going still disproportionately favor students from upper-income families (Dynarski, 2004). Alon (2011) found that approximately 25% of state and institutional need-based aid was

allocated to students who did not qualify for Pell grants. Alon (2011) asked: “how much of the persistence gap among the income groups could have been avoided if the funds allocated to affluent students had been redirected to supplement the aid of low-income students?” (p. 816) given that there was no difference in persistence among students in the top quartile with the addition of need-based aid. Titus (2009) found that state-appropriated need-based aid had a positive effect on bachelor’s degree completion. Titus (2009) and Sjoquist and Winters (2015) found merit-based aid produced no statistically significant effect on completion. In fact, statewide large-scale merit-aid programs that resulted in decreased need-based aid opportunities and increased tuition costs ultimately decreased college access for low-income students (Dynarski, 2004). Merit aid, though more costly than need-based aid, continues to expand for several reasons: broader political support exists for merit-based aid than need-based aid, the application process is generally less complex, and it is easier for individuals of all backgrounds to understand than tuition discounting at state institutions (Dynarski, 2004).

The effects of increased merit-based aid on need-based aid are unclear or inconsistent at best. Doyle (2010) found no evidence that the rise in state-funded merit-based aid actually reduced state-funded need-based aid. This is in sharp contrast to what Dynarski (2002) learned about the Georgia HOPE merit-based scholarship. The HOPE scholarship resulted in reduced need-based allocations by the state and disproportionately helped higher-income youth. In its earliest years, the HOPE program directly disadvantaged low-income students by requiring a more complicated application process and deducting merit award dollars in proportion to the need-based aid students received (Dynarski, 2002). This caveat was removed in 2001. Still, because low-income students

were disproportionately more likely to attend less-resourced schools, they were less likely to meet the academic standard required. Calculations of postsecondary enrollment of Georgia students during the first decade of the HOPE scholarship actually widened the enrollment gap between high- and low-income youth (Dynarski, 2002).

Students from families in the highest income bracket attending public 4-year institutions received an average of \$2,560 in grant aid in 2011-2012 (Baum et al., 2015). Over half of the aid was from institutional sources and more than 30% received aid in excess of their calculated need. Students from families with annual incomes over \$155,000 received an average of over \$1,800 in excess of their financial need (Baum et al., 2015). Merit-aid programs, while politically popular, exacerbated the postsecondary education gap. Unintended consequences due to poor program design caused detrimental outcomes for youth who were traditionally underrepresented in higher education (Marin, 2002). Spencer (2002) lamented that “the antipoverty origins of the 1960s legislation have faded into history” (p. 166) and Jones-White et al. (2014) asserted that “funds devoted to large merit aid awards could be redirected to other purposes with greater impact” (p. 346).

**Burgeoning loan debt.** In the original HEA, student loans represented the smallest portion of funds allocated for federal student aid (Collier & Herman, 2016). The shift from a grant-based system for the neediest of students to the current loan-centered system began in 1978 with the passage of the Middle Income Student Assistance Act, which made loans available to all students regardless of need (Dynarski & Scott-Clayton, 2013; Gladieux & King, 1999). In 1982, the average loan debt across all sectors of higher education was \$2,000. In 1992, it was \$9,200, and by 2002 it had risen to \$18,900

(Williams, 2013). By 2012, over 70% of those graduating with a bachelor's degree had accumulated loan debt to complete their degrees. Of the graduates, those who had been Pell Grant eligible had borrowed an average of \$31,007 to complete their degrees, while their higher-income peers had borrowed only \$27,443 (Calahan & Perna, 2015). By 2012-2013, among those students taking loans at public 4-year institutions specifically, the average annual amount was \$6,700, which was a 55% increase in constant dollars over the 2000-2001 academic year (Kena et al., 2015). Avery and Turner (2012) also found that 51% of students who borrowed money left postsecondary education without a degree and with an average debt of \$14,457. However, a recent reversal in the trend indicated that the total amount of loans students and parents have borrowed annually has declined for four straight years and was 14% lower in 2014-15 than in 2010-2011 (Baum et al., 2015). Students are taking less money per capita, but more students continue to borrow each year (Baum et al., 2015). For this reason, total student loan debt in the U.S. continues to rise. The Federal Reserve Bank of New York (2016) reported in February 2016 that, as of December 31, 2015, the total student loan indebtedness in the U.S. was \$1.23 trillion, which was up \$29 billion in the fourth quarter of 2015 alone.

The policy shift increasingly toward loans rather than need-based grant aid has resulted in several proven negative consequences, including opportunistic institutions and organizations preying on low-income students and disadvantaging members of minority groups, hindering saving and the ability to purchase durable goods, and changing family planning (Collier & Herman, 2016). Williams (2013) asserted that “debt puts a sizeable tariff on social hope ... Rather than the great American melting pot where all might have

an equitable chance, we are on our way to a more rigidly classed society, and college attendance and debt is one of the chief vehicles of that inequality” (pp. 66-67).

### **Summary**

The history of American higher education is rampant with inequality. Though federal legislation has sought to create parity, inequalities still exist, and low-income students face hurdles to college completion unfathomable to their higher income peers. Financial aid can be an equalizing factor, but it is one of many influences on a student’s persistence (Astin, 1975; Castleman & Long, 2013), and the plethora of aid sources and their frequently complicated application processes have shown mixed results in delivering on the anticipated outcomes for which they are provided. Numerous studies on the effects of need-based grant aid on student persistence have been conducted. Studies by Alon (2011), Bettinger (2004), Castleman and Long (2013), DesJardins and McCall (2010), and Goldrick-Rab et al. (2012) all found positive relationships between need-based grant aid and student persistence, yet the conditions, circumstances, and extent of impact in each study varied. Other studies (Angrist et al., 2009; Binder et al., 2015; Clotfelter et al., 2016; Deming & Dynarski, 2009; Dynarski & Scott-Clayton, 2013), found that aid alone is less effective in improving student outcomes than the provision of both aid and academic services.

A variety of federal, state, and institutional initiatives, including the federal TRIO SSS program, aim to provide such services alongside financial aid to mitigate disparities among students from low-income, or otherwise disadvantaged, backgrounds. However, extrapolating the effects of one or more supports – whether financial, academic, or social – remains a daunting task given the multitude of factors that contribute to an individual



student's persistence or discontinuance (Alon, 2005; Astin, 1975; Castleman & Long, 2013; Chen & DesJardins, 2008; DesJardins et al., 2002; Dynarski & Scott-Clayton, 2013). As college costs rise and political pressures mount to provide aid to those with perceived merit, regardless of need, and reduce the debt that students are encumbered with upon exit, it becomes obligatory to justify all aid dollars to the extent possible. Though there have been a few studies on the effectiveness of TRIO SSS projects (Chaney, 2010; Chaney et al., 1998; USDE, Office of Postsecondary Education, 2015), no studies have been published to date regarding the effectiveness of the TRIO SSS grant aid initiative. In the absence of such literature, SSS projects are unable to determine whether the use of grant funds as direct grant aid to students improves student outcomes or whether those grant dollars are better allocated to other project services. Outlined in chapter three is the methodology employed to undertake such an examination of the effectiveness of the TRIO SSS grant aid initiative at one regional public university.

## **Chapter Three**

### **Methods**

The purpose of this study was to determine the effects of SSS grant aid on student persistence, graduation, time to baccalaureate degree completion, and loan debt burden. Chapter three includes the methodology utilized in this study, detailing the design, selection of participants, measurements, data collection procedures, data analysis and hypothesis testing, and limitations that align with the research questions.

#### **Research Design**

This was a non-experimental, causal-comparative study using a total population sample. Creswell (2014) described a causal-comparative study as one that “compares two or more groups in terms of a cause that has already happened” (p. 12). According to Lunenburg and Irby (2008), this type of study “is the most basic design for determining cause-and effect-relationships between variables” (p. 45). Variables for this study were the receipt of grant aid, persistence to the next academic year, graduation from GPU within six years, time to degree completion, and loan debt burden upon graduating.

#### **Selection of Participants**

Students attending GPU who participated in the TRIO SSS project and were eligible to receive TRIO SSS grant aid from 2002-2015 constituted the population of this study ( $N = 373$ ). SSS participants who were eligible to receive grant aid were those in their first or second year of undergraduate work who had unmet financial need. The total population and sample for this study was comprised of 242 students who received grant aid and 131 eligible students who did not receive aid, for a total of 373 students.

Since data for the entire population were available in a single database maintained by the SSS program, the total population was included in the study. From the inception of the grant aid initiative in 2003 through 2011, eligible students, identified by the SSS Director in consultation with the Director of Financial Aid, were invited to receive aid. The SSS Director used a matrix based on eligibility guidelines, defined as Pell-eligible SSS participants in their first or second year of study who had unmet financial need, and use of SSS services to determine those who would be invited to receive aid. Invited students merely had to accept the offer of grant aid by a specified deadline to receive the aid. Beginning in 2012, all eligible recipients were invited to complete an application for aid, rather than simply accept the offer. All eligible participants invited to receive (2003-2011) or apply for (2012-2015) aid were included in the study. Those who did not reply to the invitation accepting aid (2003-2011) or complete the application (2012-2015) were included as the comparison group.

### **Measurement**

Data for this study were retrieved from archived institutional data maintained by the TRIO SSS project, the Office of Institutional Research, and the Office of Financial Aid. The variables – receipt of grant aid, persistence to next academic year, graduation, time to degree completion, and loan debt burden – were measured using program and institutional data. Persistence to the next academic year was measured as categorical: students enrolled for the next academic year at GPU or did not enroll for the next academic year at the institution. Graduation was measured likewise: students either graduated or did not graduate from GPU within six years. Six years was chosen as the benchmark because that is the maximum time allowance for reporting graduation for any

SSS participant on an annual performance report to the USDE. SSS projects are evaluated only on graduation of students from the host institution and not on the number of participants who ultimately earn a bachelor's degree at any institution, so only those students who graduated from GPU were included. Time to degree completion was measured in half years (e.g., 4 years, 4.5 years, 5 years, etc.). Loan debt burden was measured in whole dollars during the entire undergraduate program.

### **Data Collection Procedures**

Before data collection began, a request for permission to conduct the study was submitted to the Institutional Review Board of Baker University on April 4, 2016 (see Appendix A), and approval was granted on April 22, 2016 (see Appendix B). A request for permission to conduct research was then submitted to GPU's Institutional Review Board on May 25, 2016 (see Appendix C). Written permission to conduct the research was granted on May 27, 2016 (see Appendix D). Archived quantitative data were collected from GPU's Banner data system and the Blumen database of the TRIO SSS project for all eligible first and second year students participating in the SSS project from spring 2003 through spring 2015. The collected data included an identifying number for each student, student's full name, university entry date, whether the student received grant aid, last semester of aid receipt, total dollar amount of aid received, university exit date, type of exit (withdrawal, transfer, or graduation), time to degree, and loan debt at time of departure. To ensure students' confidentiality, student names were removed once all data obtained from the two data systems – Blumen and Banner – were cross-referenced for accuracy. A university official acting as a third party assigned the random identifying number to each individual before providing the archival data to preserve

confidentiality. The data were entered into an Excel file for organization. Data were uploaded into IBM® SPSS® Statistics Faculty Pack 23 for Windows for analysis.

### **Data Analysis and Hypothesis Testing**

Creswell (2014) described research questions and hypotheses as mechanisms for shaping a quantitative study. The following four research questions and corresponding hypotheses guided the study and dictated the analyses undertaken. The level of significance was set at .05 for all hypothesis testing in the study.

**RQ1.** To what extent is there a relationship between receipt of SSS grant aid and persistence to the next academic year at GPU?

**H1.** There is a relationship between receipt of SSS grant aid and persistence to the next academic year at GPU.

A chi-square test of independence was conducted to test H1. The observed frequencies were compared to those expected by chance.

**RQ2.** To what extent is there a relationship between receipt of SSS grant aid and 6-year baccalaureate degree completion at GPU?

**H2.** There is a relationship between receipt of SSS grant aid and 6-year baccalaureate degree completion at GPU.

A chi-square test of independence was conducted to test H2. The observed frequencies were compared to those expected by chance.

**RQ3.** To what extent is there a difference in time to baccalaureate degree completion at GPU between SSS grant aid recipients and eligible non-recipients?

**H3.** There is a difference in time to baccalaureate degree completion at GPU between SSS grant aid recipients and eligible non-recipients.

An independent samples *t* test was conducted to test H3. The categorical variable used to group the dependent variable, time to baccalaureate degree completion, was status of grant aid receipt: grant aid recipients and eligible non-recipients. The two sample means were compared.

**RQ4.** To what extent is there a difference in loan debt burden between graduating SSS grant aid recipients and eligible non-recipients at GPU?

**H4.** There is a difference in loan debt burden between recipients and non-recipients of SSS grant aid upon completion of their baccalaureate degrees from GPU.

An independent samples *t* test was conducted to test H4. The categorical variable used to group the dependent variable, loan debt burden, was status of grant aid receipt: grant aid recipients and eligible non-recipients. The two sample means were compared.

### **Limitations**

Limitations are factors beyond the control of the researcher that may impact the outcomes of the study (Lunenburg & Irby, 2008). One major limitation of this study was that no effort was made to account for any of a variety of mitigating factors that impact a student's decision to persist or discontinue postsecondary education at the university, whether the student received grant aid or not. It cannot be overstated that, regardless of a student's status as a grant aid recipient or non-recipient, a multitude of factors contribute to a student's ultimate persistence or withdrawal. A limitation that could impact the ability to generalize findings was that the strategy for selecting grant aid recipients at GPU may differ from the strategy used at other institutions.

**Summary**

This chapter included a description of the research design, the selection of participants, the measurements and data collection procedures, data analysis and hypothesis testing, and limitations of the study. The results of the hypotheses are presented in chapter four.

## Chapter Four

### Results

The purpose of this study was to determine the effects of receipt of TRIO SSS grant aid on student persistence to the next academic year, graduation, time to baccalaureate degree completion, and loan debt burden at GPU. The results of statistical analyses for each of the four research questions are presented in this chapter.

#### Descriptive Statistics

The target population for this research study was inclusive of all students attending GPU who participated in the TRIO SSS project and were eligible to receive TRIO SSS grant aid from 2003-2015. The total population and sample for this study was comprised of 242 students who received grant aid and 131 eligible students who did not receive aid, for a total of 373 students.

#### Hypothesis Testing

The results of the statistical analyses are included in this section. Research questions 1 and 2 were analyzed using the chi-square test of independence to examine whether the receipt of SSS grant aid was independent of persistence and 6-year baccalaureate degree completion at GPU. Research questions 3 and 4 were analyzed using the independent samples  $t$  test to compare the two sample means. The level of significance was set at .05 for all hypothesis testing in the study.

**RQ1.** To what extent is there a relationship between receipt of SSS grant aid and persistence to the next academic year at GPU?

**H1.** There is a relationship between receipt of SSS grant aid and persistence to the next academic year at GPU.



Data on the persistence outcomes of 373 students (grant aid recipients = 242 and eligible non-recipients = 131) were analyzed to test the hypothesis for research question 1. Results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values,  $\chi^2 = 26.39$ ,  $df = 1$ ,  $p < .001$ . See Table 1 for the observed and expected frequencies. This result indicated that the receipt of SSS grant aid and persistence to the next academic year were not independent from each other with the magnitude of effect size being moderate ( $\Phi = .27$ ). H1 was supported. Students who received SSS grant aid tended to enroll in the subsequent fall semester while non-recipients persisted less frequently than expected.

Table 1

*Observed and Expected Frequencies for Hypothesis 1: Persistence*

Receipt of SSS Grant Aid		Persistence to Next Academic Year* at Great Plains University	
		No	Yes
No	Observed	54.0	77.0
	Expected	33.4	97.6
Yes	Observed	41.0	201.0
	Expected	61.6	180.4

*\*As noted in definitions in chapter one, most recipients of grant aid received the aid during their second year of enrollment, so students who did not receive aid were measured based on their persistence to third year of enrollment for a comparative measure.*

**RQ2.** To what extent is there a relationship between receipt of SSS grant aid and 6-year baccalaureate degree completion at GPU?

**H2.** There is a relationship between receipt of SSS grant aid and 6-year baccalaureate degree completion at GPU.

The graduation data of 259 students (grant aid recipients = 180 and eligible non-recipients = 79) were analyzed to test the hypothesis of research question 2. Results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values,  $\chi^2 = 24.88$ ,  $df = 1$ ,  $p < .001$ . See Table 2 for the observed and expected frequencies. The results indicated that the receipt of SSS grant aid and 6-year baccalaureate degree completion at GPU were not independent from each other with the magnitude of effect size being moderate ( $Phi = .31$ ). H2 was supported. More recipients of grant aid graduated within six years than had been anticipated, while those who did not receive aid were less likely than expected to graduate within six years.

Table 2

*Observed and Expected Frequencies for Hypothesis 2: 6-Year Graduation*

Receipt of SSS Grant Aid		Completion of a Baccalaureate Degree from Great Plains University	
		No	Yes
No	Observed	64.0	15.0
	Expected	45.8	33.2
Yes	Observed	86.0	94.0
	Expected	104.2	75.8

**RQ3.** To what extent is there a difference in time to baccalaureate degree completion at GPU between SSS grant aid recipients and eligible non-recipients?

**H3.** There is a difference in time to baccalaureate degree completion at GPU between SSS grant aid recipients and eligible non-recipients.

Outliers were checked. Six outliers were detected and deleted prior to analysis. Data on the time to degree completion for 131 students (grant aid recipients = 114 and eligible non-recipients = 17) were analyzed to test the hypothesis for research question 3.

Levene's Test for Equality of Variances was conducted and it showed that the variance of the two groups was not significantly different ( $f = .356, p = .552$ ). Even though the sample sizes of the two groups differed, the two groups were similar so a statistical comparison was possible. The results of the independent samples  $t$  test indicated a statistically significant difference in time to graduation between SSS grant aid recipients and eligible non-recipients,  $t = 2.42, df = 129, p = .017$ . The sample mean of time to baccalaureate degree completion at GPU for students receiving aid ( $M = 4.76, SD = 1.00$ ) was lower than the sample mean for eligible students who did not receive aid ( $M = 5.38, SD = 0.86$ ). H3 was supported. Students who received SSS grant aid graduated in less time – by an average of more than one semester – than those SSS graduates who had not received aid.

**RQ4.** To what extent is there a difference in loan debt burden between graduating SSS grant aid recipients and eligible non-recipients at GPU?

**H4.** There is a difference in loan debt burden between recipients and non-recipients of SSS grant aid upon completion of their baccalaureate degrees from GPU.

Outliers were checked. One outlier was detected and deleted prior to analysis. The loan debt data for 134 students (grant aid recipients = 115 and eligible non-recipients = 19) were analyzed to test the hypothesis of research question 4. Levene's Test for Equality of Variances was conducted and it showed that the variance of the two groups was not significantly different ( $f = 2.080, p = .152$ ). Even though the sample sizes of the two groups differed, the two groups were similar so a statistical comparison was possible. The results of the independent samples  $t$  test indicated a statistically significant difference in loan debt burden between SSS grant aid recipients and eligible non-recipients,  $t = 2.83,$

$df = 132, p = .005$ . The sample mean of total loan debt burden upon completion for students receiving SSS grant aid ( $M = 19,557.21, SD = 15,156.14$ ) was lower than the sample mean for eligible students who did not receive SSS grant aid ( $M = 30,452.16, SD = 17,880.27$ ). H4 was supported. SSS graduates who had received grant aid left college with almost \$11,000 less in average student loan debt than SSS graduates who had not received aid.

### **Summary**

The purpose of this study was to determine whether receipt of SSS grant aid might impact academic outcomes on students who receive the aid. Results of the hypothesis testing indicated statistically significant differences in both persistence and graduation between students who received SSS grant aid and those who did not. In addition, analyses indicated students who received SSS grant aid took less time to complete their degrees and had lower loan debt burden than those SSS students who did not receive aid. Provided in chapter five is a summary of the study, including discussion of major findings of these results, their connections to the relevant literature, implications and recommendations for further research.

## Chapter Five

### Interpretation and Recommendations

College completion and affordability are complex issues with which administrators, politicians, and families must contend. The relationship between the two issues is also complex. This study was conducted to determine whether one specific gift aid program had an impact on either completion, affordability, or both, for the recipients.

#### Study Summary

Examined in this study was whether TRIO SSS grant aid impacted outcomes of low-income students using TRIO SSS services at a midwestern regional public university. This section revisits the problem, purpose, research questions, methodology, and major findings.

**Overview of the problem.** Gift aid has been shown to impact persistence of low-income students (Alon, 2011; Bettinger, 2004; Castleman & Long, 2013; DesJardins et al., 2002; Paulsen & St. John, 2002). Likewise, studies have found several TRIO SSS services to be effective in improving outcomes for eligible students (Chaney, 2010; Thayer, 2000; USDE, Office of Postsecondary Education, 2015). However, though SSS projects have the authority to disburse grant funds directly to Pell-eligible students with unmet need, no published study has sought to determine whether this aid program is an effective use of the grant funds.

**Purpose statement and research questions.** The purpose of this study was to determine whether receipt of SSS supplemental grant aid had any relationship to student outcomes as measured by four criteria: persistence, 6-year graduation, time to completion, and loan debt burden. One research question was developed to address each

of the four criteria. The first research question was developed to examine the extent to which a relationship existed between receipt of SSS grant aid and students' persistence to the next academic year. The second research question was developed to examine the extent to which a relationship existed between receipt of SSS grant aid and 6-year baccalaureate degree completion. The third research question was developed to investigate whether there was a difference in time to degree completion between SSS grant aid recipients and eligible non-recipients. Finally, the fourth research question was developed to investigate whether there was a difference in loan debt burden between SSS grant aid recipients and eligible non-recipients upon degree completion.

**Review of the methodology.** This was a non-experimental, quantitative study using archival data and five variables: receipt of grant aid, persistence to the next academic year, completion of a baccalaureate degree within six years, time to degree completion, and loan debt burden upon completion. Chi-square tests of independence were conducted to measure persistence and completion. Differences in time to degree completion and loan debt burden were analyzed using independent samples *t* tests.

**Major findings.** Results of the analyses were clear: all four hypotheses were supported. Statistically significant relationships with moderate effect sizes were found between receipt of SSS grant aid and student persistence to the next academic year as well as between receipt of SSS grant aid and baccalaureate degree completion within six years. Receiving supplemental grant aid from the SSS project positively impacted low-income students' likelihood of persisting and graduating. Likewise, there was a statistically significant difference in time to degree completion and loan debt burden

between those students who received SSS grant aid and eligible students who did not receive aid.

One of the major findings was the impact of SSS grant aid on time to degree completion. The mean time to degree completion was more than a semester longer for those eligible students who did not receive aid compared to the students who did receive the aid. Each semester spent in school delays full-time employment income, offers opportunities to stop-out, and increases costs incurred to obtain the degree.

Another major finding was difference in loan debt burden upon completion between SSS grant aid recipients and eligible non-recipients. Grant aid recipients had a mean loan debt burden of almost \$11,000 less at the time of degree completion than eligible non-recipients even though the average amount of supplemental SSS grant aid received by students was less than a quarter of the difference at just under \$2,300.

### **Findings Related to the Literature**

The results of this study supported previous research on the relationship between need-based aid and persistence of low-income students. Data analysis for the first research question indicated that students who received SSS grant aid were more likely to persist than eligible non-recipients. This finding was consistent with a number of studies that have reported a correlation between increased need-based grant aid and increased student persistence (Alon, 2011; Bettinger, 2004; Castleman & Long, 2013; Chen & St. John, 2011; Crockett et al., 2011; DesJardins et al., 2002; Goldrick-Rab et al., 2012). Conversely, other researchers (Bowen et al., 2009; Jones-White et al., 2014; McPherson & Schapiro, 1998; Paulsen & St. John, 2002) also reported that cost increases of even \$1,000 can have a negative effect on persistence. The results of this study were

consistent with previous findings that increases in grant aid had a positive effect on persistence.

Some studies of need-based aid and persistence have also examined the effects of aid on degree completion (Alon, 2005; Castleman & Long, 2013; Mayer, Patel, Rudd, & Ratledge, 2015; Titus, 2009). The second research question in this study sought to determine whether a relationship existed between receipt of SSS grant aid and completion of a bachelor's degree. The finding in this study that need-based grant aid had a positive impact on completion was consistent with the body of literature reporting that need-based aid has a positive correlation not only to persistence, but also to degree attainment (Alon, 2005; Castleman & Long, 2013; Titus, 2009).

The literature on the challenges of low-income students in completing their degrees in a timely fashion is clear: timely completion is challenging for low-income students (Gladieux, 2004; DesJardins & McCall, 2010; Thomas et al., 1998). Literature on the relationship between need-based aid and time to degree completion, however, is scarce. The finding of research question three – that time to degree completion was shorter for those who received grant aid compared to those who did not – supported the findings in two prior studies indicating that additional grant aid increased the likelihood that students could complete degrees in fewer semesters (Mayer, Patel, & Gutierrez, 2015; Paulsen & St. John, 2002). The results of research question four indicated that, not only were students who received grant aid more likely to complete their degrees and do so in less time, but they also graduated from college with less loan burden than their eligible peers who did not receive grant aid. The finding that aid recipients had lower



loan burden supported the findings of previous research in which increased gift aid reduced loan debt (Goldrick-Rab et al., 2012; Mayer, Patel, Rudd, & Ratledge, 2015).

The premise of this study was to determine whether the provision of TRIO SSS supplemental grant aid, as one of a comprehensive array of services offered by the SSS project, improved student outcomes, rather than whether grant aid in general improves student outcomes. No recipient received aid alone and to the exclusion of any other SSS services, but, rather, in conjunction with a unique combination of SSS services specific to the student's needs. The findings of this study supported the vast and growing body of literature concluding that need-based aid is effective in increasing persistence and degree attainment and reducing time to degree and loan debt burden as one of an array of supports for low-income students (Angrist et al., 2009; Binder et al., 2015; Chaney et al., 1998; Chen & DesJardins, 2008; Clotfelter et al., 2016; Deming & Dynarski, 2009; Dynarski & Scott-Clayton, 2013).

## **Conclusions**

Four decades ago, Astin (1975) asserted that a correlational study regarding student persistence on the basis of a single factor is inherently limited and likely biased in the absence of independent estimates of each student's proneness toward withdrawal and that, certainly, causality could not be implied. This assertion has been supported further by subsequent researchers (Castleman & Long, 2013; DesJardins et al., 2002; Dynarski & Scott-Clayton, 2013). Therefore, the results of this study must be considered only with cognition of its limitations. A multitude of factors beyond the receipt of SSS grant aid may have contributed to the ultimate persistence or discontinuance of each SSS participant in this study. Yet, the results of the analyses are clear. Collectively, students

who received SSS grant aid at GPU were more likely to persist and graduate, complete their degrees in less time, and with lower loan debt, than those comparable students who did not receive aid. While grant aid was certainly not the sole factor in these outcomes, the results of the analyses indicated that the SSS grant aid could have been a factor.

**Implications for action.** The results of the analyses in this study indicated that SSS grant aid was likely an effective use of funds in contributing to successful outcomes of SSS participants at GPU. Continued allocation of funds for direct student aid by the SSS project is warranted at GPU. The results of this study also provided empirical support for those SSS projects not offering grant aid to their students to begin doing so.

The financial aid process remains complicated. One limitation of this study was the inability to determine what might have prevented some students from responding to the opportunity for SSS grant aid. While it might have been a deliberate refusal, it might also have been limited or unclear communication about the offer of aid. Just as SSS projects must promote their services widely on campus to ensure that all eligible students are informed about SSS and have the opportunity to receive services, SSS projects must also strive to be clear in ensuring that all eligible SSS participants are made aware of, and fully understand, the opportunity for grant aid and the benefits it provides.

Approximately 1,000 institutions have TRIO SSS projects, and many more offer state- or institutionally-funded support programs designed specifically for low-income students. The findings of this study provided further evidence that grant aid, as a component of such programs, can improve outcomes of low-income students. Given the results of this study, it is feasible that institutions with disparities in student persistence, graduation, time to degree, and loan debt based on socioeconomic status of students may

benefit from an examination of their procedures for awarding of institutional aid and consideration of whether an increased allocation for need-based gift aid might negate some of the disparities in these four outcomes.

**Recommendations for future research.** SSS projects across the nation have the statutory authority to disburse supplemental grant aid. While the outcomes of this study demonstrated a positive relationship between receipt of aid and student outcomes on all four measures, the findings cannot be generalized to all SSS projects. The methodology utilized in this study could, however, be replicated within other SSS projects to determine the effectiveness of their respective grant aid initiatives. Similarly, the provision of other services by SSS projects could be studied for their effectiveness in achieving the projects' standardized objectives.

The researcher did not distinguish among levels of aid received by different students to assess whether varying levels of aid impacted student outcomes, nor was there any attempt to account for the combination of other supportive services offered by the SSS project or other campus entities that students may have utilized. There was also no effort made to discern underlying differences between those eligible SSS students who accepted the grant aid and those who did not, and whether some inherent differences prompting that decision by students was a contributing factor to their ultimate educational outcomes. Finally, no distinction was made between the students eligible during the original selection process (2003-2011) compared to those in the revised application process (2012-2015) due to inadequate passage of time to measure three of the four research questions; only persistence could have been compared as information on 6-year graduation, time to graduation, and loan debt upon graduation was not yet available.

These factors, among others, should be considered in future research to produce more specific and robust conclusions of the effectiveness of SSS grant aid.

**Concluding remarks.** SSS projects, having limited funds and being held accountable to the USDE for ambitious objectives, must, in the era of accountability, allocate each dollar with purpose, and that purpose should be justifiable through an explicit relationship to project outcomes. This study sought to determine whether the allocation of funds to direct student aid was effective in helping students to persist and graduate from GPU. The results of this study, though limited in scope, indicated that SSS students who received aid were more likely to persist and graduate, spend less time in college, and exit the institution with less loan burden than comparable, eligible students who did not receive aid. All low-income students face a barrage of challenges in completing college and there is no single solution for institutional administrators to ensure success for each such student. The results of this study provided further evidence that low-income students benefited from increased gift aid. Institutions who strive to achieve parity in outcomes among students of all socioeconomic backgrounds should remain cognizant of how individual students, and the institution as a whole, can benefit from the allocation of gift aid to those who need it most. Upon signing the HEA of 1965 that authorized both TRIO and the guarantee of federal financial assistance for low-income students, President Lyndon B. Johnson (1965) spoke what is still true today: “this nation can never make a wiser or a more profitable investment anywhere.”

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## Appendices

**Appendix A: Baker University IRB Form**



SCHOOL OF EDUCATION  
GRADUATE DEPARTMENT

Date: April 4, 2016

IRB PROTOCOL NUMBER \_\_\_\_\_  
(IRB USE ONLY)

**IRB REQUEST**  
**Proposal for Research**  
**Submitted to the Baker University Institutional Review Board**

**I. Research Investigator(s)** (Students must list faculty sponsor first)

**Department(s)**      **School of Education Graduate Department**

	Name	Signature	
1.	Dr. Tes Mehring _____,		Major Advisor
2.	Dr. Katie Hole _____,		Research Analyst
3.			University Committee Member
4.			External Committee Member

Principal Investigator: Shanna Eggers  
Phone: 620-794-4499  
Email: shannakeggers@stu.bakeru.edu  
Mailing address:

Faculty sponsor: Tes Mehring  
Phone: 913-344-1236  
Email: tmehring@bakeru.edu

Expected Category of Review:  Exempt     Expedited     Full

**II: Protocol: (Type the title of your study)**

Effects of TRIO SSS Grant Aid on Student Outcomes

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## Summary

**In a sentence or two, please describe the background and purpose of the research.**

The purpose of this study will be to determine whether the receipt of SSS grant aid affects student persistence, baccalaureate degree completion rates, and time to baccalaureate degree completion among eligible students. A second purpose will be to determine whether the receipt of SSS grant aid has any correlation to low-income students' loan burden upon exit from the institution.

**Briefly describe each condition or manipulation to be included within the study.**

There are no conditions or manipulations in this study.

**What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.**

**Will the subjects encounter the risk of psychological, social, physical or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.**

Since archival data is being used in this study, no measures or observations will be taken and no instruments will be used. There will be no psychological, social, physical, or legal risk to individuals.

**Will any stress to subjects be involved? If so, please describe.**

There will be no stress to participants in this study; only archival data will be used.

**Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.**

Since archival data will be used, no subjects will be deceived or misled in any way.

**Will there be a request for information which subjects might consider to be personal or sensitive? If so, please include a description.**

Archival data will be used, so no personal or sensitive information will be gathered.

**Will the subjects be presented with materials which might be considered to be offensive, threatening, or degrading? If so, please describe.**

Since this study uses archival data, there will be no materials presented to subjects.

**Approximately how much time will be demanded of each subject?**

No time commitment will be required of participants since this study will be using archival data.

**Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.**

Subjects in this study are TRIO SSS grant aid recipients and eligible non-recipients at a regional public university in the Great Plains. Subjects will not be contacted because archival data will be used.

**What steps will be taken to insure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?**

Archival data is being used; there will be no solicitation. No inducements will be offered.

**How will you insure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.**

Written consent will not be necessary because archival data will be used.

**Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.**

No student names or identifiable information will be included in the data collected.

**Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher or employer? If so, explain.**

No data from this study will be added to any permanent record of any student.

**What steps will be taken to insure the confidentiality of the data? Where will it be stored? How long will it be stored? What will be done with it after the study is completed?**

A university official acting as a third party will remove names and assign a random number to each individual before providing the archival data to preserve confidentiality. Data will be stored on a password-secured flash drive and a password-protected hard-drive for a period of three years from the completion of the study, after which the data will be destroyed.

**If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?**

No risks will be involved in this study.

**Will any data from files or archival data be used? If so, please describe.**

Data for this study will be retrieved from archived institutional data maintained in the institutional Banner data system and the Blumen database of the TRIO SSS program for all first and second year students participating in the SSS program from spring 2003 through spring 2015. The collected data will include an identifying number for each student, student's full name, university entry date, unmet financial need, semester(s) of aid receipt, amount of aid received, university exit date, type of exit (withdrawal or graduation), transfer data (institution and completion status as needed) for those who left the institution prior to graduating, cumulative GPA at time of exit, and loan debt at time of departure. As aforementioned, to ensure students' confidentiality, student names will be removed once all data obtained from the two data systems – Blumen and Banner – are cross-referenced by the institutional official for accuracy.

IRB approval will be sought from the regional public university in the Great Plains upon IRB approval from Baker University.



**Appendix B: Baker University IRB Approval Letter**



*Baker University Institutional Review Board*

April 22, 2016

Dear Shanna Eggers and Dr. Mehring,

The Baker University IRB has reviewed your research project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.

Please inform this Committee or myself when this project is terminated or completed. As noted above, you must also provide IRB with an annual status report and receive approval for maintaining your status. If you have any questions, please contact me at [CTodden@BakerU.edu](mailto:CTodden@BakerU.edu) or 785.594.8440.

Sincerely,

*Chris Todden EdD*  
Chair, Baker University IRB

Baker University IRB Committee  
Verneda Edwards EdD  
Sara Crump PhD  
Erin Morris PhD  
Scott Crenshaw

**Appendix C: Great Plains University IRB Form**

## APPLICATION FOR APPROVAL TO USE HUMAN PARTICIPANTS

<b>For R&amp;G Use Only</b> Date approved: _____ Approved by: _____ Protocol No. _____ Full Review _____ Expedited Review _____
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This application should be submitted, along with the Informed Consent Document and supplemental material, to the Institutional Review Board for Treatment of Human Participants, Research and Grants Center,

**Before approval can be given to use human subjects, you must register with the CITI Program and successfully complete the Human Subject Research Course applicable to your discipline. Information and instructions are available at <http://www.edu/research/irb.html>.**

Human Subjects Research course was completed on: Date 5/21/16

1. Name of Principal Investigator(s) (Individual(s) administering the procedures):  
Shanna Eggers
2. Departmental Affiliation:  
Doctoral work with Baker University; Major advisor – Dr. Tes Mehring
3. Person to whom notification should be sent: Shanna Eggers  
Mailing Address:  
Telephone: \_\_\_\_\_ Email address: seggers@ \_\_\_\_\_ edu
4. Title of Project: Effects of TRIO Student Support Services Grant Aid on Student Outcomes
5. Funding Agency (if applicable): n/a
6. This is a:  dissertation \_\_\_\_\_ thesis \_\_\_\_\_ class project  
\_\_\_\_\_ other research study
7. Time period for which you are requesting approval (maximum one year): from May 28, 2016 to May 1, 2017. *If the research project extends past the end date requested, you will need to submit a request for a time extension or an annual update. This form is available at [www.edu/research/docs/irbmod.doc](http://www.edu/research/docs/irbmod.doc).*
8. Project Purpose (*please be specific*):  
*The purpose of this study is to determine whether the receipt of SSS grant aid affects student persistence, baccalaureate degree completion rates, and time to baccalaureate degree completion among eligible students. A second purpose is to determine whether the receipt of SSS grant aid has any correlation to low-income students' loan burden upon exit from the institution.*

9. Describe the proposed participants: (*age, sex, race, expected number of participants, or other special characteristics, such as students in a specific class, etc.*)

*Proposed participants in this study are TRIO SSS participants who are grant aid recipients and those who are eligible non-recipients. Approximately 170 SSS participants have received grant aid since the inception of the grant aid initiative as allowed by federal regulation. Proposed participants are first and second year students of both sexes and a range of ages. Participants will not be contacted for this study because archival data will be used.*

10. Describe how the participants are to be selected. *If you are using archival information, you must submit documentation of authorization from applicable organization or entity.*

*Participants will be “selected” based on eligibility for receipt of SSS grant aid from spring of 2003 through spring of 2015. See enclosed authorization for access to data for this study.*

11. Describe **in detail** the proposed procedures and benefit(s) of the project. This must be clear and detailed enough so that the IRB can assure that the University policy relative to research with human participants is appropriately implemented. Any proposed experimental activities that are included in evaluation, research, development, demonstration, instruction, study, treatments, debriefing, questionnaires, and similar projects must be described here. **Copies of questionnaires, survey instruments, or tests should be attached.** (*Use additional page if necessary.*)

*Archived quantitative data will be collected from the university’s Banner data system and the Blumen database of the TRIO SSS program for all first and second year students participating in the SSS program from spring 2003 through spring 2015. The collected data will include an identifying number for each student, student’s full name, university entry date, unmet financial need, semester(s) of aid receipt, amount of aid received, university exit date, type of exit (withdrawal or graduation), transfer data (institution and completion status as needed) for those who left the institution prior to graduating, cumulative GPA at time of exit, and loan debt at time of departure. To ensure students’ confidentiality, student names will be removed once all data obtained from the two data systems – Blumen and Banner – are cross-referenced for accuracy. A university official acting as a third party will remove names and assign the random identifying number to each individual before providing the archival data to the principal investigator to preserve confidentiality. The data will be entered into an Excel file for organization. Data will be uploaded into IBM® SPSS® Statistics Faculty Pack 23 for Windows for analysis.*

*The benefit of the project will be assurance of efficient use of SSS funds. The SSS director will be informed of study’s results for data-informed decision-making. The use of SSS funds allocated for grant the aid initiative, if found effective in improving student*

*outcomes, will be justified for continuation and/or expansion at the discretion of the SSS director. If analysis shows the grant aid initiative does not result in improved outcomes for SSS students, the SSS director could choose to redirect those funds to other SSS services to better serve students.*

12. Will questionnaires, tests, or related research instruments not explained in question #11 be used?     Yes     No    *(If yes, attach a copy to this application.)*

13. Will electrical or mechanical devices be applied to the subjects?     Yes     No  
*(If yes, attach a detailed description of the device(s) used and precautions and safeguards that will be taken.)*

14. Do the benefits of the research outweigh the risks to human participants?  
 Yes     No *(If no, this information should be outlined here.)*

15. Are there any possible emergencies which might arise in utilization of human participants in this project?  
 Yes     No *(If yes, details of these emergencies should be provided here.)*

16. What provisions will you take for keeping research data private/secure? *(Be specific – refer to the section **Safeguarding Information** in the IRB Policies.)*  
*A university official acting as a third party will remove names and assign a random number to each individual before providing the archival data to preserve confidentiality. Data will be stored on a password-secured flash drive and a password-protected hard-drive for a period of three years from the completion of the study, after which the data will be destroyed.*

**17. Attach a copy of the informed consent document, as it will be used for your participants.**

*Written consent will not be necessary because archival data will be used.*

**INVESTIGATOR'S ASSURANCE:** I certify that the information provided in this request is complete and accurate. I understand that as Principal Investigator I have ultimate responsibility for the protection of the rights and welfare of human participants and the ethical conduct of this research protocol. I agree to comply with all of \_\_\_\_\_'s policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection of human participants in research, including, but not limited to, the following:

- The project will be performed by qualified personnel according to the research protocol,
- I will maintain a copy of all questionnaires, survey instruments, interview questions, data collection instruments, and information sheets for human participants,
- I will promptly request approval from \_\_\_\_\_'s IRB if any changes are made to the research protocol,
- I will report any adverse events that occur during the course of conducting the research to the IRB within 10 working days of the date of occurrence.

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Signature of Principal Investigator

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Date

**Appendix D: Great Plains University IRB Approval Letter**



May 27, 2016

Shanna Eggers  
[Redacted]

Dear Ms. Eggers:

Your application for approval to use human subjects has been reviewed. I am pleased to inform you that your application was approved and you may begin your research as outlined in your application materials. Please reference the protocol number below when corresponding about this research study.

Title:	Effects of TRIO Student Support Services Grant Aid on Student Outcomes
Protocol ID Number:	16082
Type of Review:	Expedited
Time Period:	May 28, 2016 to May 1, 2017

If it is necessary to conduct research with subjects past this expiration date, it will be necessary to submit a request for a time extension. If the time period is longer than one year, you must submit an annual update. If there are any modifications to the original approved protocol, such as changes in survey instruments, changes in procedures, or changes to possible risks to subjects, you must submit a request for approval for modifications. The above requests should be submitted on the form Request for Time Extension, Annual Update, or Modification to Research Protocol. This form is available at [www. \[Redacted\] .edu/research/irb.html](http://www. [Redacted] .edu/research/irb.html).

Requests for extensions should be submitted at least 30 days before the expiration date. Annual updates should be submitted within 30 days after each 12-month period. Modifications should be submitted as soon as it becomes evident that changes have occurred or will need to be made.

On behalf of the Institutional Review Board, I wish you success with your research project. If I can help you in any way, do not hesitate to contact me.

Sincerely,

*John B. [Redacted] pf ab*

Dr. John B. [Redacted]  
Chair, Institutional Review Board

pf