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THE RELATIONSHIP BETWEEN STUDENT ENGAGEMENT AND RECENT
ALUMNI DONORS AT CARNEGIE BACCALAUREATE COLLEGES LOCATED IN THE
SOUTHEASTERN UNITED STATES

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Child, Family, and Community Sciences
in the College of Education and Human Performance
at the University of Central Florida
Orlando, FL

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2013

Major Professor: Sandra Robinson

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ABSTRACT

In 2011, over 30 billion dollars were given to colleges and universities across the United States; donors included individuals, corporations, foundations, and religious organizations. Of the 30 billion dollars, 43% of this financial support came directly from individual and alumni donors (Council for Aid to Education, 2011). Leslie and Ramey (1988) stated that “voluntary support is becoming the only source of real discretionary money [that a college or university has]” (p. 115). The primary purpose of this study was to investigate the ability of responses from senior class students on the 2006 National Survey of Student Engagement to be used as predictors of alumni donor participation in liberal arts colleges. The sample of this study was 10 Carnegie Baccalaureate Colleges from the southeastern United States. The institutions that participated provided alumni donor participation data for members of the undergraduate class of 2006 for a five-year post-graduation period. Logistical regression models were developed to represent the multivariate impacts of NSSE benchmark scores and student demographics independent variables on the bivariate alumni donor participation rate dependent variable.

The results indicated that two NSSE benchmarks, measured by the 2006 NSSE, (Level of Academic Challenge and Student-Faculty Interaction) and three demographic variables (parental level of education, Greek Life membership, and receipt of an institutional scholarship) had a positive relationship with increased alumni donor participation.

I dedicate this dissertation to my wife, parents, brothers, and mentors. Your love, support, and gentle prodding made this dissertation a reality.

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CHAPTER ONE: INTRODUCTION

As state and federal support for higher education decreases and the costs to operate continue to rise, institutions across the United States have come to rely on private funds (Drezner, 2011; *Giving USA*, 2011). Over the last 30 years, state and national appropriations for higher education have *not* maintained pace with the rising costs of higher education (Thelin, 2004), and the burden has been relieved in part by private philanthropic donations. Philanthropic donations from corporations, foundations, religious organizations, and individuals are just a few of the primary sources of the much-needed funding.

Fortunately, private support of education has steadily increased over the last half-century. In 1965, private support for education was \$2.01 billion (in constant dollars); by 2010, support increased to \$41.67 billion, representing an increase of 2,073 percent over a 45-year period (*Giving USA*, 2011). Higher education received the largest portion of support, and alumni accounted for the largest body giving at colleges and universities (*Giving USA*, 2011). Furthermore, private individual support of higher education is an indelible trademark of American higher education (Cutlip, 1965). This much-needed private philanthropic support helps colleges to keep the doors open and young minds engaged (Friedmann, 2003).

Sun, Hoffman, and Grady (2007) reported that the study and exploration of strategies to solicit private funds for education is a growing field, and because institutions have an opportunity to influence alumni, considerable research has contributed to a better understanding of alumni and their reasons for giving to their alma mater (Tsao & Coll, 2005; Gaier, 2005). Research investigating giving as a function of individual alumni characteristics, aspects of campus culture, educational environments, demographic data, and other facets of the college

experience has been published (e.g., Gaier, 2005; *Giving USA*, 2011; Sun et al., 2007; Taylor & Martin, 1995; Thomas & Smart, 1995; Todd, 1993; Tsao & Coll, 2005). Specific individual aspects of alumni giving that have been studied include (a) participating in post-graduation campus events; (b) reading alumni magazines; (c) joining the alumni association; (d) updating contact information regularly; and (e) maintaining contact with faculty and staff; as well as (f) demographics such as gender, religion, age, family income, program of study, political affiliation, proximity to alma mater, highest degree attained, and birth order (Taylor & Martin, 1995). Furthermore, researchers have considered experience and attitudinal variables that may impact alumni donor participation.

Attitudinal variables such as satisfaction with educational experience and emotional attachment to the institution have been shown to influence alumni donor participation (Martin Jr., 1993; Pearson, 1999; Shadoian, 1989; Tsao & Coll, 2005). Gaier (2005) found that alumni who reported being satisfied with their college experiences remained connected to the institution post-graduation and made financial contributions. Researchers have suggested that enhancing the college students' experience and better understanding the role of student engagement in alumni donor behavior are two factors that may increase future donor involvement (Drezner, 2011; Field, 2011; Outcalt & Skewes-Cox, 2002; Thomas & Smart, 1995; Todd, 1993) and positively impact the financial position of colleges and universities.

Although there is a broad base of research on alumni giving and opportunities to influence alumni donor involvement, many of the research findings suggest that an alumnus's decision to be a donor is impacted by college experience and engagement after college (Kuh, 2001b; O'Neill, 2005). However, it is still unclear how student engagement during college

impacts future donor behavior, especially within Carnegie Baccalaureate Colleges. Indeed, understanding how an institution can influence alumni donor behavior by focusing on students before they become alumni will drive the next generation of philanthropy research (Hurvitz, 2010). This investigation provides information on the relationship between student engagement while students are in college and alumni donor participation after graduation.

Background of the Problem

Academic fundraisers within alumni affairs and institutional development offices continue to grow and cultivate relationships with alumni. The relationships between academic fundraisers and alumni are important in keeping the institution apprised of changes in the lives of its alumni, as well as providing alumni updates about their alma mater. Often, the relationships between academic fundraisers and alumni evolve into an opportunity for an alumnus to become a financial partner and supporter of the institution. Stimuli that influence philanthropic involvement among alumni are of great interest to academic fundraisers. Field (2011) suggested, “Marketing research reveals information about what triggers consumers to buy certain products or brands, [and] academic fundraisers will begin to seek out answers to what prompts philanthropic activity among alumni” (p. 1). Satisfaction with college experience, a phenomenon impacted by student affairs, is a key determinant of alumni donor involvement (e.g., Pumerantz, 2004).

Student Affairs

Student affairs departments have many partners and stakeholders, including parents, faculty, and the campus community, but students are the clients of student affairs offices (Evans,

Forney, & Guido-DiBrito, 1998). The innovative programs and services provided by student affairs offices are implemented to increase satisfaction and engagement on college campuses, and have been instrumental in guiding and serving students for over half a century (Komives, Dudley, & Woodard, 1996). While continuing to improve resources for students and stakeholders, student affairs departments have examined student engagement, especially at Carnegie Baccalaureate Colleges.

Student Engagement

Chickering and Gamson (1987), Perry (1968), King (1994), and others have sought to understand student engagement and the drivers that promote engagement and success of college students. These student engagement stimuli are characterized by: (a) student-faculty contact; (b) cooperation among students; (c) active learning; (d) prompt feedback; (e) time on task; (f) high expectations; and (g) respect for diverse talents and ways of learning (Carini, Kuh, & Klein, 2006; Chickering & Gamson, 1987, 1991; Kuh, 2001a, 2004; Pascarella & Terenzini, 2005). The characterizations of student engagement help to inform student experience.

Zhao and Kuh (2004) suggested that student engagement is of utmost importance, and found that institutions that promote student engagement have higher levels of student achievement and satisfaction. In addition, Field (2011) found that student engagement and satisfaction with college experience were key predictors of alumni donor involvement.

Therefore, student engagement moderates both student achievement and alumni philanthropy.

Additionally, Gaier (2005) and Tsao and Coll (2005) found that high levels of student satisfaction with college experience and high levels of alumni donor participation were positively

correlated. However, there exists an undefined connection between student engagement and alumni donor participation at Carnegie Baccalaureate Colleges, and elucidating this connection will give student affairs and alumni affairs offices the tools to impact student success and promote alumni donor participation (Field, 2011; Pearson, 1999).

Statement of the Problem

Researchers of alumni giving have examined a broad array of alumni characteristics and post-graduation attributes that may predict alumni donor participation, but the research has focused on a single institution, Ivy League colleges, or large research universities, and limited attention has been placed on Carnegie Baccalaureate Colleges. Additionally, the literature of student engagement theory has traditionally maintained a narrow focus on opportunities to enhance student achievement and outcomes, including graduation rates, graduate school admission tests scores, and self-reported student learning (e.g., Field, 2011; Kuh, Schuh, Whitt, & Associates, 1991; Pascarella & Terenzini, 1991, 2005; Zhao & Kuh, 2004). Therefore, little is known about the overlap of student engagement and recent alumni participation, especially as it relates to Carnegie Baccalaureate Colleges.

The attempt to define the relationship between student engagement and alumni donor participation was introduced by Field (2011). Field (2011) reported that Carnegie Baccalaureate Colleges with high scores of student engagement reported higher percent of alumni donor participation. However, as Field's study did not include an examination of the unique regional Carnegie Baccalaureate College campus environments, demographics, student experiences, and

individual class cohorts, the findings were not helpful to practitioners seeking to increase donations in Carnegie Baccalaureate College environments.

Moreover, there is a lack of research investigation of the relationships between the variables of (a) student engagement during school, (b) student experiences, and (c) alumni donor participation rates. Information on the extent of the relationship between recent alumni donor participation rates and student engagement of individual class year cohorts is requisite as schools continue to experience losses in external funding and come increasingly to rely on private philanthropic support (Friedmann, 2003). As the operational costs of higher education continue to rise and there is a lack of external funding, it is essential that alumni donor participation practices continue. Moreover, empirically supported strategies to encourage alumni donor participation are needed to maintain the level of alumni donor participation that colleges depend upon. Especially given the slow recovery of the United States from the Great Recession, acknowledged to be the most devastating global economic crisis since the Great Depression of the 1930s, which started on December 2007 and lasted over 20 months. Although research has examined selected variables that may influence alumni donor participation in certain settings, there is a lack of information on the relationship between alumni donor participation and student engagement, especially in a Carnegie Baccalaureate Colleges setting. Investigating the possible relationship between student engagement and alumni donor participation is timely and may be helpful both to practitioners who work to enhance student experiences that contribute to student engagement and to alumni affairs staff seeking to maximize financial giving.

Purpose of the Study

The purpose of this quantitative study was to ascertain the relationship between level of student engagement of senior class cohorts at Carnegie Baccalaureate Colleges and alumni donor participation rates during a five-year post-graduation period. A correlational research design was employed to examine student engagement benchmark and alumni donor participation rates (as measured by the 2006 National Survey of Student Engagement [NSSE]). A correlational design was appropriate for this research, as the primary purposes of the investigation were to determine the predictive power of student demographics and their NSSE benchmark scores on alumni donor participation. The NSSE Student Engagement benchmarks include: (a) Level of Academic Challenge; (b) Active and Collaborative Learning; (c) Student-Faculty Interaction; (d) Supportive Campus Environment; and (e) Enriching Educational Experience (NSSE, 2000). Recent alumni participation rates at Carnegie Baccalaureate Colleges were collected via the participation of institutions located in the southeastern region of the United States over the pursuant five-year period.

Research Questions

This study is guided by the following research questions:

1. What is the relationship between student engagement rates at Carnegie Baccalaureate Colleges (as measured by the five NSSE 2006 benchmarks of engagement: [a] level of academic challenge; [b] active and collaborative learning; [c] student-faculty interaction; [d] supportive campus environment; and [e] enriching educational experience) and alumni donor participation rates over a five year post-graduation period (2007, 2008, 2009, 2010, 2011)?

2. What is the relationship between alumni donor participation rates and the NSSE demographic variables of: (a) parents' education levels, (b) nationality, (c) academic major, (d) recipient of scholarship, (e) gender, and (f) participation in Greek Life?

Significance of the Study

Alumni are key supporters of colleges, and significant resources are expended each year to attract and engage alumni (Council for Aid to Education, 2011; Leslie & Ramey, 1988). An institution's opportunity to impact future alumni donations begins the first time a student steps foot on campus (Oglesby, 1991; Shadoian, 1989), and scholars maintain that this impact can be made through engagement (Pike & Kuh, 2005). Thus, student engagement can be more specifically defined and informed by an alumnus's undergraduate experience of student engagement.

Understanding the impact of student engagement and student experiences during the college years is important as institutions seek to remain competitive and current (Pike & Kuh, 2005). Leslie and Ramey (1988) stated that "voluntary [alumni] support is becoming the only source of real discretionary money" (p. 115); this comes at a time when institutions are facing reduced budgets and increased pressures to do more with less. The benefits of understanding the possible relationship between student engagement and alumni donor participation are two-fold: (a) institutional leaders can better forecast alumni donor participation rates by assessing engagement, providing more interaction between student affairs and academic affairs; and (b) institutions can employ data-driven decision-making in allocating resources to support activities

that engage students and enhance student experiences, to strengthen the students' success and increase alumni donor participation (Field, 2011).

Definition of Terms

The following terms are presented to define the terminology used in this dissertation:

Alma mater. The institution from which a person received her or his undergraduate degree.

Alumni. Often, institutions define alumni as any persons who ever took a course at the institution. For the purposes for this study, alumni are defined as individuals who met all the requirements and obtained undergraduate degrees (Gaier, 2005). Note: While the construction "alumnae or alumni" is technically correct and most inclusive, for reasons of space and ease of reading, the masculine plural form 'alumni' will be used to refer to persons of both genders.

Alumni donor. An alumnus/a who made a financial contribution to the college during the year(s) of interest.

Alumni donor participation rate. The number of alumni who made a financial contribution to the college or university, during the year of interest, divided by the total number of alumni for the year of interest (Turner, Meserve, & Bowen, 2001).

Carnegie Baccalaureate Colleges (CBCs). CBCs have two primary characteristics: (1) bachelor's degrees accounted for at least 10% of all undergraduate degrees awarded; and (2) fewer than 50 fifty master's-granting programs (Carnegie, 2009)

Development. The term *development* is often referred to as "educational fundraising," and the function of development is also to develop relationships. Development functions include

“all the programs and activities by which the college or university seeks gifts and grants from private sources to support its programs and build long-term strength through improvements to facilities and additions to its endowment” (Worth, 1993, p. 5).

Enrollment management. Strategies used by college administrators to meet specific goals of enrollment, revenue, and costs (Garcia Montano, 2010). Emphasis is placed on student tuition.

Liberal arts colleges. For over forty years, Carnegie Classification has been the leading framework for describing and classifying colleges and universities across the U.S. (Pike & Kuh, 2005). For the purposes of this study, liberal arts colleges will be defined as institutions that have high undergraduate enrollment, high or very high levels of students living on campus, and classifications of Carnegie Baccalaureate College—Arts and Sciences and Diverse Fields.

Motivation to give. Emotional reasons influencing and motivating alumni to be donors.

Non-donors. Alumni who did not make a financial contribution to the college during the year(s) of interest.

Recent alumni donors. Alumni who graduated five years or fewer after their participation in NSSE and who financially support their *alma mater*.

Student engagement. As defined by Kuh (2009a), represents constructs such as quality of effort and involvement in productive learning activities (p. 6).

Conceptual Framework

This proposed investigation is guided by Sun (2005) and Sun, Hoffman, and Grady’s (2007) Multivariate Casual Model of Alumni Giving (MCMAG). MCMAG is a four-stage model

for predicting alumni giving and provides a basis for understanding alumni and their donations (Sun, 2005; Sun et al., 2007). Limited research has examined the broad context of alumni giving, and the majority of research on alumni donor participation has focused on single-institution studies and examined alumni donor participation factors that were specific to a single institution. The four-stage model developed by Sun (2005) and Sun, Hoffman, and Grady (2007) includes student experience, demographic variables, alumni experience, and alumni motivation as distinguishing factors that separate donors from non-donors. In Sun et al.'s (2007) study, three of the four stages were shown to be significant predictors of alumni donor participation, including student experience, alumni experience, and alumni motivation. The factor of demographic variables did *not* impact alumni donor participation. However, there is a profusion of research identifying demographic variables that influence alumni donor participation (Ashcraft, 1995; Diehl, 2007; Dugan, Mullin, & Siegfried, 2000; House, 1987; Hunter, 1997; Robinson, 1994). The abundance of research to support the use of demographic variables will be further explored in Chapter Two; thus, for this study, demographic factors were included.

In the present investigation, alumni motivation and alumni experience, two factors of the MCMAG, were not considered; only student experience and demographic variables were selected for inclusion. Sun (2005) used a post-graduation survey of alumni at one institution to acquire alumni motivation and alumni experience data; however, this study included an examination of student data at multiple institutions and extracted how demographics and specific student engagement activities, as reported on the NSSE, impact alumni donor participation rates, thus allowing for more generalizability and a broader conceptual framework. The exclusion of alumni experience and alumni motivation was necessary for a broad study of how demographic

variables and student experience in college affect alumni donor participation. Furthermore, data for both alumni experience and alumni motivation could not be obtained because of limitations on data collection and access to information about specific alumni.

The two factors under examination, student experience and demographic variables, provided lenses for this study and are theoretically grounded in several decades of scholarly work. The variables of student experience and student demographics could also be termed student participation activities, as these variables provided the ability to examine activities that students participated in while enrolled, which affected their alumni donor participation, without delving into post-graduation experiences or motivations. Figure 1 presents Sun et al.'s (2007) MCMAG, and each box on the left of the figure represents a variable that, according to that study, affects alumni giving.

Multivariate Causal Model of Alumni Giving

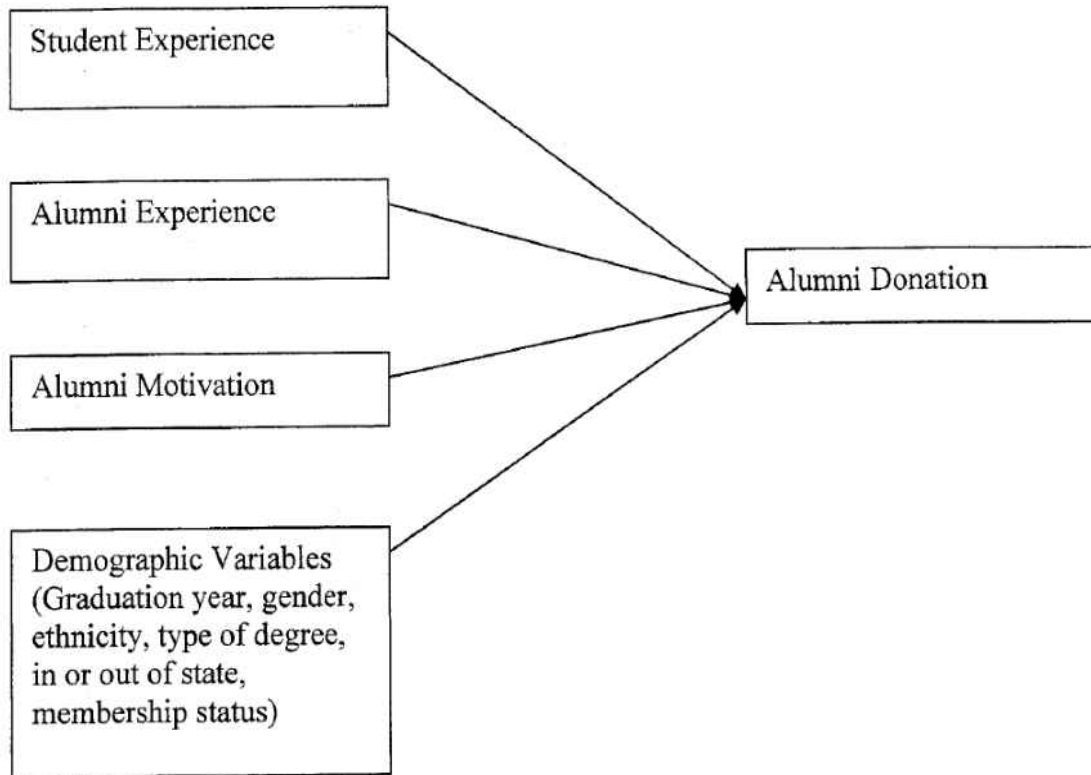


Figure 1. Multivariate Causal Model of Alumni Giving.

From “A Multivariate Causal Model of Alumni Giving: Implications for Alumni Fundraisers,” by X. Sun, S.C. Hoffman, and M.L. Grady, 2007, Reprinted by permission from Macmillan Publishers Ltd: *International Journal of Education Advancement*, 7(4), p. 308. Copyright (2007) published by Palgrave Macmillan.

Because the purpose of the research was to expound upon the relationships of alumni giving and demographics as observed at several institutions (Diehl, 2007; Dugan, Mullin, & Siegfried, 2000; Haddad, 1986; House, 1987; Hunter, 1997, Shadoian, 1989), this study utilized only two factors of the MCMAG. By clarifying the trends using Sun’s (2005) framework, this investigation expanded the work of Sun (2005) and Sun et al. (2007) in a new population and provides relevant and tangible results that can be used by practitioners in both academic and

student affairs. The researcher narrowed MCMAG to focus only on student experiences and demographics. These two factors were chosen because of the need to address specific variables of each factor that the literature suggests impacts alumni donor participation.

For the student experience construct, five variables or aspects of student experience that are based upon the work of Chickering and Gamson (1987, 1991) and Kuh (2001b, 2004) and focus on student engagement were chosen; furthermore, these variables are positively correlated with alumni donor participation (Field, 2011; Lofton, 2005; Ward, 2004). The student experience variables that inform the proposed conceptual model for this study include participation in Greek-life (fraternity/sorority), student athletics, study abroad, or student leadership roles, as well as living on campus (Burt, 1989; Dugan, Mullin, & Siegfried, 2000; Hunter, 1997; Lofton, 2005; Martin, 1993; O'Neill, 2005; Robinson, 1994; Shim, 2001). Demographic variables identified as characteristics that can impact alumni donor participation, and inform this conceptual model, include education level of parents, recipient of scholarship, nationality, gender, and major (Belfield & Beney, 2000; Diehl, 2007; Dugan, Mullin, & Siegfried, 2000; Ficano, 2002; Grill, 1998; Haddad, 1986; Hoyt, 2004; Meer & Rosen, 2012; Robinson, 1994; Schmidt, 2001; Shim, 2001). The model and specific aspects of student experience and demographic variables that impact alumni donor participation are further explored in Chapter Two. The relationships among the study variables are conceptualized using the National Survey of Student Engagement, and presented in Figure 2 as the Student-Centered Model of Alumni Donor Participation.

Student-Centered Model of Alumni Donor Participation

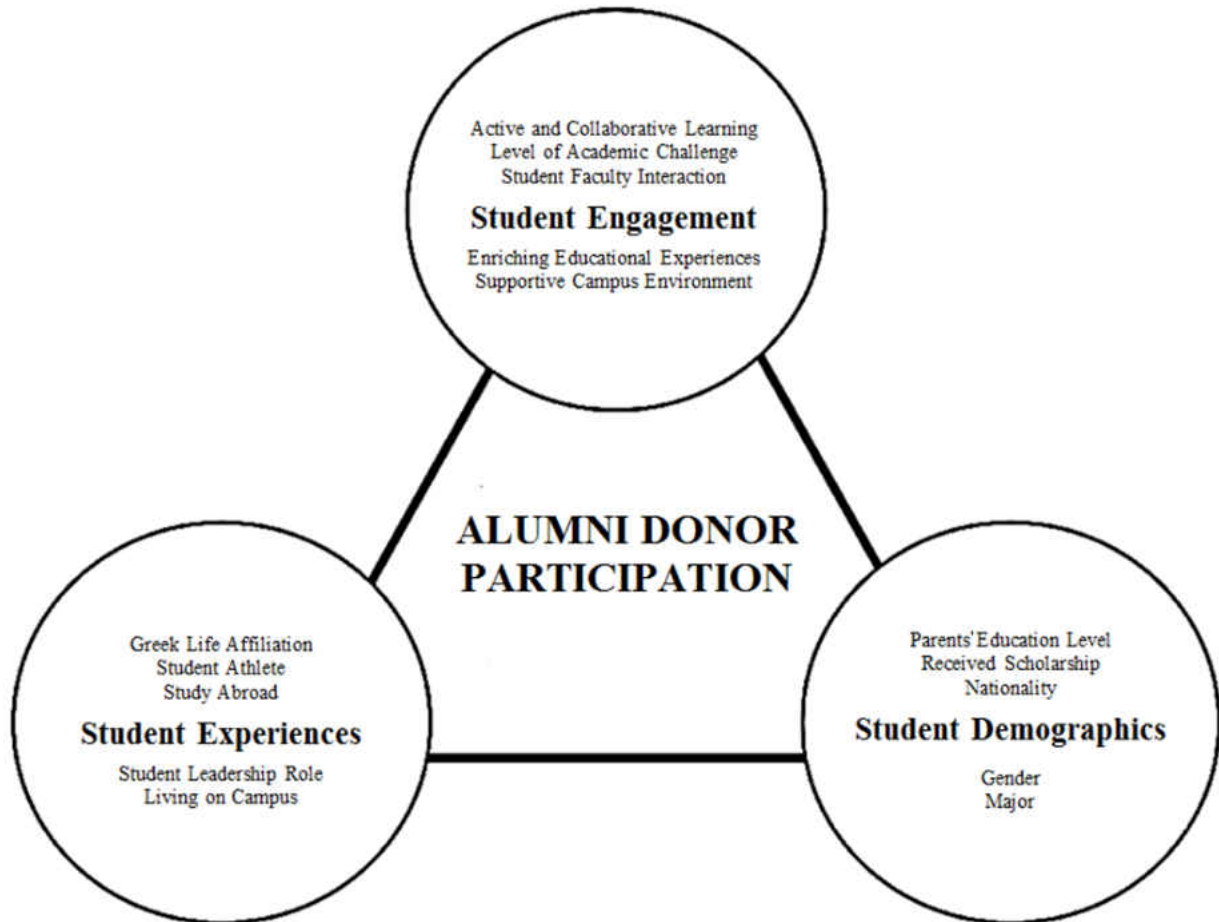


Figure 2. Student-Centered Model of Alumni Donor Participation.

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The Student-Centered Model of Alumni Donor Participation builds upon the work of Sun (2005) and Sun et al. (2007), and focuses on only two factors of the MCMAG. This model illustrates the co-relationships between each construct. The lines between each construct allow for the creation of a triangle to illustrate how each piece, while independent, can be joined with other pieces to craft a prediction model of alumni donor participation. This conformation illustrates that each construct plays an independent role as a circle, but collectively the

connections between each circle inform the larger picture, a triangle. The peak of the triangle represents the student engagement benchmarks of the National Survey of Student Engagement (NSSE). The NSSE benchmarks are informed through the student responses on specific items contained within the NSSE instrument. The NSSE benchmarks include level of academic challenge, active and collaborative learning, student-faculty interaction, supportive campus environment, and enriching educational experience. Next, the student experiences variables that are often suggested to impact alumni donor participation are represented in the bottom left of the triangle. The student experiences and demographic variables, represented respectively at the bottom left and right of the triangle, each comprise the five sub-variables drawn from the research literature. The constructs and variables of the Student-Centered Model of Alumni Donor Participation will be further explored in Chapter Two.

Limitations of the Study

Both alumni donor participation and institutional student data for this study were collected through self-report instruments. Inherent validity threats of self-report instruments existed, as participants might have exaggerated or minimized to portray themselves in a favorable light. Furthermore, participants might have failed to recall specific instances when recording their responses, and some might have perceived the questions to be leading. The NSSE is self-reported by students, and thus accuracy cannot be ensured. Furthermore, the data that were used for this study had an inherent lag time. The NSSE makes data available to researchers “no sooner than three years after institutional reports are mailed to participating institutions” (NSSE, 2006). Additionally, not all institutions participate in the NSSE, and those that do often

lack continuity of involvement. Threats to internal and external validity were also present. Threats of internal validity included selection bias, inaccurate statistical reporting from institutions, and limited sample size of NSSE participants at institutions. Threats of external validity included small sample size of participating institutions. Furthermore, student engagement, student experiences, and student demographics are only three components of alumni donor participation, and extraneous variables may have influenced findings. Lastly, the MCMAG was not used in its entirety, and modifications were adopted and accepted by the researcher.

Delimitations of the Study

The two delimitations of this study included the use of archival contribution data and the sampling techniques that were employed to acquire the data. Archival data were chosen for their efficiency; however, the data were dependent upon consistent data entry by each institution. The collection of data was not augmented by surveys, as a survey was beyond the scope of the research questions and was considered too expensive. Additionally, this study was delimited by the type of institution that was chosen for participation. This study only included an examination of a select group of Carnegie Baccalaureate Colleges, according to The 2010 Carnegie Classification of Institutions of Higher Education, located in the southeastern region of the United States; therefore, national generalizability may be limited.

Organization of the Study

Chapter One provided an introduction to the background of higher education and its increasing reliance on private funding. A brief overview of how alumni support has shaped

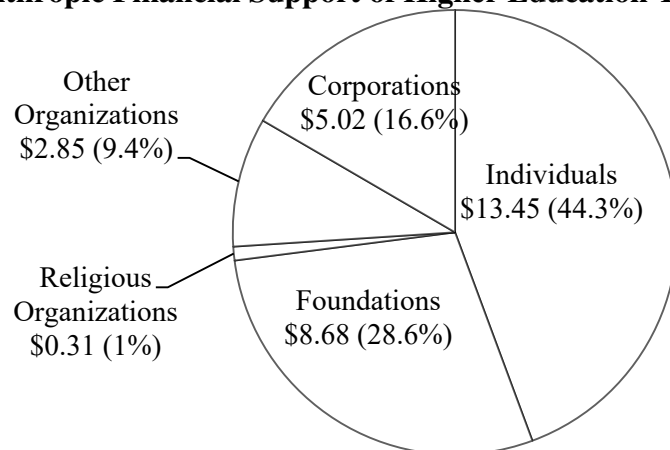
higher education in America and an introduction to student engagement were also included. Information on the problem, purpose of the study, research questions, and conceptual framework was provided as well. Chapter Two provides further discussion of the conceptual framework, Kuh's (2009a) theory of engagement, and the National Survey on Student Engagement (NSSE). In addition, Chapter Two presents a review of relevant literature pertaining to student satisfaction and alumni donor involvement. The research methodology, data collection, and data analysis are contained in Chapter Three. The results of the research study are found in Chapter Four. Finally, the conclusions from the data analyses, implications for research and practice, and recommendations for future research are discussed in Chapter Five.

CHAPTER TWO: LITERATURE REVIEW

Introduction

The purpose of this quantitative study was to ascertain the relationship between level of student engagement of senior class cohorts at Carnegie Baccalaureate Colleges and alumni donor participation rates during a five-year post-graduation period. Colleges and universities in the United States will continue to need funds to supplement the costs associated with educating the next generation (Zusman, 1999). Over the last thirty years, state and national appropriations for higher education have not maintained pace with the rising costs of higher education (Thelin, 2004), and alumni are more important than ever to the survival of institutions. Of all charitable giving, higher education received the largest portion of support, and *Giving USA* (2011) reports that individuals account for the majority of giving at colleges and universities. Figure 3 provides a visual representation of each supporter of higher education for 2011.

Philanthropic Financial Support of Higher Education Totals \$30.3 Billion



Figures in parentheses are percentages of total, and do not add to 100 due to rounding.

Figure 3. Philanthropic Financial Support of Higher Education Totals \$30.3 Billion. Adapted from *Giving USA* (2011).

As individual giving has evolved to become a vital support base of higher education, the study of how to solicit private funds for education has become a rapidly growing field. Unfortunately, the implications and broad applicability of preliminary findings are limited because of the absence of philanthropy research grounded in theoretical and conceptual frameworks (Drezner, 2011; Hurvitz, 2010). Carbone (1986) and Kelly (1991) suggest that while there is an overwhelming amount of instructive and experience-based fundraising advice to share, there is a limited amount of research-based knowledge.

Furthermore, the research-based knowledge of alumni donor involvement and philanthropic giving has traditionally focused on three major areas. These include: (1) the activities of development offices; (2) economic and tax benefits (Holmes, 2009); and (3) social psychology theories, including social learning theories and motivational theories of prosocial behavior. Researchers considering activities within development offices have examined trends of marketing materials, correlations between the number of staff members and giving, and strategies for successful event management. In regard to economic impacts, researchers have found that a positive relationship may exist between economic benefits, such as tax deductions, and alumni donor involvement (Gruber, 2004; Harrison, 1995). Researchers of social psychology theories have sought to understand the learned and prosocial behaviors of alumni as a means to explain their motivations for philanthropic giving. Despite this work, little is known about the years of an alumnus's life that are often considered the most transformational—the college years.

In the present study, it is assumed that alumni donor participation is best understood by focusing on student engagement, and specifically the aspects of student demographics and student experience that inform a measurement of student engagement. This study goes beyond

the traditional factors of development office practices, social psychology theories, and economic/tax benefits to provide cross-sectional information of student engagement and alumni donor participation rates of an individual class year at select institutions.

To begin, this literature review provides information on student engagement and its growth to include measureable variables. Careful consideration is given to the origins of student engagement within Chickering and Gamson's (1987, 1991) seven principles for good practice in undergraduate education. Specific consideration is given to each principle and a discussion of how the principles of student engagement shaped Kuh's (2001a, 2004, 2009a) theory of student engagement and the National Survey on Student Engagement (NSSE) is provided. The second section of this literature review presents background information on liberal arts colleges, including institutional characteristics, and the impact of these characteristics on students and alumni. Finally, this literature review synthesizes the grounded research of student engagement variable that affect the NSSE scores, institutional characteristics of liberal arts colleges, and factors that impact alumni donor involvement.

Baccalaureate Colleges

The Carnegie Classification's Definition of Liberal Arts Colleges

The Carnegie Classification is a taxonomy that has been used for over four decades. First developed in the 1970s by the Carnegie Commission on Higher Education to serve its policy needs, the Carnegie Classification was designed to provide information on colleges and universities across the United States in one central location (Carnegie, 1987). Although the

criteria or each classification are widely debated and have changed over the last forty years, the Carnegie Classification is still widely regarded as a resource for practitioners and researchers.

Liberal arts colleges were originally classified by the Carnegie Classification as “Baccalaureate Colleges: Liberal Arts I and II.” The distinction between “I” and “II” was based largely on selectivity of the college and the percentage of students pursuing degrees in a liberal arts field (Carnegie, 2001). This archaic method has been replaced by a new method that considers categories that better reflect campus environment, including percentage of students living on campus, enrollment, study body diversity, campus focus, commitment to graduate education, and fields of study for degrees awarded (Carnegie, 2009).

The most recent iteration of Carnegie Classification was released in 2010. Institutions classified as Carnegie Baccalaureate Colleges (CBCs) have two primary characteristics: (1) bachelor’s degrees accounted for at least 10% of all undergraduate degrees awarded; and (2) fewer than 50 fifty master’s-granting programs (Carnegie, 2009). Furthermore, CBCs are divided based upon the percentage of bachelor’s degrees awarded. CBCs that award over 50% of all degrees as bachelor’s degrees are divided by areas of study. The areas of study are categorized as “Arts & Sciences” and “Diverse Fields.” The Arts and Sciences classification represents the institutions that award over half of all bachelor’s degrees in arts and sciences. Institutions with less than 50% of all bachelor’s degrees in arts and sciences, or institutions that offer bachelor’s degrees in other areas, are included in the Diverse Fields category.

What is a Liberal Arts College?

Francis Oakley is President *Emeritus* of Williams College and of the American Council of Learned Societies in New York. Oakley (2005) proposed that liberal arts colleges be defined as “small college universities devoted exclusively (or almost exclusively) to the teaching of undergraduates” (2005, p. 3). Furthermore, because the literature has traditionally referred to many baccalaureate institutions as liberal arts colleges, and these institutions have provided a liberal arts education and awarded degrees in many fields of study including the arts and science fields (Gilbert, 1995; Harvard, 2007; Paulsen, 1990), the term “liberal arts colleges” will be used in this literature review when referring to non-profit, private institutions, as described within The 2010 Carnegie Baccalaureate Colleges—Arts and Sciences and Diverse Fields Classifications.

The Carnegie Classification is often used for defining a group of colleges or universities, such as liberal arts colleges, and its use is well supported in the literature. The 2010 Carnegie Baccalaureate Colleges—Arts and Sciences and Diverse Fields Classification used in this study has considered several of the characteristics found in liberal arts colleges, including size, selectivity, location, percent of students living on campus, and degrees awarded. Historical lenses are needed to fully illustrate the evolution of liberal arts colleges, and are further considered in this literature review.

History of Liberal Arts Colleges

Liberal arts colleges are described as “one of American society’s great success stories” (Breneman, 1994, p. 1). America’s early colonists understood that only by education could individuals be equipped to secure governance and preserve religious freedoms (Brubacher &

Rudy, 1997). The first higher-education institutions in America were founded to disseminate Christianity, prepare leaders, and train clergy (Brubacher & Rudy, 1997). Unlike present-day liberal arts colleges, which receive most of their funding from tuition and philanthropic alumni donor participation, financial support for the early liberal arts colleges came from their affiliation with religious organizations. In fact, of the nine colleges established prior to the American Revolutionary War, only the College of Philadelphia, later known as University of Pennsylvania, had no religious affiliation (Brubacher & Rudy, 1997).

Regardless of religious affiliation, the liberal arts colleges in the United States sought to prepare leaders for America, and believed that training in the arts, Classical Greek, and Latin were necessary (Brubacher & Rudy, 1997) to “develop personal character and intellect” (Lang, 1999, p. 134) of the citizens. Additionally, early liberal arts colleges believed that the training and installation of values would be most effective when the students lived in campus dormitories and shared common living space with peers. Furthermore, the “unabashed orientation of these institutions [liberal arts colleges] to student needs, to student satisfaction, and to educational outcomes” (Oakley, 2005, p.6) contributed to a successful alumni population. The results of the early liberal arts colleges are evident across the United States, and include many of the United States’ founding fathers, decorated military leaders, and presidents.

The rich tradition of excellence set forth by the early liberal arts colleges and their desire to impact the governance of society continues today, as many institutions seek to produce citizens who will be productive and curious (Voelker & Campbell, 2003). Liberal arts colleges attempt to provide a small, residential, and personal environment in which students can work

closely with dedicated and qualified faculty, an environment that “remains almost a unique embodiment of a certain ideal of educational excellence” (McPherson & Schapiro, 2000, p. 73).

Present Day Liberal Arts Campuses and Students

Present-day liberal arts colleges seek to build personal character and intellect and to “cultivate the ability for independent thought” (McPherson & Shapiro, 2000, p. 69), and have often retained several institutional characteristics of their origins (Harward, 2007). These institutional characteristics include small, independent, residential campuses that emphasize teaching and place less emphasis on research (McPherson & Schapiro, 2000; Oakley, 2005), and enroll mostly baccalaureate-seeking students who typically range in age between 17 and 21 (Astin, 1993). One area that has changed at liberal arts colleges over the last half-century is the demographics represented on campus, including admissions of scholars from the African Americans and Hispanic communities (Garcia Montano, 2010). Liberal arts colleges provide environments for students to mature intellectually and socially, and live and study alongside others of different races, gender associations, religious affiliations, and socio-economic backgrounds.

Kuh (2003) and others reported that those who earn their undergraduate education at a liberal arts college are best prepared for advanced graduate study and civic leadership. Durden (2001) proposed that a liberal arts education is the foundation for success in an ever-changing world, and that present-day students are best prepared to handle human and intellectual disagreements by utilizing the skills provided uniquely at liberal arts colleges. Pascarella (2005) and others found that this high frequency of post-graduation success was distinct to liberal arts

colleges and educational experiences. Furthermore, Hersh (1999) reinforced the impact of modern-day liberal arts colleges, saying:

Residential liberal arts colleges—by virtue of their primary focus on teaching, their small size, residential nature, quest for genuine community, engagement of students in active learning, concern for a general and coherent education, and emphasis on the development of the whole person—provide the most important kind of undergraduate education for the 21st century. (Hersh, 1999, p. 192)

Providing the best undergraduate education for the 21st century is not easy, and as Pascarella and Terenzini noted (2005), college and its impact on the student is mostly determined by the level of student involvement inside and outside of the classroom. True to their historical roots, present-day liberal arts colleges provide an opportunity for students to be intimately involved with faculty who are committed to engaging students (Kuh, Kinzie, Schuh, Whitt, & Associates, 2010). However, not all traditional roots, including religious affiliations, have survived, and the movement of liberal arts colleges away from religious affiliation has had a profound impact on their sources of funding.

Present-Day Financial Challenges

Unlike the early liberal arts colleges, which had strong financial support from their religious affiliations, the majority of liberal arts colleges of the present day are dependent on three primary modes of funding: student tuition dollars; alumni donor participation; and investment returns from institutional endowment, long-term investments funded by contributions from donors.

As administrators at liberal arts colleges work to increase revenue, reduce expenses, increase the public's perception of institutional quality, and enroll the most academically prepared students, several enrollment and financial aid mechanisms have taken form (Buss, Parker, Rivenburg, 2004; Ehrenberg & Smith, 2003; Parker & Summers, 1993), particularly in regard to enrollment management (Hearn, 1988, 1991). Enrollment management refers to the roadmaps and strategies used to produce targeted outcomes, such as to increase public perception, increase enrollment, meet revenue goals, and increase student satisfaction with college experience (Hearn, 1988; Russo, 1999; Wilkinson, Taylor, Peterson, & Machado-Taylor, 2007). Furthermore, enrollment management describes the strategies to increase financial aid awards and matriculation by focusing centrally on student tuition (Hearn, 1988; Russo & Coomes, 2000).

Student tuition. It is commonly believed that liberal arts colleges primarily survive on student tuition dollars (Fong, 2005), but Lapovsky (2005) reported that this is not entirely true; list price does not equal cost. Thus, student tuition revenue is not simply the product of the number of students multiplied by the listed cost of tuition (Hearn, 1988). Substantial tuition discounts are offered to competitive students, and institutions know that these discounts appeal to both parents and students (Fong, 2005; Lapovsky, 2005; Winston, 1999). The National Association of Independent Colleges and Universities (NAICU) reported that tuition and fees at liberal arts colleges increased by 3.9% for the 2012-2013 academic year. This marginal increase represents the smallest percentage increase of tuition at liberal arts colleges in over forty years (NAICU, 2012); the average increase between 1999 and 2009 was 5.7% per academic year. Meanwhile, the institutional financial aid provided to students at the liberal arts colleges

increased by 6.2% (NAICU, 2012). The president of NAICU, David L. Warren, reported, “Students and families are increasingly price- and value-conscious” (NAICU, 2012. para. 6). The attention that students and families are placing on tuition creates an environment for competition between institutions in areas such as offering attractive tuition discounting and financial aid packages (Hearn, 1988).

At liberal arts colleges, aid is offered to entice students to attend the institution, as competitive enrollment numbers are needed to compete with other institutions (Hearn, 1988; Hossler, 2004; Lapovsky, 2005). Despite the rising costs of student tuition and increases in student enrollment (see Figures 4 and 5) at liberal arts colleges, Fong (2005) and Lapovsky (2005) reported that many liberal arts colleges in America are marginally operating, and are unlikely to survive this century.

While an increase in student enrollment does provide some additional tuition funding, if liberal arts colleges are to remain true to their historical foundation of small classes that transform young minds, the number of qualified faculty must also increase—adding additional costs to an already strained budget. Therefore, an increase of student enrollment alone will not solve the struggles to maintain institutional quality. Figure 4 illustrates the steady increase of student enrollment at Baccalaureate Colleges over the last ten years.

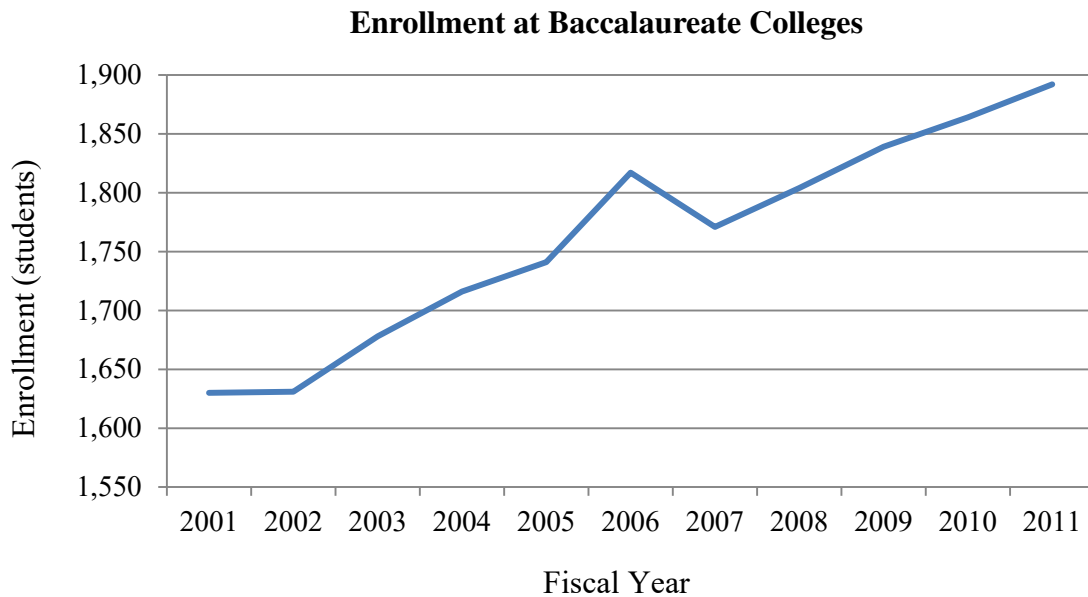


Figure 4. Enrollment at Baccalaureate Colleges.

Adapted from *Voluntary Support of Education, FY 2001-2011*.

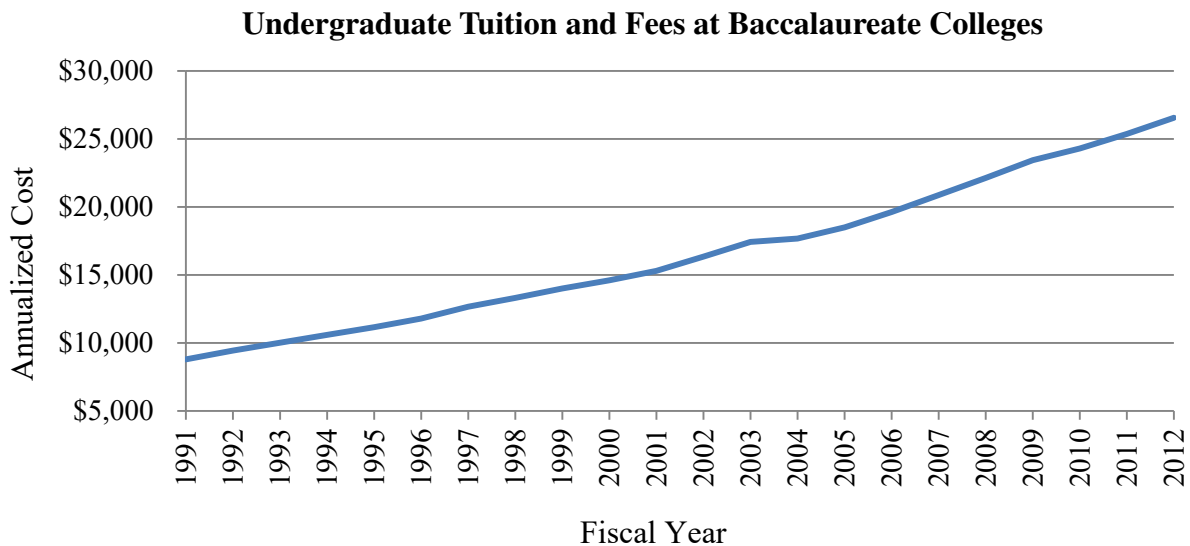


Figure 5. Undergraduate Tuition and Fees at Baccalaureate Colleges.

Twenty year snapshot of tuition, fees, and room and board at Baccalaureate Colleges located in the southeastern region of the United States. Adapted from *The College Board, Annual Survey of Colleges, 2011*.

Therefore, many liberal arts colleges may subscribe—if not literally, then at least parenthetically—to the fear that students equate price to quality, and thus that an institution with lower tuition will be perceived by prospective students as lower quality. This relationship is known as the Chivas Regal Effect. Therefore, liberal arts colleges can offer *selective discounting* (Lapovsky, 2005, p. 60) and increase the perceived quality as “a necessary strategy to fill up all of the seats in the class” (p.58), and receive a two-fold benefit.

Liberal arts colleges use the strategic options provided through the financial aid office to attract highly academically qualified students, and improve public perceptions of the institution (Hossler, 2004). The majority of internal financial aid is not provided by a large endowment, but covered by those students who pay the full cost of tuition—but a rise in tuition creates a rise in student need (Astin & Oseguera, 2004). The use of financial aid as a road map to determining the amount of aid that will induce a prospective student to enroll, instead of as a way to ensure affordability, is at the forefront of debate in higher education.

NAICU reported that liberal arts colleges across the United States are employing strategies to increase their attractiveness to prospective students and alleviate the likelihood of students graduating with high debt loads. The strategies discussed by NAICU include tuition cuts, tuition freezes, student loan caps, and four-year graduation guarantees. Tuition cuts, including those offered by Concordia University, allow for a reduction of up to 33% for new and transfer students. Tuition freezes are being employed at liberal arts colleges through the United States, and offer students a set price for all four years of their undergraduate careers. The student loan capping program is being rolled out by Franklin and Marshall College for a two-year study, and will provide student aid packages to cover tuition costs of students from low and middle

income families, so that a graduating student does not have loans that exceed \$10,000. Similar programs have been used at Davidson College, a liberal arts college in North Carolina. These strategies allow for students to complete their undergraduate studies at liberal arts colleges and graduate without overwhelming student loans, a practice that Allan (1999) found directly impacted alumni donor participation.

In consideration of tuition costs at liberal arts colleges, as well as the financial aid packages that institutions offer, a concern that is often at the forefront of discussions is diversity and access. One aspect of the debate is the suggestion that financial aid and tuition discounting are used as a means of increasing enrollment of students who are able to afford the cost of attendance, and decreasing the population of lower-income students (Dowd, Cheslock, & Melguizo, 2008). However, this may not be cause and effect. Instead, it may be an effort by liberal arts colleges to accept the most academically qualified students and thereby increase the colleges' rankings, which continue to influence perception of collegiate quality, while obtaining the maximum amount of tuition revenue from the students (Buss et al., 2004; Fong, 2005).

In instances of accepting highly academically qualified students, Hu and St. John (2001) found that financial aid and tuition discounting directly affected persistence among African American and Hispanic students (McGhee, 2011). Furthermore, St. John, Paulsen, and Carter (2005) found that for African American families, the student aid package played a significant role in a student's decision to enroll and positively impacted persistence (McGhee, 2011). This heightened enrollment and persistence among African Americans and Hispanics could point toward opportunities for liberal arts colleges to further distinguish their campuses (Garcia Montano, 2010).

However, those who are unable to pay the listed cost of attendance or obtain generous tuition discounts, and yet enroll in liberal arts colleges, are obtaining student loans to finance their education. Many government programs have been developed to help recent alumni handle their debt loads, but the reality is that students who are laden with six-figure student loan debts have a reduced capacity to give, and are unlikely to become alumni donors in the foreseeable future (Meer & Rosen, 2012).

Allan (1999) observed that liberal arts colleges that seek to manage competing goals of enrolling academically competitive students by offering tuition discounting find themselves in a perpetual cycle of increasing the list price of tuition and offering additional tuition discounts to attract students. If Allan's (1999) observation is true and students graduate with heavy debt loads, a dual detriment exists. First, this cycle could result in an erosion of quality and prestige and instead produce alumni who graduate feeling that they have overpaid for their education. Leaving indelible scars on a potential alumni donor's experience, and hence, be eternally damaging to the long-term alumni donor support opportunities that liberal arts colleges need to survive. Secondly, the burdens of student loan debt on recent college graduates will reduce their disposable incomes, thus making it difficult for even alumni with positive collegiate experiences and high perceptions of collegiate quality and prestige to become donors (Meer, 2011).

Hansen (1998) suggested that perceptions of quality and prestige begin to form with the receipt of an admissions letter, and Mael and Ashforth (1992) surveyed 297 alumni at an all-male religious college and found that that alumni who, as students, perceived that their institution was high-quality and prestigious, showed higher alumni donor participation rates.

Thus, although enrollments continue to increase, and liberal arts colleges are often required to discount the published tuition rates to attract competitive students (Lapovsky, 2005), the higher price could impact how students perceive their education, and directly influence alumni donor participation (Hoyt, 2004).

Philanthropic Alumni Donor Participation

History

Philanthropic alumni donor participation is a practice that is over 500 years old, with origins tracing back to Oxford University (Markoff, 1978). Harvard College was established in 1636, and modeled after Oxford. Of the many practices that were adopted for higher education in early America, one that has been critical to the survival of education is philanthropic support from alumni. Alumni giving in America began at Harvard College with a donation of land in 1648 by four Harvard alumni (Markoff, 1978). The gift was followed by gifts from other alumni for the remainder of the seventeenth century, and contributed to the establishment and steadfastness of Harvard and other higher education institutions in America.

Curti and Nash (1965) found that America's earliest institutions understood the importance of alumni donor participation to establishing and advancing higher education in America. However, institutions relied mostly on garnering limited numbers of substantial donations, and it took almost two centuries for institutions to develop strategic initiatives to increase alumni donor involvement (Curti & Nash, 1965; Stewart, 1955).

Organized Alumni Donor Participation

In 1890, the first alumni donor participation program in the United States was instituted by Yale University. The Yale System, an organized alumni giving initiative for all alumni of Yale University, sought to increase smaller donations from many instead of relying on only large donations from the few. Within two decades, The Yale System forever changed the trajectory of Yale University by balancing years of fiscal struggles (Geiger, 1985). The success of Yale set the framework for alumni donor participation, and successes such as Yale's have occurred in many institutions since the late 19th century.

The benefits of alumni donor participation are numerous. Charles Eliot, president of Harvard from 1869-1909, is regarded as the sole force that transformed Harvard from a provincial college into a preeminent research university. During his forty-year tenure as president, Elliot also set the foundation for organized alumni support at Harvard. Elliot was a fierce advocate for alumni participation, and recognized that alumni support as critical leverage when seeking funds from other sources. During Eliot's tenure at Harvard, he proclaimed, "An institution that cannot rally to its financial assistance the men who have taken its degrees and whose diploma is their passport into the world is in poor position to ask for support from others" (n.d.). Eliot's statement caused a surge of giving among the Harvard alumni and significantly increased alumni donor participation, resulting in ripple effects that increased corporate contributions and institutional prominence (Stewart, 1957).

National Rankings

Institutional rankings are very influential in higher education (Moore, 2008). Ranking reports such as *US News and World Reports* (2012) have contended that alumni donor participation rates are a reflection of student satisfaction. James Madison University (2012) spelled out the cause and effect connection to the students: “the number of alumni who make a gift every year is a key factor in determining national rankings of colleges and universities, such as *U.S. News & World Report's* annual top-20 list. Having a nationally ranked university, in turn, makes our graduates more competitive in the job market” (para. 5). Interestingly, the amount given by alumni does not matter; participation counts most in the *U.S. News & World Report* rankings.

Size Does Not Matter

The Yale System and Elliot’s battle cry forever changed the landscape of alumni donor participation, emphasizing the act of participation and not solely the size of the gift. This change encouraged philanthropic alumni donor participation, regardless of the size of each gift. Not only did this allow alumni who were only able to make small gifts to their *alma mater* to become stakeholders, but often these smaller gifts were not designated towards a specific project such as a building or capital campaign, and could be used to enhance the daily operations of the institution. Non-designated, discretionary funds are vital to the operation of an institution; Leslie and Ramey (1988) stated, “voluntary support is becoming the only source of real discretionary money [that an institution has]” (p. 115). There are numerous institutions that have benefitted from the support of alumni, and as Stewart (1957) pointed out, “all universities and colleges—

and the private institutions in particular—must look to philanthropy as a primary source for that additional support” (p. 191).

Present Day

The importance of alumni donor participation continues today, and liberal arts colleges rely heavily on their alumni for support. Alumni donor participation accounts for approximately 25% of the budget at liberal arts colleges in America (Grandgenett, 2007). To support the next generation of institutions, researchers from a multitude of disciplines have sought to better understand alumni giving (e.g., Field, 2011; Grandgenett, 2007).

Voluntary Support of Education, a national database of alumni donor and institutional data, reported that liberal arts colleges are experiencing a steady decline in alumni donor participation (see Figure 5); this affects individual institutions. Ultimately, if the current trend is not remedied, then the rich history of a liberal arts education and the role that liberal arts colleges have played in the fabric of American higher education will become a relic (Curti & Nash, 1965; McPherson & Schapiro, 2000).

Alumni Donor Participation Baccalaureate Colleges

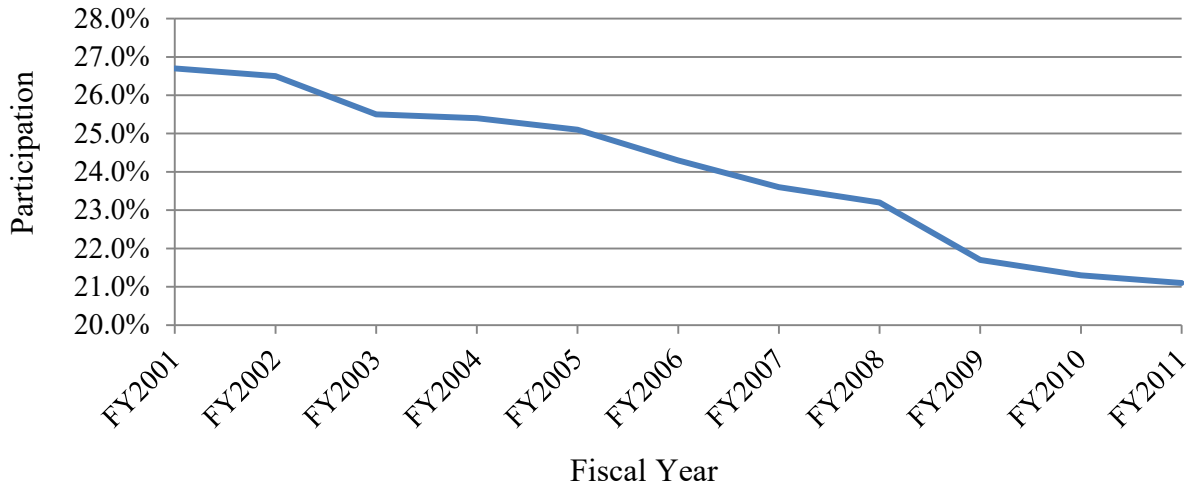


Figure 6. Alumni Donor Participation at Baccalaureate Colleges.

Adapted from Voluntary Support of Education, FY 2001-2011.

However, liberal arts colleges vary widely in their institutional wealth, diversity, selectivity, religious affiliation, educational offerings (Astin, 1993; Oakley, 2005), geographical location (IPEDS, 2012), and alumni donor participation (Harrison, Mitchell, & Peterson, 1995). Because liberal arts education began in the Northeast, studies that examine alumni donor participation at liberal arts colleges have tended only to focus on the elite Ivy League institutions that have strong financial resources and abundance of alumni donor participation (Hurvitz, 2010; Tsao & Coll, 2005). Unfortunately, colleges outside of the Northeast often have the greatest financial need and are susceptible to irreparable damage from low alumni donor participation (McPherson & Shapiro, 2000; Oakley, 2005). Furthermore, studies have provided a wealth of information to both researchers and practitioners at elite institutions; however, strategies that are successful at elite liberal arts colleges may not be efficacious at colleges in the other parts of the

United States (Hunter, 2012). Grandgenett (2007) examined alumni giving rates and fundraising strategies that liberal arts colleges located throughout the Midwest, and found that of the 161 participating institutions, two-thirds had experienced steady deterioration of alumni donor participation, and the remaining one-third operated at or below a financially viable level. In 2012, the Integrated Postsecondary Reporting System (IPEDS) reported that the greatest percentages of liberal arts colleges are located in the southeastern region of the United States. Yet there are very few studies that have examined alumni donor participation in the southeastern region. Therefore, this study focused on schools located in the southeastern region of the United States.

Research on Alumni Participation at Baccalaureate Colleges

Liberal arts colleges are more dependent than ever on support for the alumni base to maintain high levels of performance (Clotfelter, 2003; Drezner, 2009; Gunsalus, 2004). A foundational piece of research for informing academicians and practitioners on development was the result of a cooperative study between the Council for the Advancement and Support of Education (CASE) and ERIC Clearinghouse on Higher Education (Brittingham & Pezzullo, 1990; Weerts & Ronca, 2008). This report is widely cited, and draws from many areas across campus to examine the development process. Much of the research surrounding alumni donor participation is based upon survey and interviews with alumni. Often, this research is dissertation research and has focused on only single institutions (Brittingham & Pezzullo, 1990). Furthermore, the results of these studies indicate that an alumnus's decision to give is not a result of post-college connection with the college, but instead is based largely on demographics and

student experiences, engagement, and overall college satisfaction of the alumnus. This sets the framework for further using a nationally recognized instrument of student engagement and student experience, the NSSE, to correlate these variables with alumni donor participation rates. In the long term, this method could be used to predict an alumnus's response to a future request. Therefore, this review of the literature presents information on the elements that are relevant to alumni giving, to contribute to a better understanding of the factors of student experience and demographic variables.

Clotfelter (2001) extensively studied two distinct generations of alumni from 14 liberal arts colleges and found that participation in extracurricular activities (especially holding leadership roles), faculty/student contact and mentorship, and satisfaction with college experience were significant variables that affected alumni donor participation.

Gunsalus (2004) examined several factors that influence alumni donor participation at liberal arts colleges, and much of his work focused on institutional characteristics of the liberal arts college that support a cohesive student experience. Gunsalus examined 195 private colleges and universities with "master's" designations by *US News and World Report*. The results of his study showed that at a 0.05 significance level, first-year retention rate, graduation rate, percent of students living on campus, tuition price, and student-to-faculty ratio were significant predictors of high alumni donor participation rates. While each variable that Gunsalus identified to be a predictor of alumni giving is an institutional characteristic, it is well supported in the literature that these characteristics are central to the liberal arts college environment and contribute to a cohesive student experience. Therefore, extracting from these findings allows for a better discussion of the intersection between academic and student affairs and a better understanding of

their influence on alumni donor participation (Van Horn, 2002). Furthermore, Gunsalus (2004) reasoned that these characteristics should be considered in developing a study to examine alumni donor participation, and when it is necessary to benchmark against peer institutions. Therefore, as the selection of institutions is considered in Chapter Three, a more in-depth discussion will follow.

In a study at Wellesley College, one of the most prestigious women's colleges in the United States, Grant and Lindauer (1986) found that age was a significant factor of alumni donor participation. Their study focused on examining the participation rates of class year cohorts and demonstrated that, as the age of the graduated class increased, the alumni donor participation rate also increased. Additionally, Okunade, Wunnava, and Walsh (1994) found that age and alumni donor participation was positively correlated. This is good news for liberal arts colleges, and as early giving by recent college graduates remains a primary predictor of future giving (Wunnava & Lauze, 2001), this information reinforces the need to better understand the student experiences and demographics that most closely correlate with future giving.

Belfield and Beney (2000) examined two British universities and also found that there was a positive relationship between alumni age and donor participation. Furthermore, their study suggested there was a significant impact of gender on alumni donor participation. Belfield and Beney suggested that women are more likely to become alumni donors than their male counterparts; however, when comparing the size of the gift, men contribute substantially more than women. This finding directly contradicted a finding by Okunade et al. (1994), who reported that gender does not impact alumni donor participation rates.

Broadening the scope of institutions, Harrison, Mitchell, and Peterson (1995) studied 18 universities and colleges over a three-year period, and found that colleges with Greek organizations experience increased giving from members of fraternity or sorority organizations. Furthermore, the researchers found that colleges with a high population of part-time students had lower alumni donor participation rates. In this study, findings were consistent regardless of whether the college was private or public, or a small institution or a research institution. Okunade et al. (1994) found similar results and suggested that professionals in alumni development offices should reach out to alumni who participated in Greek Life while enrolled.

Bruggnik and Siddiqui (1995) modeled alumni donor participation rates at liberal arts colleges and found positive correlations with key student experiences and demographic variables. Building upon the work of Bruggnik and Siddiqui, others have also found factors of the college student experience to be significant predictors of giving. Significant experience variables included living on campus, studying abroad, being affiliated with Greek Life, and holding leadership roles while enrolled in college. Demographic variables that were found to contribute to future alumni donor participation included undergraduate major, gender, recipient of institutional scholarship or student debt at graduation, and nationality (Conner, 2005).

Variables Related to Alumni Donor Participation

Student Experience

For this study, the five variables (factors) that inform the concept of student experience are participating in Greek Life, holding student leadership roles in college, studying abroad, being a student athlete, and living on campus.

Greek Life. Colleges and universities with sororities and fraternities are defined as having a Greek Life presence. In fact, there are more than 100 social Greek-letter establishments at over 900 institutions within the United States (O'Neill, 2005). Greek Life involvement has a rich tradition at many colleges and universities across the United States, and many institutions credit the Greek traditions with shaping the lives of students on campus. Research on the impact of Greek Life on the undergraduate experience is controversial (Steeper, 2009; Tripp, 1997), but the impact that fraternities and sororities have on university life cannot be ignored (Kuh, Pascarella, & Weschsler, 1996). Additionally, researchers have found that Greek Life involvement has a direct link to alumni donor participation (Belfield & Beney, 2000; Dugan, Mullin & Siegfried, 2000; Haddad, 1986; Harrison, Mitchell & Peterson, 1995; Hunter, 1997; O'Neill, 2005; Martin, 1993).

Belfield and Beney (2000), who examined alumni giving in the United Kingdom, found similar results, including the significance of Greek organization affiliations and demographic characteristics such as gender and nationality to alumni donor participation. Haddad (1986) used a survey questionnaire to investigate the differences between alumni donors and non-donors at Butler University. Data were collected from alumni and included 400 donors and 400 non-donors. Haddad found that students who were involved with fraternities and sororities were more likely to give than alumni who did not have a Greek Life affiliation. Additionally, Haddad (1986) found that a significant predictor of alumni donor participation was undergraduate major.

Robinson (1994) surveyed alumni donor participation at three public institutions, including a Historically Black College and University (HBCU). Of the five categories (demographic data, student experiences, academic experiences, alumni support, and alumni

attitude), the demographic variables of undergraduate major and gender and the student experience variables of participating in student athletics, living on campus, and holding leadership roles were each associated with increased alumni donor participation. Therefore, Robinson's study confirmed that undergraduate major and gender were significant demographic characteristics; both are further explored in the alumni donor participation section of this study. Furthermore, student experiences such as participating in intercollegiate college athletics, living on campus, and holding leadership roles within the college were all found to be predictors of alumni donor participation (Burt, 1989).

Shim (2001), in a study of 500 alumni from an all-female college, found that living on campus was significantly related to alumni donor participation. However, unlike other investigations, Shim's found that extracurricular activities, student experiences, and receiving financial aid were not significantly related to alumni donor participation. O'Neill (2005) examined the personal giving history of all 36,340 undergraduate alumni at the College of William and Mary who were affiliated with a graduating class between 1964 and 1994. Examining a span of thirty years allowed the researcher to observe significant trends among alumni donors. O'Neill found that alumni who were affiliated with a Greek organization while enrolled were more frequent and more generous in their support of the College of William and Mary than their non-Greek peers. Furthermore, Dugan, Mullin, and Siegfried (2000), in a multi-year study of Vanderbilt University class cohorts, found that membership in a fraternity or sorority while in college increased alumni donor participation. Other findings of Dugan et al. (2000) demonstrated that being a student athlete also increased post-graduation alumni donor participation.

In a study of Livingstone College, a HBCU located in North Carolina, Hunter (1997) found that alumni who were involved in Greek Life while enrolled as students showed significantly higher alumni donor participation rates than alumni without Greek Life affiliation. Lofton (2005) found that for members of the University of Southern Mississippi Alumni Association, leadership positions held while students were enrolled and associations in campus life were significant determinants of future alumni donor participation. However, Young and Fischer (1996) looked at the alumni donor participation rates of Pepperdine University, and found that undergraduate experiences were not predictors of future alumni giving. The results of Young and Fischer (1996) indicated that alumni donor status was better predicted by examining only the involvement of alumni post-graduation than the impressions that an institution left on graduates—their experiences. Turner, Meserve, and Bowen (2001) examined the relationship between winning football teams and alumni donor involvement at Division IA, II, and III liberal arts colleges. Although few conclusive determinations could be made for the impact of winning and alumni donor involvement, the study did reveal that former student athletes gave at a higher percentage than non-athletes. Furthermore, their study showed that gender did not play a significant role in alumni donor participation rates among former student athletes.

Demographic Variables

The five demographic variables (factors) that are examined in this study and that others have found to impact alumni donor involvement include gender, recipient of institutional scholarship, undergraduate major, nationality, and educational level attained by the students?

parents. These five factors will inform and compose the demographic variables presented in the conceptual model.

Gender and recipient of an institutional scholarship. Belfield and Beney (2000) found that by percentage, women were more generous than male alumni, but that gifts from males tended to be larger; and Schmidt (2001) who examined alumni donor records at Winona State University found that gender was a significant predictor of alumni donor participation. Dugan, Mullin, and Siegfried (2000), in their study of Vanderbilt University alumni class cohorts, also found that gender was a significant factor in alumni donor participation.

Diehl (2007) who studied constructs associated with alumni donor participation at Pennsylvania State University found that gender and receipt of a scholarship or school supported financial aid played a significant role in alumni donor participation. Cunningham and Cochifcano (2002) also found that students who received need-based scholarships were more apt to give generously as alumni. Hoyt (2004), who worked to develop a model for predicting alumni donor participation, found that receiving institutional financial aid was a significant factor in future alumni donor participation. Hurst (2008) alluded to the possibility of a relationship between receiving institutional financial aid and alumni donor participation; however, he was unable to conclusively establish this relationship empirically and recommended further study of the phenomenon. Hunter (1997) also found that gender was a significant predictor of alumni donor participation, but did not find relationships between receiving institutional scholarships or financial aid and alumni donor participation rates. Additionally, Baade and Sundberg (1993, 1996) found that receiving an institutional scholarship did not impact alumni donor involvement. However, Marr, Mullin, and Siegfried (2005), who provided an arguably stronger methodology

(Meer & Rosen, 2012) by looking at the amounts given to individuals and corresponding alumni donor participation for eight years after graduation, found that need-based and meritocratically-based scholarships were positively correlated with increased alumni donor participation, while student loans negatively affected alumni giving.

Furthermore, some have found that gender does not play a significant role in alumni donor participation. Lawley (2008), who examined alumni donor rates and the factors that affect alumni loyalty at a public university, and Baker (1998), who examined alumni donors at four post-baccalaureate programs, both found that gender was not a significant factor in alumni donor participation. The present research study included gender as a factor because many studies that have sought to refute the impact of gender on alumni donor participation have focused on specific instances and only considered small populations in each study. To this end, Grill (1988), who studied attitudinal variables of alumni giving at Pennsylvania State University's College of Education, found that gender was a distinguishing characteristic between large and small donors; however, gender was found to not be a factor in participation rates between donor and non-donors. Hall (2004) provided a possible explanation for Grill's finding: "Men tend to give to enhance their own standing or maintain the status quo, it is believed, while women give to promote social change or help others less fortunate" (Hall, 2004, p. 71). Therefore, Grill showed that while gender is significant to the amount given, it is not significant when examining alumni donor participation.

Undergraduate major. Haddad's (1998) work at Butler University to investigate the differences between alumni donor and non-donors also demonstrated that undergraduate major is a significant predictor of alumni donor participation. Haddad found that the highest percentage of

donors came from alumni with majors in business administration and education. Furthermore, Grill's (1998) study of alumni donor participation at Pennsylvania State University revealed that undergraduate major was a significant factor in alumni donor participation, but he did not explore the discriminate analysis of individual majors. Diehl (2007), who also examined alumni giving at Pennsylvania State University, found undergraduate major to be a significant predictor of alumni donor participation. Diehl found that alumni with majors in natural sciences and business were more likely to give than their counterparts. Other findings by Robinson (1994) included the significance of undergraduate major for alumni donor participation. Dugan et al (2000) and others, including Shadoian (1989), who conducted a survey of over 1,000 alumni who graduated over a 10-year period, examined the demographic and attitudinal variables associated with alumni donor participation at a college and found that undergraduate major was a significant factor in alumni donor participation.

Nationality and education level of parents. In regard to nationality and education level of parents or guardians, there is a scant amount of literature. Alumni giving research on the impact of nationality places the emphasis on race and ethnicity, and does not emphasize country of origin (Diehl, 2007). While some researchers reported significant differences between the giving rates of different races and ethnicities (Drezner, 2011; Gonzalez, 2003; Smith, 2008), there is still much debate on the relationship between race, ethnicity, and alumni donor participation (Lackie, 2010). Furthermore, the impact of education level of parents has not been explored, but rather only the effect of a family member also being an alumnus/a of the institution (Oglesby, 1991; Mosser, 1993). Therefore, the present study was opportunely positioned to

explore two demographic variables that could impact alumni donor participation, and significantly contribute to the literature of alumni giving.

Student Engagement

Student engagement, and its impact on student learning, success, and experience (Astin, 1993; Boyer, 1987; Feldman & Newcomb, 1969; Pascarella & Terenzini, 1991), has been an evolving and ever-changing construct and research area for nearly fifty years (Astin, 1993; Kuh, 2009a; Pace, 1980; Pascarella & Terenzini, 2005). The study of student engagement began with Ralph Tyler's time on task theory, which showed a positive correlation between time on task and learning gains (Merwin, 1969). This gave momentum to Astin's theory of involvement (1984), which demonstrated that student involvement and student engagement are impacted by the effort and energy the student expends in meaningful educational experiences. Astin's work was complimented by the concept of "quality of effort," proposed by Pace (1980) and Pascarella (1985), the concept of "student outcomes" (Pascarella, 1985), and Vincent Tinto's conceptualization that social and academic integration affect retention (Tinto, 1987). The work of Pace (1979, 1980), Pascarella (1985), and Tinto (1987) gave theoretical and empirical footings to the study of student engagement by clearly indicating "that what matters most in student learning and personal development is what the students do in college" (Hu & Wolniak, 2013, p. 212). Furthermore, these foundational pieces of student engagement theory laid stepping stones for the next phase of student engagement theory, Arthur Chickering and Zelda Gamson's *Seven Principles of Good Practice in Higher Education*.

Following the challenges faced in the 1960s and 70s to increase access and participation of under-represented populations, the leaders of higher education were vilified in the 1980s for neglecting a uniform standard of educational quality (Jacoby, 1994). In 1986, the Johnson Foundation and the Lilly Endowment sponsored Chickering and Gamson to compose principles for educating undergraduates that would “be accessible, understandable, practical, and widely applicable” (Chickering & Gamson, 1999, p. 76). Chickering and Gamson recruited a task force of higher education scholars who intimately grasped student development theory and understood the organizational, political, and economic pressures of undergraduate higher education. The efforts of this task force gave birth to the Seven Principles of Good Practice in Higher Education. By involving a broad range of higher education scholars to address specific facets of the college campus and their impact on undergraduate student experiences, Chickering and Gamson broke through the individual silos approach to the study of student engagement, and developed seven principles that have remained preeminent among theories of student engagement. Chickering and Gamson (1987) united college campuses under seven principles of widely applicable best practices for undergraduate education, condensing decades of research on undergraduate student engagement into one easy-to-read pamphlet (Fruzzetti, 2011).

Chickering and Gamson (1987) built their seven principles on “six powerful” (p. 3) educational forces: “activity, cooperation, diversity, expectations, interaction, and responsibility” (p. 3). The seven principles were (a) student-faculty contact, (b) cooperation among students, (c) active learning, (d) prompt feedback, (e) time on task, (f) high expectations, and (g) respect for diverse talents and ways of learning.

These seven principles provide faculty and academic leaders seeking to increase student engagement with the tools to enhance the undergraduate experience and create “gains in critical thinking, problem solving and effective communication, and responsible citizenship” (Kuh, 2004), and are being widely adapted across college campuses.

Student-Faculty Contact

The first principle, *student-faculty contact*, is “the most important factor in student motivation and involvement” (Chickering & Gamson, 1987, 1991), and is critically important to success, persistence, and belonging (Tinto, 1987). Interactions between students and faculty also enhance the students’ intellectual seriousness by helping them think about their future plans and values. The first principle is often accomplished through opportunities such as undergraduate research experiences, which can promote interest in research and provide opportunities for publication (Pacifci & Thomson, 2011), mentorship between the student and faculty, and involvement in community outreach. Jacob (1957) found that this is often only accomplished by normal, frequent, and uninhibited interactions outside of class. Thistlewaite (1960) suggested that students’ contact with faculty members are primarily responsible for the impact college has on students, and that student-faculty contact is regulated by the faculty. Furthermore, Pascarella, Terenzini, and Hibel (1978) suggested that student-faculty contact in an informal setting could be more impactful to students and their undergraduate experiences than contact within the classroom. Researchers have inferred that student-faculty contact positively affects student achievement, as faculty place importance on learning and students are socialized to the faculty’s expectations. Milem and Berger (1997) alleged that student-faculty interaction was a strong

contributor to persistence and directly influenced the students' interaction with peers; a finding that is supported by Tinto (1987), who suggested that student-faculty interaction enhances social integration and commitment to the college. Lastly, although overall satisfaction with college experience is often considered to be sourced within peer groups, Alberti (1972) and Gaff & Gaff (1981) suggested that student-faculty non-academic contact is more impactful on a student's engagement and positive experience. Although several empirical studies have tried to determine the correlation between student-faculty contact and student experiences (Astin, 1977; Kirk and Dorfman, 1983; Pascarella and Terenzini, 1976; Pascarella & Terenzini, 1977; Spady, 1971; Terenzini, Theophilides, & Lorang, 1984) a correlational study does not expose causation and only inferences can be made.

Reciprocity and Cooperation among Students

The second principle is *reciprocity and cooperation among students* (Chickering & Gamson, p. 3). Student learning is enhanced when individual effort supports the team's effort. The enhanced learning can often be accomplished through tutors, group projects, and learning communities (Chickering & Gamson, 1987). Simultaneously, reciprocity and cooperation prevent a student from becoming a passive participant or observer, and change the learning environment from competitive and isolated to welcoming and collaborative (Chickering & Gamson, 1987). This simultaneity leads to the third principle, *active learning*. Active learning occurs when students critique each other's work, and rephrase, discuss, write, and apply the material presented in lecture. However, active learning is not limited to the classroom environment, and often occurs through internships, independent study, cooperative job

placement programs, and student teaching (Chickering & Gamson, 1987). Even with the theoretical constructs, the empirical evidence to support active learning is lacking (Prince, 2004), especially with regard to defining what active learning is and is not. Sorcinelli (1991) worked to present a foundation for Chickering and Gamson's principles, but was unable to establish empirical data that firmly supported active learning. The second and third principles are often considered to prepare the student for real-world interactions, and are included as one measure in the NSSE benchmarks (Kuh, 2009b). Similar to the first principle, student-faculty contact, these are also limited in their broad applicability, and are often criticized for attempting to closely examine isolated events to describe causation from correlational studies (Kirk and Dorfman, 1983; Pascarella and Terenzini, 1976; Spady, 1971; Terenzini, Theophilides, & Lorang, 1984). Springer, Stanne, and Donovan (1999) examined effect sizes for students engaged in collaboration while studying in the science, technology, engineering and mathematics fields, and found that collaboration promotes a broad range of positive student learning outcomes and that much of the observed effect size was owed to faculty promoting student collaborations (Prince, 2004). Lastly, Prince (2004) found that in addition to increasing student success, cooperative learning "promotes interpersonal relationships, improves social support, and fosters self-esteem" (p. 228). Additionally, Panitz (1999) and others also empirically observed the positive learning outcomes of cooperation among students (Terenzini, Cabrera, Colbeck, Bjorklund, & Parente, 2001).

Prompt Feedback and Time on Task

The fourth principle, *prompt feedback*, helps students refine their current understanding and promotes accuracy as they seek new knowledge. Students need consistent, authoritative, and accurate feedback to improve and reflect on what they have learned. The fifth principle, *time spent on task*, follows the simple equation “time plus energy equals learning” (p. 4). Merwin (1969) proposed that students need to be engaged in opportunities to apply the skills acquired inside the classroom to situations outside the classroom; this is often accomplished when students have study abroad experiences and hold leadership roles on campus (Astin, 1993; Pike & Kuh, 2005). These principles affect students’ learning and professional growth, and students need help learning time management skills (Chickering & Gamson, 1991). Mastery of this principle requires effective learning for students and continued improvement of faculty teaching protocol (Chickering & Gamson, 1987).

High Expectations from Faculty and Respect for Diverse Talents

The sixth principle, *high expectations*, rests on a simple understanding that all students will achieve more when they are required to achieve more. High expectations are necessary for students at all levels, including “for the poorly prepared, for those unwilling to exert themselves, and for the bright and well-motivated” (Chickering & Gamson, 1987, p. 4). It is prudent to note that the academic achievement benchmark of the NSSE was crafted by combining the time on task and high expectations principles.

The last principle, *respect for diverse talents and ways of learning*, concluded Chickering & Gamson’s (1987) seven principles of good undergraduate education. Faculty need to

understand that students “bring different talents and styles of learning to college” (p. 5), and provide opportunities for students to showcase their knowledge and learning in a variety of venues. This can often be accomplished through individualized degree programs and personalized teaching and evaluation methods (Chickering & Gamson, 1987). Milem and Berger (1997) and Tinto (1987) credit high expectations of faculty for increased student persistence and integration into the college campus.

Adaptations of the Seven Principles

The seven principles of Chickering and Gamson (1987) have served as a template to organizations seeking to develop a set of guiding principles, instruments that are theoretically grounded in the literature of higher education, and advanced student engagement theories. The seven principles have been adapted by the American College Personnel Association and the National Association of Student Personnel Administrators to have a more “student-oriented emphasis” (p.77), under a charter titled the *Seven Principles of Good Practice in Student Affairs* (Chickering & Gamson, 1999). Scholars have used the seven principles at the Ohio State University to develop a survey-guided tool for faculty and students to manage communication and feedback during the learning process more effectively (Chickering & Gamson, 1999). In short, these seven principles, when applied to the student’s college experience, enhance and build an “ideal” experience (Pike & Kuh, 2005), leading to a fundamental tenet of Astin’s theories. Astin’s (1993) IEO framework has been used for assessing student development, e.g., Cooperative Institutional Research Program’s Entering Student Survey and its counterpart, The College Senior Survey (Astin, 1993; Kuh, 2009a).

Of all the evolutionary milestones between the 1960s and 1990s, two are most widely known by scholars and practitioners. The College Student Experiences Questionnaire, used by scholars to measure several of the principles (Kuh & Vesper, 1997; Kuh, Pace, & Vesper, 1997), and the National Survey of Student Engagement (NSSE) are deeply ingrained in Chickering and Gamson's (1987, 1991) good practices in undergraduate education. Kuh (2004) described the work of Chickering and Gamson (1987) as "perhaps the best known set of engagement indicators" (p. 1).

Developments in Student Engagement

Following Chickering and Gamson's (1987) seven principles to enhance the undergraduate experience, Astin sought to better understand how involvement impacted college students. Astin's (1999) student involvement theory posited that when students are involved in both the academic and social aspects of the collegiate experience, they grow and develop; however, this does not happen without the alignment of resources. Astin's theory is described as a dual-participant activity, in which "[the students] play a central role...[in] determining the extent and nature of growth according to the quality of effort or involvement with the resources provided by the institution" (Pascarella & Terenzini, 1991, p. 51).

Furthermore, Astin (1993), Kuh (2001a), Pike, Schroeder, and Berry (1997) and others used the early works of Chickering and Gamson (1987) to begin developing a framework for assessing the impact of student experiences, such as living on campus, on student engagement and collegiate quality (Reason, Terenzini, & Domingo, 2006). Liberal arts colleges were at the

forefront of this discussion, and were actively seeking transportable practices to assess and track efforts that add value to a college student's experience (Kuh, 2003; Kuh, Hu, & Vesper, 2000).

Streamlining Student Engagement

Liberal arts colleges have roots in the beginnings of higher education in America, and *in loco parentis* are at the forefront of their history, as students live in proximity to peers without a parent and are responsible for making their own choices (Brubacher & Rudy, 1997). Thus, it was no surprise to liberal arts colleges that “living on campus is perhaps the single most consistent within-college determinant of impact” (Astin, 1999, p. 611), and dual-participant activities such as student athletics and student organizations increase student engagement (Chickering & Reisser, 1993; Chickering, 1969; Kuh et al., 1991; Pascarella & Terenzini, 1991, 2005). The ability to support these findings in consistent, measurable, and transferable ways set the stage for assessment of student engagement using a nationally standardized instrument: the National Survey of Student Engagement (NSSE).

National Survey of Student Engagement

The activities that shape and impact college and university environments have been studied extensively (Astin, 1993; Astin & Sax, 1998; Carini, Kuh, & Klein, 2006; Kuh, Pace, & Vesper, 1997; Pascarella & Terenzini, 1991, 2005; Schroeder & Kuh, 2003; Umbach and Kuh, 2003, 2006). The 1990s were met with increased interest in student engagement and a need for reliable and valid instruments to assess student engagement and collegiate quality (Ewell & Jones, 1996). Through funds provided by the Pew Charitable Trusts, and under the direction of

the National Center for Higher Education Management Systems, the National Survey of Student Engagement (NSSE) was created.

The National Survey of Student Engagement (NSSE), a nationally recognized instrument, obtains data that identifies aspects of the undergraduate experience, inside and outside of the classroom, that contribute to learning and success during college (Kuh, Hayek, Carini, Ouimet, Gonyea, & Kennedy, 2001). The instrument is structured to provide information in five categories. The NSSE targets the heart of student engagement through two critical measures of the college experience and collects data in five categories (Kuh, 2001b).

The two overall measures of college experience are: (1) the amount of time and effort students invest in their coursework and on educational on-campus activities, and (2) the institution's utilization of its resources to create learning opportunities and organize curriculum in a manner that is highly correlated to student learning. Because of the relationship of student engagement and overall student experience, the conceptual model for this study integrated engagement, as described by Kuh et al. (2000), as one circle that impacts alumni donor involvement. As shown in Figure 7, the five benchmarks to assess campus environments in relation to student engagement are: (a) Level of Academic Challenge (LAC), (b) Active and Collaborative Learning (ACL), (c) Student-Faculty Interaction (SFI), (d) Supportive Campus Environment (SCE), and (e) Enriching Educational Experience (EEE) (NSSE, 2000). These benchmarks are central to the framework of the NSSE, and provide a basis for comparison between institutions (Kuh, 2001b).

Student-Centered Model of Alumni Donor Participation



Figure 7. Student-Centered Model of Alumni Donor Participation.
The Student Engagement circle of the Student-Centered Model of Alumni Donor Participation is presented to showcase NSSE's five benchmarks of student engagement.

Descriptions of the Five Benchmarks

Active and Collaborative Learning is assessed by asking questions relating to class preparation, tutoring, involvement in community outreach initiatives, and time spent working on group projects that require inquiry-based learning and collaboration both inside and outside of the classroom environment. *Level of Academic Challenge* assesses the amount of time spent preparing for class, amount of reading and writing, intellectual inquiry, and level of vigor.

Institutions with lax attendance policies and mild curricula have significantly lower scores on this benchmark. *Student-Faculty Interaction* is assessed through questions related to promptness of feedback on academic performance, the frequency with which students talk with faculty members outside of the classroom, and items related to the opportunities for student participation on faculty research projects. *Enriching Educational Experiences* assesses items related to the students' experience with diverse racial, ethnic, and religious backgrounds, as well as political views, uses of technology, and participation in community service, internships, job shadowing, study abroad, co-curricular activities, and/or cumulative senior-year experience. Lastly, *Supportive Campus Environments* is assessed by the students' perceptions of the extent to which the campus enhances their social and academic success, assists when coping with non-academic pressures, and supports positive interactions between students and peers, faculty members, and administrative personnel.

The five NSSE benchmarks have been described as an opportunity to observe the undergraduate experience (Kinzie & Matveev, 2008). The empirically-driven data have been reported to accurately assess student outcomes (Pascarella, Seifert, & Blaich, 2010) and have been used by many institutions to direct college strategy and identify areas of strength and weakness within their programs. Researchers also use NSSE data to compare peer institutions on a vast array of measures, including collegiate quality, student experience, and alumni donation rates; this research provides a basis for connecting student engagement and alumni donor participation. Because Chickering and Gamson's seven principles were summative of the college experience, and accounted for multiple aspects of the college environment, they serve as the foundation for the NSSE, and at least one of Chickering and Gamson's seven principles is

associated with each of the five NSSE benchmarks. *Supportive Campus Environments* is not directly associated with any specific principle of Chickering and Gamson, and is best described as being moderated by the seven principles in their entirety. Table 1 presents the seven principles and their close association with the benchmarks of the NSSE instrument.

Table 1 Chickering and Gamson’s Seven Principles and NSSE Benchmarks

Seven Principles	NSSE Benchmarks
Faculty Contact	Student-Faculty Interaction
Cooperation Among Students	Active and Collaborative Learning
Encourages Active Learning	Active and Collaborative Learning
Gives Prompt Feedback	Student-Faculty Interaction
Emphasizes Time on Task	Level of Academic Challenge
High Expectations	Level of Academic Challenge
Respects Diverse Talents and Ways of Learning	Enriching Educational Experiences and Supportive Campus Environments

Critiques of NSSE

The NSSE instrument is unique among assessments because it is “squarely focused on the extent to which first-year students and seniors engage in empirically-derived good educational practice and what they gain from their college experience” (Kuh, 2005, p.124). Because of the broad and unique characteristics of the NSSE, researchers are using NSSE data to better understand more about practices in seemingly unrelated areas that impact students (Field, 2011). According to Kuh (2009a), the NSSE should be “used to represent [report on] constructs

such as quality of effort and involvement in productive learning activities” (p. 6). However, not all stakeholders in academia are quick to buy in to the NSSE, and as Olivas (2011) noted, “No good deed goes un-assessed these days” (p. 1).

Dowd, Sawatzky, and Korn (2011) proposed that incomplete or inaccurate pictures of college campuses often exist when NSSE scores from two or more institutions are compared side-by-side, because when measuring student effort, the NSSE does not account for differences in student demographics and institutional characteristics. Goodwin and Leech (2003) propose that the student effort construct is intimately tied to intercultural effort, which is based on cultural and critical theories. Without accounting for the intercultural influences of a campus environment, they suggest, measuring student effort is challenging if not impossible (Dowd et al., 2011). Therefore, the NSSE is often criticized for its inability to properly address the student effort construct, as student effort is not theoretically defined and understood within “intercultural and economic constraints” (Dowd et al., 2011, p. 38). The other critiques of the NSSE’s ability to measure student engagement center on the instrument’s validity and reliability.

Porter (2011) disputed the validity of the NSSE survey in four primary areas: background, content, response process, and internal structure. A major assumption within the background of the NSSE proposes that students can accurately report their own behavior. Porter (2011) canvassed the models of human cognition and survey response, and reported that the literature “clearly suggests they [students] cannot” (p.45) accurately report their own experiences or behavior. Furthermore, Porter (2011) reported inconsistencies between the survey’s content with NSSE benchmarks and external data, purporting that the NSSE collects data on broad ideals of student experiences that lack a theoretical justification for inclusion. However, according to

Kuh et al. (2001c), the NSSE items were determined considering principles similar to those used by Chickering and Gamson (1987, 1991); these included: “(1) Is the item arguably related to student outcomes as shown by research? (2) Is the item useful to prospective students in choosing a college? (3) Is the item straightforward enough for its results to be readily interpreted by a lay audience with a minimum of analysis?” (p. 3). These criteria are based upon actual student behaviors and perceptions, and provide a useful piece of information to colleges interested in student engagement at their institutions (Kuh et al., 2001c).

Third, Porter (2011) questioned the response process of students responding to NSSE items. Porter (2011) suggested that students did not understand the questions being asked, and the results are inconsistent between survey respondents. Some rationale for why this may exist is due to the terms used on the survey; for example, students ranked their experiences on the 2006 NSSE using the Likert scale terms: Very Much, Quite A Bit, Some, and Very Little. Porter (2011) suggested that even if a student had a precise estimation of frequency, which in his opinion is highly unlikely, each of these Likert scale terms could be interpreted differently by students and students could be compelled to report a higher than accurate self-rating due “to social desirability bias” (2011, p.58). Pike & Kuh (2005) contended that survey respondents receive no incentive for completing the NSSE, and anonymity is provided so that students will feel comfortable being truthful in their responses. However, Porter (2011) demonstrated that occasionally, students intentionally misrepresent themselves to look better. Furthermore, Porter (2011) criticized the response process by focusing on the use of specific terms such as “serious conversation” and “instructor” on the NSSE, as they can be ambiguous. What is a serious conversation to one student may be a casual chat to another, and the term “instructor” could

mean a host of people, including a graduate assistant, instructional assistant, or faculty member (Porter, 2011), yet each assumes a unique role.

Lastly, Porter (2011) and Campbell and Cabrera (2011) questioned the internal structure and validity of the NSSE as an instrument. The two critiques of the NSSE's internal structure are: (a) the inter-correlation among the five benchmarks limits the likelihood for the benchmarks to be used at an institutional level, and (b) the ability of NSSE benchmarks to predict student outcomes. The NSSE is supported by factor analysis and surface level validity, which does raise concerns about the ability of the NSSE to retain internal structure across multiple institutions (Kuh et al., 2001; Porter, 2011). The concerns surrounding the NSSE are paramount, because if the survey is not measuring what researchers believe it is measuring, "the knowledge of college students is flawed" (Porter, 2011, p. 45).

These critiques push the NSSE survey to new frontiers and provide opportunities for all researchers to review their current beliefs to improve dimensions. Olivas (2011), Porter (2011), and Campbell and Cabrera (2011) each purport to acquire a more wide-ranging picture of the undergraduate experience; there is a need for additional validity research on the NSSE instrument. These critiques suggest that the NSSE benchmarks lack theoretical justification, and because of the quantitative nature of the items addressing student experiences, the NSSE measures are deficient in regard to validity of survey content (Olivas, 2011). Kuh (2003) has acknowledged that only addressing the quantity of an activity, and not its quality, is a flaw of the NSSE. However, the critiques of validity must be taken with consideration of the NSSE's charter challenge, to address the national benchmarks of effective educational practice of the undergraduate experience (Kuh, 2001a), and having evidence of student engagement would

encourage people “to focus less on an institution’s resources and reputation, and more on how institutions were using their resources to create experiences that are related to student learning” (Indiana University, Bloomington, 2001, p. 2).

Student Engagement and Alumni Giving Summary

Taylor and Martin (1995) used a 32-item self-reporting survey instrument at a Research 1 institution to assess the demographic, attitudinal, involvement, and philanthropic variables that distinguish alumni donors from non-donors. Taylor and Martin found that the degree of alumni donor involvement was characterized and directly impacted by the alumnus’s participation in reading alumni publications, attendance at sporting events, familial attendance at the institution, subsequent enrollment for graduate studies, and impression of perceived need. This work laid the foundation for determining an alumnus’s potential for becoming a donor by evaluating that alumnus’s post-graduation involvement. Similarly, Bruggnik and Siddiqui (1995) constructed a model for determining the characteristics of donors and non-donors at a private liberal arts college, but they only surveyed characteristics of alumni and found that marital status, income, employment status, Greek status, distance from alma mater, and involvement in alumni activities were statistically significant.

Conner (2005) found that alumni who made donations to their alma mater were more likely than non-donors to express sincere feelings of allegiance to their institution. The alumni donors in Conner’s study also reported that they felt they received value from their education experience. The early studies of alumni giving that revealed that student experiences and student

demographics were significant were studied in depth to better elucidate the relationships between demographics and educational experiences.

For purposes of the current study, educational experiences are directly related to the seven factors of Chickering and Gamson (1987), which contributed to the development of an instrument for assessing experience and engagement. Additionally, Merchant (2008) found that feelings of nostalgia were positively associated with alumni donor involvement and student experience while in college. Furthermore, Field (2011) found that there was a positive correlation between NSSE scores from 2005 and 2006 of Carnegie Baccalaureate Colleges and overall alumni donor participation rates; however, this trend did not continue when considering master's or doctoral research universities. Additionally, Field's (2011) study did not account for differences in student engagement between alumni, based on year of graduation. The purposes of the current study were to explore the relationship between NSSE scores and alumni donor participation in liberal arts colleges, as observed by Field (2011), and further expound upon the relationships between NSSE scores and alumni participation rates.

Summary

The literature discussed in the forgoing chapter has attempted to draw together the lines of intersection and overlap among the variables of student experience, demographic variables, and alumni donor participation. Each study of alumni giving and alumni donor participation has attempted to address the overwhelming question of how to increase alumni donor participation. As shown in the literature review and the conceptual framework, supported by Sun (2005) and

Sun et al. (2007), student experiences and demographics are key factors in addressing the unmet need for better understanding alumni donor participation.

The review of information on liberal arts colleges and student experience from the origins to present day, and within Chickering & Gamson's (1987, 1991) seven principles for good practice in undergraduate education, has set the stage for broad applicability. Furthermore, the in-depth analysis of student engagement and its evolution allows for a better understanding of the impact that specific student experiences have on future alumni donor participation. Lastly, an emphasis has been placed on each principle that impacts student experience and followed by a discussion of how the principles of student engagement, and its critiques, helped shape Kuh's (2001a, 2004, 2009a) National Survey of Student Engagement (NSSE).

CHAPTER THREE: METHODOLOGY

Introduction

The purpose of this quantitative study was to examine the relationship between level of student engagement of senior class cohorts at Carnegie Baccalaureate Colleges and alumni donor participation rates during a five-year post-graduation period. A correlational research design was employed to investigate the relationship between student demographics, student engagement benchmark scores (data collected through the 2006 National Survey of Student Engagement [NSSE]), and alumni donor participation rates for the 2006 class year cohorts at liberal arts colleges located in the southeastern region of the United States. Institutional level alumni donor participation data were collected during the pursuant five-year period. Chapter Three presents the data sources and process used to examine the relationships between student engagement, student demographics, and alumni participation at Carnegie Baccalaureate Colleges. Building upon the conceptual model presented in Chapter One, the researcher employed statistical analyses to examine possible conditions under which student engagement scores and demographic variables can be used to predict alumni donor participation.

Research Methods

This study was directed by a quantitative research approach. A quantitative study allows for the comparison of groups and/or constructs using statistical analysis and aims to answer specific research questions with unbiased, quantifiable data (Creswell, 2008). The quantitative study tested one theoretical construct, and explored the impact of demographic variables. The first research question was whether student engagement would predict alumni donor

participation, and the second research question explored whether demographic variables would predict alumni donor participation.

The use of student engagement as a construct and demographic variables as predictors of alumni giving was guided by a review of the literature that identified gaps that warrant investigation (Creswell, 2008). College student engagement and philanthropic alumni donors were investigated as separate entities; however, research is warranted to examine the relationship between student engagement and alumni donor participation. The limited research examining the relationship between student engagement and alumni donor participation identified gaps in the literature of philanthropic alumni donor participation.

Sound quantitative research methods necessitate quality data collection measures with acceptable validity and reliability (Tabachnick & Fidell, 2001). For this investigation, college student engagement data were collected via the 2006 NSSE survey, which was administered in its totality to each participant. Philanthropic alumni donor participation for the 2006 class cohort was ascertained by contacting the participating institutions to request the data.

Research Design

A correlational research design was employed to investigate the relationship between student engagement and alumni donor participation. Correlational research is used to identify relationships between variables as they occur in their unmodified state (without manipulation), while establishing the degree and direction of the relationship (Fraenkel & Wallen, 2006). A correlational research design was appropriate for this study, as the purpose of the investigation was to determine if there were relationships between student engagement scores, demographic

characteristics, and alumni donor participation rates. Furthermore, as the data for this study were preexisting and obtained through purposive sampling techniques, it is important to note that correlational designs do *not* infer casual relationships. For the purpose of this study, alumni donor participation was defined as the dependent variable, and the independent variables were student engagement scores and demographic variables (e.g., gender, parents' educational level, recipient of institutional scholarship, major, and nationality).

The statistical analysis used to answer the research questions included logistic regression, as the dependent variable (alumni donor participation rate) was provided by NSSE as a binary variable instead of a continuous variable. The use of a logistical regression model is needed to analyze research data when the dependent variable is dichotomous (e.g., donated or did *not* donate) and the predictor variables are either categorical or continuous. Specifically, logistic regression “is the appropriate statistical technique when the dependent variable is a categorical (nominal or nonmetric) variable and the independent variables are metric or nonmetric variables” (Hair et al., 2010, p. 319). Unlike linear regression, logistic regression maps to a logistic curve, is designed for binary dependent variables, and is interpreted in terms of likelihood (e.g., condition 1 is *X* times more likely to occur than condition 2) (Hair et al., 2010). Logistic regression uses models to calculate log odd ratios and record the log odd ratios as regression coefficients (Bs). Thus, the relationships between independent variables and a dichotomous dependent variable are nonlinear. In each step of the analysis, the log odds were increased by one unit of its scale, and the regression coefficients (Bs) mirror this change in the dependent variable. Correlations between the independent variables and the dependent variable induce the log odds to increase or decrease in accordance with the probability that the event would occur (in the present case, an

increase or decrease in alumni donor participation). To create the model, each of the five NSSE engagement benchmarks (all continuous) was entered at once. No transformations of these data were necessary.

Data Sources

The study of college student engagement during the late 1990s prompted the development of the *National Survey of Student Engagement* (NSSE). The NSSE has five benchmarks of student engagement, which are moderated by responses to survey questions inquiring about specific student behaviors or experiences. Responses to the NSSE survey questions relate to the five benchmarks and each behavior is measured using a scored scale.

The five NSSE benchmarks of educational practice, which are composed of student responses to questions on the NSSE survey, are listed.

Active and Collaborative Learning. The active and collaborative learning benchmark measures the level of participation and time spent working on group projects that require inquiry-based learning and collaboration both inside and outside of the classroom environment.

Enriching Educational Experiences. The enriching educational experiences benchmark assesses items related to the students' experience with diverse racial, ethnic, and religious backgrounds, uses of technology, and participation in community service, internships, job shadowing, study abroad, co-curricular activities, and/or cumulative senior-year experience.

Level of Academic Challenge. The level of academic challenge benchmark assesses the amount of time spent preparing for class, amount of reading and writing, intellectual inquiry, and level of vigor.

Supportive Campus Environments. The supportive campus environments benchmark reflects the students’ perceptions of the extent to which the campus enhances their social and academic success, and assists them in coping with non-academic pressures.

Student-Faculty Interaction. The student-faculty interaction benchmark assesses the frequency and quality of communication that students report having with faculty members outside of the classroom.

The NSSE instrument assesses impact of engagement on positive student outcomes at institutions across the United States, and liberal arts colleges were one of the first groups to adopt the use of the NSSE. Table 2 presents the individual questions (NSSE items) on the 2006 NSSE that contribute to each of the five benchmark scores (NSSE, 2000).

For ease of reading, three letter codes for each benchmark are used: Active and Collaborative Learning (ACL); Enriching Educational Experience (EEE); Level of Academic Challenge (LAC); Supportive Campus Environment (SCE); Student-Faculty Interaction (SFI) (NSSE, 2000). The complete 2006 NSSE survey is contained in Appendix A.

Table 2 Questions on the 2006 NSSE that Moderate the Five Benchmarks Scores

NSSE item number	Benchmark of Engagement
1a,b,g,h,j,k,t	ACL
1l,u,v; 7a-c,e-h; 9d; 10c	EEE
1r; 2b-e; 3a,c-e; 9a; 10a	LAC
8a-c; 10b,d,e	SCE
1n-q,s; 7d	SFI

National Survey of Student Engagement

The NSSE is an instrument used at institutions of higher education to measure undergraduate student engagement levels and is used to “provide data to colleges and universities to use for improving undergraduate education, inform state accountability and accreditation efforts, and facilitate national and sector benchmarking efforts, among others” (NSSE, 2005, p. 5). The measure addresses the magnitude of institutional engagement by measuring student participation in activities (NSSE, 2005). NSSE data is collected from participating institutions by randomly selecting undergraduate students during the spring semesters of their first and senior years. Survey participants are enrolled during the previous semester so that they have a substantial view of the campus environment and can make informed judgments (Kuh, et al., 2001b).

The NSSE survey is a self-report questionnaire composed of 85 questions designed to collect information on student demographics and experiences. The NSSE comprises five benchmarks that can be used to assess student engagement within the institution, and scaled scores of individual items are categorically tied to benchmark scores. Furthermore, the NSSE is regarded as the premier measure of undergraduate student engagement in the United States; the data may be used by institutions to compare results with peer institutions, to identify opportunities for development, and track progress toward meaningful improvements. Lastly, the NSSE may be used by prospective students and parents/guardians to assess a college’s student centeredness (Kuh, et al., 2001a, 2001b).

Instrument Consistency and Validity

The internal consistency reliability of the NSSE (2006) was questionable to moderate with Cronbach's alphas ranging from .65 to .76 (Pascarella, Seifert, & Blaich, 2008). Table 3 presents the internal consistency reliability for the five subscales of the NSSE. Benchmarks are properly used when comparing student responses with those at similar institutions. One way to estimate internal consistency of the NSSE results is by calculating Cronbach's alphas and inter-correlations for each benchmark. When used for a set of items, the internal consistency is a measurement of how well the individual items are measuring the same variable or construct. Cronbach's alphas range from zero to one. Alphas near one indicate a greater internal consistency than those near zero. Groups with Cronbach's alphas greater than 0.70 are acceptable, but Cronbach's alpha of 0.60 are questionable (McMillan & Schumacher, 2000; Kline, 2011), and further tests for inter-item analysis and item-to-scale correlations should be completed (Clark & Watson, 1995). Table 3 reports the Cronbach's alphas for each benchmark. Correlations were significant at $p < .01$, and no distinctions were identified between freshman and senior, or institution type (Pascarella et al., 2008).

Table 3 Internal Consistency of the 2006 NSSE Benchmarks

NSSE Benchmarks	Cronbach's α
Level of Academic Challenge	.72
Active and Collaborative Learning	.67
Enriching Educational Experiences	.65
Student-Faculty Interaction	.75
Supportive Campus Environment	.76

Note. All correlations are significant at the $p < .01$ level.

The Cronbach's alphas for active and collaborative learning ($\alpha = .67$) and enriching educational experiences ($\alpha = .65$) suggest that these two benchmarks should be used cautiously and considered less reliable, as there may be weak items within the two subscales. Two benchmarks with high indicators of reliability are Supportive Campus Environment ($\alpha = .76$) and Student-Faculty Interaction ($\alpha = .75$); the Level of Academic Challenge ($\alpha = .72$) benchmark had moderate reliability. Given the range in internal consistency for the NSSE, prior to the analysis of the data, all the data underwent a rigorous screening and review. Kline (2011) stated that "somewhat lower levels of score reliability can be tolerated if sample size is sufficiently large" (p. 70). For the present study, the results of such screening and review allowed the researcher to assess internal consistency and reliability of all the factors/benchmarks prior to any statistical analysis.

Should the individual benchmarks of data obtained for the present study had high multicollinearity, the individual benchmark scores would have been used to compute an engaging environment score by adding the five benchmark scores. An additive approach was used by Hu and Kuh (2003) for data from survey respondents from a NSSE precursor, the

College Student Experiences Questionnaire, and Field (2011) for data from the NSSE instrument. In both studies, the summed benchmark scores were used as an independent variable (Field, 2011).

Engaging environment = level of academic challenge score + active and collaborative learning score + enriching educational experiences score + student faculty interactions score + supportive campus environments score

Validity, as defined by the *Standards for Educational and Psychological Assessment* (AERA, APA, & NCME, 1999), is “the degree to which evidence and theory support the interpretations of test scores entailed by the proposed uses of tests” (p. 9). Therefore, validity is *not* a property of the instrument, but of the inference (Messick, 1989). Furthermore, Gonyea and Miller (2010) reported that validity results of the NSSE indicate that the NSSE benchmarks are able to distinguish between groups in a predictable way, commonly termed Known Groups Validity, and that the institutional uses of the NSSE coincide with the envisioned purposes of the NSSE survey, also known as Consequential Validity. The NSSE survey has good content, construct, predictive, and consequential validity (e.g. Campbell & Cabrera, 2011; Gonyea & Miller, 2010). Nevertheless, the present study assessed construct validity of the NSSE using the present data set.

Self-report data, such as the five NSSE benchmarks, are used, and the validity, reliability, and credibility of these data were studied (Baird, 1976; Berdie, 1971; Griffith, 2011; Pace, 1985; Pike, 1995; Pohlmann & Beggs, 1974). Data collected by self-report questionnaires are considered valid under the following five conditions:

1. The information that is being requested by the instrument is known to the respondent;

2. Questions are clearly and unambiguously phrased;
3. Respondents believe that the questions deserve careful, serious, and thoughtful responses;
4. Questions are specifically geared towards recent activities;
5. Answering the question does not cause a respondent to feel compelled to respond in socially desirable ways or to feel embarrassed, humiliated, threatened, or feel that their privacy has been violated (Kuh, 2001a, p. 4).

Population

Since 2000, over 850 private colleges and universities across the U.S. have administered the NSSE survey (NSSE, 2012). In 2006, over 1,225,000 first-year and senior students participated in the survey, representing 557 institutions. The overall response rate for the institutions that participated in the 2006 NSSE administration was 39%.

The population for this study was composed of college seniors at private institutions who completed the 2006 NSSE during the spring semester of their senior years. NSSE data were used to study the five benchmarks described in Chapter Two: (a) level of academic challenge, (b) active and collaborative learning, (c) student-faculty interactions, (d) enriching educational experiences, and (e) supportive campus environments.

The *Integrated Postsecondary Reporting System* (IPEDS) reported that most liberal arts colleges were located in the southeastern region of the United States (IPEDS, 2012). Table 4 presents a regional overview of liberal arts colleges across the United States, and highlights the number of institutions in each region that participated in the 2006 NSSE.

Table 4 Regional Distribution of Private Not-for-Profit Liberal Arts Colleges

Geographic Region	Total # of Colleges	Participated in 2006 NSSE
Far West	34	23
Great Lakes	95	60
Mid East	76	76
New England	52	38
Plains	66	30
Rocky Mountains	7	7
Southeast	154	78
Southwest	25	15
Total	509	327

Sources: IPEDS, 2010; NSSE, 2012.

Sample

Campbell and Stanley (1963) described six fundamental principles of quality quantitative research. Two of the six principles apply to sample selection: using a random sample and controlling for extraneous factors. Sampling is described as the cornerstone of quality quantitative research; however, given the practical considerations of conducting a random sample or controlling for extraneous factors, the NSSE has collected data using a convenience sample. Convenience sampling does limit the generalizability of the results, but is acceptable when other options are limited (Creswell, 2008), such as in the case of the NSSE's administration. Therefore, the NSSE utilized convenience sampling to gather the data, and the sample chosen by the researcher of institutions who participated in the NSSE were purposefully obtained by pulling a subsample from the overall NSSE data.

Of the population defined above, a purposive sample of data for college seniors was collected from institutions. The three criteria of this purposive sample were: (a) institutions located in the Southeastern region of the United States, as defined by IPEDS (2012); (b)

Carnegie Baccalaureate College—Arts and Sciences and Diverse fields Classification, as defined by the 2010 Carnegie Classification of Institutions of Higher Education; and (c) the institutions' willingness to share class year alumni donor participation data. After a comprehensive list of liberal arts colleges that participated in the NSSE during 2006 was compiled, and University of Central Florida Institutional Review Board approval obtained, the researcher contacted the liberal arts colleges' alumni staff to acquire data concerning yearly alumni donor participation for the senior class year cohort who, as seniors, participated in the 2006 NSSE.

Based on a 39% overall response rate of students to the 2006 NSSE administration, and the desire to make inferences based upon the data collected, a minimum number of seniors who participated in the 2006 NSSE was needed. An appropriate sample size for this study was determined by considering the power of the study, the level of significance and the effect size of the study. Statistical power of a study is the long-term probability of rejecting the null hypothesis; calculating the statistical power for a sample prior to beginning a study can decrease the likelihood of making a Type II error (Cohen, 1992; Moore & McCabe, 2006), failure to reject the null hypothesis. Kuehl (2000) suggests a minimum power of .80 to reject a false null hypothesis, or to report that there is no relationship. Next, the level of significance is determined by the risk of falsely rejecting the null hypothesis. Following convention, the level of significance for this study was set at the .05 level (Cohen, 1992). Lastly, the effect size is a measurement of the strength or magnitude of the relationship between the independent and dependent variables in the analysis (Cohen, 1992). Power is related to data analysis procedures and number of variables. For the present study, effect sizes were defined as small, medium, or large effect, where small is .02, moderate is .15, and large is .35; therefore, based upon an

analysis using logistical regression for five independent variables, the investigation necessitated a minimum sample size of 645 based upon a power of 80%, a level of significance of $\alpha = 5\%$ to identify a small effect size.

Procedure

Data Collection

All data were collected and acquired in accordance with the University of Central Florida Institutional Review Board (UCFIRB) policies and procedures. A more detailed description for each data set is provided below.

NSSE Data

Following approval from the UCFIRB, the researcher gained access to the NSSE dataset. The data were provided by the Center for Postsecondary Research, and the institutions' names and aggregate scores for the five respective benchmarks, based upon the 2006 senior class participant responses, were provided to the researcher. The name of each institution and its scores were confidentially maintained and only used for the purposes described herein. The NSSE does *not* provide data on individual institutions to researchers who have *not* obtained a waiver from the respective institutions. Because of these data sharing requirements, the dependent variable, alumni donor participation rate, was reported as a binary variable instead of a continuous variable. Therefore, the researcher grouped the institutions who responded to the request for alumni donor participation data on the 2006 class year by alumni donor participation rates.

Alumni Donor Participation Data

Following UCFIRB approval, alumni donor participation data was acquired. The following steps were taken to ensure a comprehensive list of schools: (a) Develop a list of liberal arts colleges in the southeastern region of the United States that participated in the 2006 NSSE; (b) Acquire the contact information for an institutional official with the title of Young Alumni Affairs or Young Alumni Giving; (c) Contact each institution individually using the form letter provided in Appendix B, which explains the purpose and use of the data and ensures anonymity; and (d) Provide any benefits for the institution's assistance, and include a thank you card.

Institutions were separated based upon their alumni donor participation rates, and data for student engagement were provided to the researcher in two tranches (based upon the alumni donor participation rates provided by the researcher). The binary representation of the dependent variable follows the national trends of alumni donor participation in higher education, and provides valuable information that can be used across multiple institutions to enhance understanding of the factors that contribute to alumni donor participation. For the study, alumni donor participation was "high" when greater than 16% and "low" when less than 12%. Unlike linear regression, logistic regression maps to a logistic curve, is designed for binary dependent variables, and is interpreted in terms of likelihood (e.g., condition 1 is X times more likely to occur than condition 2) (Hair et al., 2010).

Data Preparation

When conducting statistical analysis to answer a specific research goal, using a data set, conclusions can only be reliable when assumptions guiding the analysis are sound (Tabachnick

& Fidell, 2001). Tabachnick and Fidell suggests that cleaning, to remove cases with missing or incomplete data, and preparing data can help ensure the best statistical outcome, and the accuracy of the data “involves examination of descriptive statistics and graphic representations of the variables”(p. 57). All data entered by the researcher were cross-checked to ensure that no data entry errors occurred.

Validity and reliability tests were examined by testing four statistical assumptions. These four assumptions were normally distributed data, homogeneity of variance, interval data, and independence (Tabachnick & Fidell, 2001). *Normally distributed data* refers to checking the data through plotting to a normal probability curve. *Homogeneity of variance* refers to the variances in correlational designs, and assumes that they are the same for each level of each variable. *Interval data* refers to data where the distance between any two points is the same and is assumed in this study for Likert data. *Independence of the data* assumes that the response of each respondent has no effect on any other respondent’s scores. Cleaning the data and performing pre-analysis assumption testing ensures that the results accurately represent the data set.

Data from the independent and dependent variables were categorized and coded in aggregate.

Independent Variables

NSSE Variables

The independent variables in this study were the individual benchmark scores for each NSSE benchmark, and the computed score for the *engaging environment*, as described above, which is reflective of the extent to which institutional environments are engaging students.

Demographic Variables

Gender (GEND). There are two categories: male and female. Males were coded “1” and females were coded “2” (Question 16, Appendix A).

International student or foreign national (INTER). There are two categories: yes and no. Yes was coded “2” and no was coded “1” (Question 17, Appendix A).

Parent’s education level (PARED). There are two categories: father and mother, and seven classifications for each. Each category was scored separately (father and mother), and each category’s classification coded with a dummy value. Responses of Did *not* finish high school were coded “1,” Graduated from high school were coded “2,” Attended College but did not complete degree were coded “3,” Completed an associate’s degree were coded “4,” Completed a bachelor’s degree were coded “5,” Completed a master’s degree were coded “6,” Completed a doctoral degree were coded “7” (Question 27, Appendix A).

Major of degree (MAJ). The major of degree was a free response item, and categories for each major were grouped into a college-specific category and the corresponding NSSE codebook (e.g., accounting, marketing, and finance were grouped under Business; literature, creative/technical writing, political science and history were grouped under Social Sciences, and biological sciences, physical sciences, and mathematics were grouped under Laboratory Sciences). The coding schematic was based upon the CIP 2000 major categorization (Question 28, Appendix A).

Recipient of an institutional scholarship (SCHSP). Data for the recipient of an institutional scholarship variable were reported by the participating institution when donor participation information is collected, and was the number of students in the class of 2006 who

received an institutional scholarship. In addition, the SCHSP variable was reported as a percentage.

Dependent Variable

The dependent variable used in this study was recent alumni donor participation rates for each institution under investigation. The dependent variable was reported as a percentage of students in the class of 2006 who made a financial contribution. The percentage was determined by obtaining the total number of alumni donors from the class of 2006 and dividing it by the total number of 2006 graduates (Field, 2011).

Alumni donor participation rate = # of alumni donors from the undergraduate class of 2006 / # of undergraduates who graduated in 2006. The alumni donor participation rate for the class of 2006 was measured over time by keeping the denominator constant, and obtaining the total number of alumni donors from the class of 2006 who gave in 2007, 2008, 2009, 2010, and 2011. Calculating a donor participation rate for each year allowed for analysis of alumni donor participation rates over a five-year period, and may present trends of alumni donor participation for the first five years after graduation.

Data Analysis

All data were obtained and recorded using the procedures described above and in accordance with the University of Central Florida Institutional Review Board. The data were entered into the standardized statistical software package, Statistical Package for Social Sciences (SPSS), and analyzed using descriptive statistics and logistical regression. Coded variables were analyzed using SPSS, for independent and interactive effects.

The research questions guiding the investigation are as follows:

Research question one. What is the relationship between student engagement rates at liberal arts colleges (as measured by the five NSSE 2006 benchmarks of engagement: [a] level of academic challenge, [b] active and collaborative learning, [c] student-faculty interaction, [d] supportive campus environment, and [e] enriching educational experience) and alumni donor participation rates over a five year post-graduation period (2007, 2008, 2009, 2010, 2011)?

a. Dependent / Outcome Variable – Alumni donor participation rates

b. Independent / Predictor Variables – (a) level of academic challenge, (b) active and collaborative learning, (c) student-faculty interaction, (d) supportive campus environment, and (e) enriching educational experience.

Research question two. What is the relationship between alumni donor participation rates and the alumni demographic variables of: (a) parents' education levels, (b) nationality, (c) academic major, (d) recipient of scholarship, (e) gender, and (f) participation in Greek Life?

a. Dependent / Outcome Variable – Alumni donor participation rates

b. Independent / Predictor Variables – (a) parents' education levels, (b) nationality, (c) academic major, (d) recipient of scholarship, (e) gender, and (f) participation in Greek Life.

Summary

The purpose of this study was to examine the relationship between student demographic variables and student engagement scores on the 2006 NSSE, and recent alumni donor participation at liberal arts colleges. A quantitative approach was used to answer the research questions, and to determine the student demographics and the NSSE benchmarks of student

engagement that are predictive of alumni donor participation. Using alumni donor participation rates as a dependent variable was advantageous, as the rate served as an indication of alumni satisfaction and did *not* rely on the magnitude of the gift. Furthermore, the alumni donor participation rates did *not* have broad fluctuations between years, and allowed for control over the categorical separation of the dependent variable. The results of these analyses are discussed in Chapter Four.

CHAPTER FOUR: RESULTS

Introduction

This study investigated the relationship between student engagement scores, alumni donor participation rates, and student demographics to offer insight on strategies to increase alumni giving. Unlike previous research on alumni giving, which examined a single institution or national databases, this study focused on the class of 2006, from a multi-state selection of Carnegie Baccalaureate Colleges located in the southeastern region of the United States. Furthermore, this study used the 2006 senior class NSSE responses of students at these institutions, as the NSSE is recognized as the standard for understanding and comparing institutions on student engagement (Kuh, 2001b). By controlling for institution type and graduating class year, the analyses were able to add value to institutions that participate in the annual administrations of the NSSE and were similarly related to the population and sample. Results from this study offer implications to higher education professionals interested in understanding the impact of student engagement during the college years on their alumni giving. In addition, an increased understanding of the relationship between student engagement, student demographics, and alumni donor participation aids institutional leaders in better forecasting alumni donor participation rates by assessing engagement. An increased understanding of the relationship between student engagement, student demographics and alumni donor participation may provide more interaction between student affairs and academic affairs departments; enabling institutions to employ data-driven decision-making when allocating resources to support activities that engage and enhance students' experiences, strengthen students' success, and increase alumni donor participation (Field, 2011). The findings are presented in the chapter

in the following format: (a) Sampling Procedures, (b) Data Preparation, (c) Statistical Procedures, (d) Evaluation of the Findings, and (e) Summary of Key Results.

Sampling and Data Collection Procedures

Target Population

The targeted population in this study was students who graduated in 2006 from a Carnegie Baccalaureate College located in the southeastern region of the United States, and whose institutions participated in the 2006 NSSE administration. Because of confidentiality regulations, individual students could *not* be contacted, and the responses of individual students could *not* be matched with their individual giving records. In all, 40 schools met the population requirements of this study: (a) located in the Southeastern region of the United States, as defined by IPEDS (2012); (b) defined by the 2010 Carnegie Classification of Institutions of Higher Education as Carnegie Baccalaureate College—Arts and Sciences and Diverse fields; and (c) had administered the 2006 NSSE to the 2006 undergraduate senior class cohort.

The researcher obtained approval from the University of Central Florida's Institutional Review Board (UCFIRB) prior to data collection. An administrator at each liberal arts college that met the participation requirements for this study was sent an email inviting the institution to participate in this study. Each email requested that the administrator provide factual data concerning the full-time undergraduate class of 2006, who participated in the 2006 NSSE administration. The survey consisted of the following requests for data: (1) What was the total number of undergraduate graduates in the spring semester of 2006? (2) Tracking only undergraduate graduates of the 2006 spring semester (as reported in question 1 above) over a

five year post-graduation period, how many students made a monetary (of any amount) contribution to COLLEGE NAME during each of the following years: 2007, 2008, 2009, 2010, 2011? (3) On average, what percentage of students at COLLEGE NAME receives institution-based financial aid?

Data Collection Procedures

The data collection ran from March 11, 2013 to April 9, 2013. To increase the response rate, a modified method of email prompting, based upon Dillman's (2007) *Tailored Design Method*, was used. The modified method of email prompting included (a) multiple contacts, (b) incentives, and (c) Social Exchange Theory (Homans, 1958). For this study, multiple contacts were as follows: approximately one week after the initial email was sent to each of the potential participants, a follow-up email was sent. The follow-up email contained the original request, and a reminder; therefore, the follow-up email served as a "thank you" note to those who had already responded and as a reminder to those who had not yet responded to the request for data. Three potential participants requested a copy of the researcher's IRB approval form; after a copy of the approval form was provided, the potential respondents chose to participate in the study. Each potential participant was provided the incentive of receiving an aggregate analysis of the data upon completion of the dissertation. As this study was focused on peer institutions of the potential participant, the opportunity to participate and be provided analyses that allowed peer to peer comparison was seen as a valuable incentive.

Social Exchange Theory (Homans, 1958) is a derivation of economic exchange theory and posits that individuals in relationships undergo an exchange of non-material goods, such as

advice, affection, power, or in this case, knowledge. To employ the Social Exchange Theory (Homans, 1958), three postulates were addressed. The first postulate examined how the potential participant's perceived awards can be increased, the second examined how perceived costs for responding can be reduced, and the last sought to establish trust so that people believe the rewards will outweigh the costs of responding. The present study employed the postulates to increase the potential participants' perception of reward by providing information about the study, and describing how the researcher intends to use the results, informing the participants that their institution was among an elite group of institutions contacted, showing positive regard for the potential participants, and thanking the participants. Furthermore, costs of participation were reduced by asking questions that were short and easy to complete, avoiding subordinating language, and writing the request in the text of the email so that the participant could respond easily. Lastly, the Social Exchange Theory (Homans, 1958) was employed by obtaining sponsorship from a legitimate authority, providing appreciation for a timely response in advance, and ensuring the confidentiality and security of information.

Response Rate

Of the 40 potential participant institutions identified for this study, two emails were returned as undeliverable, three respondents indicated a desire to participate, but cited time constraints for obtaining the requested data and ultimately declined to participate, two indicated that they were no longer employed by the institution, and one indicated that they were unwilling to provide any data concerning their alumni donor participation. The researcher identified different individuals at the two institutions for which the undeliverable emails were returned, and

for the two institutions where the original contact was no longer employed; however, there was no response from the subsequent follow-up. In all, 10 institutions provided the requested information. Of those 10, there were *no* incomplete responses, yielding a usable response rate of 25%.

Following the collection of alumni donor participation data, which allowed for the determination of participating institutions, the NSSE was contacted for student NSSE responses for seniors who participated in the 2006 administration at each institution. Due to the confidentiality requirements of the Indiana University Center for Postsecondary Research Data Sharing Agreement, the researcher was unable to obtain NSSE data for individual institutions; therefore, was unable to match the alumni donor participation data obtained from each of the 10 participating institutions with their respective NSSE responses. The NSSE would only provide engagement data from individual institutions upon receipt of a waiver of confidentiality from each participating institution. The researcher was *not* able to obtain a waiver of confidentiality letter; however, the NSSE did agree to provide the engagement data in two tranches, five institutions in each. The NSSE did group the student data by institution and assigned an arbitrary code to separate each institution. The 10 participating institutions were divided into two categories, based upon average alumni donor participation rates for the 2006 class cohort. The alumni donor participation rate was determined by the following formula: *Alumni donor participation rate = # of alumni donors from the undergraduate class of 2006 / # of undergraduates who graduated in 2006*. The alumni donor participation rate for the class of 2006 was measured over time by keeping the denominator constant, and obtaining the total number of alumni donors from the class of 2006 who gave in 2007, 2008, 2009, 2010, and 2011.

The first tranche provided by the NSSE consisted of institutions with low alumni donor participation rates of 12% or less (represented by 0), and the second tranche consisted of institutions with high alumni donor participation rates in excess of 16% (represented by 1). While on the surface, a binary dependent variable does limit variance, the minimal variance may have been inevitable given the wide gap between the alumni donor participation rates at the two groups. Therefore, the limitation of NSSE confidentiality regulations allowed for a binary dependent variable, instead of a continuous variable. Logistic regression maps to a logistic curve, designed for binary dependent variables, and is interpreted in terms of likelihood (e.g., condition 1 is X times more likely to occur than condition 2) (Hair et al., 2010). Following the removal of missing or incomplete cases, the sample size for NSSE student responses was acceptable for the data analysis ($N = 1,073$). When using logistical regression, Long (1997) suggests that sample sizes of fewer than 100 should be avoided and that 500 observations should be adequate for almost any situation. Prior to the data analyses, the data set was examined to assess the fit between the distribution of the variables and the assumptions of the statistical analysis, such as multicollinearity, outliers, and confirming the presence of independence between the errors, and linearity of predictors with log odds of dependent variable; no assumption violations were identified. In addition, a sample size of 1,073 was acceptable for identifying a small effect size (power = .80) at the .05 level (Cohen, 1992).

Sample Demographics and Descriptive Statistics

Descriptive analyses of the data collected by the NSSE revealed that the number of students at institutions with less than 12% alumni donor participation rate was 424 (39.9%), with

638 (60.1%) from institutions with greater than 12% alumni donor participation. Gender of the students was reported as 274 (25.8%) male and 788 female (74.2%), and the sample included 41 (3.9%) international students and 1019 (96.1%) non-international students.

Additional analysis of the descriptive data revealed parent education level to be 155 (14.6%) neither parent attempted college, 190 (17.9%) at least one parent attempted college, 151 (14.2%) at least one parent completed a baccalaureate, 146 (13.7%) both parents completed baccalaureate, 261 (24.6%) at least one parent completed graduate degree, and 157 (14.1%) both parents completed graduate degree. Further analysis revealed the academic majors of the sample as 155 (14.6%) laboratory sciences (e.g. biological sciences, physical sciences, and mathematics), 627 (59.0%) social sciences (e.g. arts, humanities, education, and political science), and 279 (26.3%) business (accounting, finance, management, economics). Lastly, 298 (28.1%) students identified as a member of a Greek Life organization, while 764 (71.9%) did *not* identify as a member of a Greek Life organization.

A higher number of students completed the NSSE survey questions that were academically oriented than completed the NSSE survey demographic questions; in total, 70 (6.1%) did *not* answer demographic questions. The cases of missing data were removed prior to analysis to answer research question 2, which examined demographic data. Hence, the removal of missing cases explain the observed differences in $N = 1,073$ for research question 1 and $N = 1,060$ for research question 2. Furthermore, when the NSSE responses were evaluated for reliability, “the degree to which scores yielded by an instrument, at a specific point in time and under certain conditions, are replicable” (Leech, Onwuegbuzie, & O’Conner, 2011, p. 115), the $N = 1,038$.

Data Preparation

Multicollinearity of NSSE benchmarks

Cronbach's alpha is a coefficient of internal consistency. Cronbach's alpha increases as the intercorrelations among test items increase and is referred to as an internal consistency measure of reliability of test scores. Leech and colleagues (2011) reported that scores obtained by an instrument must be consistent to be replicable and must represent the behaviors or constructs across variations in instrument items and differing occasions of measurement. Cronbach's alpha is used in social sciences to indirectly indicate the degree to which a set of items, such as individual question on the NSSE instrument, measures a single unidimensional latent construct. In the case of the NSSE instrument, individual items on the NSSE instrument contribute to the benchmark score that is reported, and Cronbach's alpha is an appropriate measurement to ensure that the items are measuring the intended construct. Benchmarks are properly used when comparing student responses with those at similar institutions. One way to estimate the internal consistency of the NSSE results is by calculating Cronbach's alphas and inter-correlations for each benchmark. When used for a set of items, the internal consistency is a measurement of how well the individual items are measuring the same variable or construct. Cronbach's alphas range from zero to one (Cronbach & Shavelson, 2004). Alphas near one indicate a greater internal consistency than those near zero. There is broad support in social science research for the use of constructs with a minimum Cronbach's alpha of .80 (e.g., Nunnally, 1978; Osborne, 2013).

Table 3 of Chapter Three, presented Cronbach's alpha of internal consistency for each NSSE benchmark, using a base random sample of data collected during the 2006 NSSE survey

administration (Pascarella, Seifert, & Blaich, 2008). The Cronbach's alpha from Pascarella et al. (2008) is also presented in Table 5 to provide a comparison between the NSSE's reported Cronbach's alpha using a base random sample and the Cronbach's alpha for the 2006 data set used in the present study. Nunnally (1978) preferred that Cronbach's alpha be above .80, but recommended a threshold of at least .70 so that a relationship between the reliability of the instrument and the validity of the research findings can be established. However, others have advocated that alpha is a function of the number of items on the survey (Osborne, 2013; Rosenthal & Rosnow, 1984), and it is acceptable to use internal reliability estimates of .60 (Bernardi, 1994; Bernardi, Baca, Landers, & Witek, 2008; Chang, Chan, Gudmundsson, & Sawang, 2011; Mechanic, 1979). Thus, the two constructs that do show Cronbach's alphas smaller than 0.70 are acceptable, but should be used cautiously (Esquivel, 2001; McMillan & Schumacher, 2000). Table 5 reports the Cronbach's alphas for each benchmark, using data from the present study. Correlations were significant at $p < .01$.

The Cronbach's alphas for these data ranged from 0.62 to 0.76, and the number of items for each benchmark ranged from 6 to 12. Active and collaborative learning ($\alpha = .63$) and enriching educational experiences ($\alpha = .62$) were scored based upon 7 and 12 items, respectively, and their alphas fell below the recommended thresholds of reliability. Further tests for inter-item analysis and recalculations of Cronbach's alphas based upon an item being removed were completed for each benchmark; however, there was no improvement for the Cronbach's alpha of either benchmark, and thus no items were removed from the benchmark scores. Both the Supportive Campus Environment ($\alpha = .76$) and Student-Faculty Interaction ($\alpha = .75$) had high indicators of reliability, and the Level of Academic Challenge ($\alpha = .75$) benchmark had moderate

reliability; these benchmarks were scored based upon their respective 6, 5, and 11 items. Despite two of the dimensions dropping below the recommended .70 threshold (Nunnally, 1978), the results were *not* dismissed, as a low alpha may have indicated that the sample possessed little variance, a driver of reliability measurements (Thompson, 1994), and was homogenous (Bernardi, 1994). Therefore, further tests were used to determine if the results could be logically justified.

Table 5 Internal Consistency for a Random Sample of 2006 NSSE Benchmark Data and the 2006 NSSE Benchmark Data Used in the Present Study

NSSE Benchmarks	Number of Items	Cronbach's α^*	Cronbach's α of present study
Level of Academic Challenge	11	.72	.75
Active and Collaborative Learning	7	.67	.63
Enriching Educational Experiences	12	.65	.62
Student-Faculty Interaction	5	.75	.75
Supportive Campus Environment	6	.76	.76

Note. All correlations are significant at the $p < .01$ level.

* Data reported from analyses using a base random sample of 2006 NSSE data by Pascarella, Seifert, & Blaich (2008).

To ensure that the Cronbach's alphas reported in Table 5, which are representative of the internal consistency of the entire sample, were *not* hindered by only one institution, further analyses were completed (Bernardi, 1994). The Cronbach's alphas of each benchmark at each participating institution were computed and compared to examine the data for score reliability across sub-samples (Onwuegbuzie & Daniel, 2004). Onwuegbuzie and Daniel (2004) determined through empirical and theoretical methods that reliability coefficients of the entire sample can conceal a low or high reliability of one or more subsamples, and this could impact the statistical

power of the analyses. Therefore, Onwuegbuzie and Daniel (2004) and Hillenbrand-Gunn, Heppner, Mauch, and Park (2010) recommend reporting disaggregated internal consistency estimates for each construct and subsample. Table 6 lists each institution by number on the vertical, and the Cronbach's alpha of each institution's benchmark are reported on the horizontal. At the bottom of Table 6, the mean and standard deviation are reported for the number of students who completed the NSSE, along with the Cronbach's alpha for each benchmark.

Table 6 Institution Level NSSE Benchmark Data Used in the Present Study

Institution #	<i>N</i>	LAC	ACL	EEE	SFI	SCE
Institution 1	155	.72	.65	.67	.75	.75
Institution 2	117	.58	.57	.32	.69	.65
Institution 3	51	.77	.62	.67	.74	.76
Institution 4	80	.73	.62	.64	.47	.81
Institution 5	128	.74	.65	.43	.76	.75
Institution 6	73	.76	.64	.70	.70	.59
Institution 7	85	.55	.51	.58	.77	.81
Institution 8	190	.71	.58	.42	.75	.64
Institution 9	51	.73	.58	.50	.64	.64
Institution 10	108	.70	.68	.54	.76	.72
<i>M</i>	104	.70	.61	.55	.70	.71
<i>SD</i>	36	.05	.04	.11	.06	.07

Statistical Procedures

The data collected from this quantitative research were analyzed by using IBM Statistical Package for Social Science (SPSS) software package for Windows, version 20.0 (2011). Prior to

any data analysis procedures, preliminary analyses were conducted to confirm that the assumptions of logistical regression were met. These analyses included confirming the absence of multicollinearity and outliers, and confirming the presence of independence between the errors and linearity of predictors with log odds of dependent variable.

Preliminary Analysis for Research Question 1

Logistical regression was a convenient method to describe the relationship between several independent variables (e.g., the five NSSE benchmarks of student engagement) and a response variable. Logistic regression is more flexible than other techniques, such as multiple regression and discriminate function analysis (Tabachnick & Fidell, 2001). Logistical regression was used to determine the odds ratio (effect size) of the independent variables (level of academic challenge, active and collaborative learning, student-faculty interaction, supportive campus environment, and enriching educational experience) on the dependent variable (alumni donor participation). Logistical regression can be used to rank the importance of each predictor variables and assess interaction effects of the independent variables.

Multicollinearity was examined prior to the analyses. Multicollinearity exists when independent variables are correlated, and is reported as the extent to which a variable can be explained by other variables in the analysis. Multicollinearity was tested using variable inflation factor (VIF) and the tolerance value, as well as examination of condition indices. According to Doane and Seward (2013), VIF should be below 10 and tolerance should be above 0.10. For the present data set, all VIF factors were 1.91 or below, and minimum tolerance value was 0.53, so multicollinearity was *not* considered to be an issue for any of the independent variables.

Maximum condition index was 16.52, which is slightly above 15, but well below 30. Thus, the absence of multicollinearity was confirmed. Outliers and Influential Points were analyzed, as outliers can massively change the shape of a distribution and cause regression to be improperly reported as significant or *not* significant. Outliers were checked through Cook's distance, *df* beta (standardized Cook's), leverage values, and standardized residuals. Cook's distance and *df* beta values should be less than one (1), leverage values should be less than 0.2, and standardized residuals should be between -3.3 and 3.3. For the present data analysis, Cook's distance was 0.04, maximum leverage was 0.03, standardized residuals were between -2.20 and 1.63, and *df* beta values were all approximately .001 or less.

Independence between the errors ensures that the observations are *not* dependent upon one another. Independence was ensured by plotting the standardized residuals for each dependent variable against its case number (an arbitrary placement of the observation in the dataset); *no* patterns were observed as case numbers increased (Long, 1997).

Linearity of predictors with log odds of dependent variable was completed by testing the linearity of predictors with the dependent variable. The use of continuous independent predictors makes linearity with the natural log odds of the dependent variable desirable. The assumption was tested by multiplying each continuous independent variable by its natural log (ln) and testing for significance in the model (Long, 1997). Only the interaction term with Enriching Educational Experiences was significant ($p < .001$), and while the variable was *not* excluded from the model, it was interpreted with some caution.

Upon determining that all assumptions were met and confirmed valid, further analyses commenced, to answer the research questions.

Research Question One

What is the relationship between student engagement rates at Carnegie Baccalaureate Colleges (as measured by the five NSSE 2006 benchmarks of engagement: [a] level of academic challenge, [b] active and collaborative learning, [c] student-faculty interaction, [d] supportive campus environment, and [e] enriching educational experience) and alumni donor participation rates over a five year post-graduation period (2007, 2008, 2009, 2010, 2011)?

a. Dependent / Outcome Variable – Alumni donor participation rates

b. Independent / Predictor Variables – (a) level of academic challenge, (b) active and collaborative learning, (c) student-faculty interaction, (d) supportive campus environment, and (e) enriching educational experience.

Logistical regression analysis was conducted to investigate the ability for the predictor variables to predict or affect alumni donor participation rates. Non-significant results of the Hosmer and Lemeshow test, which indicates the model's ability to accurately predict high alumni donor participation and low alumni donor participation, $\chi^2(8) = 2.49, p = .96$, indicated that the model fit well. Effect sizes were defined as small, medium, or large effect, where small is .02, moderate is .15, and large is .35 (Cohen, 1988). Cohen's (1988) interpretation of effect size indicates small effect size indices (Cox & Snell $R^2 = .05$, Nagelkerke $R^2 = .07$). The predictors, as a set, are statistically effective predictors of high alumni donor participation: $\chi^2(5) = 53.89, p < .001$. The model is best understood in terms of likelihood of the dependent variable happening; in the present case, a value of 1 for the dependent variable corresponds to a high

(alumni donor participation rate greater than 16%) alumni donor participation rate school.

Exp(B) represents the odds ratios for the predictors and is the exponentiation of the coefficients.

Thus, Exp(B) column of Table 7 illustrates how each one-unit increase (because the independents are continuous) affects changes to the likelihood of the dependent variable having a value of 1.

Each of the five benchmarks of the NSSE is explained in terms of the impact of each one-unit increase. Therefore, as Level of Academic Challenge (Wald = 3.87, $df = 1$, $p < .05$) increased by one unit, the likelihood of high alumni donor participation increased by 1.1%. Similarly, each one-unit increase in Student-Faculty Interaction (Wald = 22.66, $df = 1$, $p < .001$) increased the likelihood of high alumni donor participation by 2.1%. However, each one-unit increase in Active and Collaborative Learning (Wald = 28.74, $df = 1$, $p < .001$) decreased the likelihood of high alumni donor participation by 2.7%. Similarly, each one-unit increase in Supportive Campus Environment (Wald = 6.30, $df = 1$, $p = .01$) decreased the likelihood of high alumni donor participation by 1.0%. Lastly, Enriching Education Environment was *not* identified to be a statistically significant predictor; which may have been attributed the subscale data was marginal passing the linearity assumption.

Furthermore, the logistic regression model accurately predicted 62.3% of the students in the sample (25.1% for those at low giving rate schools and 86.7% for those at higher giving rate schools). This result represents a slight increase from the 60.3% classification rate indicated by the constant-only model that did *not* contain any of the predictor variables. A higher classification rate was been preferred (e.g., 75%), so this model was *not* particularly strong in predictive value.

The Kappa coefficient of 0.13, a measure of classification accuracy or precision (Fleiss, 1973), indicated that the model was weak at classifying the observations at a level of accuracy moderately greater than chance. Overall, the logical regression model used in this study was weak in indicating that student engagement rates could predict an institution's average donor participation rate.

Table 7 Summary of Logistic Regression Analysis for Engagement Factors Predicting Institutional Giving Rates (N = 1,073)

Variable	<i>B</i>	<i>SE B</i>	<i>e^B</i>
Constant	.49	.35	
Level of Academic Challenge	.01*	.01	1.01
Active and Collaborative Learning	-.03**	.01	0.97
Student-Faculty Interaction	.02**	.01	1.02
Supportive Campus Environment	-.01*	.01	0.99
Enriching Educational Experiences	.01	.01	1.01
χ^2		53.89**	
<i>df</i>		5	

Note. e^B = exponentiated B.

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

Preliminary Analysis for Research Question 2

Logistical regression was a convenient method to describe the relationship between several independent variables (e.g., personal demographics and student experience demographics) and a response variable. Logistical regression is more flexible than other techniques, such as multiple regression and discriminate function analysis (Tabachnick & Fidell,

2001). Logistical regression was used to determine the effect size of the independent variables of Block (1) one (e.g. highest level of parental education, student nationality, and student gender) and Block (2) two (e.g. academic major, percentage of students receiving institutional financial support, and Greek Life affiliation) on the dependent variable (alumni donor participation rate). Logistical regression can be used to rank the importance of predictor variables and assess interaction effects of the independent variables (Hair et al., 2010).

Multicollinearity was tested using VIF and the tolerance value, as well as examination of condition indices. The VIF should be below 10 and tolerance should be above 0.10 (Doane & Seward, 2013). For the present data set, all VIF factors were 2.16 or below, and minimum tolerance value was 0.46, so multicollinearity was *not* considered to be an issue for any of the independent variables. Maximum condition index was 10.52, which is below 15. Thus, the absence of multicollinearity was confirmed. Outliers and Influential Points were analyzed, as outliers can massively change the shape of a distribution and cause regression to be improperly reported as significant or *not* significant. Outliers were checked through Cook's distance, *df* beta (standardized Cook's), leverage values, and standardized residuals. Cook's distance and *df* beta values should be less than one (1), leverage values should be less than 0.2, and standardized residuals should be between -3.3 and 3.3. For the present data analysis model, Cook's distance was 0.20, maximum leverage was 0.002, standardized residuals were between -3.52 and 3.40, and *df* beta values were all approximately .001 or less. A few of the *df* beta values were slightly large, but *not* large enough to warrant concern (Johnson & Tsui, 1998).

Independence between the errors ensures that the observations are *not* dependent upon one another (Johnson & Tsui, 1998). Independence was ensured by plotting the standardized

residuals for each dependent variable against its case number (an arbitrary placement of the observation in the dataset); no patterns were observed as case numbers increased.

Linearity of predictors was *not* needed, as no independent variable in this model was continuous. Upon determining that all assumptions were met and confirmed valid, further analyses commenced, to answer the research question.

Research Question Two

What is the relationship between alumni donor participation rates and the alumni demographic variables of: (a) parents' education levels, (b) nationality, (c) academic major, (d) recipient of scholarship, (e) gender, and (f) participation in Greek Life?

a. Dependent / Outcome Variable – Alumni donor participation rates

b. Independent / Predictor Variables – (a) parents' education levels, (b) nationality, (c) academic major, (d) recipient of scholarship, (e) gender, and (f) participation in Greek Life.

To create the analysis models, the categorical independent variables were coded and separated into two blocks (Block 1 and Block 2). Table 8 illustrates the two-block design and provides the binomial code used for dichotomous variables. Block (1) One contained personal demographics (e.g. highest level of parental education, student nationality, and student gender) and Block (2) Two contained college students' experience (e.g. academic major, percentage of students receiving institutional financial support, and Greek Life affiliation). *Model A* tested the effect of the independent variables of Block 1 on the dependent variable, and *Model B* tested the effect of the independent variables of both Blocks 1 and 2 on the dependent variable.

Table 8 Block Model for Research Question 2

Block 1	Block 2
<ul style="list-style-type: none"> • Highest level of parental education <ul style="list-style-type: none"> ○ Neither parent attempted college (the reference category to which all other levels of this variable were compared) ○ At least one parent attempted college ○ At least one parent attempted baccalaureate ○ Both parents completed baccalaureate ○ At least one parent attempted graduate degree ○ Both parents completed graduate degree • Student nationality: non-international student (0) and international student (1) • Student gender: male (0) and female (1) 	<ul style="list-style-type: none"> • Academic major <ul style="list-style-type: none"> ○ Laboratory sciences (biological sciences, physical sciences; reference category) ○ Social sciences (arts, humanities, education, political science) ○ Business and other majors • School level of percentage of students receiving financial aid: 85% or less (0) and over 85% (1) • Student participation in Greek organization: non-participant (0) and participant (1)

Model A: Personal Demographics Only

Logistical regression analysis was conducted to investigate the ability for the predictor variables (highest level of parental education, student nationality, and student gender) to influence the dichotomous dependent variable (high or low alumni donor participation rate). Non-significant results of Hosmer and Lemeshow test $\chi^2(7) = 4.39, p = .74$, indicate that the model (parental education, nationality, and gender predicting institutional giving category) fit well. Cohen’s (1988) interpretation of effect size indicates moderate effect size indices (Cox & Snell, $R^2 = .15$; Nagelkerke, $R^2 = .20$). The predictors, as a set, are statistically effective for determining the likelihood of high alumni donor participation: $\chi^2(7) = 167.17, p < .001$.

Logistic regression was used to predict the likelihood of high alumni donor participation increasing based on each of the predictors. Data were reported as the odds ratio of alumni donor participation rate increasing over decreasing, so that an odd ratio of 9.46 was interpreted to mean

that the odds of the likelihood of high alumni donor participation, greater than 16%, was 8.46 times greater if both parents completed a graduate degree. The relationship between parental education level and the likelihood of high alumni donor participation was significant ($p < 0.05$), and each increasing level of parental education beyond *not* having ever attempted college significantly increased the likelihood of high alumni donor participation by the following percentages (as compared to having parents who never attempted college). In cases in which at least one parent attempted college, the likelihood increased by 101.7% (Wald = 9.00, $df = 1$, $p = .003$), and in cases in which at least one parent attempted baccalaureate study the likelihood increased by 369.7% (Wald = 38.20, $df = 1$, $p < .001$). Completion of a baccalaureate by both parents showed statistically significant increases ($p < 0.001$); in such cases, the likelihood increased by 575.1% (Wald = 53.05, $df = 1$, $p < .001$). Furthermore, in cases in which at least one parent attempted graduate study, the likelihood increased by 726.8% (Wald = 80.92, $df = 1$, $p < .001$), and in cases in which both parents completed graduate study the likelihood increased by 846.1% (Wald = 70.13, $df = 1$, $p < .001$). In contrast, being an international student decreased the likelihood of high alumni donor participation by 82% (Wald = 21.65, $df = 1$, $p < .001$). Gender was *not* identified as a significant predictor of alumni donor participation rates.

Regression results are shown in Table 8 (Model A).

The logistic regression model predicted 70.3% of the students in the sample (57.6% for those at low alumni donor participation rate institutions and 78.6% for those at high alumni donor participation rate institutions). This result represents an increase from the 60.5% classification rate indicated by the constant-only model that did *not* contain any of the predictor

variables. Ideally, a classification rate of 75% is preferred (Miller, Hui, & Tierney, 1991), so the tested model with these data met the desired strength in predictive value.

Model B: Personal Demographics of Block 1 and College Student Experiences of Block 2

Logistical regression analysis was conducted to investigate the ability for the predictor variables (of Blocks 1 and 2) to influence alumni donor participation rates. Significant results of the Hosmer and Lemeshow test, $\chi^2(8) = 25.86, p < .001$ indicate that the model (academic major, institutional financial aid status, and Greek affiliation added to the existing model of parental education, nationality, and gender predicting institutional giving category) did *not* necessarily fit well, but this test alone does *not* dictate model fit.

Cohen's (1988) interpretation of effect size indicates moderate to large effect size indices (Cox & Snell, $R^2 = .29$; Nagelkerke, $R^2 = .39$). The predictors, as a set, serve as a statistically significant addition, serving as predictors of high alumni donor participation: $\chi^2(4) = 189.13, p < .001$. Overall, the model tested with these predictors was statistically significant: $\chi^2(11) = 356.30, p < .001$.

Logistical regression was used to predict the likelihood of high alumni donor participation increasing based on each of the predictors. Like *Model A*, data were reported as the odds ratio of alumni donor participation rate increasing over decreasing. The relationship between parent education level and high alumni donor participation is significant ($p < 0.05$), and each increasing level of parental education beyond *not* having ever attempted college significantly increased the likelihood of high alumni donor participation by the following percentages. In cases in which at least one parent attempted college, the likelihood increased by 72.9% (Wald = 4.29, $df = 1, p = .04$), and in cases in which at least one parent attempted

baccalaureate study the likelihood increased by 365.5% (Wald = 30.77, $df = 1$, $p < .001$).

Completion of a baccalaureate by both parents showed significant increases ($p < 0.001$); in such cases, the likelihood increased by 491.0% (Wald = 37.05, $df = 1$, $p < .001$). Furthermore, in cases in which at least one parent attempted graduate study, the likelihood increased by 622.9% (Wald = 55.74, $df = 1$, $p < .001$), and in cases in which both parents completed graduate study, the likelihood increased by 802.2% (Wald = 53.11, $df = 1$, $p < .001$). Majoring in business, as compared to the laboratory sciences, was associated with a 44.3% decrease in the likelihood of high alumni donor participation by 44.3% (Wald = 5.45, $df = 1$, $p = .02$). However, majoring in the social sciences was *not* found to be a significant predictor. Receiving institutional financial aid also increased the likelihood of high alumni donor participation by 187.6% (Wald = 43.70, $df = 1$, $p < .001$). Being a member of a Greek organization increased the likelihood of high alumni donor participation by 726.2% (Wald = 89.95, $df = 1$, $p < .001$). Gender was *not* identified to be a predictor for high alumni donor participation.

The regression results are presented in Table 9 (Model B).

Furthermore, the logistic regression model predicted 74.2% of the students in the sample (59.5% for those at low giving rate schools and 83.8% for those at higher giving rate schools). This result represents an increase from the 60.5% classification rate indicated by the constant-only model that did *not* contain any of the predictor variables, but only a slight increase from the model that only contained personal demographics.

Ideally, a classification rate of 0.75 is sought (Miller et al., 1991); therefore, the tested model with these data was close to meeting the desired strength in predictive value. The Kappa coefficient of 0.45 further indicated that the model was moderately strong for classifying the

observations at a level of accuracy or precision (Fleiss, 1973). Overall, results indicated that student demographic qualities predicted the likelihood of high alumni donor participation.

Table 9 Summary of Logistic Regression Analysis for Demographic Factors Predicting Institutional Giving Rates ($N = 1,060$)

Variable	Model A			Model B		
	<i>B</i>	<i>SE B</i>	e^B	<i>B</i>	<i>SE B</i>	e^B
Constant	-0.80			-1.40		
Parental Education						
One start bacc	0.70**	.23	2.02	0.55*	.27	1.73
One finish bacc	1.55**	.25	4.70	1.54**	.28	4.66
Both finish bacc	1.91**	.26	6.75	1.78**	.29	5.91
One finish grad	2.11**	.24	8.27	1.98**	.27	7.23
Both finish grad	2.25**	.27	9.46	2.20**	.30	9.02
International student	-1.72**	.37	0.18	-1.52**	.39	0.22
Gender	-0.17	.16	0.84	-0.30	.18	0.74
Major						
Social sciences				0.12	.23	1.13
Business/other				-0.59*	.25	0.56
School financial aid				1.06**	.16	2.88
Greek affiliation				2.11**	.22	8.26
χ^2		167.17**			356.30**	
<i>df</i>		7			11	

Note. e^B = exponentiated *B*. Neither parent attempting college is reference category for parental education. Laboratory-sciences is the reference category for major. Gender is coded as 1 for female and 0 for male. School financial aid is coded as 1 for over 85% receiving aid and 0 for 85% and under. All other variables are coded as 1 for yes and 0 for no. * $p < .05$. ** $p < .01$.

Summary

This quantitative correlational study was conducted to examine the relationship between the NSSE benchmarks of student engagement and student demographic factors and alumni donor participation rates at Carnegie Baccalaureate Colleges. In all, 10 Carnegie Baccalaureate Colleges located in the southeastern region of the United States provided alumni donor participation data and participated in this study. The NSSE student engagement benchmark variables of level of academic challenge, active and collaborative learning, student-faculty interaction, supportive campus environment, and enriching educational experience, as well as the student demographic variables of highest level of parental education, student nationality, student gender, academic major, percentage of students receiving institutional financial support, and Greek Life affiliation were investigated to determine if they could be used, either independently or in combination, to predict alumni donor participation rates.

Descriptive statistics and logistical regression models were used to analyze the effect size of the predictor variables on the binomial dependent variable. The NSSE benchmarks of Level of Academic Challenge and Student-Faculty Interaction increased the likelihood of alumni donor participation, while active and collaborative learning and student campus environment were found to decrease the likelihood of alumni donor participation. Furthermore, affiliation with Greek Life during college, the education level of parents, and receiving institutional financial aid were shown to increase the likelihood of high alumni donor participation, while being an international student decreased this likelihood. Majoring in business, when compared to the laboratory sciences, decreased the likelihood of high alumni donor participation, and gender was

not found to be a significant predictor. The implications of this study's findings and recommendations for future research are presented in Chapter Five.

CHAPTER FIVE: DISCUSSION

Introduction

The primary purpose of this study was to examine the relationship between student engagement, demographic variables, and alumni donor participation rates of senior class cohorts who graduated from liberal arts colleges located in the southeastern region of the United States in 2006. The relationship between the level of student engagement, demographic variables, and alumni donor participation rates were examined over a five-year post-graduation period. Chapter Five presents a discussion of the results of this study. The chapter begins with a brief overview of the study; continues with a review of the data presented in Chapter Four and a comparison to the research findings presented in Chapter Two, with discussion of congruency and inconsistency of the findings; and concludes with a discussion of the study's limitations, implications, and recommendations for future research.

Overview of the Study

This study employed logistical regression analysis to investigate the relationship and determine the predictive power of the National Survey of Student Engagement (NSSE) benchmark scores and student demographic variables on alumni donor participation. The sample was composed of a multi-state selection of Carnegie Baccalaureate Colleges located in the southeastern region of the United States. Data obtained from the NSSE and the participating colleges were analyzed using the Statistical Package for Social Sciences (SPSS) 20.0. Logistical regression was performed on each variable presented in the research questions to determine whether a statistically significant relationship at the 0.05 alpha level existed. Internal

consistencies for the NSSE benchmarks were examined and represented by Cronbach's alpha coefficient analysis. By controlling for Carnegie Classification of institutions and graduating class year, the analyses may provide value to institutions that participate in the annual administrations of the NSSE and similar populations and samples. Published research has examined the effects of student experience and demographic characteristics on alumni donor participation rate (Field, 2011); however, a gap in the literature was identified regarding the relationship between student engagement, student demographics, and alumni donor participation rates.

Understanding of the relationship between student engagement, student demographics, and alumni donor participation aids higher education leaders seeking to impact alumni donor participation rates, by assessing engagement. The increased understanding of student engagement factors correlating with alumni donor participation rates may be supported through providing more interaction between student affairs and academic affairs; enabling institutions to employ data-driven decision-making when allocating resources to support activities that engage and enhance students' experiences, strengthen students' success, and increase alumni donor participation (Field, 2011).

The selection criteria for the study identified 40 potential participant institutions, and a senior administrator (e.g., director or vice president of alumni affairs) at each institution was contacted. Of the 40 institutions contacted, 10 senior administrators provided the requested information, yielding a usable response rate of 25%. The alumni donor participation rate was determined for each institution using the following formula: *Alumni donor participation rate = # of alumni donors from the undergraduate class of 2006 / # of undergraduates who graduated in*

2006. The alumni donor participation rate for the class of 2006 was measured over time by keeping the denominator constant, and obtaining the total number of alumni donors from the class of 2006 who gave in 2007, 2008, 2009, 2010, and 2011. However, due to the confidentiality of student level NSSE responses, the alumni donor participation rates provided by each institution were *not* able to be matched to their respective 2006 senior class cohort NSSE responses. Therefore, the 10 institutions were dichotomized by the NSSE and categorically separated into two groups of five: (a) five institutions with alumni donor participation rates of less than 12% and (b) five institutions with alumni donor participation rates greater than 16%. The categorical dichotomization was based upon the institutions' alumni donor participation rate of the 2006 senior class cohort. The sample of student data provided by the NSSE was based upon a selection of 75% of the total responses collected by the NSSE during the 2006 administration at each institution. In all, the findings highlight relationships between student engagement, student demographics, and alumni donor participation rates, but the findings should be used with caution.

Internal Consistency of NSSE

Validity refers to the concept that an instrument measures what it was designed to measure, and is often regarded as the most important determinant of the assessment tool (Osborne, 2013). Kuh (2001a) and others underscore the importance of validity and describe the arduous process of ensuring that the NSSE survey items were clearly worded, well-defined, unambiguous, and possessed high content validity, especially with regard to the scoring of benchmark constructs. The NSSE contains over 100 items that are dichotomously scored or have

a limited number of responses; these items are categorized and inform the score for each of the five benchmarks, also referred to as constructs (Kuh, 2001). The five NSSE benchmarks are used as a basis for comparison of institutions; however, Bryan, Eagle, Wright, and Icenogle (2012) found, based on data collected from the 2005 and 2006 NSSE administration at individual private liberal arts colleges, that the NSSE does *not* possess benchmarks that permit a high degree of construct validity determination and does *not* support the five factor model provided by Kuh (2001a). Furthermore, critiques of scholars have indicated that unambiguous, well-defined wording and the ability of items to be codified to a benchmark do *not* exclusively indicate reliability and consistency (Porter, 2011), and information about score reliability is critical to assess internal validity. Therefore, prior to any data analysis, a thorough review and examination of the data was completed.

Reliability of Data

Reliability is properly presented only when it is discussed in relation to the data (Osborne, 2013); furthermore, measures of internal consistency are critical for reporting the instrument used to collect data, and are a property of data, *not* an instrument (Leech et al., 2011). When used to analyze responses to items on an instrument such as the NSSE, Cronbach's alpha "is an indication of how well the different items complement each other in their measurement of different aspects of the same variable or quality [construct/benchmark]" (Litwin, 2003, p. 22). Cronbach's alphas are reported in a range between zero and one. Alphas closer to one indicate a higher internal consistency, and alphas closer to zero indicate a lower internal consistency. Groups and constructs with Cronbach's alphas greater than 0.70 are acceptable, but Cronbach's

alpha of 0.60 are questionable and should be used with caution (McMillan & Schumacher, 2000; Kline 2011), and further tests for inter-item analysis and item-to-scale correlations should be completed (Clark & Watson, 1995).

Leech and colleagues (2011) state, “Cronbach’s coefficient alpha are by far the most commonly used indices to determine internal consistency reliability estimates for scores from instruments that are dichotomously scored and that have a specific number of fixed response options” (p. 117). Therefore, Cronbach’s alphas for the present study do *not* indicate the reliability of NSSE, but instead indicate the reliability of the data collected by the NSSE and used in this study. Although appropriate ranges of Cronbach’s alphas can vary by individual instrument and data collection procedures (Onwuegbuzie & Daniel, 2002), alpha is an estimate of error in a measure, and reduced reliability can negatively impact estimates of effect sizes when the internal consistency is questionable, and when alpha is .70 or below, the researcher can underestimate the effects by more than 50% (Osborne, 2013).

Osborne (2013) suggests a process of data cleaning procedures prior to any analysis, so upon completion, the data for this study were analyzed as one aggregated data set. The Cronbach’s alphas of the aggregated NSSE data were calculated, and are reported in Table 10. The Cronbach’s alpha indicated that at least two benchmarks (e.g., Active and Collaborative Learning and Enriching Educational Experiences) were below the minimum needed for reliability (Osborne, 2013).

Table 10 2006 NSSE Benchmark Data Used in the Present Study

Institution #	<i>N</i>	LAC	ACL	EEE	SFI	SCE
Institutions 1-10	1038	.75	.63	.62	.75	.76

When data are analyzed in aggregate, the reliability estimates can be hindered by one or more subsamples with high or low reliability estimates (Hillenbrand-Gunn, Heppner, Mauch, & Park, 2010; Onwuegbuzie & Daniel, 2004). Therefore, to ensure that the Cronbach's alphas reported in Table 10 were representative of the internal consistency of the entire sample and that a sub-sample's high or low reliability score would *not* be concealed, the Cronbach's alpha of each NSSE benchmark at each participating institution was computed and compared to examine the data for score reliability across sub-samples (Onwuegbuzie & Daniel, 2004).

Table 11 presents the reliability estimate of each NSSE benchmark at each sub-sample (i.e., individual institution). The institutional number was listed on the vertical, and the Cronbach's alphas were reported on the horizontal. In addition, the mean and standard deviation are reported for the sample.

Table 11 Institution Level NSSE Benchmark Data Used in the Present Study

Institution #	<i>N</i>	LAC	ACL	EEE	SFI	SCE
Institution 1	155	.72	.65	.67	.75	.75
Institution 2	117	.58	.57	.32	.69	.65
Institution 3	51	.77	.62	.67	.74	.76
Institution 4	80	.73	.62	.64	.47	.81
Institution 5	128	.74	.65	.43	.76	.75
Institution 6	73	.76	.64	.70	.70	.59
Institution 7	85	.55	.51	.58	.77	.81
Institution 8	190	.71	.58	.42	.75	.64
Institution 9	51	.73	.58	.50	.64	.64
Institution 10	108	.70	.68	.54	.76	.72
<i>M</i>	104	.70	.61	.55	.70	.71
<i>SD</i>	36	.05	.04	.11	.06	.07

The possible range for each benchmark measurement was 0 – 1.00, where higher score indicated higher internal consistency. The obtained range among sub-samples for Level of Academic Challenge was 0.55 – 0.77 with a mean score of 0.70 (*SD* = .05), Active and Collaborative Learning scores ranged from 0.51 – 0.68 with a mean of 0.61 (*SD* = .04), Student-Faculty Interaction scores ranged from 0.47 – 0.77 with a mean of 0.70 (*SD* = .06), Enriching Educational Experiences scores ranged from 0.32 – 0.70 with a mean of 0.55 (*SD* = .11), and Supportive Campus Environment scores ranged from 0.59 – 0.81 with a mean of 0.71 (*SD* = .07). Nevertheless, further analyses of the NSSE data by subsample did *not* yield results to alleviate the questionable data concerns reported in Table 10. The concerns regarding the questionability

of NSSE data was reported by other scholars (e.g., Campbell & Cabrera, 2011; Olivas, 2011; Porter, 2011). Therefore, the findings were questionable and should be used with caution.

Discussion of Findings

The research questions guiding this study sought to examine the relationship between student engagement theory (Chickering & Gamson, 1987, 1991; Kuh, 2001) and alumni donor participation theory. As confidentiality of the data restricted the matching of individual students' engagement and demographics data with their respective alumni donor participation data, all data were used in aggregate and the findings are presented in relation to characteristics of the institution. Therefore, the findings of this study describe the effect of the independent variables on the likelihood (odds ratio) of high alumni donor participation.

Research Question One

Research question one explored the relationship between senior class student engagement rates at Carnegie Baccalaureate Colleges (as measured by the five NSSE 2006 benchmarks of engagement: [a] level of academic challenge; [b] active and collaborative learning; [c] student-faculty interaction; [d] supportive campus environment; and [e] enriching educational experience), and alumni donor participation rates over a five year post-graduation period (2007, 2008, 2009, 2010, 2011).

Statistical Significance

As the dependent variable was dichotomous (group one or group two), logistical regression was used to predict the likelihood of high alumni donor participation increasing based

on each of the predictors. Non-significant results of Hosmer and Lemeshow test, $\chi^2(8) = 2.49$, $p = .96$, indicated that the five NSSE benchmarks for predicting institutional giving fit well for the model. Effect sizes were defined as small, medium, or large effect, where small is .02, moderate is .15, and large is .35 (Cohen, 1988). Cohen's (1988) interpretation of effect size indicates small effect size indices (Cox & Snell $R^2 = .05$, Nagelkerke $R^2 = .07$). The predictors, as a set, are statistically effective predictors of high alumni donor participation: $\chi^2(5) = 53.89$, $p < .001$.

The findings of the logistical regression model identified that Level of Academic Challenge and Student Faculty Interaction increased the likelihood of high alumni donor participation; however, each had a small effect size (Cohen, 1988). Level of Academic Challenge (Wald = 3.87, $df = 1$, $p < .05$)—a NSSE factor/subscale scoring the amount of time a student spends preparing for class, reading and writing to complete assignments and perceives the institution's expectations for high academic performance—increased the likelihood of high alumni donor participation by 1.1%. Level of Academic Challenge influences student satisfaction (Martin, 2012; Pauley, 2011), and satisfaction with college experience is regarded as a strong predictor of future alumni donor participation (Burt, 1989; Drew-Branch, 2011; Gaier, 2005; Van Horn, 2002; Zhao & Kuh, 2004). Student-Faculty Interaction (Wald = 22.66, $df = 1$, $p < .001$) was found to increase the likelihood of high alumni donor participation by 2.1%.

Two NSSE benchmarks were found to decrease the likelihood of high alumni donor participation; however, each had a small effect size (Cohen, 1988). Active and Collaborative Learning (Wald = 28.74, $df = 1$, $p < .001$)—a NSSE factor/subscale that measures a student's class participation through class presentations, group work outside of class and work on community service projects—decreased the likelihood of high alumni donor participation by

2.7%. Supportive Campus Environment (Wald = 6.30, $df = 1$, $p = .01$)—a NSSE factor/subscale that scores a student’s perception of campus climate, how the campus environment supports their growth academically and socially through relations with peers and understanding of self, character development, and cope with non-academic responsibilities—decreased the likelihood of high alumni donor participation by 1.0%. Therefore, four student engagement factors (NSSE) correlated with alumni donor participation; however, the effect sizes for the four correlates were small (Cohen, 1988), mitigating the practical significance of these findings.

Substantive Significance

Substantive significance provides the relevance and real-world meaningfulness of statistical findings in the context of the research question (Miller, 2008). Two benchmarks, Level of Academic Challenge and Student-Faculty Interaction increased the likelihood of high alumni donor participation within these data. The impact of each benchmark was assessed for causality, direction, and magnitude; however, assessing the importance of coefficients on categorical and continuous variables can be challenging and convolutes the statistical significance; thus, illustrating a need to discuss substantive significance (Miller, 2008).

Pearson (1999) found that

the relationship alumni have with the university begins with their experience as students [e.g., Level of Academic Challenge], and, not surprisingly, satisfaction with the student experience is the single most essential pre-condition for giving. Few Stanford alumni who are not satisfied with their student experience are donors. (p. 3)

Therefore, the findings identified a positive correlation between student engagement and alumni donor participation and were congruent with Pearson's results; satisfaction with college experience is influenced by quality relationships with faculty members (Astin, 2001). The identified relationship between student-faculty interaction and alumni donor participation was anticipated as student-faculty interactions are credited with increasing persistence, especially among students from minority and underrepresented populations (Pascarella & Terenzini, 2001), and the relationship between students and faculty members shows "substantial positive correlations with all other areas of student satisfaction" (Astin, 2001, p. 383). Despite the limitations noted in the current investigation (e.g., aggregated data, poor internal consistency reliability with the NSSE), the findings identifying a relationship between student engagement and alumni donor participation were congruent with the findings of others.

Although the NSSE factors of Level of Academic Challenge and Student-Faculty Interaction correlated with alumni donor participation at the .05 alpha level, the odds ratio (effect size) of the independent variables (level of academic challenge and student-faculty interaction) on the dependent variable (alumni donor participation) alumni donor participation was small (Cohen, 1988), 1.0% and 2.1%, respectively.

The negative correlation between alumni donor participation and the two NSSE factors *Active and Collaborative Learning* and *Supportive Campus Environment* was unexpected, as the NSSE items that score the factors are associated with student satisfaction. However, the identified negative correlation may indicate the presence of suppressor effects, which "occur when a predictor has a significant effect but one when another variable is held constant" (Field, 2009, p. 213). Further research on the NSSE Active and Collaborative Learning factor and

alumni donor participation is warranted to further examine this finding. The weakness of the alumni donor participation model, indicated by the Kappa coefficient, and the limitations of NSSE instrument affect the substantive statistical interpretation and warrant caution when considering the foregoing statistical inferences.

Research Question Two

Research question two examined the relationship between alumni donor participation rates and the alumni demographic variables of: (a) parents' education levels, (b) nationality, (c) academic major, (d) recipient of scholarship, (e) gender, and (f) participation in Greek Life. Logistic regression was used to predict the odds of high alumni donor participation increase based on each of the predictors.

To create the analysis models, the categorical independent variables were coded and separated into two blocks (Block 1 and Block 2). Table 8 illustrates the two-block design and provides the binomial code used for dichotomous variables. Block (1) One contained personal demographics (e.g. highest level of parental education, student nationality, and student gender) and Block (2) Two contained college students' experience (e.g. academic major, percentage of students receiving institutional financial support, and Greek Life affiliation). *Model A* tested the effect of the independent variables of Block 1 on the dependent variable, and *Model B* tested the effect of the independent variables of both Blocks 1 and 2 on the dependent variable.

Logistical regression analysis was conducted to investigate the ability for the predictor variables (highest level of parental education, student nationality, and student gender) to influence the dichotomous dependent variable (alumni donor participation rate); results were

presented in Table 9 (Model A). The Kappa coefficient of 0.45 further indicated that the models were moderately strong for classifying the observations (Fleiss, 1973). Overall, the findings indicated statistical significance for several student demographics that increase the likelihood of high alumni donor participation.

Statistical Significance

Model A

Model A comprised only personal demographics, Block 1. The relationship between parent education level and the likelihood of high alumni donor participation was statistically significant ($p < 0.05$). In cases that at least one parent attempted college, the likelihood of high alumni donor participation increased by 101.7% (Wald = 9.00, $df = 1$, $p = .003$), and in cases in which at least one parent attempted baccalaureate study, the likelihood increased by 369.7% (Wald = 38.20, $df = 1$, $p < .001$). Completion of a baccalaureate by both parents showed statistically significant increases ($p < 0.001$); in such cases, the likelihood increased by 575.1% (Wald = 53.05, $df = 1$, $p < .001$). Furthermore, in cases in which at least one parent attempted graduate study, the likelihood increased by 726.8% (Wald = 80.92, $df = 1$, $p < .001$), and in cases in which both parents completed graduate study, the likelihood increased by 846.1% (Wald = 70.13, $df = 1$, $p < .001$). The results of the present study identified that parent education level had a strong impact (large effect sizes) on the likelihood of higher alumni donor participation.

Students who identified as an international student decreased the likelihood of high alumni donor participation by 82% (Wald = 21.65, $df = 1$, $p < .001$). Gender was *not* found to be a significant predictor of alumni donor participation.

Model B

The relationship between parent education level and the likelihood of high alumni donor participation was significant ($p < 0.05$), and each increasing level of parental education beyond *not* having ever attempted college significantly increased the likelihood of high alumni donor participation. In cases in which at least one parent attempted college, the likelihood increased by 72.9% (Wald = 4.29, $df = 1$, $p = .04$), and in cases in which at least one parent attempted baccalaureate study, the likelihood increased by 365.5% (Wald = 30.77, $df = 1$, $p < .001$). Completion of a baccalaureate by both parents showed statistically significant increases ($p < 0.001$); in such cases, the likelihood increased by 491.0% (Wald = 37.05, $df = 1$, $p < .001$). Furthermore, in cases in which at least one parent attempted graduate study, the likelihood increased by 622.9% (Wald = 55.74, $df = 1$, $p < .001$), and in cases in which both parents completed graduate study, the likelihood increased by 802.2% (Wald = 53.11, $df = 1$, $p < .001$). Majoring in business, as compared to the laboratory sciences, decreased the likelihood by 44.3% (Wald = 5.45, $df = 1$, $p = .02$), and majoring in the social sciences was *not* found to be a statistically significant predictor. Receiving financial aid also increased the likelihood of high alumni donor participation by 187.6% (Wald = 43.70, $df = 1$, $p < .001$). Greek Life Affiliation increased the likelihood of high alumni donor participation by 726.2% (Wald = 89.95, $df = 1$, $p < .001$). In *Model B*, like in *Model A*, Gender was *not* found to be a predictor of alumni donor participation.

Substantive Significance

Institutional giving models are used based upon the readily available data, and few provided insight for predicting gifts or their likelihood (Okunade & Berl, 1997). Consequently, the research questions proposed sought to use data that was readily via NSSE, and examined the predictability of the NSSE factors/benchmarks despite the limitations of a dichotomous dependent variable. The effect of level of parent education on alumni donor participation was strong (large effect sizes); however, the association between parent education level and alumni donor participation was *not* examined in the literature; therefore, substantive significance is interpreted within the context of “study design, measurement of variables, or model specification” (Miller, 2008, p.7). Therefore, additional research is warranted to examine the relationship between parent education and alumni donor participation in other sample of college students.

The study design may account for the parents’ level of education finding as institutions have recognized the increasing importance of first-generation college alumni. Andrade, Rodriguez-Ingle, and Diaz-Rios (2001) report that a there is a proportion of first-generation students who “sometimes have ambivalent attitudes about their college experiences and...there is not a great deal known about how first-generation and/or minority students feel about alumni affairs” (p.3). Variables that positively impact alumni donor participation were consistent with previously published research including Greek Life participation (Harrison et al., 1995; O’Neil, 2005), academic major (Dugan et al., 2000; Shadoian, 1989; Haddad, 1986) institutional scholarship recipient (Hoyt, 2004; Marr, Mullin, & Siegfried, 2005).

Gender was *not* found to correlate with alumni donor participation; however, Miller (2008) suggests that a finding contrary to traditional reasoning or hypothesis may be “highly substantive significant” (p. 7). When considering variables that others have found statistically significant, Miller (2008) recommends to consider that the present

analysis might have been based on data from a study design that is better suited for assessing causality than were previous studies... [or] the analysis might involve a sample in which there is no association between the variables, even if a statistically significant association has been observed in a different time, place, or subgroup. (p. 8)

Therefore, the inconsistent findings regarding the relationship between gender and alumni donor participation necessitate further inquiry. In light of NSSE’s limitations, the reliability of self-report instruments, and the confidentiality restrictions that prevented causality investigations, the foregoing results are provided with the understanding that the student demographics warrant further investigation.

Limitations of the Study

Research Design

This study investigated the relationship between mean score of student engagement benchmarks and average of alumni giving. However, a model with student-level data, rather than institutional-level, would be more revealing and might aid in the identification of student engagement behaviors or activities, as assessed by the NSSE, that contribute to alumni donor participation. Furthermore, the confidentiality restrictions of student level data limited the interpretation of the results. Obtaining the unmodified NSSE responses for each student and

matching individual students' responses with their respective alumni donor participation records may have provided better descriptions of the relationship between a student's engagement and demographics and alumni donor participation.

An additional limitation may be sample size. Of the 154 liberal arts colleges in the Southeastern United States (IPEDS, 2012), this study's selectivity criteria narrowed the target population to 40 institutions. Of the target population, a population of 10 institutions chose to participate in the study, and a sample of student NSSE responses at the 10 institutions was obtained ($N = 1,130$). Institutions that did *not* participate may have different qualities from those that did; therefore, the 10 institutions that did participate may not be representative of liberal arts colleges in the Southeastern United States and these limitations should be considered when attempting to generalize the results of this study. Furthermore, with flexibility in research design, definitions and classifications of variables, outcomes and analytical procedures may allow bias (Ioannidis, 2005); however, this could be curtailed in future studies "through enhanced research standards" (Ioannidis, 2005, p. 701).

Sampling

The sample for this study consisted of seniors graduating in the spring semester of 2006. Seniors are often regarded as having multiple responsibilities to balance (e.g., graduate school, finding employment, marriage, etc.), so the time spent responding to the NSSE could have distracted senior class respondents from other obligations and might have impacted the amount of time they spent thinking about their responses. Furthermore, self-response surveys are inherently crippled with limitations. In the present study both alumni donor participation and

institutional student data were collected through self-report instruments. Inherent validity threats of self-report instruments existed, as participants might have exaggerated or minimized to portray themselves in a favorable light. Furthermore, participants may have failed to recall specific instances when responding to NSSE items and some may have perceived the NSSE items to be leading (LaNasa, Cabrera, & Transgrud, 2009; Pascarella et al., 2010).

Instrumentation

Kuh (2001b) and others have described the NSSE as the basis for comparison of student engagement and institutional quality. The limitation experienced in the present study relates to the reliability of the data that is being collected using the NSSE instrument, specifically with regard to Cronbach's alpha. Reliability measurements in the present study indicated that there were large variations in the responses obtained by the NSSE. Reliability measurements such as these could be due to the respondents; however, there could also be an underlying issue of reliability with the NSSE instrument and how the items of the NSSE are informing the instrument's constructs.

Cronbach's alpha for the present study were consistent with others that used 2006 NSSE data, such as Pascarella et al. (2008), and little variation was found. The Cronbach's alpha obtained of the data used in the present study further limits the generalizability and warrants ongoing investigation of the NSSE instrument and its ability to measure student engagement.

Implications

This study's findings contribute to the higher education literature. Specifically, the findings may support academicians and assist development professionals at Baccalaureate

institutions in the efficient canvassing of donor databases, utilizing alumni-specific data to predict propensity towards alumni donor participation (Okunade & Berl, 1997). Academic institutions are composed of offices and departments that are simultaneously autonomous and interdependent. Alumni affairs traditionally focuses on efforts to connect and involve alumni with reunions and giving campaigns that support scholarships, fellowships, and endowments, yet miss the institution's programmatic needs to engage students in sustainable activities. Academic affairs professionals maintain student records, transcripts, promote learning, and administer policy that affects student-faculty interactions. The interactions that students have with academic affairs professionals and faculty impact their perception of the institution and its priorities. Level of parents' education was found to be a significant predictor of alumni donor participation, and may be useful when combing demographical data for prospective donors. Furthermore, as colleges have developed programmatic initiatives to inform and support transition for first generation students, the finding could be used to share alumni donor participation expectations with first generation college students.

Student affairs professionals are an ideal group to help alumni affairs develop programmatic initiatives that can assist the development office in its long-term strategy. Student affairs offices are also one of the first offices on campus to interact with students and share on campus activities and opportunities for involvement, such as Greek Life which was shown to positively affect alumni donor participation. Furthermore, student affairs offices tend to make lasting connections with students who were actively involved with on-campus activities and could provide feedback to the alumni affairs offices regarding strategies to engage and involve alumni. A relationship between student engagement and alumni donor participation was

identified; however, the effect size was small. Level of academic challenge and student-faculty interaction play in alumni donor participation, professionals in alumni affairs, student affairs, and academic affairs should consider partnering with their programming and activities to engage students in activities that impact alumni donor participation. Leveraging relationships to judiciously allocate resources and optimize messaging may increase positive connections and impact how students feel about their college experiences, thereby increasing alumni donor participation rates. The findings of the current study may help inform future alumni giving research and provide for broader uses of NSSE; however, due to the reliability concerns previously stated and the effect sizes, the implications and recommendations discussed should be interpreted and used with caution.

Recommendations for Future Research

Much of the alumni giving literature in higher education is written by practitioners and focuses on practical strategies for alumni donor cultivation and retention. However, the current study contributes to the literature through the development of a conceptual model, *The Student-Centered Model of Alumni Donor Participation*, by focusing on students and how their experiences, demographics, and levels of engagement contribute to their alumni donor participation. There is a need to test the model at other institutions and to further refine the constructs of the model through data analysis. An institution should construct NSSE items that are appropriate for the institution's need to fully benefit from these recommendations (Pike, 2006). Future studies could contribute to the understanding student-focused philanthropy by testing the constructs and variables of the model or selecting constructs unique to an institution

of interest. In addition, further examination of NSSE's construct and factorial validity is warranted. In the present study, testing of constructs was impaired due to confidentiality restrictions placed upon student-level data. Researchers who are able to obtain student-level NSSE responses and student-level alumni donor participation data could test the model and larger sample sizes could contribute to the understanding of how NSSE responses can be used to predict alumni donor participation. Other scholars who have investigated the construct validity of the NSSE found that the NSSE has failed to provide a reliable measurement of college student engagement (Campbell & Cabrera, 2011; LaNasa et al., 2009; Porter, 2011).

Furthermore, this study sought only responses from senior class students, so it was preselecting for those who had integrated into the college environment through institutional interventions of academic and social systems, as suggested in Tinto's (1993; 1998) model of student departure. Therefore, it may be of benefit to understand the changes that occur over the four years spent in college. This could be made possible through comparing the NSSE responses of an entering and leaving class cohort with regards to how their responses to the items on the NSSE changed, especially those items that have indicated relevance to alumni donor participation. However, to compare freshman and senior year responses would require access to student-level data so that individuals could be matched. This comparison would shed light on how students move through a process of institutional and social boundaries and conform to a mean, a process often referred to as "being institutionalized." On average, a student will spend more time as an alumnus than as a student, so the process of students integrating into an institution's culture, being institutionalized, is of great interest those engaging and student philanthropy education. Student philanthropy education programming seeks to engage students in

the process of giving philanthropically while enrolled, so that students will graduate with an understanding of how philanthropy has shaped higher education. Engaging students in the philanthropic process is often referred to as “alumni in training,” and at many institutions is in its infancy stage; however, it has grown in popularity, and institutional leaders who chose to embrace this initiative are viewing the process as a long-term cultivation strategy, especially at institutions that depend on dwindling state and federal support (Miller, 2004).

Conclusions

This study investigated the relationship of student engagement and demographics on alumni donor participation. The statistical analyses were limited in their generalizability, but the findings do highlight two areas of student engagement measurements that can increase the likelihood of alumni donor participation, namely of level academic challenge and the interaction of faculty with students. Furthermore, the findings provided empirical evidence of the importance of parental level of education on alumni donor participation. Additionally, the finding supported the importance of campus involvement and the relationships that a student develops with an institution, as both Greek Life membership and receiving of an institutional scholarship were found to positively impact alumni donor participation.

Opportunities to affect student experience will begin and end with a walk across campus, and students spend more time as alumni than students. Therefore, additional research at the individual and institutional level into the collection and use of student experience, demographics, and engagement data is warranted. Institutions that choose to actively explore data and determine

specific engagement activities that affect alumni donor participation will enhance the performance of their alumni affairs and student development offices.

APPENDIX A: 2006 NSSE



National Survey of Student Engagement 2006

The College Student Report

1 In your experience at your institution during the current school year, about how often have you done each of the following? Mark your answers in the boxes. Examples: or

	Very often	Often	Some-times	Never		Very often	Often	Some-times	Never
a. Asked questions in class or contributed to class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	r. Worked harder than you thought you could to meet an instructor's standards or expectations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Made a class presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	s. Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Prepared two or more drafts of a paper or assignment before turning it in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	t. Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Worked on a paper or project that required integrating ideas or information from various sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	u. Had serious conversations with students of a different race or ethnicity than your own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	v. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Come to class without completing readings or assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
g. Worked with other students on projects during class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
h. Worked with classmates outside of class to prepare class assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
i. Put together ideas or concepts from different courses when completing assignments or during class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
j. Tutored or taught other students (paid or voluntary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
k. Participated in a community-based project (e.g., service learning) as part of a regular course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
l. Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
m. Used e-mail to communicate with an instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
n. Discussed grades or assignments with an instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
o. Talked about career plans with a faculty member or advisor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
p. Discussed ideas from your readings or classes with faculty members outside of class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
q. Received prompt written or oral feedback from faculty on your academic performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

2 During the current school year, how much has your coursework emphasized the following mental activities?

	Very much	Quite a bit	Some	Very little
a. Memorizing facts, ideas, or methods from your courses and readings so you can repeat them in pretty much the same form	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Applying theories or concepts to practical problems or in new situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9 About how many hours do you spend in a typical 7-day week doing each of the following?

a. Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hours per week	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
b. Working for pay on campus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hours per week	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
c. Working for pay off campus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hours per week	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
d. Participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hours per week	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
e. Relaxing and socializing (watching TV, partying, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hours per week	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
f. Providing care for dependents living with you (parents, children, spouse, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hours per week	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
g. Commuting to class (driving, walking, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hours per week	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30

10 To what extent does your institution emphasize each of the following?

		Very much	Quite a bit	Some	Very little
a. Spending significant amounts of time studying and on academic work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Providing the support you need to help you succeed academically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Helping you cope with your non-academic responsibilities (work, family, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Providing the support you need to thrive socially	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Using computers in academic work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11 To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?

	Very much	Quite a bit	Some	Very little
a. Acquiring a broad general education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Acquiring job or work-related knowledge and skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Writing clearly and effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Speaking clearly and effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Thinking critically and analytically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Analyzing quantitative problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Using computing and information technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Working effectively with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Voting in local, state, or national elections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Learning effectively on your own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Understanding yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Understanding people of other racial and ethnic backgrounds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Solving complex real-world problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Developing a personal code of values and ethics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Contributing to the welfare of your community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Developing a deepened sense of spirituality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12 Overall, how would you evaluate the quality of academic advising you have received at your institution?

Excellent
 Good
 Fair
 Poor

13 How would you evaluate your entire educational experience at this institution?

Excellent
 Good
 Fair
 Poor

14 If you could start over again, would you go to the same institution you are now attending?

Definitely yes
 Probably yes
 Probably no
 Definitely no

15 Write in your year of birth:

16 Your sex
 Male Female

17 Are you an international student or foreign national?
 Yes No

18 What is your racial or ethnic identification? (Mark only one.)
 American Indian or other Native American
 Asian, Asian American, or Pacific Islander
 Black or African American
 White (non-Hispanic)
 Mexican or Mexican American
 Puerto Rican
 Other Hispanic or Latino
 Multiracial
 Other
 I prefer not to respond

19 What is your current classification in college?
 Freshman/first-year Senior
 Sophomore Unclassified
 Junior

20 Did you begin college at your current institution or elsewhere?
 Started here Started elsewhere

21 Since graduating from high school, which of the following types of schools have you attended other than the one you are attending now? (Mark all that apply.)
 Vocational or technical school
 Community or junior college
 4-year college other than this one
 None
 Other

22 Thinking about this current academic term, how would you characterize your enrollment?
 Full-time Less than full-time

23 Are you a member of a social fraternity or sorority?
 Yes No

24 Are you a student-athlete on a team sponsored by your institution's athletics department?
 Yes No (Go to question 25.)

↓
On what team(s) are you an athlete (e.g., football, swimming)? Please answer below:

25 What have most of your grades been up to now at this institution?
 A B+ C+
 A- B C
 B- C- or lower

26 Which of the following best describes where you are living now while attending college?
 Dormitory or other campus housing (not fraternity/sorority house)
 Residence (house, apartment, etc.) within walking distance of the institution
 Residence (house, apartment, etc.) within driving distance of the institution
 Fraternity or sorority house

27 What is the highest level of education that your parent(s) completed? (Mark one box per column.)

Father	Mother	
<input type="checkbox"/>	<input type="checkbox"/>	Did not finish high school
<input type="checkbox"/>	<input type="checkbox"/>	Graduated from high school
<input type="checkbox"/>	<input type="checkbox"/>	Attended college but did not complete degree
<input type="checkbox"/>	<input type="checkbox"/>	Completed an associate's degree (A.A., A.S., etc.)
<input type="checkbox"/>	<input type="checkbox"/>	Completed a bachelor's degree (B.A., B.S., etc.)
<input type="checkbox"/>	<input type="checkbox"/>	Completed a master's degree (M.A., M.S., etc.)
<input type="checkbox"/>	<input type="checkbox"/>	Completed a doctoral degree (Ph.D., J.D., M.D., etc.)

28 Please print your major(s) or your expected major(s).

a. Primary major (Print only one.):

b. If applicable, second major (not minor, concentration, etc.):

THANKS FOR SHARING YOUR VIEWS!

After completing the survey, please put it in the enclosed postage-paid envelope and deposit it in any U.S. Postal Service mailbox. Questions or comments? Contact the National Survey of Student Engagement, Indiana University, 1900 East Tenth Street, Eigenmann Hall Suite 419, Bloomington IN 47406-7512 or nsse@indiana.edu or www.nsse.iub.edu. Copyright © 2005 Indiana University.

APPENDIX B: UCF IRB LETTER



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

From : UCF Institutional Review Board #1
FWA00000351, IRB00001138
To : Joshua H. Truitt
Date : March 08, 2013

Dear Researcher:

On 3/8/2013 the IRB determined that the following proposed activity is not human research as defined by DHHS regulations at 45 CFR 46 or FDA regulations at 21 CFR 50/56:

Type of Review: Not Human Research Determination
Project Title: Student Engagement and Alumni Giving at Private
Baccalaureate Colleges
Investigator: Joshua H. Truitt
IRB ID: SBE-13-09233
Funding Agency:
Grant Title:
Research ID: N/A

University of Central Florida IRB review and approval is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are to be made and there are questions about whether these activities are research involving human subjects, please contact the IRB office to discuss the proposed changes.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 03/08/2013 10:40:55 AM EST

A handwritten signature in black ink that reads "Joanne Muratori".

IRB Coordinator

APPENDIX C: NSSE DATA SHARING AGREEMENT



Indiana University Center for Postsecondary Research Data Sharing Agreement

This Indiana University Center for Postsecondary Research Data Sharing Agreement ("Agreement") defines the parameters for data sharing from the National Survey of Student Engagement ("NSSE") between the Research Institution and its Authorized Researchers named below and the Trustees of Indiana University on behalf of the Indiana University Center for Postsecondary Research ("IUCPR"). The terms below are intended to reflect and comply with the existing agreements between NSSE and the institutions that participate in the survey program. Under these participation agreements, NSSE may:

"...make data, in which individual institutions or students cannot be identified, available to researchers interested in studying the undergraduate experience... NSSE results specific to each institution and identified as such will not be made public except by mutual agreement between NSSE and the institution."

RESEARCHERS

The following researchers ("Authorized Researchers") of University of Central Florida, by and on behalf of its Board of Trustees ("Research Institution") may make use of NSSE data pursuant to the terms of this Agreement:

Joshua Truitt	University of Central Florida
Rosa Cintron	University of Central Florida

DATA DESCRIPTION

Under this Agreement, IUCPR will provide the researchers a data file delimited in the following ways ("NSSE Data File"):

- Data Source: NSSE 2006
- Variables: All survey items and one institutional flag created from average alumni giving rates provided by Joshua Truitt (the flag will identify students at the five institutions with giving rates below 12% and the five institutions above 16%). All student and institution identifying information will be removed. Finally, a fabricated institutional number will be added so that the researcher can tell which students are from the same institution.
- Cases: A 75% random sample of seniors attending the ten institutions listed below.
 - 1.
 - 2.



- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

PARAMETERS FOR DATA SHARING:

1. IUCPR will provide a single copy of the NSSE Data File solely for non-commercial research by the Authorized Researchers.
2. The NSSE Data File will exclude the Unit ID code from Integrated Postsecondary Educational Data System (IPEDS), any other unique school or student identifiers, and any variables that IUCPR determines reasonably may permit the identification of a participating school or student.
3. The Authorized Researchers will not make any attempt, privately or publicly, to associate elements of the NSSE Data File with the individual institutions or individual students participating in the NSSE, nor will they share the data with anyone else who might do so.
4. In all publications or presentations of data obtained through this agreement, the Authorized Researchers agree to include the following citation: "NSSE data were used with permission from The Indiana University Center for Postsecondary Research."
5. The Authorized Researchers agree to provide to IUCPR a copy of all reports, presentations, analyses, or other materials in which the data given under this Agreement are presented, discussed, or analyzed.
6. **The data should be encrypted when not in use by the above researcher and should be destroyed once this particular research project (dissertation) has been completed. If the researcher needs the data for any longer period than that which is necessary for completing the dissertation, the researcher is required to ask for an extension. Using the data for other purposes besides completing the designated project (dissertation) must be approved by the Director for the Center for Postsecondary Research at Indiana University at Bloomington.**
7. The IUCPR of Indiana University may, by written notification to the Authorized Researchers and the Research Institution, terminate this Agreement if it determines, in its sole discretion, that either the Authorized Researchers or the Research Institution have breached the terms of this Agreement. In the event that this Agreement is terminated, the Authorized Researchers and Research Institution shall return the originals and all copies of the NSSE Data File to the IUCPR, and securely destroy all NSSE Data File elements



NSSE
national survey of
student engagement

examined in any analyses of other materials created or maintained by Authorized Researchers, within ten (10) days of the receipt of the termination notice. Nothing herein shall prevent retention of any materials for legal and archival purposes only.

- 8. IU will not be liable to the Research Institution for any direct, consequential, or other damages, related to the use of the NSSE Data File or any other information delivered by Indiana University or IUCPR in accordance with this Agreement. To the extent permitted by law, the Research Institution shall defend, indemnify, and hold harmless The Trustees of Indiana University, their officers, employees, and agents, with respect to any and all claims, causes of action, losses, and liabilities, of any kind whatsoever, arising directly or indirectly from the Authorized Researchers' use of the NSSE Data File.

9. FEES

In exchange for access to and use of the NSSE Data File, Joshua Trullt agrees to pay Indiana University the sum of \$525, by check upon execution of this Agreement;

SIGNATURES

The undersigned hereby consent to the terms of this Agreement and confirm that they have all necessary authority to enter into this Agreement.

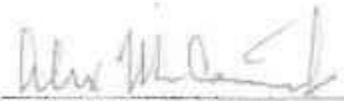
For The Trustees of Indiana University:



Amy O'Hair
Contract Officer
Office of Research Administration
Indiana University

5/22/13

Date



Alexander C. McCormick
Director,
National Survey of Student Engagement

5/15/2013

Date



For University of Central Florida, by and on behalf of its Board of Trustees ("Research Institution"):

J.C. Gentilini

J.C. Gentilini, Asst. Director
Name, Title, and Organization

Authorized Institutional Official of Research Institution

5/8/2013
Date

Acknowledgment of Authorized Researchers:

Joshua Truitt

Joshua Truitt
Ph.D. Candidate
University of Central Florida

5/9/13
Date

Rosa Cintron

Rosa Cintron
Dissertation Chair
University of Central Florida

5/9/13
Date

Approved by the Form and Faculty
SMS, 5/8/2013

APPENDIX D: EMAIL REQUESTING DATA

Hi SCHOOL REPRESENTATIVE,

My name is Joshua Truitt. I am a Ph.D. candidate in the Higher Education and Policy Studies department at the University of Central Florida. My dissertation research seeks to understand if undergraduate student engagement scores predict alumni donor participation. To do this, I plan to correlate student engagement scores from the full-time undergraduate class of 2006, with their five year post-graduation alumni giving record. I have identified SCHOOL NAME, and hope that you will choose to participate. Your participation is completely voluntary. However, the answers you provide will help me study an important element of higher education.

Please answer the three questions below. Your responses will be kept confidential, and results will not be released or reported in any way that might allow for identification of an individual institution.

For all responses, use only data from the *full-time undergraduate degree program*, and please report whole numbers.

1. Total number of graduates in the spring semester of 2006: _____
2. Tracking only graduates of the 2006 spring semester (as reported in question 1 above) over a five year post-graduation period, how many made a monetary (of any amount) contribution to SCHOOL NAME during each of the following years?

2007: _____

2008: _____

2009: _____

2010: _____

2011: _____

3. On average, what percentage of students at SCHOOL NAME receives institution based financial aid?

All participants will receive a copy of the final results.

Thank you for your help!

If you have any questions, please contact me at PHONE NUMBER.

Cordially yours,

Josh

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