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The Relationship Between the National Survey of Student Engagement Scores and Persistence Data from the Freshman Year to the Sophomore Year among Georgia Southern University Students

Steve G. Jones

THE RELATIONSHIP BETWEEN THE NATIONAL SURVEY OF STUDENT ENGAGEMENT SCORES AND PERSISTENCE DATA FROM THE FRESHMAN YEAR TO THE SOPHOMORE YEAR AMONG GEORGIA SOUTHERN UNIVERSITY STUDENTS

by

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ABSTRACT

The National Survey of Student Engagement (NSSE) is an assessment tool administered to university undergraduate students and used to determine the degree to which they are engaged with their academic environment. The NSSE asks students to assess themselves in five categories: level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences and supportive campus environment. This correlational study, also consisting of Chi-squared tests and t tests, examined the relationship between data from the NSSE by Georgia Southern University (GSU) students (independent variables) and whether first year undergraduate students persisted (re-enrolled) to their second year (dependent variable). Specifically, NSSE data from the fall of 2004 to fall of 2005 and from fall of 2007 to fall of 2008 (freshman to sophomore year) were analyzed. Additional independent variables such as race, high school GPA and freshman GPA were also correlated to scores on the five benchmarks. Re-enrollment is an indicator of a student's continued pursuit of learning. This study was conducted using Chi-squared tests, t tests and probit regressions. The

results indicate that the only significant variables at the .05 level contributing to persistence are Supportive Campus Environment (B = 0.020, $p < .001$) and Cumulative GPA score ($p < .001$). The results of this study imply that student persistence can potentially be enhanced by attending to the campus environment. The study's findings may provide valuable insights that are needed in order to understand student engagement and may be useful in planning for initiatives to increase persistence.

INDEX WORDS: National Survey of Student Engagement, Higher Education, GSU, persistence.

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DEDICATION

I dedicate this in loving memory to my father, Edward L. Jones, who always encouraged me to excel academically.

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I would like to thank my dissertation committee for their dedication and support during the completion of this dissertation. Special thanks to Dr. Jayne Perkins-Brown (Director of Strategic Research and Analysis at GSU) for he help in gathering the NSSE data.

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CHAPTER ONE
General Introduction

According to McKelvie (2009), a student with a four-year college degree will earn an additional $776,000 over his or her lifetime, compared to a non-graduate. Additionally, McKelvie found that when students earn a four-year degree, they are better equipped to pay taxes, contribute culturally and socially, participate in the work force, and their lives are enhanced. However, McKelvie noted that despite these benefits, in the United States, there is currently a crisis with students dropping out of college at a very high rate. If, as a result of non-graduation, people do not have jobs that pay a reasonable wage, this negatively affects them as well as society in general (McKelvie, 2009). Consequently, the issue of student persistence is one of the most common challenges facing academic administrators, student affairs professionals, and society at large (Trowler, 2010).

Although increased tuition rates have become the most commonly mentioned factor affecting the increasing dropout rate among higher education students (Patton, Morelon, Whitehead, & Hossler, 2006), educators and administrators are more interested in identifying the causal factors within a theoretical model of student persistence that can be helpful in building understandings of student persistence from which interventions that increase retention rates could be developed (Tinto, 2006-2007). It is imperative to determine areas in which interventions may facilitate higher graduation rates among baccalaureate students. However, before an intervention can be designed and implemented, it is necessary to assess which type of intervention will be required.

Kuh (2009) found that the degree to which a student is engaged in learning can determine the probability of his or her graduation. He created the National Survey of Student Engagement (NSSE) as a tool to assess the degree to which students are engaged activities and interactions that lead to measurable persistence gains. Engagement in these activities and interactions, discussed in detail in Chapter Two, is measured based on various interactions the student has with peers, instructors, and his or her environment. The NSSE is a tool for measuring parameters of student engagement. If this degree of engagement is related to persistence, interventions can be designed to address the needs of students in terms of engagement and possibly increase their odds of baccalaureate graduation.

The current study was aimed at providing evidence that explains the relationship between student engagement and persistence using the subscales of the NSSE that measure student interaction. Chapter 1 contains the background of the study. The chapter also presents the underlying problem that leads to the need to investigate the relationship between student engagement and college persistence, specifically re-enrollment of freshman into their sophomore year. It also discusses the significance and contribution of the study to the field of educational administration. The purpose, research question, hypotheses, assumptions, delimitations of the study and definition of terms are discussed to provide an overview of the content of this study. Finally, there is an overview of theories to guide the reader through the basic tenets as used in this study.

This study focused on sophomore higher education students at Georgia Southern University. The researcher accessed records of freshman scores on the NSSE. These scores were then correlated to individual students' retention (whether or not the individual students enrolled in their sophomore year at the same institution). The goal of this research was to provide

information that will potentially lead to higher baccalaureate graduation rates and the associated personal and societal benefits of a four-year degree.

Background

In a 2004 study, researchers found that student behavior and institutional practices are positively related to student retention rates. Specifically, students who were more engaged in their school environment by working with classmates outside of class to prepare class assignments, discussing ideas in class, making classroom presentations, attending art exhibits, plays, dances, theater, or other performances and institutions that were more engaged in the success of their students as demonstrated by their encouraging students to work with classmates outside of class, encouraging discussion of ideas in class, and encouraging attendance of art exhibits, plays, dances, theater, and other performances were both positively correlated with higher retention rates. However, despite the knowledge that these activities would be helpful, there is little evidence that they are being implemented on a wide scale (Braxton, et al., 2004). Although institutional academic policies and student behavior are equally important in student persistence in college, research on the detailed interaction of these factors is important to consider (Hossler, Ziskin, Moore, & Wakhungu, 2008).

In an attempt to extend the knowledge of student persistence, researchers have examined the significance of using an assessment tool that predicts student engagement (Patton, Morelon, Whitehead, & Hossler, 2006; Tinto, 2006-2007). A popular and widely implemented assessment tool in the U.S. is the NSSE. This tool was developed in 2000 by Dr. George D. Kuh in order to help educators and administrators understand student engagement within and outside of the classroom. Additionally, this tool was developed to evaluate what undergraduate students gained from their college experience. However, it is important to keep in mind that institutions may

differ in how effective they area at converting student engagement into learning outcomes (Kuh & Hu, 2001). In addition to helping institutions understand student engagement, NSSE results provide guidance to policy makers concerning the implementation of retention initiatives aimed at college students.

The NSSE is an assessment tool that is commonly administered to undergraduate students in an attempt to gauge their engagement. The goal of the NSSE is to allow educators, guidance counselors, researchers, parents and college students to learn more about the factors related to student engagement and how student engagement relates to student learning. Approximately 1,300 colleges and universities in Canada and the U.S. currently use the NSSE (Chen, P. D., Gonyea, R. M., Sarraf, S. A., BrckaLorenz, A., Korkmaz, A., Lambert A. D., et al., 2009). In recent years, the NSSE has been used more frequently than in the past to provide information concerning how students engage in their learning environment (Gratch-Lindauer, 2008). Since NSSE scores are often publicly available, the NSSE has become a tool used for transparency and accountability within universities (McCormick, 2009).

Although the NSSE has gained recognition as a valuable tool for organizational and educational planning, the predictive validity of the instrument continues to be explored. Research indicates that individual student educational improvements and individual student growth can be predicted using the NSSE (Pascarella, Seifert, & Blaich, 2010). Eight specific dimensions of student engagement are the benchmarks that are helpful in understanding overall student engagement (LaNasa, Cabrera, & Trangsrud, 2009). The dimensions are how students learn, how much emphasis a particular institution places on learning, the variety of interactions that comprise the students' experience in school, and co-curricular activities (more formal and structured than extra-curricular activities, are usually sponsored by the institution. These activities occur outside

of the class environment), engagement in academic activities such as reaching out for the services of a guidance counselor, the amount of effort a student puts into his or her coursework, the total amount of academic work required by a student, and relationships with peers, counselors and faculty.

In a 2009 survey, NSSE results in some colleges and universities were found to be unused and not integrated in planning to avert the increasing problem concerning student engagement and retention. The primary reason given for not using the results of the NSSE was the lack of research explicitly linking results from the NSSE to specific desired student outcomes such as persistence (Kinzie & Pennipede, 2009). In research testing the link between overall NSSE responses and persistence, grade point average (GPA), pursuit of a graduate degree, and employment upon graduation, Gordon, Ludlum and Hoey (2008) failed to provide evidence supporting a link between the NSSE and these factors. In cases in which links were found between specific NSSE benchmarks and persistence, Gordon, et al. were unable to replicate these findings for other years they examined. This current study also analyzed the NSSE benchmark data as it relates to retention and searched for replication in another year within the same institution. This study aimed to determine which of the factors of student interaction have a significant relationship with student persistence. Specifically, the level at which first-year students at universities persist to their second calendar year was examined. This is important to analyze since it will potentially reveal which factors contribute to persistence and which do not. This knowledge will potentially help school administrators and instructors to focus on what is working to enhance persistence.

In 2007, the percentage of students that persist for undergraduate students at public universities in the U.S was 73.4% (ACT, 2008). In a report of the College Completion Agenda (Lee & Rawls, 2010) released by the College Board Advocacy and Policy Center, the United

States is ranked 12th out of "countries with a college-educated workforce" in student persistence (p.4). Although this study only looked at the percentage of the population age 24-34 with an associate degree or higher, as of 2007, the United States had been surpassed by 11 countries in the percentage of the adult workforce holding at least an associate's degree. Despite U.S. initiatives to increase college completion, there remains a lack of research concerning how institutions can effectively increase student persistence (Jones & Braxton, 2010). Although the mere use of the NSSE supports an understanding of student engagement in higher education institutions (HEIs), its predictive validity for measuring student persistence remains to be explored.

Research (Friedman & Mandel, 2010) supports the assumption that student persistence increases after the first year of higher education, since students who persist to their second year are reported to be more competitive with peers during this time. Although the NSSE does not evaluate competiveness, one should bear this intrinsic factor in mind. The study's findings reveal that the level of students returning to school for the second year positively correlates to the difficulty of courses and high levels of extracurricular student services available such as campus events, cultural performances and athletic events, according to Friedman and Mandel. Among other implications, this indicates that when courses are more difficult, students persist in higher numbers. Concerning extracurricular services, more available services (e.g. campus events, cultural performances and athletic events) positively correlates with higher retention levels. This potentially indicates that retention is improved when these services are provided (Williford & Wadley, 2008). Although retention is essential in the progress of a student, it is important to keep in mind the distinction between student retention and student learning. As Richard Arum indicates, student persistence is not necessarily related to student learning. Persistence refers to staying in school, whereas learning refers to the retention of knowledge while in school (Arum, R.

& Roksa, J., 2011).

Statement of the Problem

This researcher sought to determine whether the NSSE predicts student persistence at GSU. Particularly, the researcher wished to discover which specific benchmarks of the NSSE, if any, helped account for persistence among GSU students from their freshman to sophomore year. The NSSE is widely used throughout universities for engagement assessment. Colleges and universities frequently conduct research in order to gain a better understanding of student engagement. However, the degree of the relationship, if any, between student engagement, as measured by the NSSE, and re-enrollment in the second year of college is not fully understood. This is primarily a by-product of the manner in which the NSSE is generally used at institutions. Those who are in charge of program assessment are often using the NSSE to evaluate the potential effectiveness of programs aimed at engagement that could potentially lead to re-enrollment. However, they are not always required to publish their results. This has led to a lack of published findings concerning the relationship between the benchmarks of the NSSE and re-enrollment. This researcher attempted to assess the relationship between NSSE data collected from first year college students and their re-enrollment at the same institution for their second year. In doing so, the researcher also attempted to answer this question: To what extent do the NSSE constructs (i.e. level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences and supportive campus environment) serve to predict student persistence?

Purpose Statement

Therefore, the purpose of this study is to determine which of the factors of student

engagement will have a significant relationship with the persistence of first-year students enrolled for the second calendar year. The independent variables involved in the study are the subscales (benchmarks) of the NSSE which include: 1.) Level of academic challenge; 2) Active and collaborative learning; 3) Student-faculty interaction; 4) Enriching educational experiences; 5) Supportive campus environment.

The dependent variable is whether or not first-year students persisted to the next academic year. The study aimed to determine whether the independent variables (the subscales of the NSSE, discussed in detail in Chapter Two) relate to the dependent variable (student persistence). The study used NSSE data from students in their freshman year who have re-enrolled in their second year at Georgia Southern University (GSU). The classification of re-enrolled is based on hours earned. If a student was a freshman in fall and they reenrolled in the spring, they would still be a freshman, unless their credit hours increased to 30 hours, at which point they would be point they would be qualified as sophomores. The study attempted to fill the gap in the literature regarding the link between student engagement (using all of the NSSE subscales) and student persistence.

It is important to establish which interventions, based on the constructs of the NSSE, facilitate higher levels of students that persist among baccalaureate students and to execute these interventions. However, before an intervention can be executed, it is necessary to determine which type of intervention may be required and how to implement it. According to Kuh (2009), the degree to which a student is engaged in aspects of college life is one of the most important indicators of higher student persistence. Kuh created the NSSE as a tool that can be used to assess the degree to which college students are engaged in learning. With the NSSE, engagement is measured by assigning numerical values to various interactions a student has with his or her

environment. It should be clarified that engagement and learning engagement are different. Engagement refers to a student's engaging with his or her academic environment, faculty, administrators, and administrative offices. Learning engagement, specifically, relates to students engaging in actual learning activities, such as studying.

This study analyzed data gathered from two different cohorts (2004-2005 and 2007-2008). Both cohorts were handled similarly. In fall of 2004, initial student information was submitted to NSSE. This information consisted of student demographic data. In spring of 2005, NSSE had GSU remove any students from the 2004 initial information who did not return for spring 2005. The NSSE was offered in spring 2005 to all undergraduate students via their email. In fall 2005, data were again collected by GSU to determine which of these students was still at GSU.

The data used in this study were from higher education students attending GSU. The researcher reviewed records of freshman scores from the NSSE at GSU. These scores were then correlated to persistence (The level at which first-year students at GSU persisted to their second calendar year). The goal of this research was to determine the relationship between the constructs of student engagement measured by NSSE and persistence. This information can potentially lead to higher student persistence and the associated personal and societal benefits of a baccalaureate degree.

Research Question and Hypotheses

To assess student engagement in higher education, colleges and universities often use the NSSE. This study examined the relationship between NSSE scores and student persistence in higher education. The purpose of this study was to determine which of the factors in student engagement are significantly related to persistence of first-year students enrolled for the second calendar year. The following overarching research question guided the study: When controlling

for demographic data, what is the magnitude of the correlation between student perceptions of specific categorical scores on the NSSE (1. Level of academic challenge; 2. Active and collaborative learning; 3. Student-faculty interaction; 4. Enriching educational experiences; 5. Supportive campus environment) in the freshman year and re-enrollment of students in their second year in at GSU? The following are the research question and the null and alternative hypotheses:

RQ: What relationship exists between the NSSE data from the five benchmarks in the freshman year and student re-enrollment in the second year?

H_0: There is no statistically significant relationship between the NSSE categorical scores of students in the freshman year and the re-enrollment in their second year.

H_A: There is a statistically significant relationship between the NSSE categorical scores of students in their freshman year and re-enrollment in their second year.

Conceptual Framework

This study is based on the conceptualization of the NSSE developed by George Kuh. The NSSE was developed as an assessment tool that can guide administrators in their evaluation of institutional educational practices designed to promote student engagement (NSSE, 2008). Kuh conceptually defined quality education as a collective measure of educational practice and experiences of students in the institutions as supported by the college or university administration. An engaging campus is defined as an environment in which the collaborative effort of administrators, faculty, and students improves the learning experience of all students. The presence of design program initiatives that meet students' learning expectations is also an important feature (NSSE, 2008). In the context of NSSE, engagement requires educators to be actively engaged with students' learning experiences by promoting participation of students in

evaluating their academic performance and assessing how this performance affects the students' educational goals. Thus, student engagement is not the sole responsibility of the student, but it also involves the efforts of educators and administrators in promoting positive interactions with students.

As a tool, NSSE aims to "provide data to colleges and universities to assess and improve undergraduate education, inform state accountability and accreditation efforts, and facilitate national and sector benchmarking efforts, among others" (NSSE, 2008, p.10). The developers of NSSE have constructed five benchmarks that underlie the individual items in the survey instrument itself. The most prominent and frequently used are known as the five NSSE Benchmarks of Effective Educational Practice. These benchmarks are: (1) *Level of Academic Challenge.* This scale measures the degree to which a student feels positively challenged in his or her academic environment; (2) *Active and Collaborative Learning.* This scale is designed to measure the degree to which a student will engage with others in learning inside and outside of the classroom; (3) *Student-Faculty Interaction.* This scale measures the degree to which a student will interact with a faculty member for the purposes of educational enhancement; (4) *Enriching Educational Experiences.* This scale measures the degree to which a student interacts with others of different ethnic backgrounds and the degree to which the student engages in extracurricular experiences which will enhance his or her educational experience; (5) *Supportive Campus Environment.* This scale measures the degree to which students feel that the environment of their educational institution supports them (NSSE, 2006).

The following is a list of the benchmarks and the specific items that each benchmark covers. The items are addressed through specific questions on the NSSE, which can be found in the appendix:

Enriching Educational Experiences

- Talking with students with different religious beliefs, political opinions, or values
- Using electronic technology to discuss or complete assignments
- An institutional climate that encourages contact among students from different economic, social, and racial or ethnic backgrounds
- Talking with students of a different race or ethnicity
- Participating in:
    - Internships or field experiences
    - Foreign language coursework
    - Community service or volunteer work
    - Study abroad
    - Culminating senior experience
    - Learning communities
    - Co-curricular activities
    - Independent or self-assigned major

Level of Academic Challenge

- Campus environment emphasizes spending significant amounts of time studying and on academic work
- Worked harder than you thought you could to meet an instructor's standards or expectations
- Time spent preparing for class (studying, reading, writing, rehearsing, and other activities related to your academic program)

- Coursework emphasizes: Making judgments about the value of information, arguments, or methods
- Coursework emphasizes: Analyzing the basic elements of an idea, experience, or theory
- Coursework emphasizes: Applying theories or concepts to practical problems or in new situations
- Coursework emphasizes: Synthesizing and organizing ideas, information, or experiences
- Number of written papers or reports between 5 and 19 pages
- Number of written papers or reports of 20 pages or more
- Number of written papers or reports fewer than 5 pages
- Number of assigned textbooks, books, or book-length packs of course readings

Supportive Campus Environment

- Quality of relationships with faculty members
- Quality of relationships with other students
- Quality of relationships with administrative personnel and offices
- Campus environment helps you cope with your non-academic responsibilities (work, family, etc.)
- Campus environment provides the support you need to thrive socially
- Campus environment provides support you need to help you succeed academically

Active and Collaborative Learning

- Tutored or taught other students
- Made a class presentation

- Asked questions in class or contributed to discussions
- Participated in a community-based project as part of a regular course
- Worked with other students on projects during class
- Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)
- Worked with classmates outside of class to prepare class assignments

Student-Faculty Interaction

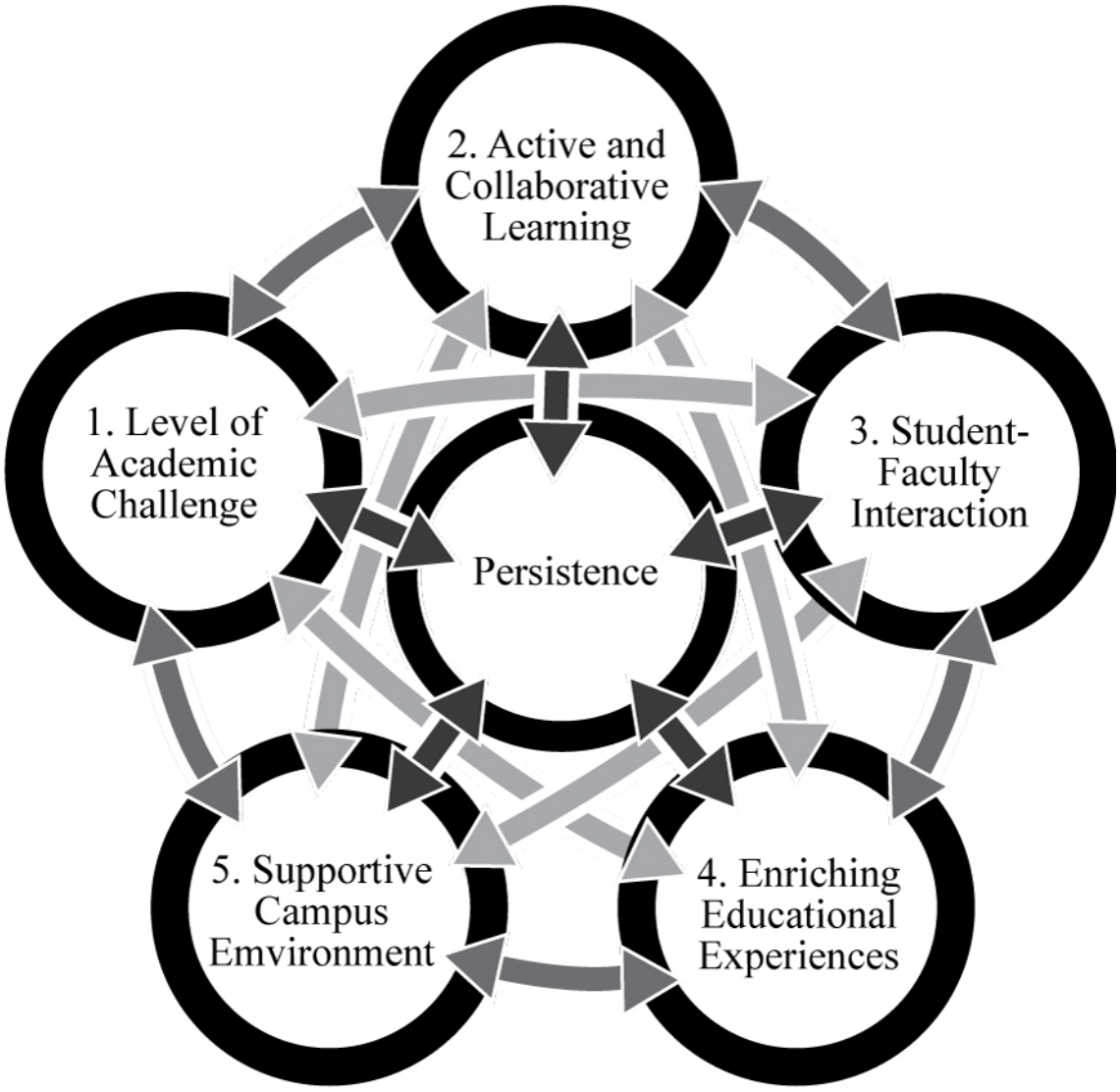
- Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)
- Talked about career plans with a faculty member or advisor
- Worked with a faculty member on a research project
- Discussed grades or assignments with an instructor
- Received prompt written or oral feedback from faculty on your academic performance
- Discussed ideas from your readings or lasses with faculty members outside of class

Less prominent and more current scales compared to the benchmarks that were developed by the NSSE attempt to evaluate "deep approaches to learning" (Nelson Laird, Shoup, & Kuh, 2006; Nelson Laird, Shoup, Kuh, & Schwartz, 2008). These three scales include integrative learning scale, reflective learning scale, and higher-order learning. These scales, although worthy of mention due to their usefulness in assessment, will not be part of this study.

The following figure, created by the researcher, summarizes how the five benchmarks of the NSSE potentially interact with persistence. Chapter Two presents evidence for these interactions. The dashed lines simply indicate areas of possible interaction. They are not intended to imply that no research has been done. The arrows between variables indicate potential areas

for future research, since the interactions between the variables are unknown. This diagram also shows the potential interactions between the five benchmarks and every other benchmark.

Figure 1.1 Potential Relation of the NSSE to Persistence



Schematic of the factors of the NSSE potentially related to student persistence

It is important to clarify what the NSSE is designed to measure and not measure. The NSSE "is designed to obtain, on an annual basis, information from scores of colleges and universities nationwide about student participation in programs and activities that institutions provide for their learning and personal development. The results will provide an estimate of how

undergraduates spend their time and what they gain from attending college" (National Survey of Student Engagement, The Validity of NSSE 4 2007b, 2007).

The NSSE does not assess the developmental changes that students may experience as a result of their college experience or their cognitive abilities. It is claimed by NSSE that "student engagement results from NSSE are a direct indicator of what students put into their education and an indirect indicator of what they get out of it" (National Survey of Student Engagement, 2007a).

NSSE data are gathered using a Web-based or paper survey in which students are required to choose various types and degrees of engagement that cover a wide variety of university activities and programs. The NSSE is not a direct measure of either student development or student learning (Dwyer et al., 2006).

Significance of the Study

Minimal research has been conducted concerning the NSSE and its capacity to predict persistence of college students beyond their freshman year (Kinzie, J., Gonyea, R., Shoup, R. & Kuh, G. D., 2008). Additionally, minimal research has been conducted to determine the degree to which the five NSSE benchmarks are able to predict engagement or re-enrollment (Carle, Jaffe, Vaughan, & Eder, 2009; Gordon, Ludlum, & Hoey, 2008; LaNasa, Cabrera & Tangsrud, 2009; Pascarella, Seifert & Blaich, 2010; Porter, 2009).

Certain factors, including the absence of a challenging academic high school experience (Kinzie et al., 2008), quality of student services (Williford & Wadley, 2008), and academic performance and social engagement (Allen, Robbins, Casillas, & Oh, 2008) are positively associated with student persistence. However, few studies have investigated which factors among the five benchmarks precisely predict student persistence in college education. Friedman and Mandel (2010), Pisarik (2009), and Henning (2009) successfully linked student motivation to

engagement, however there is a lack of research relating the NSSE subscales to student persistence in Higher Educational Institutions (HEIs). This study therefore aims to add to the literature concerning student persistence by investigating whether student persistence is related to specific NSSE subscales.

By examining the NSSE data, the researcher hoped to gain more insight into student persistence. The goal of this research is to help administrators and educators understand the potential contribution of each factor within the subscales of NSSE to student persistence. This study has produced information that is useful in the design and implementation of program initiatives, which are designed to increase persistence among college students at GSU.

Procedures

Research Design. The nature of the study and the type of research question required the use of a quantitative approach to the research. Creswell (2005) defined quantitative research as a "type of educational research in which the researcher decides what to study, asks specific, narrow questions, collects numeric data from participants, analyzes these numbers using statistics, and conducts the inquiry in an unbiased, objective manner" (p. 39). The relationship between the five benchmarks of the NSSE and persistence of first year college students was examined using a regression model. In this case, quantitative research was the most appropriate design to investigate the contribution of each subscale of the NSSE to the prediction of student college persistence. A quantitative design was more appropriate than a qualitative design for this study, since one could not assess a direct relationship between two variables from the data garnered from answers to open-ended questions (Cozby, 2001). Similarly, the use of validated and reliable survey instruments causes one to need to quantify results and findings so that they can be more easily interpreted (Cozby, 2001; Creswell, 2005). In this study, the researcher is dependent upon

NSSE's internal validation process for the samples being used. Beyond these reasons, the researcher determined that access to individual students for the purpose of gathering qualitative answers was unavailable. Therefore, a quantitative approach was used.

Correlational research designs enable studies in which "investigators use a correlational statistical technique to describe and measure the degree of association (or relationship) between two or more variables" (Creswell, 2005, p. 590). Researchers use correlational research when trying to determine if two or more variables influence one another or are at least related to each other. The regression model was appropriate for this study because the degree of association between NSSE subscales and persistence for first year students enrolled for the second academic year can be expressed numerically. A correlational examination of the potential relationships of the subscales of the NSSE and persistence may add valuable information for HEI initiative designed to increase college completion rate. New knowledge regarding the potential contribution of the NSSE subscales to persistence among first year college students can help administrators evaluate the current students' engagement initiatives and consequently design new initiatives that specifically increase persistence using the results of the study.

Sample. The sample for the quantitative correlational study is students formerly enrolled as freshmen at GSU. GSU is a public four-year and graduate institute that is part of the University System of Georgia, which comprises four research institutions, two regional universities, 13 state universities or state colleges and eight two-year colleges. GSU is located in the rural area of Statesboro, Georgia. As of fall 2012, the total enrollment was 20,574 (17,993 undergraduates) (Georgia Southern University, 2013). The researcher focused specifically on GSU, due to convenience and location. Additionally, this research serves as a contribution to the researcher's alma mater.

Instrumentation and Data Collection. There is a lack of independent research concerning the NSSE benchmarks' reliability and validity (LaNasa, et al., 2009; Gordon, et al, 2008). However, researchers at NSSE have conducted analyses on the construct validity of the benchmarks. These analyses include Cronbach's alpha, stability correlations across time and correlations across institutional types and student groups. The analyses confirmed NSSE's construct validity across all benchmarks. It should be noted that NSSE has not publicly released analyses using Item Response Theory, confirmatory factor analyses, or other forms of analysis that are the more widely accepted methods used to evaluate construct validity (Porter, 2009).

Research procedures for this study included obtaining permission from the Institution Review Board (IRB) to conduct the study and the permission of GSU's Office of Strategic Research and Analysis to use their previously gathered information for the research study. Primary data required for this study are the individual NSSE responses of students and the information as to whether or not they enrolled for their second year. As such, the primary data collection strategy used included accessing and compiling information from the Office of Strategic Analysis at GSU concerning individual NSSE scores and re-enrollment. Specifically, the researcher then correlated the answers on the NSSE to specific student re-enrollment. This was done using a spreadsheet in which answers correspond to the student's either re-enrolling or not. SPSS and Stata were used to provide a statistical analysis of the data collected, primarily due to its comprehensive and complete presentation of data. According to the following formula the X variable was assigned one of the five benchmarks of persistence tested by the NSSE. The following table illustrates the probit formula.

Figure 1.2 Probit Analysis

$$\Pr(Y=1 \mid X) = \Phi(X'\beta)$$

Y= Persistence (1 or 0)

X= Question from NSSE

Pr= Probability

Φ= Cumulative Distribution Function

β= The Study's parameter

Formula for Probit Analysis

This probit analysis is used to determine the p-value, that is, the probability that the researcher will obtain test statistics close to the actual observed levels. By analyzing the p-values, it can be determined if a study's results are statistically significant.

Data Analysis. The data in this study were analyzed using a probit model. The researcher examined additional variables, such as race, gender, age and socio-economic status, to determine whether or not they relate to persistence. An initial probit analysis was conducted and then the probit analysis was conducted again with the additional variables to determine whether or not they revealed a difference. This was done in a stepwise manner. The probit analysis was used to determine the significance of the correlation. This model is commonly used in situations involving a binary response model in which only one of two outcomes is possible: returned (1), or did not return (0). In this study, "success" refers to a student's persisting in school, and "failure" refers to a student's dropping out. Dropping out was counted as a 0. When using a probit analysis, the results of these outcomes (successes and failures) can then be used to predict future outcomes by applying a maximum likelihood estimation.

In quantitative research, an analysis of the relationship between variables is conducted in order to reveal a relationship (Creswell, 2009). After selecting a topic and specifying an issue that requires clarification, a quantitative researcher collects data from a specified population and statistically analyzes that data. The explanation of the relationship between variables leads to the description of trends in quantitative research (Creswell, 2009).

Limitations, Delimitations and Assumptions

As with all research, this study has some inherent limitations. This study is a snapshot view, which only considers two cohorts and one university. The researcher only investigated data pertaining to students from one institution. Additionally, students will not be subdivided into separate majors during the analysis.

The number of studies that have been conducted in order to determine the validity of the NSSE is limited. Carle, Jaffee, Vaughan, and Eder (2009) found that without extensive studies into the construct validity of the NSSE and its benchmarks, it is prohibitively difficult to determine whether the factors measured by the NSSE actually relate to student outcomes and successfulness of higher education institutions (Carle, et al., 2009). Of the few studies that do attempt to determine the validity of the NSSE, the results are mixed. Porter (2009) found many flaws with the NSSE. In his study, Porter assessed the validity of the NSSE, specifically the NSSE benchmarks, using varied methods, such as internal structure analysis and response bias. He found that 40% of the NSSE benchmark scales do not meet the recommended research standard of validity, or an alpha of at least .80 (Porter, 2009). Porter also determined that a major flaw of the NSSE is its reliance on self-reported data and the fact that students may not be able to accurately remember the frequency of everyday behaviors they are asked about on the NSSE. This potentially compromises the validity of their test results. Porter also suggests that the NSSE

questions cover too broad a domain, and NSSE developers have not explained their rationale for including the items they chose to comprise the NSSE. These two issues together, Porter suggests, mean that the validity of the NSSE is almost impossible to determine, since the broadness of its domain allows for almost any student outcome to be used as verification of its validity, or lack thereof (Porter, 2009). However, the current study was focused on the NSSE, as it exists, and how its data relate to persistence.

LaNasa, Cabrera, and Transgrud also sought to determine the validity of the NSSE through analyzing the construct validity of the five benchmarks. Using an exploratory and confirmatory factor analysis, the study found that the NSSE benchmarks were moderately valid, but also found that using a different organizational model produced even more valid results. By using eight instead of five benchmarks, the researchers developed an eight-factor model which reorganized the components of the benchmarks in a way that yielded more valid results (LaNasa, et.al., 2009).

Pike (2006) also reorganized the NSSE benchmarks into a new set of components, which he refers to as "scalelets". This study showed that, when using these new scalelets, NSSE results are in fact valid and can be utilized by institutions for purposes of evaluation and improvement. Pike also suggests, however, that this does not mean that the original NSSE benchmarks are not useful. According to Pike, the original benchmarks can still be used by administrators to obtain an accurate overview of student engagement at their respective institutions (Pike, 2006).

The researcher assumes that the participants in this study were honest. This study does not account for students who have chosen to drop out due to financial difficulty. The study may not be generalized due to the fact that the sample is from one school, but this research can be utilized to draw inferences.

Additionally, Banner, the system used to track student progress, does not have in place a method of storing or maintaining information concerning students who transfer out of a school. Students are not contacted, neither are surveys or questionnaires distributed to students who transfer. Therefore, information concerning students after they transfer to another college or university is inaccessible.

Definition of Terms

Burnout. Although only addressed briefly in this study, this term refers to the experience of long-term exhaustion and diminished interest. Burnout is a psychosocial syndrome that involves feelings of emotional exhaustion, depersonalization, and diminished personal accomplishment at work. *Emotional exhaustion* is a situation in which workers perceive they are no longer able to participate on an emotional level. However, *depersonalization* involves the development of negative attitudes and feelings toward persons for whom work is done, to the extent that they are blamed for the subject's own problems. *Diminished personal accomplishment* is a tendency wherein individuals negatively value their own capacity to carry out tasks and interact with persons for whom they are performed. As such, an individual feels unhappy or dissatisfied with the results obtained. (Montero-Marin, Garcia- Campayo, Mera, & Lopez del Hoyo, 2009).

College Completion Rate. The percentage of first year entrants in a baccalaureate program persisting to the end of their baccalaureate education (Cook & Pullaro, 2010).

Content validity. Refers to the extent to which a measure represents all facets of a given construct.

Cumulative GPA. The grade point average that combines all of a student's grades at GSU.

Engagement. A term which extends beyond involvement or participation, which requires feelings toward the environment as well as activity within the environment (Harper & Quaye, 2009). For purposes of this study, student engagement was defined as a score on the NSSE. This is related to a student's engaging with his or her academic environment, faculty, administrators, and administrative offices.

Extrinsically Motivated. Motivation originating outside of an individual (from potential rewards such as money or higher grades). These rewards provide satisfaction and pleasure that the task itself may not provide (Bainbridge, 2011). In the current study, this concept is assessed within the NSSE. "An extrinsically motivated person will work on a task even when they have little interest in it because of the anticipated satisfaction they will get from some reward. The rewards can be something as minor as a smiley face to something major like fame or fortune. For example, an extrinsically motivated person who dislikes math may work hard on a math equation because they want the reward for completing it. In the case of a student, the reward would be a good grade on an assignment or in the class." (Bainbridge, 2011)

Intrinsically Motivated. The motivation originating within a person, rather than from any external or outside rewards, such as money or grades. This motivation comes from the pleasure a person receives from the task itself or from the sense of satisfaction in completing or even working on the task (Bainbridge, 2011). Bainbridge explained in her article, "An intrinsically motivated person will work on a math equation, for example, because it is enjoyable. Or an intrinsically motivated person will work on a solution to a problem because the challenge of finding a solution provides a sense of pleasure. In neither case does the person work on the task because there is some reward involved, such as a prize, a payment, or in the case of students, a grade."

Item Response Theory (IRT). A paradigm for the development and scoring of questionnaires and tests which measure attitudes, abilities, and other variables. This theory, as opposed to classical test theory, is designed to make measurements based on the idea that psychological measurements do not exist independently of other factors.

Persistence. The continuance of a student in school or college. For the purposes of this study, persistence is defined as returning to the same institution for the second year. The word persistence focuses on the individual student. For this reason, the word persistence is used in this study rather than the word retention (which generally refers to the success of an institution in re-enrolling students). Persistence is the same as re-enrollment in this study.

Predictive Validity. A statistically significant correlation between a score on a test or scale and a score on a criterion measure.

Retention. Generally, as in the current study, refers to the success of an institution in re-enrolling students.

Second Year Student. A student in a college or university who started school the previous Summer or Fall and re-enrolled the following Fall.

Summary

Achieving high student retention is a major goal for most colleges and universities (Jones & Braxton, 2010). In order to understand student persistence after the first year of college, studies must be conducted to learn which factors influence students' return for their second year, institutions must first understand why certain students do not persist at their institution and then develop new methods such as interventions, support, programs, and extracurricular events in order to help them return to school for their second year of college (Jones & Braxton, 2010). Currently, colleges and universities in the United States are interested in learning more about

student persistence. Instruments such as NSSE were introduced to assess student engagement in learning, a factor considered to influence student persistence (Jones & Braxton, 2010).

Various colleges and universities in the United States have extensively used the NSSE to assess student engagement (Kuh, 2009). This study sought to go a step further in correlating the NSSE to student persistence by determining the contribution of subscales within NSSE to student persistence. The sample of NSSE scores was taken from data collected by GSU. The goal of this research was to investigate the relationship between constructs measured by NSSE and student persistence. Chapter Two presents the literature of student engagement and the various factors affecting college completion. The previously-conducted research guided the researcher concerning what is currently known about student engagement and allowed the researcher to apply these recent finding to the current empirical needs.

CHAPTER TWO
Review of Literature

Introduction

The purpose of this quantitative study was to determine which of the factors in student interaction have a significant relationship with persistence of first-year students enrolled for the second calendar year. The study aimed to determine whether the independent variables within the subscale of the National Survey of Student Engagement (NSSE) necessarily relate to the dependent variable, which is student persistence. The goal of this research is to provide valuable data concerning the role of engagement that could lead to higher baccalaureate graduation rates and the associated personal and societal benefits of a baccalaureate degree. Consequently, Chapter Two presents literature and seminal research regarding student engagement and its influence on student persistence.

The chapter contains the discussion and recent empirical findings related to the variables involved in the study. The chapter presents three major sections that are crucial in investigating the relationship of the NSSE and student engagement. Therefore, the first section will extensively discuss the subscales of the NSSE. The second section of the chapter will present research concerning persistence related to contextual factors that may relate to the current knowledge of NSSE. The third section delves into studies that investigate student engagement in relation to successful learning outcomes.

Documentation. The literature review includes peer-reviewed journals and dissertation papers to cover the theoretical and empirical constructs in understanding persistence and various variables related to student engagement in higher education. These sources are taken from university databases, the ProQuest database, and Internet search engines, since these were considered to the most reliable databases for gathering scholarly information. The Internet has also been helpful in searching for relative information concerning student engagement and persistence. The Google search engine and public libraries were utilized to find information concerning related terms such as participation, mental activities, reading, writing and homework, feeling challenged, extracurricular activities and academic extracurricular activities, quality of relationships, time management, feeling support from the institution, academic advising quality, academic experience and satisfaction with school, persistence, engagement, and school intervention. This literature review section provides background information related to the theoretical framework supporting the knowledge concerning education and persistence, which promotes completion of a baccalaureate degree.

National Survey of Student Engagement (NSSE)

The absence of a reliable tool that assesses student engagement in campus life and learning led to the introduction of subscales of student engagement. George Kuh developed the NSSE in his attempt to provide an assessment tool that can guide administrators in evaluating institutional educational practices that promote student engagement (NSSE, 2008). Kuh's research distinctively emphasizes the role of higher education administration in providing an enabling environment for students' interaction and consequently promoting quality education. Kuh conceptually defined quality education as a collective measure of educational practice as well as the experiences of students in the institutional support structure provided by the college or

university administration (NSSE, 2008). As an assessment tool, the NSSE defines an engaging campus as an environment in which collaborative efforts of administrators, faculty, and students help to promote student experiences in learning. It also aids in designing program initiatives that meet students' learning expectations (Kuh, 2009). Engagement, in the context of the NSSE, requires educators to be actively interactive with students' learning experiences by promoting participation of students. Additionally, educators are encouraged to evaluate their own performance as educators and assess how this performance affects the students' educational goals. Student engagement therefore is not the sole responsibility of the student. Instead, it is seen as a collaboration between the students' efforts and the efforts invested by educators to promote a positive learning interaction with students (NSSE, 2008). In the end, NSSE as a tool aims to "provide data to colleges and universities to assess and improve undergraduate education, inform state accountability and accreditation efforts, and facilitate national and sector benchmarking efforts, among others" (NSSE, 2008, p.10).

In the past decade, NSSE has played an important role in school reform. The survey, given to first year and senior year enrolled undergraduate students, provides information related to how students perceive their level of engagement with school activities and their perception of the support provided by the school administrators, faculty and staff. The goal of the NSSE is to enable guidance counselors, researchers, educators, parents and prospective college students to learn more about student engagement. Approximately 1,300 colleges and universities in the United States (U.S.) and Canada use the NSSE (Chen, Gonyea, Sarraf, BrckaLorenz, Korkmaz, Lambert et al., 2009). Over the past decade, the NSSE has been used increasingly to provide insight concerning how students learn and engage in learning (Gratch-Lindauer, 2008).

At policy level, the NSSE is a survey that guides decision makers in policy reform as an

initiative supporting the need for students' engagement in higher education institutions. For some institutions, the use of the NSSE expands from assessing student engagement to the use by university administrators for internal diagnosis and public reporting of student engagement. The NSSE has become a tool for transparency and accountability of many universities (McCormick, 2009).

NSSE Benchmarks

The developers of NSSE have constructed a number of scales that are derived from the individual items in the survey instrument itself. The most prominent and frequently used, and the ones used in the current study, are known as the five NSSE Benchmarks of Effective Educational Practice. These benchmarks are:

Level of academic challenge. The level of academic challenge is one of five aspects of student engagement that NSSE analyzes. This is a scale consisting of 11 items designed to provide a measure of the time a student spends in preparation for class, the amount of writing and reading he or she engages in, the degree of deep learning, and the academic performance expectations placed on students by the institutions in which they are enrolled.

Simmons (2006) reported in a study of 254 undergraduate students, that 98% of instructors believed their students were under-prepared to meet the academic challenges of college. A majority of surveyed students agreed with the findings of their instructors and indicated that a freshman seminar class would be beneficial if provided either in high school or college. The students also indicated that they did not receive instruction in high school that would adequately prepare them for college. Based on this data, students are generally entering college unprepared to meet rigorous levels of academic challenge.

One avenue, indicated by the Beginning College Survey of Student Engagement (BCSSE) (2008), as means for academic success, is the use of learning communities by high school and undergraduate students. In the study of 140,000 undergraduate students, the BCSSE found that students who engaged in these communities not only were more successful in high school, but reported higher levels of academic challenge in their undergraduate studies.

Different populations of the student body experience different levels of academic challenge. Carini, Kuh, and Zhao (2006) studied the undergraduate experience of 175,000 students who could be categorized as international Asian, international black, international white, or native. Native refers to a student born and living in the U.S. whereas international refers to students living in the U.S. who where born elsewhere. This study concluded that international students display higher levels of student involvement and higher levels of academic challenge in their freshman year when compared to native students. See APPENDIX D for details concerning the studies used in this section.

Active and collaborative learning. This seven-item scale is designed to measure the degree to which a student participates in coursework. This includes the concept of working jointly with fellow students within and outside of the classroom. It also includes the degree to which they seek tutoring and their involvement in a community-related undertaking.

There are a variety of factors that impact a student's engagement in active or collaborative learning. Ahlfeldt, Mehta and Sellnow (2005) studied 56 undergraduate classrooms and established that students who were enrolled in smaller classes were more likely to engage in active and collaborative learning. In addition to this, they also established that classrooms whose instructors facilitated problem-based learning teaching methods had the greatest amount of collaborative and active learning.

Student engagement in active and collaborative learning can be impacted by various socioeconomic factors. The Center for Studies in Higher Education (2010), in a study of 63,600 University of California students, found that students whose parents had a higher than average income spent more time on social activities than academic pursuits. These students were more likely to not attend class. Students who had parents with a lower income are apt to be present in class more frequently and will spend a higher than average amount of time studying. Unfortunately many students spend time studying collaboratively in a group of their peers instead of independently. This method of studying has been shown to result in diminished overall academic growth when compared to students who study independently (Arum, Cho and Roksa, 2011).

Student learning does not always occur in the traditional classroom. Chen, Gonyea and Kuh (2008) studied 3,894 online students. This study revealed that senior students who attended classes online were more likely to be enrolled full-time in comparison to their traditional counterparts, will have higher grades and will display overall higher levels of student engagement and independent thinking. Unfortunately these students were also significantly less likely to engage in active learning. No one way has been established to solve this problem, but Dixon (2010), in a study of 186 students, established that instructor facilitation of methods that not only encourage, but require, student-to-student communication can greatly increase this kind of learning in online classes. See APPENDIX E for details concerning the studies used in this section.

Student-faculty interaction. Student-Faculty Interaction consists of six items designed to calculate the degree of interaction a student has with advisors and members of the faculty. It also measures the degree to which the student discusses classroom ideas with faculty members while

not in class. Additionally it measures the degree to which students ask for prompt feedback concerning their own performance in school and the degree to which they collaborate with faculty members on a research assignment.

Numerous factors contribute to a student's willingness to initiate contact between faculty members and the benefits for both student and faculty can be great. A student's perception of a faculty member as empathetic will encourage the amount of out-of-class interaction between a student and a faculty member, whereas the perception of a faculty member as belittling will cause students to avoid interaction outside the class. Student-faculty interaction is also explained by student unfamiliarity with faculty duties. Despite this, higher levels of interaction provide an undeniably high contribution to student success and persistence (Cotten & Wilson, 2006). A study of 1,024 students lead by Carini, Klein and Khu (2006) provided quantitative evidence that a higher level of student-faculty interaction has a positive correlation with student GPA and GRE scores when a baseline ACT or Scholastic Assessment Test (SAT) score has been established. This baseline was used for GRE score comparisons, whereas former GPA was used to measure GPA changes.

While all students benefit from interactions with faculty, Kim and Sacks (2007) found in a study of 30,566 University of California undergraduate students that different populations benefit from different kinds of interactions. First-generation college students (defined as students whose parents never attended college) benefit more than college students whose parents attended college from working with faculty in research positions. Undergraduate students who engage in research on a voluntary basis are more likely to attend graduate school than students who do not engage in research on a voluntary basis. Females are more likely to set higher goals under faculty advisement than males. Cruce and Nelson-Laird (2009) found that part-time students are less

likely to have faculty interaction than full-time students and will incidentally experience lower levels of educational gains. Part-time students are also credited with negatively impacting the student-faculty relationship of full-time students, although the mechanisms of this impact are not fully understood.

While the benefits of interaction are widely acknowledged, what are the repercussions when this relationship between student and faculty is missing? This concern is address in an Australian study by Allen, B., Lynch, K. and Whannell, R. (2010), which noted the enrollment of students in bridge programs. These programs are facilitated in an effort to prepare students for college and university academics when they would otherwise be unqualified to enter college directly from high school (this true of some, but not all bridge programs). Of the 81 students observed in the study, only 10% were eligible for higher learning programs. It is determined from this work that a majority of students who are academically and socially underprepared are the direct products of poor student-faculty engagement that occurs during high school enrollment, which consequently leads to poor overall academic engagement. It should be noted that there may also be other deeper causes which were not discovered by this research. See APPENDIX F for details concerning the studies used in this section.

Enriching educational experiences. This is a scale consisting of 12 items designed to assess the degree of student interaction with other students of different ethnic or racial backgrounds, values, or political opinions. Also the degree to which they use information technology, and participate in enriching experiences such as community service, study abroad, internships, and co-curricular activities is considered. College campuses that provide and facilitate social systems that complement efficient educational practices produce satisfied, persistent and academically successful students (Cruce, Gonyea, Kinzie, Kuh and Shoup, 2007). Kuh and

Umbach (2006) found that students who take advantage of these opportunities are more likely to participate in active and collaborative learning, perceive a supportive campus environment and display higher levels of academic challenge than those who do not take advantage of enriching educational experiences.

In a study of 42,112 women and their participation in enriching educational experiences, Kinzie, Kuh, Palmer, and Thomas (2007) reported that women who attend institutions designated solely for their gender reap quantifiable benefits. These women show higher levels of participation in campus activities, and higher levels of educational success. More of these women will subsequently lead socially successful lives in comparison to those of their gender who attended coeducational institutes. Students who attend institutes established with a religious affiliation will not reap the same benefits. These students show a typically lower level of participation in extracurricular activities, particularly those with liberal tendencies. This does not hold true for students with a religious affiliation who attend public campuses. These students will participate in a diversity of activities. No correlation between a student's faith or spiritual beliefs and quantifiable benefits has been established from this study (Gonyea & Kuh, 2005).

Sometimes students are afforded opportunities to further their education off campus and in the community. Although a small sample size, when 13 undergraduate art students were afforded the opportunity to work in an elementary school, the community and the students both benefited. The students reported an increase in confidence and the development of new skills. The school also benefited from the introduction of fresh ideas and new talent. Following their experience, the undergraduate students involved were more likely to attend graduate school (Russell-Bowie, 2007). See APPENDIX G for details concerning the studies used in this section.

Supportive campus environment. This is a six-item scale designed to assess student perceptions regarding the effects of their campus environment on their social and academic success. It also measures the degree to which they are able to cope with nonacademic responsibilities. Additionally, it measures the degree to which they feel their campus environment promotes supportive interactive relations among faculty members, students, and administrative offices and personnel (NSSE, 2006).

A student's perception of whether or not they are part of a supportive campus environment can greatly impact student persistence and ultimate success. Hendrick, Dizen, Collins, Evans, and Grayson (2010) conducted a study among in 4,465 undergraduate students in which the perceptions of a supportive campus were evaluated in students with and without disabilities in Science, Technology, Engineering, and Mathematics (STEM) and non-STEM majors. Although students with disabilities reported higher rates of favorable student-faculty interaction, these students simultaneously reported the perception of a less supportive campus environment than that of their nondisabled cohorts. Students who were enrolled in STEM majors reported their campus was even less supportive than students who were enrolled in non-STEM majors. This perceived lack of support is detrimental to a population that only displays an overall graduation rate of 12% (Hendrick, Dizen, Collins, Evans, and Grayson, 2010).

Various strategies have been employed as a means to monitor the numerous aspects of student engagement. While standard models for collecting data include questionnaires and surveys, the increasing availability of more modern technologies is introducing new ways for collecting data. Freshman electronic portfolio assignments are becoming common tools used by universities as a means for faculty to monitor new student progress (Sandler, 2010). Sandler (2010) conducted an analysis of 366 freshman portfolios belonging to students with cumulative

grade point averages (GPAs) between 2.5 and 3.2. Students were required to maintain a portfolio online for one semester. At the end of the term, the profiles were analyzed by a panel of faculty members. This panel found that generally students who earned a cumulative GPA closer to 3.2 reported a perception of a more supportive campus than students who had a lower cumulative GPA. These students also displayed higher levels of academic persistence.

Gordon, Ludlum, and Hoey (2008) analyzed data from several years of NSSE responses to determine whether the NSSE benchmarks were valid predictors of student outcomes. These outcomes included GPA, enrollment in graduate school and, specifically, freshman retention. The findings of this study show that the NSSE benchmark that had the strongest positive correlation to freshman student retention, or persistence, is supportive campus environment (Gordon, Ludlum, & Hoey, 2008). See APPENDIX H for details concerning the studies used in this section.

Other assessment scales. It is important to mention that more recent and less prominent scales compared to the benchmarks have been developed by the creators of the NSSE to measure what they term "deep approaches to learning" (Nelson Laird, Shoup, & Kuh, 2006; Nelson Laird, Shoup, Kuh, & Schwartz, 2008). These scales are not used in this study since the five benchmarks have been more thoroughly researched. However, when conducting research it is important to study not only the current standard but also recent developments on the subject, which could become very important in the future. Therefore, these scales are mentioned here to aid potential follow-up research. The three scales are the Higher-Order Learning Scale, the Integrative Learning Scale the and Reflective Learning Scale.

The Higher-Order Learning scale includes four items: applying, evaluating, synthesizing, analyzing. The four-item Higher-Order Learning Scale "focuses on the amount students believe that their courses emphasize advanced thinking skills such as analyzing the basic elements of an

idea, experience, or theory and synthesizing ideas, information, or experiences into new, more complex interpretations" (Nelson Laird et al., 2008, p. 477). Applying involves using theories or ideas when solving practical challenges or using theories or ideas in new situations. Evaluating consists of formulating judgments concerning the worth of methods, arguments or information (i.e. examining how other people gather and interpret information and judging the correctness of the conclusions they reach). Synthesizing refers to the ability to organize experiences, concepts or data into new, more detailed understandings. Analyzing involves giving thought to the essential components of a theory, experience, or idea. For example, looking at a particular situation in-depth and pondering its constituent parts (NSSE, 2009).

Integrative Learning Scale: This scale is composed of five items, which measure "the amount students participate in activities that require integrating ideas from various sources, including diverse perspectives in their academic work, and discussing ideas with others outside of class" (Laird et al., 2008, p.477). These items include (1) *integrat,* which refers to a project or paper that requires incorporation of concepts or data from a variety of sources; (2) *divclass*, which consists of various perspectives including differing political beliefs, religions, races, genders, in written assignments or classroom discussions; (3) *intideas*, which involves compiling concepts taken from various courses when working on class assignments or contributing to class discussions; (4) *facideas,* which involves students' discussion of concepts or theories from readings or classes with faculty members outside of the classroom; and (5) *oocideas*, which includes discussions of ideas from the students' readings or classes outside of class with family members, students, and coworkers (NSSE, 2009).

Reflective Learning Scale: This scale refers to "how often students examined the strengths and weaknesses of their own views and learned something that changed their understanding"

(Laird et al., 2008, p. 477). These scales include the concepts of otherview, changeview and ownview. Otherview refers to one's attempts to see someone else's points of view by using one's imagination to see how an issue appears from that person's perspective. Changeview refers to the modifying effect that learned information has on the way in which an individual interprets a concept or issue. Ownview is defined as the consideration of the strong and weak aspects of one's own points of view (NSSE, 2009).

Persistence

In recent years, the main focus of extensive research that has been conducted on higher education has been student success. There have been various research studies that offer new ideas that help redefine the theoretical representations of student persistence in higher education. Researchers such as Braxton and McClendon (2001-2002) and Beven (2007) have suggested the use of a more grounded method in order to understand the function of institutional policy in encouraging a successful journey for all students in their education. In their research, Hossler et al. (2008) have used important factors such as combined SAT scores, orientation, interaction with advisors, perception of bias, interaction with faculty, interaction with students, financial aid, encouragement from family members, certainty of funding, a network of friends, respect for students from staff members, first year experience, academic support, work off campus, perception of diversity, demographics, and transition support as variables to determine how these factors contribute to student persistence. In the three institutions examined, the Hossler et al. study showed an 88% to 96% retention rate among students. Using logistic regression, Hossler et al. found that each of the institutions have their own distinct factors that affect student persistence. However, family encouragement was shown to be the strongest predictor that is common to all three of the model institutions. Students with greater encouragement from their families were

found to be more likely to re-enroll for the following school year in the same institution. Although family encouragement has been a relatively unexplored variable used in researching student persistence, Hossler et al. suggest that educational institutions may offer policies that strengthen external support for students, especially the involvement of the parents. Further, students' perception of bias on campus and students' satisfaction with support during transition were shown to be equally important factors affecting student persistence, especially among first-year students.

The Hossler et al. (2008) finding that transitional support is an important factor affecting student persistence is supported by the study of Friedman and Mandel (2010). This study found that students who are prepared academically are most likely to persist in enrolling for the following school year. Similarly, Kinzie, Gonyea, Shoup, and Kuh (2008) found that a lack of an academically challenging high school experience is an important factor contributing to low student persistence at many colleges and universities. The researchers examined relationships between engagement and motivation, using information gathered from the NSSE. The researchers found that student engagement in purposeful educational activities positively predicts academic persistence and grades during students' first year of college. Examples of these activities are: Joining clubs, forming meaningful relationships with others within the academic environment and participating in student government.

Friedman and Mandel (2010) utilized theories concerning goal setting and expectancy to predict persistence and performance among undergraduate students. Interviews were conducted to determine from students their reasoning for choosing to discontinue their education after their first year of college. Friedman and Mandel found that students who continued into their second year reported perceiving higher grades to be more attractive, striving to greatly improve their grades, and being more academically competitive with their peers. Friedman and Mandel (2010) also

found that higher scores on the SAT were significantly correlated with higher student persistence in first-year higher education.

In studies of intelligence quotient (IQ) being related to socioeconomic status (SES) relation, psychosocial aspects have been shown to have an effect on retention among college students. DeBerard, Spielmans, and Julka (2004) evaluated first year college students on different variables such as social support, drinking, smoking, health-related quality of life, prior academic record, demographics, and coping both during the first week of their freshman year and at the beginning of the following academic year. By using various linear regression formulas, DeBerard et al. predicted the cumulative GPA of students. This study found that SAT and high school GPA scores alone can predict student persistence levels that are associated with academic performance in college. However, DeBerard et al. also emphasized that student retention rates can also be significantly affected by factors such as a feeling of being in a supportive environment, a sense of contribution, consumption of alcoholic beverages, and smoking.

It can also be important to consider how persistence correlates to different learning environments. For example, a study by Nichols (2010) analyzes the retention and persistence levels of distance learning students, who do not attend classes on campus. This study found that distance learning students attributed their success more to themselves rather than to the help of faculty members and peers (Nichols 2010).

Although empirical evidence has indicated several factors that affect student persistence, varying theoretical models are still in use due to the fact that the concept of student persistence continues to evolve (Hossler et al., 2008). For example, the interactionalist model, which is supported by empirical evidence, has been utilized by many researchers to study student persistence (Astin, 1993; Braxton, Sullivan, & Johnson, 1997). This model examines the degree

of interaction a student has with their campus environment and correlates this to persistence. Tinto's influential theory (1993) of student departure suggests that institutional commitment to students at the end of their freshman year of college is an important predictor of student persistence. More recently, Tinto's theory has been used to study the connection between academic integration and the level at which institutions are committed to retaining students (Tinto, 1998; Tinto, Russo, & Kadel, 1994) and social integration as a factor contributing to successive institutional commitment (Braxton et al., 2004; Braxton & McClendon, 2001-2002).

Regarding student integration as an issue influencing student persistence, a more recent discovery has emerged among academic researchers. Estela Mara Bensimon (2007), Association for the Study of Higher Education (ASHE) president, determined that existing literature concerning student persistence is dependent upon the concept that student integration is directly related to student characteristics and background. For example, Fisher (2007) hypothesized that ethnic and racial variances are factors that affect the ability of students to adjust to the college experience. Fisher assessed the socioeconomic disadvantage, minority status, and being a first generation college student as variables that can have an effect on the process of transition into college. If not overcome, these issues may influence students to either enrol in other institutions or dropout of college. This type of data is very valuable in the process of determining the contribution of students in overall persistence. However, educational institutions operate within multi-dimensional systems in which administrators and faculty members also play an important role. According to Dowd et al. (2006), the function of educational practitioners and the institutions in student integration has been quite obscure. Tinto theorized that the policies enacted by educational institutions have a great effect on student persistence, and therefore it is important to research these policies. However, Jones and Braxton (2010) argue that there has not been

sufficient research regarding how institutions propose to increase student persistence.

The research of Kezar and Kinzie (2006) concerns the issue of differences between school systems (e.g. the University System of Georgia) and institutions of the same system (e.g. Georgia Southern University and Georgia Institute of Technology) and whether or not this has an effect on student engagement. Kezar and Kinzie challenge the idea that engagement is an all-encompassing term, proposing that in different contexts it may take different forms. According to Kezar and Kinzie, the mission statements of institutions of higher education are helpful because of their consistency of direction and purpose. The results were evaluated from a multi-site, in-depth case study of 20 institutions assessing approaches to student engagement by exploring differences among the mission statements. The findings reveal a relationship between the mission statements of the institutions and the five benchmarks of effective educational practice recognized by the developers of the NSSE. Kezar and Kinzie found that (1) academic challenge was defined differently by each institution based on their individual mission statement; (2) research universities relied on mentoring learning communities and research; (3) single-serving institutions and liberal arts colleges used mentoring, co-curricular activities and smaller class sizes to encourage interaction; (4) urban commuter institutions utilized technology; (5) institutions with higher scores on enriching educational environment were more likely to align their practices and policies with their mission statements. Single-serving institutions and liberal arts colleges relied on their small student population size and high levels of interaction between students and faculty to provide a more supportive campus environment, while urban commuter institutions utilized a student-centered approach.

Considering faculty-student interaction can be valuable when studying student persistence levels. It can also be important to determine whether there is a lack of faculty involvement with

students' learning. Gordon and Palmon (2010) found that, according to annual NSSE reports, when some faculty members find student participation levels to be inadequate; they still are not willing to increase their requirements.

Engle and O'Brien (2007) assert that it is very important for academic administrators to consider diverse student demography as an important factor in the advancement of student education. The policies of a given institution need to ensure that the institution is responsive to students with differing backgrounds and characteristics (Engle & O'Brien, 2007). For example, in researching persistence levels among minority students, it has been demonstrated that male minority students may need disproportionately more support from faculty and peers in order to succeed (Gardenhire-Crooks, et al. 2010). Despite this potential necessity, available literature shows that the response of institutions to these demographic variations have often been restricted to programmatic academic interventions such as developmental education (Boylan, Bliss, & Bonham, 1997; O'Hear & MacDonald, 1995), orientation programs (Peterson, 1993; Guthrie, 1992), supplemental instruction (Congos & Schoeps, 1999; Gattis, 2002), and freshman-year seminars (Barefoot et al., 2005; Tobolowsky, Cox, & Wagner, 2005). Pascarella and Terenzini (2005) found that using homogenous methods in programmatic intervention had differing results in various institutional settings. Hossler et al (2008) concluded that although the policies of academic institutions affect student persistence, research on using homogenous methods in educational intervention has been minimally explored.

Whalen (2010) examines not only long term but also short student persistence (Whalen et al., 2010). In this study, persistence levels for 1,095 students were analyzed. The results showed that whether or not a student re-enrolled for a second year was mostly dependent upon GPA, in-state residence, membership in learning communities, information technology (IT) use, and

financial aid.

In a research study conducted by the University of Oklahoma, researchers compared NSSE scores and student persistence to determine why students were choosing not to return for their second year of college (Williford & Wadley, 2008). The researchers were better able to predict student persistence by taking into account the level of difficulty of courses and types of extracurricular student services offered, such as athletic events, cultural performances and campus events. Student services are regarded as one of the categories of engagement in the NSSE (NSSE, section 10). The results from the research conducted by Williford and Wadley (2008) may be useful to other institutions in their research on student persistence with the use of the NSSE. Gordon, Ludlum, & Hoey (2008), found weak relationship determined between level of academic challenge, active and collaborative learning and re-enrollment of freshmen in their sophomore year. However, the results were not replicated in other years.

The fact that a multitude of studies exist relating to the topic of NSSE scores and how they relate to student persistence illustrates that persistence is a prominent topic in ongoing research. While many researchers have conducted studies involving various other factors, such as SAT scores, IQ, and the economic status of students and their families, the current study focused more on the NSSE scores themselves and their relationship to student persistence. See APPENDIX J for details concerning the studies used in this section.

Engagement

It is important to understand that while there are valuable studies that attempt to understand student engagement and the primary basis for persisting to the point of receiving a college degree, the actual theoretical underpinning of the Indiana University NSSE project is the concept of learner motivation and students having their needs met. The theory is that in order for

students to feel engaged, they must be motivated and have their needs met. Within this context, the classical researchers who have fully written the concept of learner motivation and agency (having ones needs met) are Deci and Ryan (2000). Deci and Ryan posited that self-determination theory (SDT) maintains an understanding of human motivation and requires a consideration of innate psychological needs for competence, autonomy, and relatedness. Deci and Ryan emphasized that needs specify the necessary conditions for psychological growth, integrity, and well-being. The concept of needs leads to the hypothesis that different regulatory processes underlying goal pursuits are differentially associated with effective functioning and well-being and also that different goal contents have different relations to the quality of behavior and mental health. This due to the concept that different regulatory processes and different goal contents are associated with differing degrees of need satisfaction (Deci & Ryan, 2000). Social situations and differences among individuals that support satisfaction of a person's basic needs lead to a natural growth processes. This includes behavior that is intrinsically motivated as well as integration of a person's extrinsic motivations. Conversely, those social situations and differences among individuals that prevent or obstruct competence, autonomy or relatedness are associated with poorer motivation, poorer performance and lesser feelings of well-being. Through this study and the examination of the NSSE, new information may be discovered to provide insight into the relationship between engagement and various components of the self-determination theory.

Student engagement is the degree to which a student is involved in academics and extracurricular activities while enrolled in a particular school (Kuh, 2009). Researching student engagement has emerged as a way for colleges and universities to assess their academic procedures and to make improvements in the educational experience of students. According to Kuh, the more engaged students are in their studies, the more capable they become at problem

solving and working with various types of people (Kuh, 2009). There is a strong positive correlation between students' academic engagement and academic performance (Svanum & Bigatti, 2009). Recent studies show a positive relationship between motivation and student persistence (Friedman & Mandel, 2010). Friedman and Mandel found that those who are more intrinsically motivated are more likely to return for their second year. The NSSE contains questions concerning student motivation and involvement in school-related activities, which helps understand the relationship between motivation and student persistence.

Carle, Jaffee, Vaughan, and Eder (2009) researched responses from 941 students' NSSE and Item Response Theory (IRT) surveys to measure student engagement in relation to faculty, community-based activities, and transformational learning opportunities. The researchers found the IRT to be a better predictor of engagement in an individual college, compared to the NSSE. This is a potential contra-indication of using the NSSE to assess student engagement.

Sheard, Carbone, and Hurst (2010) conducted researched both faculty and student engagement. Results showed that the majority of faculty perceived the majority of students to have low engagement. When questioned about their potential low engagement, students gave various reasons to explain their low level of engagement. One reason included the inability to connect their lifestyle outside of education to their learning experience inside the classroom. The NSSE does not have questions pertaining to students' learning experience and how they connect it to their lifestyle outside of their education.

Henning (2009) found that students with higher levels of motivation toward their academics were more likely to seek help from academic advisors, regardless of their academic standing, and thus were more likely to be engaged in their education. Pisarik (2009) studied the relationship between motivation and burnout among a group of undergraduate students. Burnout

causes stress and can affect the overall health and well-being of students. Pisarik (2009) found that students who were more intrinsically motivated had lower levels of burnout. Those who were extrinsically motivated or showed no motivation had higher levels of burnout. Burnout among undergraduate students may have an impact on persistence. Clark and Schroth (2010) researched motivation and personality traits among college freshman. The researchers found that different personality traits determined different reasons for pursuing a degree; personality traits also determined different degrees to which students are interested in and committed to their education.

Social connectedness, academic performance, and motivation also play a role in student persistence. Allen, Robbins, Casillas, and Oh (2008) studied 6,872 students from 23 four-year colleges and universities. The researchers focused on factors that influence persistence in school and student dropout behavior. The researchers found, supporting prior research, that academic performance has a statistically significant positive relationship to persistence. Furthermore, academic self-discipline was found to be positively correlated to better academic performance in the first year of college. Lastly, the researchers found that social engagement is positively correlated to student persistence in school.

In researching student engagement, Ainley (2006) examined how the degree to which students are interested in their studies relates to their level of engagement. Her research suggested that the degree to which students have positive learning experiences correlates to the level of interest they have in their academic studies. More positive learning experiences were related to more interest in school whereas more negative learning experiences were related to less interest in school. Some of the questions on the NSSE contain a 4-point or 7-point likert scale response. This allows the data and learning experiences to be interpreted as being positive or negative. Further, Ainley attempted to determine whether there is a relationship between student academic interest

(a thought) and student engagement (a series of actions). She divided the concept of student interest into three categories: situational interest, interest engendered by a predisposition, and individual interest. Situational interest is defined as a temporary state that is dependent upon the current situation. Interest engendered by a predisposition refers to academic interest vied as the continuation of an ongoing interest in academics. Ainley described individual interest as interest that results in a deep-seated involvement or long-term commitment to student's own personal academic career. Situational and individual interests were found to be positively correlated with student motivation and positive attitude. Ainley also found that interest is a transitory state that involves a desire for further exploration. She stated that, "Students come to the task with a range of goals and it is through interaction of these goals with task demands that specific on-task feeling states are triggered" (2006, p. 398).

Another aspect of higher education that can be analyzed in relation to student engagement is athletic participation. A study by Symonds (2009) used NSSE data to examine how participation in athletics relates to student engagement. This study showed that students who choose to participate in athletics are as equally as engaged as students who do not (Symonds, 2009). However, Symonds (2009) also found that revenue sport athletes were not as engaged as non-revenue sport athletes.

Bowl, Cooke, and Hockings (2008) argued that rising student population levels in higher educational institutions combined with government policies supporting the idea of "widening participation" have led to increasingly larger classrooms in which student engagement is more challenging to facilitate. Bowl et al. explored the factors that may cause higher education institutions (HEI) learning environments to impact differently on different first-year higher education students. Bowl et al. surveyed 200 students before they entered higher education and

again after they had completed their education. The questions, presented to students after they were admitted but before they began their academic study, focused on a number of factors. Among these factors were the concepts that the students held concerning themselves as learners and the ideas they had concerning university professors prior to enrolling at their HEI. The views held and reported by these students were found to be positively correlated to their own future degree of feelings of engagement and the degree to which they would eventually feel that they had received benefit from their learning experience at the university. Students who had reported a higher opinion of themselves and a more positive feeling concerning university professors would later report greater feelings of engagement and a greater sense of having positively gained from their educational experience.

Beven (2007) found that the perceived differences by students of the students themselves and their professors were factors that were related to student engagement. The more different a students perceived themselves from their professors, the less engaged the students were in their academic environment. Additionally, Beven found that differences between the respective academic expectations for the student and background of teacher and students correlate to differences in terms of student engagement in the program, lectures etc. and also retention. When there is a difference of expectation concerning what the student will do, this correlates to less engagement on the part of the student. Also, when there is a difference in background between the professor and the student, this correlates positively to less engagement on the part of the student. Both of these factors also correlate to lower retention rates.

There may be advantages to studying relationships between leadership positions and student engagement levels. Research has examined the relationship between leadership and engagement in African-American students who were high achievers academically but came from

low-income families (St. John E. P., Rowly, L. L., Hu, S., 2009). This study found that, of these students, those who held leadership positions on the college campus were more academically engaged (St. John et al., 2009).

Bryson and Hand (2007) defined student engagement as a concept that exists on a spectrum from engaged to disengaged. Therefore, the same student may exhibit different degrees of engagement at different times and in different circumstances. Bryson and Hand suggested that factors that cause students to feel disengaged in their HEI education need to be identified and eliminated in order to produce a campus that is engaging for the students. In their study, Bryson and Hand found a positive relationship between students' feelings of engagement and faculty involvement with students.

In a similar study, Case (2008) investigated student experiences of learning, using a research study focusing on the concepts of engagement and alienation. In a case study, thirty-six third year students majoring in chemical engineering were surveyed concerning their perceptions of their overall academic learning experiences. In this study, alienation was defined as the self-reported nonexistence of a relationship that students desired or expected. Using this basis, the researchers identified six possible relationships as factors. These were relationships to the students' lecturer, theoretical future career, classmates, home, broader university life and studies. The study indicated a positive correlation between student engagement and the degree to which students felt a connection between themselves and these six factors. The study also revealed a positive relationship between the behaviors of staff and students' feelings of engagement. The more open, welcoming, and interested staff were in students' activities, the more engaged students reported feeling in their learning environment.

It can be beneficial to examine the relationship between student engagement and student

involvement with family and friends. Brint and Cantwell (2008) studied 6,300 undergraduate students at the University of California. Their research shows that more student engagement with friends and family resulted in higher levels of academic engagement (Brint and Cantwell, 2008).

Examining the way engagement levels are affected by research and creative activities may be beneficial to those interested in the concept of student engagement. Gasron et al. reviewed research and creative programs offered by institutions including University of Michigan (UMI), Massachusetts Institute of Technology (MIT) and Florida State University (FSU) (Gaston et al., 2007). Their research found that participation in these programs had a positive correlation to higher cognitive functioning of students (Gaston et al., 2007).

In 2006, Carini, Kuh, and Klein analyzed the degree to which student engagement is affected by traditional and experimental measures of academic performance, investigated whether the relationships between academic performance and engagement are conditional, and assessed whether HEIs vary in terms of their capacity to translate student engagement into academic performance. The results of surveys from over one thousand students at fourteen four-year universities and colleges were used in this research that indicated students with lower abilities experienced greater benefits from higher engagement levels. This study also found that certain HEIs were able to translate student engagement into more positive learning outcomes, such as higher scores on critical thinking tests and thinking in a more effective manner. Carini, Kuh, and Klein found that positive learning outcomes originate from various sources, of which student engagement is only one. The researchers stated that students having the lowest SAT scores appeared to experience more benefits from student engagement than those holding the highest SAT scores. The analysis “indicates that certain institutions more effectively convert engagement into stronger student performance” (2006, p. 23).

In an Australian educational setting, Coates, Hillman, Jackson, Tan, Daws, Rainsford, and Murphy (2008) examined the results of the Australasian Survey of Student Engagement (AUSSE), an Australian version of the U.S.'s NSSE. The AUSSE analyzes student engagement by using six major scales: Work integrated learning, active learning, supportive learning environment, enriching educational experiences, student/staff interactions, and academic challenge. The research found that forms of learning of a higher order (evaluation, analysis, synthesis,) are more likely to be connected to engagement. Coates et al. also found that the collective course evaluations by students are most strongly related to students' perceptions of academic support. Coates et al. stated that, "When institutions offer students an environment that is supportive of their learning efforts, students are more likely to report satisfaction with the quality of academic advising, report positive evaluations of the entire educational experience and report that they would attend the same institution if they were to start their course again" (2008, p. 21). The study shows that there is a positive relationship between quality student advising and higher student engagement levels. Additionally, the study found a strong correlation between support given to students and student perception of the overall quality of their learning experience.

Another issue that can be studied in relation to student engagement is student employment. It may be valuable to assess how working at a job affects student engagement levels. Research has shown that there is a negative correlation between students working twenty hours or more each week and their level of engagement in school (Pike et al., 2008).

The work of Krause and Coates (2008) develops a further understanding of the concept of student engagement. The researchers conducted a large-scale study of first-year undergraduate students in various Australian universities using seven calibrated scales of student engagement:

Beyond-class engagement scale (BES), online engagement scale (OES), student-staff engagement scale (SES), peer engagement scale (PES), academic engagement scale (AES), intellectual engagement scale (IES), and transition engagement scale (TES). The AES relates to study behaviors initiated by the students themselves, including seeking assistance from others. The PES focuses on collaborating with other students in order to improve their academic skills. The SES indicates the crucial role of faculty with first-year undergraduate students, including feedback provided by faculty members, their level of enthusiasm, and their interest in students. The OES concerns using the internet to build an active learning community and the focus of the BES is on academic and social interaction among students outside of the classroom. The IES examines students' perceptions of the level of challenge and intellectual stimulation they encounter in their academic experience. The results of this study provide insights into contemporary undergraduate student engagement, including student-staff, self-managed, peer and online engagement. The findings show that it is important to develop a wider understanding of student engagement as a multifaceted issue. This must be considered in any analysis of this issue in higher education. The study calls for a more extensive investigation into the concept of engagement that includes both qualitative and quantitative measures.

It can be beneficial to study the effect that different learning approaches can have upon student engagement. In studying undergraduate physiology and science students to determine how an active learning approach would affect student engagement (Gauci, et al., 2009), it was revealed that student engagement and motivation was improved by lectures that were given with an active approach (Gauci et al., 2009).

Krause and Coates (2008) argued that the multi-dimensional nature of positive engagement needs to be acknowledged, as well as both the attitudinal and behavioral aspects of

the student experience if HEIs are to understand and facilitate student engagement. Institutional support is especially important during the first year. The transitional period of students into the university is a critical time. According to Krause and Coates, students must develop a sense of belonging, interact with other students and faculty and experience intellectual engagement if the transition is to be successful.

Fredricks, Blumenfeld, and Paris (2004) have identified three dimensions of student engagement. These are behavioral engagement, cognitive engagement and emotional engagement. Behavioral engagement applies to students who tend to follow school rules and tend to not pose disciplinary problems in school. A student is said to be emotionally engaged when he or she experiences reactions of an affective nature such as interest, a sense of belonging, or enjoyment. Students who are cognitively engaged are invested in their academic learning experience and seek challenging academic experiences beyond the basic requirements (Fredricks et al., 2004). Researchers more broadly define student engagement as the participation practices which are educationally effective for the student (both within and outside of the classroom), which also lead to a variety of measurable outcomes (Kuh et al., 2007). It is "the extent to which students are engaging in activities that higher education research has shown to be linked with high-quality learning outcomes" (Krause and Coates, 2008, p. 493). Trowler (2010) added, "Student engagement is concerned with the interaction between the time, effort and other relevant resources invested by both students and their institutions intended to optimize the student experience and enhance the learning outcomes and development of students and the performance, and reputation of the institution" (p 2).

The body of research concerning student engagement is quite large. Researchers have studied student engagement based on many different specific factors, such as athletic participation

(Symonds, 2009), involvement with family and friends (Brint and Cantwell, 2008) and student feelings of alienation (Case, 2008). This study contributes to this body of research by focusing specifically on NSSE scores, and how these scores relate to student persistence in higher education. See APPENDIX K for details concerning the studies used in this section.

Intervention

The increasing demand for improved student retention rates led researchers to explore the variables related to student persistence (Cox et al., 2005; Porter & Swing, 2006; Spoerre, 2010). In their research, Weerts and Hudson (2009) examined how universities and colleges have funded programs contributing to the development of student engagement such as social events, study groups and tutoring. Institutions utilized many methods of fundraising, including lobbying and alumni donations. Weerts and Hudson (2009) stressed the need for institutions to be persistent in their fundraising efforts which support interventions.

In determining which institutional practices are more effective at developing student engagement and persistence, it is important to assess which interventions result in higher graduation rates among baccalaureate students. However, before an intervention can be initiated, it is necessary to determine which type of intervention will be needed and how to execute it. Kuh (2009) has found that the level at which a student is academically engaged is one of the greatest indicators of whether or not a student will graduate. Kuh created the NSSE as a tool that can be used to measure the degree to which college students are academically engaged. With the NSSE, engagement levels are measured by ascribing numerical values to a variety of interactions a student has with their environment. According to Kuh (2009), the NSSE is a reliable tool that can be used to predict the probability of graduation, since NSSE scores have been shown to be positively correlated with graduation probability. If the level of engagement can be determined in

current undergraduate students, it is possible that interventions based on the gap between current student engagement levels and desired student engagement levels can be implemented. These interventions could have the potential to heighten the probability that students will persist with their education.

Bai and Pan (2010) conducted a study to examine interventions implemented by universities to increase student persistence. The researchers concluded that social programs had a profound positive effect on persistence among first-year female students. Additionally, they found that advising programs and programs encouraging on-campus student interaction and social integration programs were most effective in colleges with higher admission standards. Bai and Pan also found that the experience programs that were specially designed for first-year students produced long-term benefits among male students. Advising programs were determined to have a greater effect on increasing student persistence when compared to general orientation programs. This research suggests that implementing methods in increase student engagement levels such as the NSSE, special programs, and interventions may help to increase student persistence.

When examining suitable intervention programs that encourage student engagement, Jankowska and Atlay (2008) researched the effect of teaching in a specifically designed 'creative learning space' has on the learning process; students' desire to experience, discover, and explore; students' engagement levels; and on students' becoming more active, self-sufficient learners. Jankowska and Atlay investigated the concept of creative space, how it produces different results than learning and teaching in the average classroom environment, and the effect it has on faculty and students. Contemporary teaching methods and the nature of academic curricula in higher education are currently being drastically affected by recent socio-economic changes. As the student population becomes progressively more diverse, there is a greater focus on promoting so-

called higher-order skills such as creativity. Additional changes have recently affected the learning environment, such as changes in the learning-teaching relationship with the professor's function increasingly becoming one of a facilitator of the learning process and a rise in the use of advanced technology. Therefore, there has been a greater interest in exploring more inspiring and innovative practices and learning environments. Determining the effectiveness of a particular learning environment is made difficult by the fact that there exist many variables: delivery method, learning techniques, teaching style, etc. Jankowska and Atlay reported the results of using such an environment in an effort to increase student creativity and improve their learning capacity.

The physical environment is a critical aspect of learning. With the progressively more diverse student population and rapid socio-economic changes affecting every facet of life, including the academic environment, it has become very important for HEIs to consider how their learning environments accommodate the students' needs, such as support for different learning styles and a motivating learning environment. It is imperative for students to become more active, self-sufficient learners, and for them to claim responsibility for acquiring their own knowledge and for their own skill development. Faculty members must also progress in their roles as educators by becoming more directly involved in students' learning processes and working together with students to take a more collaborative approach. Jankowska and Atlay reported that Creative Learning Space (C-Space) positively affect engagement. The concept of developing the C-space came from the idea that implementation of an applied curriculum by an institution committed to increasing student participation levels requires a more innovative approach to teaching that goes beyond conventional seminars and lectures (Jankowska & Atlay, 2008).

The researchers discussed above have conducted studies involving how intervention by

HEIs can affect student persistence. In order to determine which intervention methods are most appropriate in each situation, it is important to determine engagement levels among students. The NSSE was developed specifically for this purpose, therefore this study focused on the results of the NSSE to determine whether these scores have a direct affect on student persistence levels. Results of this study may be used to determine which intervention methods would be appropriate at the selected university. See APPENDIX L for details concerning the studies used in this section.

Summary

Although research has improved understandings about student engagement, there is little information available regarding the role of the faculty and institutional polices of HEIs upon student engagement levels (Jones & Braxton, 2010). Increased recognition of the need for colleges and universities to discover reasons that certain students fail to persist in higher education led to the development of the NSSE as a tool that can be used to determine the quality of education at any given HEI, by assessing the level of support being provided to students by the institution (Kuh, 2009).

Weertz & Hudson found that students benefit from various levels of academic involvement, and Porter & Swinger found that a variety of freshman seminars have an impact on persistence. These correlations show that a variety of student engagement opportunities are required and beneficial to HEIs. Due to increased student diversity on academic campuses, not only are traditional opportunities for engagement necessary, but more nontraditional avenues, including the use of creative learning space (Jankowska & Atlay, 2008) should be utilized more frequently. The findings of these studies could be extremely beneficial to HEIs, which have a goal of facilitating engagement as a way to increase student persistence.

Chapter 2 discussed relevant studies associated with understanding student persistence. Four sections were outlined which include the NSSE and its subscales, persistence, engagement and the interventions being used to promote student engagement in learning and promote persistence among students. The subsequent chapter will discuss the methods appropriate in examining the relationship of the NSSE subscales in predicting student persistence.

CHAPTER THREE
Research Methodology

Introduction

The purpose of this study is to determine whether or not the National Survey of Student Engagement (NSSE) data can be used to predict student persistence at a particular higher education institution. This study analyzed the relationship between particular questions on the NSSE and whether or not students persisted in higher education. Specifically, NSSE scores from Georgia Southern University (GSU) were examined to determine whether or not there is a correlation between any or all five of the NSSE benchmarks and student re-enrollment. The focus of this study was on freshmen students who re-enrolled for their sophomore year. The researcher analyzed the NSSE data captured from these students in their freshman year, which was then correlated to the retention rate (whether or not these students re-enrolled the following year at the same institution).

This chapter discusses the research question and the methods by which the researcher examined them. The research design section discusses the use of quantitative analysis and correlational research. This study used data concerning certain GSU students, which is discussed in the participants and population sections. The instrumentation and data collection section lists the research procedures used. This study used a probit model to analyze the data, which is discussed in the data analysis section.

Research Question

Colleges and universities, to assess student engagement in higher education, often use the NSSE. This study examined the relationship between NSSE scores and student persistence. The overarching goal of the quantitative study was to determine the nature of the relationship between

NSSE categorical scores and persistence of freshman students into their sophomore year. The following overarching research question guided the study: When controlling for demographic data, what is the magnitude of the correlation between student perceptions of specific categorical scores on the NSSE (1. Level of academic challenge; 2. Active and collaborative learning; 3. Student-faculty interaction; 4. Enriching educational experiences; 5. Supportive campus environment) in the freshman year and re-enrollment of students in their second year in at GSU? The following are the research question and the null and alternative hypotheses:

RQ: What relationship exists between the NSSE data from the five benchmarks in the freshman year and student re-enrollment in the second year?

H_0: There is no statistically significant relationship between the NSSE categorical scores of students in the freshman year and the re-enrollment in their second year.

H_A: There is a statistically significant relationship between the NSSE categorical scores of students in their freshman year and re-enrollment in their second year.

Research Design

The purpose of this study was to determine which of the factors in students' various interactions had a significant relationship with the persistence of first-year students enrolled for the second calendar year. The research study used a correlational research design to identify relationships between persistence and the five benchmarks of the NSSE. According to Bickman and Rog (2009), research designs serve as "the architectural blueprint of a research project, linking design, data collection, and analysis activities to research questions" (2009, p. 11). Quantitative descriptive research designs illustrate a phenomenon, in this case, persistence, as it naturally occurs, as opposed to an experimental design where effects of intervention are studied (Bickman & Rog, 2009). In descriptive correlational studies, the researcher measures the

relationship between two or more variables using correlational statistical tests (Creswell, 2009).

For this research study, a quantitative approach is appropriate, since the relationship between the identified variables (e.g. NSSE category scores and demographic characteristics) with the freshman students' re-enrollment for their second year at GSU is quantifiable. A qualitative approach will not be appropriate, since the research involves numerous research subjects and the relationship between variables therefore must be analyzed using quantifiable data.

Descriptive research can be used to summarize the relationship between two or more variables (Bickman & Rog, 2009). Numerical data were collected from a sample representing survey results of students who took the NSSE and their demographic characteristics, for the purpose of determining whether an association exists between the considered variables and the re-enrollment of freshman students for their second year at GSU. Bickman and Rog (2009) suggested that, "a descriptive approach is appropriate when the researcher is attempting to answer 'what is' or 'what was' questions" (p. 16). The methodology of the research is based on a quantitative correlational design with the intention to: (a) obtain data on the re-enrollment of students at GSU, NSSE scores, and demographic profile, and (b) analyze the re-enrollment of students in GSU in terms of their NSSE scores, age, ethnicity, socioeconomic status, gender and other factors discussed in Chapter 4.

Correlational research is divided into two primary designs*:* explanatory and predictive (Creswell, 2009). In an explanatory design, the goal is to explain an observed relationship among variables. In a prediction design, the researcher identifies and uses one or more variables to make predictions concerning future events. Descriptive correlational research is not designed to provide insight into a cause-effect relationship (Bickman & Rog, 2009). The primary objective of the

research was to determine whether a relationship may exist between each variable and to explore the relationship between the variables and the freshman students' re-enrollment for their second year at the selected institution. According to Cooper and Schindler (2002), when measurements by two different definitions correlate well, the correlation supports the view that each definition adequately measures the same concept. The exploration of the relationship between variables and the degree of association between variables are concepts that were investigated in the study.

It is important to bear in mind that persistence and engagement are distinctly different concepts. The independent variables are the data concerning the subscales of the NSSE, while the dependent variable is the persistence of the student. The level of students that persist involves students in the freshman year who have re-enrolled in their second year at GSU.

This research examined data from two different cohorts (2004-2005 and 2007-2008). Both cohorts were handled similarly, so this discussion will focus on just one of the cohorts with the understanding that the same discussion applies to both. In fall of 2004, initial student information was submitted to NSSE. This information consisted of demographic data concerning the students. In spring of 2005, NSSE had GSU remove any students from the 2004 initial information who did not return for spring 2005. The NSSE was offered in spring 2005 to all undergraduate students via their email. In fall 2005, data were again collected by GSU to determine which of these students were still at GSU. It is important to understand that there is no field in the Banner data (Banner is the name of the student management system that collects all of the data) to indicate where students transferred. It is also important to understand that this study is focused exclusively on determining whether or not students persisted to their second fall semester at GSU.

Population and Sample

The population for this study is students formerly enrolled as freshmen at GSU of the University System of Georgia (USG), specifically at GSU, in the years 2005 and 2008. Georgia Southern University is a public, doctoral research university devoted to academic distinction in teaching, scholarship and service. The USG comprises four research institutions, two regional universities, 13 state universities or state colleges, and eight two-year colleges. Results of the NSSE for 2005 and 2008 were made available through the GSU Office of Strategic Research and Analysis. The GSU respondents to the NSSE for 2005 and 2008 combined consist of 749 of the first-year students. Of the respondents, 59.81% are female and 40.19% are male, 65.96% are white, 15.62% are black/African-American, 12.42% preferred not to disclose their ethnicity and 1.74 % are multiracial. Sixty-two percent live on-campus and 38% live off-campus. 5% are non-traditional students (more than 24 years old) and 95% are traditional students (less than 24 years old).

Instrumentation

The NSSE was the instrument used for data collection in this study. Student data was used from each of the five NSSE benchmarks: Level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences and supportive campus environment. These questions served as the basis for the data analysis. The researcher used the 2005 and 2008 GSU NSSE results to determine the degree to which the NSSE data predicted persistence. Statistical Package for the Social Sciences (SPSS) was used because it is the most efficient way to calculate the data necessary for the probit analysis. This is due to the fact that it is available on the GSU campus and is user-friendly. SPSS is statistical analysis software that provides descriptive and predictive statistics on data. Stata, a general-purpose statistical software

package, was also used, since SPSS does not compute the probit analyses used in this study.

Data Collection

Research procedures for this study began by obtaining permission from the Institution Review Board (IRB) to conduct the study. Permission was obtained from GSU to use their previously gathered information for the research study. Specifically, permission was obtained from the Associate Vice President, Strategic Research and Analysis at the Office of Strategic Research and Analysis at GSU. The primary data that were required for the completion of this study were the individual NSSE responses of students and the information as to whether or not these students enrolled for their second year. As such, the primary data collection strategy included accessing and compiling information from GSU concerning individual NSSE scores and re-enrollment. This was done over a one-month period by using information from the Office of Strategic Research and Analysis at GSU. The researcher then put this information in a chart containing a number assigned to each student, the individual students' NSSE scores, race, gender, etc. This was done in order to organize the information and correlate the answers on the NSSE to specific student re-enrollment.

Data Analysis

The data in this study were analyzed using a probit model. Probit analysis has been used in a study of education among second generation immigrants in Germany (Ripham, 2003) and in an analysis of the effects of catholic secondary schooling on educational achievement (Neal, 1997). This is the type of analysis is used when the dependent variable (e.g., student persistence) is dichotomous. This model is commonly used in situations involving a binary response model in which only one of two outcomes is possible: success (1), or failure (0). In this study, "success"

refers to a student persisting in school and "failure" refers to a student dropping out. When using a probit analysis, the results of these outcomes (e.g., successes and failures) can then be used to predict future outcomes by applying a maximum likelihood estimation.

For example, a German study compared the educational attainment of German born children of immigrants to natives. A probit analysis found that the children of German immigrants did not assimilate to native education standards. There is commonality between the ability of German students to assimilate to different education standards and a student's ability to persist to their second year of college education. The formula for using a probit analysis is as follows:

Figure 3.1 Probit Analysis

$$\Pr(Y=1 \mid X) = \Phi(X'\beta)$$

Y= Persistence (1 or 0)

X= Question from NSSE

Pr= Probability

Φ= Cumulative Distribution Function

β= The Study's parameters

Formula for Probit Analysis

Response variable *Y*, in this case, whether a student persisted in school or dropped out, is binary, meaning only one of two outcomes was possible. These two potential outcomes are referred to as 1 (persistence) and 0 (dropout). The *X* variable represents factors that will presumably affect the outcome. In this study, each *X* variable denotes individual students' scores

from each of the five NSSE benchmarks. In this formula, "Pr" represents probability, and Φ is called the Cumulative Distribution Function, or CDF. The CDF expresses the probability that *X,* with a given probability distribution, or the possible range of values that a random variable can achieve, will be found to have a value less than or equal to *X*. The study's parameters are represented by β and are determined by using maximum likelihood estimation, a process by which values of the model parameters are selected, which generate a distribution that gives the observed data the highest probability.

The data in this study were analyzed using a probit model. The researcher examined other variables, such as race, gender, age and socio-economic status, to determine whether or not they related to persistence. An initial probit analysis was conducted and then the probit analysis was conducted again with the demographic variables to determine whether or not they reveal a difference. This was done in a stepwise manner. The order of entry is the order in which the variables are listed in chapter four. This order does not have an impact the results of the analysis. The results of the probit analysis showed the likelihood of a student's staying in school or not staying in school. This study can be used to achieve more specific results, such as the probability of students from certain zip codes staying or not staying in school.

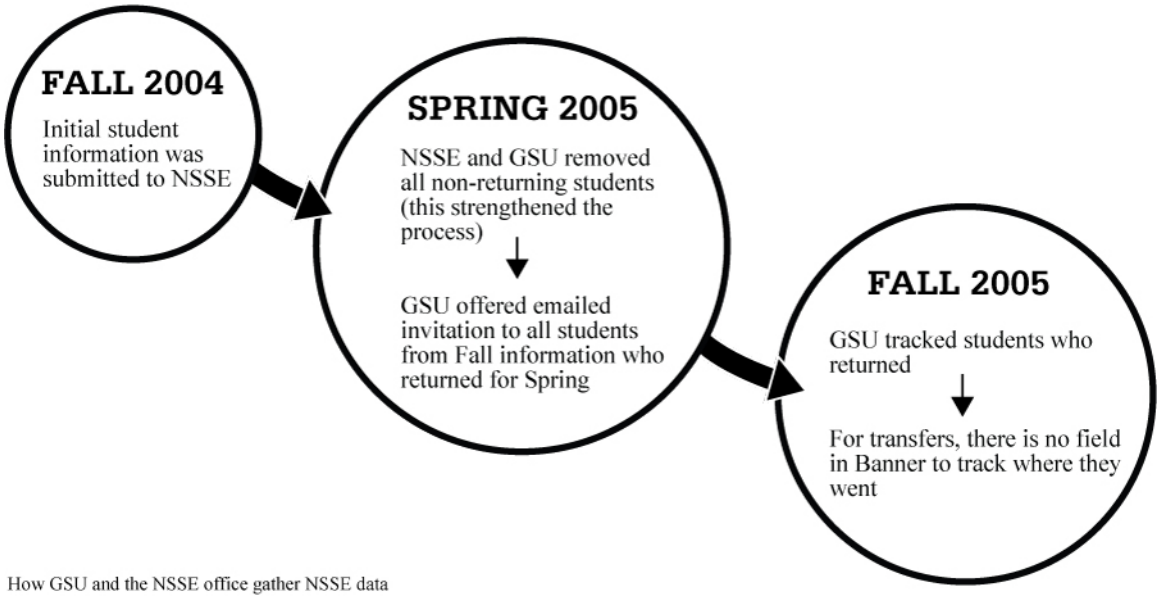
How NSSE Survey Takers Were Chosen

GSU provided population files to NSSE for all first-time, degree-seeking first-year students in two different cohorts (2004-2005 and 2007-2008). In the following figure, showing the flow of the 2004 data, it can be seen that NSSE screened these data for ineligibles (underage, no contact information, etc.) and randomly sampled first-year students from their respective population files. NSSE then delivered the survey to all of the randomly sampled students. From those students who participated in the survey and submitted their results to NSSE, the final

working data file on which the institutional report for GSU is based was compiled. The same procedure was used for the other cohort.

The following diagram illustrates how the NSSE information-gathering process works:

Figure 3.2 NSSE Information Gathering Procedure



How GSU and the NSSE office gather NSSE data

Age, high school grade point average (GPA), Scholastic Assessment Test (SAT) score, cumulative freshman college GPA, zip code median income, gender, race and college were also correlated to persistence, as these types of factors are relevant to this study. SPSS was used because it is the most efficient way to calculate the data necessary for the probit analysis. Overall significance was determined by establishing appropriate p values. Findings are reported in chapter four based on race, gender, age, etc.

Summary

This study was conducted in order to determine whether or not NSSE data can be used to predict student persistence. This analyzed the relationship between particular questions on the NSSE and whether or not students persisted in higher education. Specifically, NSSE scores from

Georgia Southern University were examined to determine whether or not there is a correlation between any or all five of the NSSE benchmarks and student re-enrollment. The focus of this study was on sophomore students at a public Georgian university. The researcher analyzed the NSSE scores of these students in their freshman year, which were then correlated to the level of students that persist, or whether or not these students re-enrolled the following year at the GSU.

This chapter discussed research methods and the methods by which the researcher employed them in this study. The research design section discusses the use of quantitative analysis and correlational research. This study used data concerning certain GSU students, which are discussed in the participants and population sections. The instrumentation and data collection sections list the research procedures used. This study used a probit model to analyze the data, which is discussed in the data analysis section.

In chapter four, the findings are reported showing the individual results for each student. The research question was answered as a whole, with supporting evidence from each of the aggregated data results from the benchmarks of the NSSE. The data were shown to partially reject the null hypothesis.

CHAPTER FOUR
Results

Introduction

The objective of this quantitative research study was to identify factors having significant relationships with the persistence of first-year students enrolled for the second calendar year. To address this objective, a statistical analysis of the National Survey of Student Engagement (NSSE), which was administered to approximately to 322 students in 2005 and 427 students in 2008, was conducted. Two different years were examined in order to control for possible temporal data effects. The NSSE aimed at collecting information about various student outcomes related to the students' experiences at Georgia Southern University (GSU). Results from this survey were then merged with demographic data provided directly by Office of Strategic Research and Analysis at GSU, which included information about the students' age, gender, grade point average (GPA), and retention, among other variables.

In this chapter, the researcher presents the results of the data analysis. First, descriptive statistics are presented for the entire sample and population. Following that, results of the *t* tests and probit regression analyses that were conducted to test the researcher's hypothesis are presented. The chapter concludes with a summary about the findings of this study.

Notes Concerning the Data

The term "freshman" refers to both first-time college or university students and students who are transferring in from another school but who do not have enough credit hours to be classified as sophomores. Both of these types of freshman take the NSSE, therefore the data in this study covers both categories of freshmen.

It is important to distinguish that the NSSE population is primarily first-time freshman. This is true of the comparison sample as well. Both the NSSE takers and the comparison sample (population) are classified as freshmen by credit hours.

Some transfer students (students who transferred into GSU) are in the data, however they meet the qualifications to be in the file, since they were, at the time of data collection, freshman by credit hours. Students can come in as transfers, but if they have fewer than the required number of hours to be a sophomore, they will still be considered a freshman. For example, if students went to summer school at a school other than GSU and earned 9 credit hours, they are a transfers, but they are still freshmen, since they do not have enough hours to be sophomores.

It should also be noted that the numbers in this study, taken from the GSU data file, are different than the numbers on the GSU website (Georgia Southern University, 2012). This difference is due to the point in time that the numbers were generated. For example, NSSE headquarters was sent files at a certain time and students who did not return for fall or spring were removed. At the time the data were provided to the researcher, there would be more students who qualified for removal from the file. The website is frozen in time. The data file used by the researcher is also frozen in time; however, the two times are different, hence the difference.

Descriptive Statistics

The sample of NSSE survey data for the two years combined consisted of information pertaining to 749 individuals. As can be seen from Table One, 322 of the students in the sample were administered the survey in 2005 and 427 were administered the survey in 2008. The majority of NSSE takers in both years were female (64.9% and 56% for 2005 and 2008, respectively) and the most common ethnicities were White (80.4% and 55%, respectively) followed by Black (14.6% and 16.4%). The majority of the students in the sample (72.7% and

75.9%) did not transfer from other schools. The most common colleges in which students were enrolled include Liberal Arts & Social Science (18.6% and 24.8%) Science & Technology (18.9% and 24.1%) and Health & Human Sciences (15.5% and 17.3%). Finally, the overall level of students that persist from the freshman year to the sophomore year for the 2005 and 2008 NSSE takers for all students at GSU, regardless of college in which they were enrolled, was 87.3% and 91.8%, respectively. As can be seen from Table 1, these percentages differed slightly from the entire population. The most notable difference is that in both years, the gender majority among the NSSE takers was different than the population gender majority. Provost, a term used in Table 1, is category of students at GSU whose major does not fit into a college. This accounts for International Studies, International Trade and undeclared students. International Studies and International Trade students fall under this category, since these majors do not have a college of their own.

Table 1

Demographic Composition of Sample

	Sample				Population			
	2005 (n=322)		2008 (n=427)		2005 (n=5051)		2008 (n=4626)	
Variable	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
Gender								
Female	209	64.9	239	56	2355	46.6	2062	44.6
Male	113	35.1	188	44	2696	53.4	2564	55.4
Ethnicity								
Asian	3	0.9	5	1.2	72	1.4	77	1.7
Black	47	14.6	70	16.4	1096	21.7	941	20.3
Hispanic	9	2.8	12	2.8	92	1.8	109	2.4
American Indian/Alaska Native	0	0	3	0.7	10	.2	22	.5
Multiracial	4	1.2	9	2.1	103	2.0	101	2.2
Unknown	0	0	93	21.8	0	.0	949	20.5
White	259	80.4	235	55	3678	72.8	2427	52.5
College								
Associate VP Academic Affairs	6	1.9	0	0	31	.6		
Business Administration	42	13	40	9.4	847	16.8	833	18.0
College of Education	35	10.9	24	5.6	441	8.7	267	5.8
College of Information Tech	13	4	13	3	183	3.6	149	3.2
Health & Human Sciences	50	15.5	74	17.3	697	13.8	700	15.1
Liberal Arts & Social Science	60	18.6	106	24.8	835	16.5	928	20.1
Provost	55	17.1	0	0	1048	20.7	0	.0
Science & Technology	61	18.9	103	24.1	969	19.2	1019	22.0

Table 1 (continued)

Demographic Composition of Sample

	Sample				Population			
	2005 (n=322)		2008 (n=427)		2005 (n=5051)		2008 (n=4626)	
Variable	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
Vice Pres Academic Affairs	0	0	67	15.7	0	.0	730	15.8
Transfer status								
Started here	234	72.7	324	75.9				
Started elsewhere	22	6.8	15	3.5				
Missing	66	20.5	88	20.6				
Retention								
Not Retained 1st Year	41	12.7	35	8.2	1208	23.9	1042	22.5
Retained 1st Year	281	87.3	392	91.8	3843	76.1	3584	77.5

Table 2 presents descriptive statistics on additional student characteristics. The "median income" variable was derived from census data and represents the median household income of the zip code corresponding to the student's address. As can be seen from this table, the median household income (based on zip code) was $50,827 for 2005 and $50,049 for 2008, the median age of students was 19.11 years (*SD* = 3.311) in 2005 and 19.03 (*SD* = 3.636) for 2008 and the students' median cumulative college GPA at the end of the year was 2.84 for 2005 and 2.92 for 2008. The median high school and cumulative college GPA for both samples were higher than for both populations.

Table 2

Descriptive Statistics of Students' Demographics

	Sample				Population			
Variable	*Min*	*Max*	*M*	*SD*	*Min*	*Max*	*M*	*SD*
Year 2005								
Age	17	54	19.11	3.311	15	60	19.19	3.00
ZIP code Median Income	14,232	114,674	50,827	18,263	13,944	146,697	50,365	19,419
SAT	750	1460	1082.01	111.34	560.00	1530.00	1054.16	103.22
Cumulative GPA	0.57	4	2.84	0.71	0.00	4.00	2.39	0.91
High School GPA	2.14	4	3.17	0.43	1.48	4.00	3.02	0.45
Year 2008								
Age	17	49	19.03	3.636	16	70	19.00	2.92
ZIP code Median Income	14,232	98,545	50,049	19,181	13,084	116,071	51,473	19,658
SAT	770	1440	1095.84	107.03	600	1520	1077.01	102.25
Cumulative GPA	0.18	4	2.92	0.75	0.00	4.00	2.43	0.92
High School GPA	2.22	4	3.28	0.45	1.76	4.00	3.07	0.46

As can be seen from table 3, the persistence of students who took the NSSE (90.0%) was significantly higher than the persistence of students who did not take it (75.6%, $p < 0.001$). This sort of discrepancy between sample and population is known as response bias and is prevalent in studies such as this, which rely on data from students who chose to respond. However, it is an important finding in this study, since it clearly shows that those who took the NSSE were more likely to persist.

Table 3

Comparison of Persistence between NSSE Taker and Non-Takers

		Persistence	
Took NSSE		NO	YES
NO	Count	2175	6749
	% within Took NSSE	24.40%	75.60%
YES	Count	75	678
	% within Took NSSE	10.00%	90.00%

Chi-Squared(1) = 80.289, $p < 0.001$

Data Analysis

The research question of this study stated: "When controlling for demographic data, what is the magnitude of the correlation, if any, between specific categorical scores on the NSSE (1. Level of academic challenge; 2. Active and collaborative learning; 3. Student-faculty interaction; 4. Enriching educational experiences; 5. Supportive campus environment), in the freshman year and re-enrollment in their second year at GSU?"

In order to answer this research question, preliminary bivariate analyses, using chi-squared and unpaired samples *t* tests were conducted. The objective of these tests was to examine whether there were any significant differences between persisting and non-persisting students in terms of

their demographics or NSSE scores. This analysis was necessary, since the research question stated that demographics would be controlled in this study. Following that, two probit regression analyses were conducted. The outcome variable was "persistence" (yes/no) in both cases. In the first case, only the NSSE scores were used as predictor variables. In the second, demographic variables were also included. The significance level was set at .05.

Results of the *t* tests comparing the continuous variables (i.e. age, GPA, median income, etc.) between persisting and non-persisting students are presented in Table 4. As can be seen from this table, persisting students had a significantly higher high school GPA (M = 3.245) than non-persisting students (M = 3.091). Likewise, they had a higher cumulative GPA (M = 2.960) than non-persisting students (M = 2.234). Finally, there were significant differences between both groups in terms of the following NSSE scores: Academic Challenge (Persisting M = 50.068; Non-persisting M = 46.075), Active and Collaborative Learning (Persisting M = 41.384; Non-persisting M = 35.835), and Supportive Campus Environment (Persisting M = 60.447; Non-persisting M = 49.192). No other significant differences were found. The average NSSE-taking student who returned, based on their self-assessment, initially enrolled at Georgia Southern with a higher high school GPA, felt that they were more academically challenged, assessed themselves as more engaged in active and collaborative learning, felt that the campus was more supportive and ended up with a higher cumulative GPA when compared with those students who did not return.

Table 4

Comparison of Continuous Study Variables, by Persistence

	One-year Persistence					
	No (n=76)		Yes (n=673)			
Variable	*M*	*SD*	*M*	*SD*	t stat.	p value
Age	19.579	3.810	19.009	3.459	1.348	.178
High School GPA	3.091	0.458	3.245	0.439	-2.762	.006
SAT	1085.079	123.861	1090.151	107.538	-.351	.726
Cumulative GPA	2.234	0.875	2.960	0.677	-8.580	.000
ZIP code Median Income	49,273.000	22,361.351	50,505.641	18,365.907	-.529	.597
Academic Challenge	46.075	15.092	50.068	13.795	-2.119	.035
Active and Collaborative Learning	35.835	16.650	41.384	17.103	-2.688	.007
Student-Faculty Interaction	37.014	20.783	41.005	21.039	-1.446	.149
Enriching Educational Experiences	24.947	13.927	27.476	13.551	-1.330	.184
Supportive Campus Environment	49.192	19.588	60.447	17.468	-4.508	.000

Note: the values in the "*t* stat." column correspond to the *t* statistics of the unpaired samples *t* tests that were conducted to compare the variables between the sample of persisting and non-persisting students.

Table 5 presents the results of chi-squared tests comparing the level of students that persist by gender, ethnicity, transfer status, college, and survey year. To avoid small sample size issues, ethnicity was re-categorized using White, Black, and Other. As can be seen from this

table, none of these variables were significantly associated with persistence at the .05 significance level.

Table 5

Comparison of Categorical Study Variables, by Persistence

		One-year Persistence			
		No	Yes		
Variable	Category	Frequency	Frequency	Chi-Squared	p value
Gender	Female	10.3%	89.7%	.018	.894
	Male	10.0%	90.0%		
Race	White	10.1%	89.9%	.002	.999
	Black	10.3%	89.7%		
	Other	10.1%	89.9%		
College	Non-Provost	9.8%	90.2%	1.260	.262
	Provost	14.5%	85.5%		
Transfer status	Started here	8.8%	91.2%	.505	.477
	Started elsewhere	5.4%	94.6%		
Survey year	2005	12.7%	87.3%	.018	.894
	2008	8.2%	91.8%		

Results of the probit regression, which was conducted to examine the impact of NSSE scores on the likelihood of persistence, are presented in Table 6. As explained previously, for this analysis, only the NSSE scores were included as predictor variables. Persistence does not need require coding for this particular table. Whenever coding was needed, it was entered so that persisting equals 1 and not persisting equals 0. The scale for the variables is 0-100. Regarding the coefficients of a probit regression, for example, the .02 coefficient for Supportive Campus

Environment means that each extra 1 point in the Supportive Campus Environment score is associated with a .02 increase in the z-score that is then used to compute the probability of persistence (a higher z-score means a higher probability of persistence). The z statistic in this table is computed by dividing the B coefficient by its standard error (S.E. column). It is used to compute the significance (Sig.) of the variable and has no interpretation on its own. The negative t-stats mean that the average of the variable was higher in the "Yes" group than in the "No" group. This does not affect the significance results.

Table 6

Probit Regression of Persistence on NSSE Scores

Variable	B	S.E.	z	Sig.
Academic Challenge	0.002	0.007	0.350	0.729
Active and Collaborative Learning	0.006	0.007	0.850	0.395
Student-Faculty Interaction	-0.007	0.005	-1.290	0.199
Enriching Educational Experiences	-0.005	0.007	-0.730	0.466
Supportive Campus Environment	0.020	0.005	3.890	0.000
Constant	0.292	0.301	0.970	0.331

Chi-Squared(5) = 21.47, $p < .001$

As can be seen from these results, the overall model was statistically significant (Chi-Squared(5) = 21.47, $p < .001$). Looking at the individual coefficients, the results show that the only significant variable at the .05 level was the Supportive Campus Environment score (B = 0.020, $p < .001$). The odds ratio was positive, which suggests that students with higher scores in this variable had a higher likelihood to persist. None of the other variables were significant.

In order to determine whether these findings still hold after controlling for demographic variables, an additional regression was conducted. The model included age, gender, race, high

school GPA, cumulative GPA, Scholastic Assessment Test (SAT), transfer status and zip code median income (US Census, 2012) as predictor variables, in addition to the NSSE scores. The results of this regression are presented in Table 7.

Table 7

Probit Regression of Persistence on NSSE Scores and Additional Variables

	B	S.E.	z	Sig.
Academic Challenge	-0.002	0.008	-0.220	0.825
Active and Collaborative Learning	-0.004	0.009	-0.430	0.668
Student-Faculty Interaction	0.002	0.007	0.220	0.823
Enriching Educational Experiences	-0.008	0.008	-0.970	0.334
Supportive Campus Environment	0.020	0.006	3.190	0.001
Age	-0.118	0.103	-1.150	0.250
High School GPA	-0.326	0.278	-1.170	0.240
SAT	0.000	0.001	-0.280	0.779
Cumulative GPA	0.516	0.150	3.440	0.001
Zip code Median Income	0.000	0.000	-0.420	0.675
Gender = Female	-0.060	0.206	-0.290	0.772
Race = White	0.271	0.333	0.810	0.416
Race = Black	0.195	0.260	0.750	0.452
College = Provost	0.701	0.477	1.470	0.142
Transfer status = Started elsewhere	-0.203	0.427	-0.470	0.635
Year = 2008	0.316	0.195	1.620	0.105
Constant	2.745	2.387	1.150	0.250

Chi-Squared(16) = 37.030, $p < .001$

As can be seen from Table 7, the only NSSE score that was significantly associated with the students' likelihood of persistence was Supportive Campus Environment, as in the previous model. The coefficient associated with this variable was the same as before (B = 0.020, $p < .001$). Results from Table 7 also show that the only additional variable that was significantly related with the likelihood of persistence was cumulative GPA (B = 0.516, $p < .001$). None of the other variables included in the model were significant.

Table 6 indicates that there may be some interaction between the variables, since Chi-Squared(5) = 21.47 at $p < .001$ and only "Supportive Campus Environment" is showing as significant. Therefore, a further analysis was conducted to determine which NSSE variables were potentially interacting with other NSSE variables. Table 8 presents these results. P-value was set to 0.05. This was done in Stata, as were all tables after table 4 (Tables 1-4 were analyzed using SPSS).

To generate the results shown in table 8, the researcher, using Stata, typed PW CORR, (then all of the variables were entered except the dependent variable). Next, the researcher typed OBS STARR (0.05) and then pressed enter. This generated the results in table 8 (a table with stars on the pair of variables that are significantly correlated). When looking at the grid in Stata (and table 6 above), if one sees a star at a particular number in a cell, this indicates that the two variables that line up to that cell (the row variable and the column variable) are significantly correlated at the 5% level.

Table 8

Correlation Coefficient between Persistence on NSSE Scores

Variable	Academic Challenge	Active and Collaborative Learning	Student-Faculty Interaction	Enriching Educational Experiences	Supportive Campus Environment
Academic Challenge	1				
Active and Collaborative Learning	.556*	1			
Student-Faculty Interaction	.534*	.687*	1		
Enriching Educational Experiences	.448*	.558*	.474*	1	
Supportive Campus Environment	.448*	.420*	.429*	.395*	1

As can be seen from table 8, all variables appeared to be significantly correlated, indicating potential interaction between the variables.

These findings led the researcher to look more deeply into the interactions. Pairs of tables are presented in APPENDIX M. In Table 18, the first NSSE variable is presented. In Table 6a the first NSSE variable is presented with the socio-economic characteristics. This was done for all NSSE variables. The tables are presented together (18, 19, 20, 21, 22, 23) in APPENDIX M.

As can be seen in Tables 18 through 23 in APPENDIX M, none of the NSSE variables except "Supportive Campus Environment" were significant after including the additional variables. This suggests that the original results were accurate and the Table 8 results may be the results of another potential interaction. For future research, one can look further into these multicollinearity issues.

Based on these findings, it is possible to conclude that the null hypothesis "When controlling for demographic data, there is no statistically significant difference between the NSSE categorical scores of students in the freshman year and the re-enrollment in their second year at

GSU" was rejected. There was a significant impact of the NSSE score "Supportive Campus Environment," but none of the other scores were statistically significant. In the presence of cumulative GSU GPA, high school GPA is not shown to be significant in the regression model. Although the analysis used in this study does not allow determinations of the percentage of variance attributable to specific independent variables, when running a regression of persistence solely against Supportive Campus Environment, the pseudo-R^2 is 5.27%. In contrast, when running a regression of persistence solely against cumulative GPA, the pseudo-R^2 is 13.05%.

Summary

The objective of this quantitative research study was to investigate factors assessed by the NSSE to determine if any are significantly related to the level of students that persist of first-year students enrolled for the second calendar year. Chi-squared tests, *t*-tests and probit regressions were conducted to determine whether NSSE scores were significantly associated with the likelihood of persistence. Findings from the analysis suggested that the "Supportive Campus Environment" NSSE score was significantly and positively related with the likelihood to persist, even after controlling for demographic variables. No other NSSE scores were statistically significant. Although the proportion of variance explained by Supportive Campus Environment is not well-defined for binary outcomes, such as persistence, the "pseudo R^2" reported by Stata (which would be the 'equivalent' of R^2 for a probit regression) is 0.0527 (i.e., 5.27%) when only Supportive Campus Environment is included in the model. The overall significance test yields: Chi-Squared(1) = 19.51, p-value < 0.001.

CHAPTER FIVE
Conclusions and Recommendations

Introduction

The purpose of this study was to investigate the relationship between persistance and student interaction. In this study, subscales of the National Survey of Student Engagement (NSSE) were used to measure the relationship between student persistence and student engagement. For the purpose of this study, there were five independent variables used; Active and collaborative learning, level of academic challenge, supportive campus environment, student-faculty interaction, and enriching educational experiences. The dependent variable was the persistence of students. A probit model was used to identify relationships between persistence and the five NSSE benchmark variables in the study.

The scores of the participants were analyzed for relationships between the variables, as reported by the NSSE instrument, for 749 enrolled freshmen at Georgia State University (GSU), for the cohorts 2004-2005 and 2007-2008. Two years with a few years between them were used in order to control for possible temporal-related effects. Additionally, GSU did not administer the NSSEE in the years between the cohorts. The NSSE tool was designed to assess student engagement in campus life and education. The following overarching research question guided the study: When controlling for demographic data, what is the magnitude of the correlation between student perceptions of specific categorical scores on the NSSE (1. Level of academic challenge; 2. Active and collaborative learning; 3. Student-faculty interaction; 4. Enriching educational experiences; 5. Supportive campus environment) in the freshman year and re-enrollment of students in their second year in at GSU? The following are the research question and the null and alternative hypotheses:

RQ: What relationship exists between the NSSE data from the five benchmarks in the freshman year and student re-enrollment in the second year?

H_0: There is no statistically significant relationship between the NSSE categorical scores of students in the freshman year and the re-enrollment in their second year.

H_A: There is a statistically significant relationship between the NSSE categorical scores of students in their freshman year and re-enrollment in their second year.

Discussion of Findings

The sample population consisted of 749 individuals. The majority of the individuals were found to be white. The most common gender was female. Transferees from other schools were also in the majority. The bulk of these students were Liberal Arts and Social Science majors and the overall average percentage of students that persist for both years was 89.59%. The analysis of the NSSE for freshmen students showed that the average NSSE-taking student who returned, based on their self-assessment, came in with a higher high school grade point average (GPA), felt that they were more academically challenged, assessed themselves as more engaged in active and collaborative learning, felt that the campus was more supportive and achieved a higher cumulative GPA when compared with those students who did not return. Since the variance in persistence explained by Supportive Campus Environment is 5.27% and the overall significance test yields: Chi-Squared(1) = 19.51, p-value < 0.001, Supportive Campus Environment is correlated to persistence.

A probit regression was conducted to examine the impact of NSSE scores on the likelihood of persistence. The individual coefficients showed that persistence had a significant relationship with the supportive campus environment. This indicates that the persistence of participants has a direct relationship with their reported experience of the supportiveness of the

campus environment. A supportive campus environment, as assessed by the NSSE, consists of: A campus environment that provides support for students to succeed academically, a campus environment that helps students cope with their non-academic responsibilities (family, work, etc.), a campus environment that provides support to thrive socially, quality relationships established by the student with other students, quality relationships established by the student with faculty members and quality relationships established by the student with administrative offices and personnel. The findings in this study may suggest that students will persist if provided with a supportive campus environment. Additionally, since cumulative college GPA was correlated to persistence, this potentially means that when the participants are satisfied with their cumulative GPA, it is more likely that they will decide to pursue reenrollment in their second year at the same institution. This supports a 2011 study by Hu, McCormick and Gonyea, who sought to determine if a correlation exists between three different learning outcomes and student persistence from the freshman to the sophomore year. The three outcomes examined were self-reported gains, direct-assessment learning gains, and college grades (GPA). The findings of this study showed that of these three learning outcomes, GPA was the greatest predictor or student persistence from the freshman to sophomore year (Hu, McCormick & Gonyea, 2011).

It is important to note that the students who completed the NSSE in the current study were different than the population from which they came. The persistence of students who took the NSSE (90.0%) was significantly higher than the persistence of students who did not take the NSSE (75.6%, $p < 0.001$). Additionally, although a correlation was established between persistence among the NSSE takers and Supportive Campus Environment, only 5.27% of persistence could be explained by this NSSE benchmark.

Some prior research was not supported by this study. Kinzie et al. (2008) found that

student engagement in enriching educational experiences (i.e. learning an additional foreign language, studying abroad and doing volunteer work) predicts academic persistence to enroll in the following year. The current study did not find that factor to be related to persistence. However, the same study by Kinzie et al. also stated that students who are prepared academically are more likely to enroll for the following school year. This study did support these findings, since cumulative GPA was significantly ($p < .001$) related to persistence. The correlation (r) between high school GPA and cumulative GPA was only .522; therefore, there appears to be an absence of collinearity issues (one GPA affecting the perceived contribution of the other). Moreover, in the probit regression, cumulative GPA is indeed very significant ($p = .001$). If there were a high collinearity, none of the variables would appear to be significant. Additionally, Friedman and Mandel (2010) found that higher scores on the SAT were significantly correlated with higher rates of students that persist in first-year higher education. This was also not supported by the current study.

Based on the current findings, supportive campus environment is related to student's persistence. This potentially means that when the environment of the students supports them more fully (by providing avenues of association with other students, faculty, administrators and administrative offices), it is more likely that students will enroll for the following year. On the contrary, the study of DeBerard, Spielmans, and Julka (2004) found that high school Scholastic Assessment Test (SAT) and high school GPA scores can predict retention rates in college. This was not shown to have any significance in the current study. It should be noted that the current study did not run the model without cumulative GPA. However, in the same study by DeBerard, et al., it was suggested that supportive campus environment contributed to retention. This was clearly shown in the current study.

In a study by Gordon, Ludlum, & Hoey (2008), although a weak relationship was determined between level of academic challenge, active and collaborative learning and re-enrollment of freshmen to their sophomore year, the results were not replicated in other years. However, the same study did determine a consistent link between supportive campus environment and reenrollment of freshmen to their sophomore year. The results of the current research suggest a link between supportive campus environment and re-enrollment that has been replicated (2005 and 2008) at GSU. Since both of the current assessments were performed using data from one institution, it is plausible that GSU has its own unique results.

Additionally, the study conducted by Case (2008) concluded that there is a positive relationship between the behaviors of staff and students' feelings of engagement. This means that students' persistence is potentially related to the perception of support coming from the campus environment. To these students, the more open, welcoming, and interested the staff is in the activities of the students, the more engaged students become. This study supports those findings. The findings of Allen, Robbins, Casillas, and Oh (2008), in which the results indicated that academic performance has a statistically significant positive relationship with persistence and the finding by Whalen (2010) that student re-enrolled for a second year was dependent upon first year GPA, were also supported by this study.

The current study does not support Fisher's (2007) study, which did indicate a relationship between race and persistence. Nor does it offer support for a study by Gardenhire-Crooks, et al. (2010), which showed that minority students benefit disproportionately from support provided by faculty and peers in order to succeed in school.

Implications and Recommendations

The significance of this study is based on scarcity in literature concerning the link between student engagement and student persistence. This study adds to the body of knowledge concerning one set of factors that students consider while deciding whether to persist to their second academic year. The findings in the study, while not definitive, can also contribute to universities by supporting previous findings regarding the relationship between persistence and student interaction. This is due to the fact that the NSSE's assessment of a student's perception of supportive campus environment looks at providing the support students need to help them succeed academically, helping students cope with their non-academic responsibilities (work, family, etc.), providing the support they need to thrive socially, facilitating opportunities for developing relationships with other students and faculty members and administrative personnel and offices. Therefore, an enhancement of these services through the Academic Success Center, Office of Educational Opportunity Programs (EOP) and the Academic Advisement Centers of each college at GSU would potentially yield greater persistence among students.

Since most of the research focuses on student engagement and interaction, there is a need for studies that look at the factors that encourages the students to continue learning, rather than only persisting. Additionally, in the future, a larger sample size may enhance a similar study's ability to determine a relationship between persistence and some of the other coefficient variables. The results of this study may not be the case in a study that consists of larger sample sizes. A larger sample size would potentially reveal a more accurate picture. Future researchers should focus on this aspect of the topic to provide more empirical support for some of this researcher's interpretation of the results of the data analysis and conclusions. Future researchers should also

further examine the potential multicollinearity issues revealed by the study to assess potential interactions between the five benchmarks.

Keeping in mind the findings of Pascarella and Terenzini (2005), who determined that using homogenous methods in programmatic intervention had differing results in various institutional settings, the current does study suggests that it is important for universities to create and maintain a supportive campus environment. This is due to the findings in the current study that a positive correlation exists between a supportive campus environment and higher persistence. The creation of such a campus environment can be done effectively by producing and implementing initiatives designed to create a supportive campus environment, such as providing networks of advisers who can aid students in receiving academic support and support for non-academic responsibilities, such as their everyday living challenges (McClellan, G., & Stringer, J., 2009). This also includes taking steps to see that students are made aware of all resources offered by the university. Examples of ways this can be done include referring each student to their respective faculty advisor upon acceptance to the university, creating small orientation groups organized according to class sections for first year students, and training faculty and staff to inform students of services and resources available through the university. These programs should also address the physical campus environment, for example by creating comfortable, quiet areas for students to use for studying purposes that are near places that offer resources for academic support (Lindstrom, 2011).

The information gathered in this study may provide valuable insights that are needed in order to understand student engagement and may also be useful in planning for the Higher Education Institution (HEI) initiatives to increase persistence. Researchers at the University of Wisconsin-Superior (UW-Superior) (2010) referred to NSSE benchmark results when developing

a "Strategic Plan for Student Retention." They found that of all five of the NSSE benchmarks, supportive campus environment showed the highest statistically positive result in relation to student engagement. Therefore, when creating a plan for student retention, administrators at the University of Wisconsin-Superior focused most on creating a more supportive campus environment in order to encourage student persistence of freshman year students to re-enroll in their second year (Harris, M., 2010). Additionally, the current study supports the findings of Pascarella and Terenzini (2005). In their assessment of how college affects students, the researchers stated that, "the impact of college is largely determined by individual effort and involvement in the academic, interpersonal, and extracurricular offerings on a campus (p.602)."

Recommendations

This researcher suggests that this study be replicated with the 2011 data. Another recommendation for future research is to specifically examine engagement in online campus environments. Additionally, there are multiple considerations for future research. Since there is a limited amount of research focusing on the link between student persistence and student interaction, additional studies could increase the understanding of the factors that help students decide whether to pursue higher education or not. Additionally, with the multitude of possible dropouts, the increase in understanding student's behavior, on the part of the university, would be helpful in addressing the factors that encourage students who would potentially not persist to maintain an ongoing pursuit of higher education. It would also be valuable to correlate college with persistence to further examine link between college choice and persistence. Also, it may potentially be advisable to conduct a qualitative study wherein the students would be able to add their insights concerning which factors they feel would potentially help them be more persistent. Although this study was able to account for a reasonable amount of the variance in student

persistence, there are still unknown factors related to persistence. A qualitative study would allow students to give more honest opinions and generate themes that could potentially promote interaction within the campus. Qualitative studies revel nuisances not captured by qualitative studies. Additionally, although there have been advancements in research concerning student engagement levels, there is little information available regarding the role of the faculty and institutional polices of HEIs upon student engagement levels (Jones & Braxton, 2010). Since policy directly affects actions of schools (which affect persistence), these should be examined as well.

Considering that Supportive Campus Environment was significant in this study, the researcher offers the following suggestions to enhance a supportive campus environment:

Relationships with other students. This area can be improved through encouraging students to interact with each other in a positive environment. This can be done in a variety of ways. For example, frequently holding extra-curricular events on campus, such as movie nights, dances, theme parties, etc. Also, providing online chat forums and discussion boards on the school's website for students will put them in contact with many more students than they may normally interact with face to face on a daily basis, thus allowing them more opportunity to meet new people and communicate easily with a large number of students.

Relationships with faculty members. One very important way that administrators can improve the relationships between students and faculty members is by encouraging faculty members to be sure that they make themselves available for students on a regular basis. This includes having email addresses and phone numbers readily available to students, as well as responding to any emails or phone calls from students in a timely manner. In order to improve student-faculty relationships it is also important for faculty to be present and available for

students in their office during their designated office hours, and that all students are made aware of these hours. It would also be helpful to inform faculty of the importance of presenting themselves to students in a way that allows students to feel comfortable approaching them about any issues that students may have. It should be kept in mind that Gordon and Palmon (2010) found that, according to annual NSSE reports, when some faculty members find student participation levels to be inadequate; they still are not willing to increase their requirements. This can be overcome by advising faculty of the importance of this issue.

Relationships with administrative personnel and offices. This can be improved by insuring that students are made aware of names, contact information (such as phone numbers and email addresses), and office locations of administrators and personnel that are available to them should they need assistance. It is also important to insure that administrators and personnel are available in their offices during their office hours and that these hours are clearly posted for students. As with faculty members, it is also important that administrative personnel understand how to present themselves to students in an approachable manner, so that students feel comfortable seeking help from them.

Providing the support students need to help them succeed academically. The Texas Wesleyan University School of Law offers an extensive academic support program comprised of five different elements: "weekly academic support groups; practice exams; seminars and panels; academic resources and advising; and peer tutors" (Texas Wesleyan University School of Law, 2012). Another excellent example of an academic support program is currently used by Stevenson University in Maryland. Their Creating Opportunities for Residence Excellence (CORE) program works with students with a cumulative GPA of under 2.0 and requires the students to participate in this program. During the program, each student is assigned a personal

coach who encourages the student to be responsible for their academic career. The coach also assists the student in creating a personalized strategy for improving their academic standing and raising their GPA (Stevenson University, 2012).

Helping students cope with non-academic responsibilities (work, family, etc.). Karp (2011) showed that there are specific items that administrators can use to improve this. One example involves students who are also parents. This study suggests providing daycare on campus in order to accommodate students who have small children. This convenience can reduce feelings of stress and allow these students to focus on their studies without worrying about having a safe place to leave their children. This study also suggests that schools should provide some means of transportation or transportation assistance in order to lessen the economic burden for students with a long commute. This may also increase attendance rates. This study also addresses the issue of students who are so financially encumbered that they cannot afford to feed themselves or their families. This study refers to a school in Michigan that set up a food bank which members of the academic community could donate to on a regular basis in order to provide some relief for students with extreme financial hardships (Karp, 2011).

Providing the support students need to thrive socially. When Sheard, Carbone, and Hurst (2010) questioned students about their potential low engagement, students gave various reasons to explain their low level of engagement. Among these reasons was the students' perceived inability to connect their lifestyle outside of education to their learning experience inside the classroom. A successful example of a school taking specific measures on this topic is Oxford University in England. Administrators at Oxford University found that students rely most on each other for social and emotional support. In order to encourage this, and help students find the best ways to support each other, administrators created the Peer Support Program. This

program actually teaches students how to provide improved social support to each other, and also ensures that they are aware of all of the support resources offered to them through the university and how to utilize them (Oxford University, 2012). Another important way to provide social support for students is to provide guidance counselors that students may speak with regarding any personal or social issues they may have. Bai and Pan (2010) found that social programs had a profound positive effect on rates of students that persist among first-year female students and that that the experience programs that were specially designed for first-year students produced long-term benefits among male students.

Concluding Thoughts

As a result of conducting this study, this researcher has obtained a better understanding of the importance of the campus environment in relation to student persistence. Due to the findings of this study, which indicated that a supportive campus environment is the most effective predictor (among the five benchmarks of the NSSE and at GSU for the two years examined) of student persistence, it is the opinion of this researcher that universities should focus a considerable amount of their resources on creating and implementing programs that will produce a supportive campus environment for students.

As an online educator, the idea of supportive campus environment is important to this researcher. The term "environment" can refer to the physical environment experienced by students, such as campus buildings, classrooms, and direct contact with faculty, administrators, and other students. However, in an online learning situation, the environment is the sum of the Internet resources available to the student. Although it is not known from this study what factors may contribute to retention in online learning environments, it is suggested from the findings that perhaps online student engagement could be improved by enhancing the online student

environment. This is based on the findings in this study of the significance of supportive campus environment and the similarity of online and in-person education. Although the expectations are different in an online environment, there are a few potential areas in which an online learning environment resembles a physical learning environment. However, as a result of conducting this study, which found that a supportive campus environment is the most important factor in predicting student persistence, this researcher has begun to rethink the way this researcher presents the online educational experience to students. This researcher has realized that the campus environment does, in fact, exist for online students, albeit not a in a physical way. Factors such as accessibility of online resources, navigability of the online education websites, and availability of administrators and faculty through email or phone are all extremely important to the online educational experience and can be referred to as a "campus environment." Since the data shows a link between having a supportive campus environment and persistence, this researcher will focus on creating a supportive campus environment online.

In this researcher's own work, this researcher now intends to focus on improving the online environment for online education students. Since a supportive campus environment is concerned with strengthening the relationships between the student and others in the students' campus environment, the concept of strengthening relationships can also be potentially applied to an online learning environment. This researcher feels the most effective way to do this is to focus on improving online student resources. This includes action items such as developing a live online chat application, which allows students to chat with faculty and advisors. It is also essential to ensure that faculty and advisors have contact information such as phone numbers and email addresses clearly displayed in the event that students need help or have questions.

Another important feature that this researcher intends to add to the online student interactive experience is a chat forum and discussion board in which students can interact with each other to discuss ideas and learn from each other in a way that is similar to the experience they would have on a physical campus. Additionally, this researcher will provide a forum for suggestions from students concerning how they feel their online environment can be improved. In this forum, students can advise administrators concerning technical problems or malfunctions related to the student resource websites. Students can also provide suggestions which they feel will improve the interface design (i.e. navigability and ease of use). These additions will provide an environment that will facilitate the resolution of any problems in an efficient and timely manner and will allow for the online campus environment to be constantly improved.

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APPENDIX A: IRB Approval

Georgia Southern University
Office of Research Services & Sponsored Programs

Institutional Review Board (IRB)

Phone: 912-478-0843
Fax: 912-478-0719
IRB@GeorgiaSouthern.edu
Veazey Hall 2021
P.O. Box 8005
Statesboro, GA 30460

To:	Steve Jones Dr. Brenda Marina
CC:	Charles E. Patterson Vice President for Research and Dean of the Graduate College
From:	Office of Research Services and Sponsored Programs Administrative Support Office for Research Oversight Committees (IACUC/IBC/IRB)
Initial Approval Date:	02/27/12
Expiration Date:	05/30/12
Subject:	Status of Application for Approval to Utilize Human Subjects in Research

---

After a review of your proposed research project numbered **H12219** and titled **"The Relationship Between the National Survey of Student Engagement Scores and Persistence Among Higher Education Students,"** it appears that (1) the research subjects are at minimal risk, (2) appropriate safeguards are planned, and (3) the research activities involve only procedures which are allowable.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your proposed research.

If at the end of this approval period there have been no changes to the research protocol; you may request an extension of the approval period. Total project approval on this application may not exceed 36 months. If additional time is required, a new application may be submitted for continuing work. In the interim, please provide the IRB with any information concerning any significant adverse event, **whether or not it is believed to be related to the study**, within five working days of the event. In addition, if a change or modification of the approved methodology becomes necessary, you must notify the IRB Coordinator **prior** to initiating any such changes or modifications. At that time, an amended application for IRB approval may be submitted. Upon completion of your data collection, you are required to complete a *Research Study Termination* form to notify the IRB Coordinator, so your file may be closed.

Sincerely,

Eleanor Haynes

Eleanor Haynes
Compliance Officer

Georgia Southern University
Office of Research Services & Sponsored Programs

Institutional Review Board (IRB)

Phone: 912-478-0843
Fax: 912-478-0719 IRB@GeorgiaSouthern.edu
Veazey Hall 2021
P.O. Box 8005
Statesboro, GA 30460

To: Steve Jones
Dr. Brenda Marina

cc: Charles E. Patterson
Vice President for Research and Dean of the Graduate College

From: Office of Research Services and Sponsored Programs
Administrative Support Office for Research Oversight Committees
(IACUC/IBC/IRB)

Date: 04/17/12

Expiration Date: 04/30/13

Subject: Status of Extension Request for Approval to Utilize Human Subjects in Research

---

After a review of your Extension Request for research project numbered **H12219** and titled **"The Relationship Between the National Survey of Student Engagement Scores and Persistence Among Higher Education Students,"** it appears that (1) the research subjects are at minimal risk, (2) appropriate safeguards are planned, and (3) the research activities involve only procedures which are allowable.

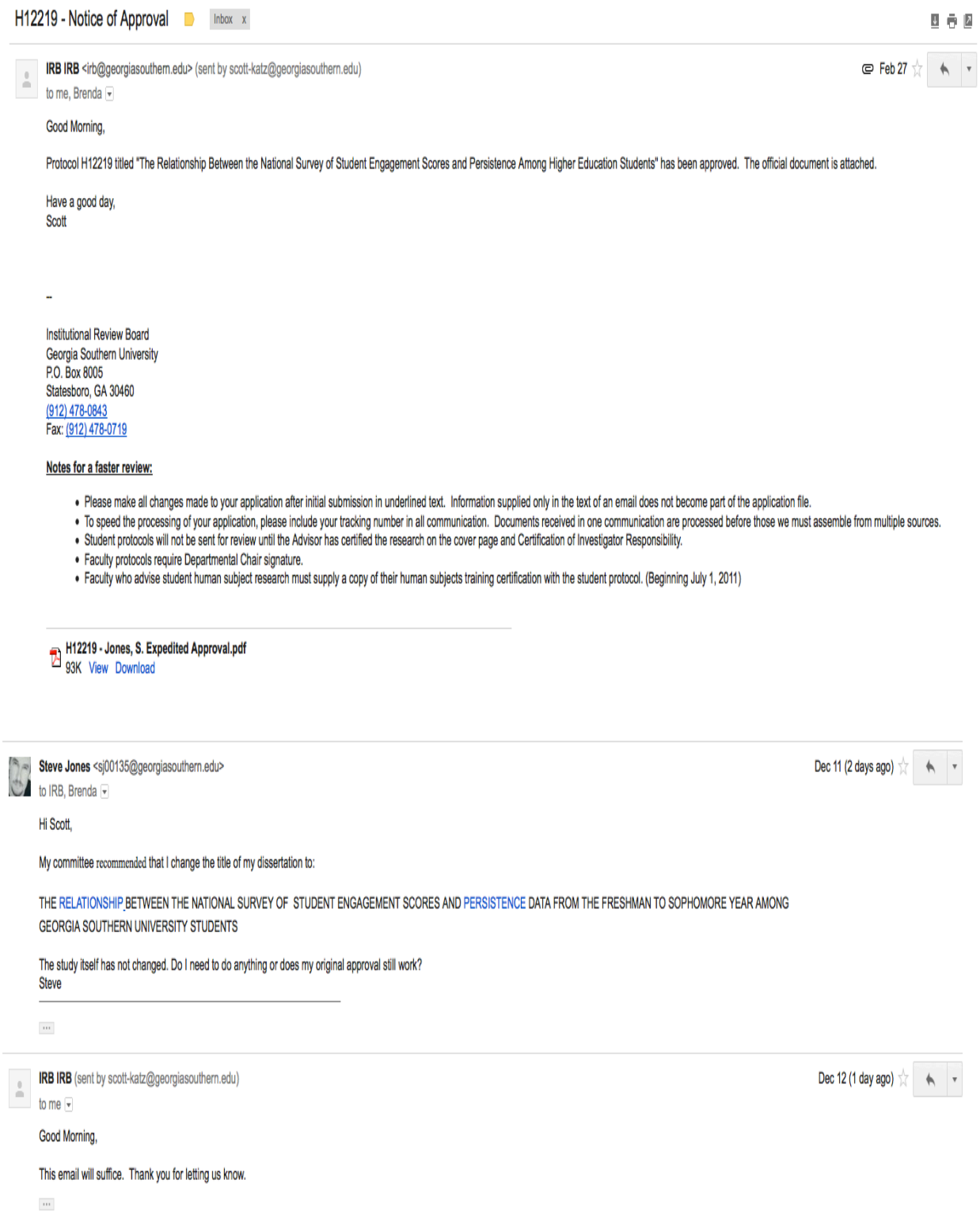
Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your extension.

If you wish to continue the project after 3 years you must reapply to the IRB as a new project. In the interim, please provide the IRB with any information concerning any significant adverse event, **whether or not it is believed to be related to the study**, within five working days of the event. In addition, if a change or modification of the approved methodology becomes necessary, you must notify the IRB Coordinator **prior** to initiating any such changes or modifications. At that time, an amended application for IRB approval may be submitted. Upon completion of your data collection, you are required to complete a *Research Study Termination* form to notify the IRB Coordinator, so your file may be closed.

Sincerely,

Eleanor Haynes
Compliance Officer

APPENDIX B: Email Communications for GSU Approval



H12219 - Notice of Approval

Inbox x

IRB IRB <irb@georgiasouthern.edu> (sent by scott-katz@georgiasouthern.edu) Feb 27

to me, Brenda

Good Morning,

Protocol H12219 titled "The Relationship Between the National Survey of Student Engagement Scores and Persistence Among Higher Education Students" has been approved. The official document is attached.

Have a good day,
Scott

--

Institutional Review Board
Georgia Southern University
P.O. Box 8005
Statesboro, GA 30460
(912) 478-0843
Fax: (912) 478-0719

Notes for a faster review:

- Please make all changes made to your application after initial submission in underlined text. Information supplied only in the text of an email does not become part of the application file.
- To speed the processing of your application, please include your tracking number in all communication. Documents received in one communication are processed before those we must assemble from multiple sources.
- Student protocols will not be sent for review until the Advisor has certified the research on the cover page and Certification of Investigator Responsibility.
- Faculty protocols require Departmental Chair signature.
- Faculty who advise student human subject research must supply a copy of their human subjects training certification with the student protocol. (Beginning July 1, 2011)

H12219 - Jones, S. Expedited Approval.pdf
93K View Download

Steve Jones <sj00135@georgiasouthern.edu> Dec 11 (2 days ago)

to IRB, Brenda

Hi Scott,

My committee recommended that I change the title of my dissertation to:

THE RELATIONSHIP BETWEEN THE NATIONAL SURVEY OF STUDENT ENGAGEMENT SCORES AND PERSISTENCE DATA FROM THE FRESHMAN TO SOPHOMORE YEAR AMONG GEORGIA SOUTHERN UNIVERSITY STUDENTS

The study itself has not changed. Do I need to do anything or does my original approval still work?
Steve

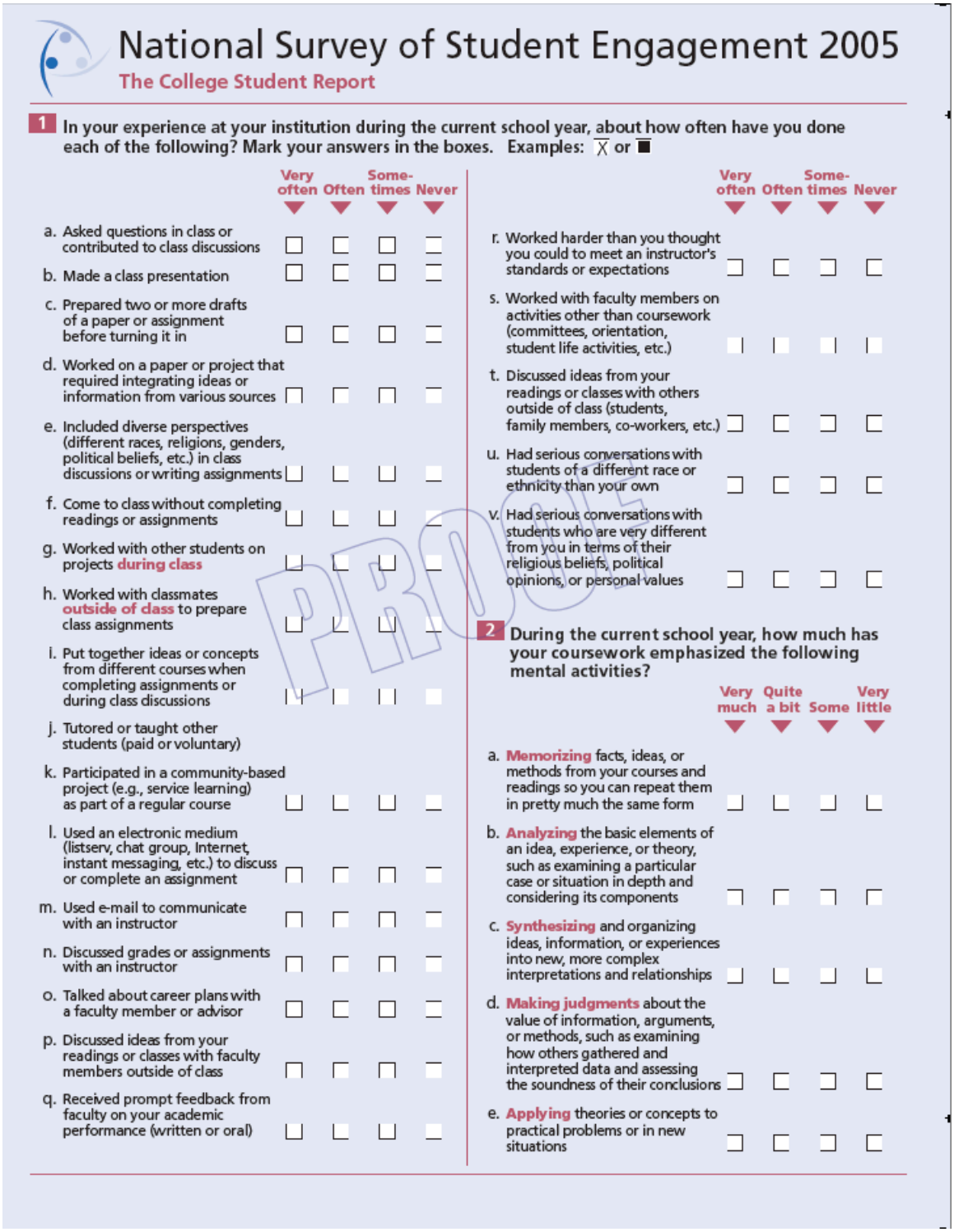
IRB IRB (sent by scott-katz@georgiasouthern.edu) Dec 12 (1 day ago)

to me

Good Morning,

This email will suffice. Thank you for letting us know.

APPENDIX C: National Survey of Student Engagement 2005 and 2008



National Survey of Student Engagement 2005

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
a. Asked questions in class or contributed to class discussions	☐	☐	☐	☐
b. Made a class presentation	☐	☐	☐	☐
c. Prepared two or more drafts of a paper or assignment before turning it in	☐	☐	☐	☐
d. Worked on a paper or project that required integrating ideas or information from various sources	☐	☐	☐	☐
e. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments	☐	☐	☐	☐
f. Come to class without completing readings or assignments	☐	☐	☐	☐
g. Worked with other students on projects **during class**	☐	☐	☐	☐
h. Worked with classmates **outside of class** to prepare class assignments	☐	☐	☐	☐
i. Put together ideas or concepts from different courses when completing assignments or during class discussions	☐	☐	☐	☐
j. Tutored or taught other students (paid or voluntary)	☐	☐	☐	☐
k. Participated in a community-based project (e.g., service learning) as part of a regular course	☐	☐	☐	☐
l. Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment	☐	☐	☐	☐
m. Used e-mail to communicate with an instructor	☐	☐	☐	☐
n. Discussed grades or assignments with an instructor	☐	☐	☐	☐
o. Talked about career plans with a faculty member or advisor	☐	☐	☐	☐
p. Discussed ideas from your readings or classes with faculty members outside of class	☐	☐	☐	☐
q. Received prompt feedback from faculty on your academic performance (written or oral)	☐	☐	☐	☐
r. Worked harder than you thought you could to meet an instructor's standards or expectations	☐	☐	☐	☐
s. Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	☐	☐	☐	☐
t. Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	☐	☐	☐	☐
u. Had serious conversations with students of a different race or ethnicity than your own	☐	☐	☐	☐
v. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	☐	☐	☐	☐

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	☐	☐	☐	☐
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	☐	☐	☐	☐
c. **Synthesizing** and organizing ideas, information, or experiences into new, more complex interpretations and relationships	☐	☐	☐	☐
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	☐	☐	☐	☐
e. **Applying** theories or concepts to practical problems or in new situations	☐	☐	☐	☐

3 During the current *school year*, about how much reading and writing have you done?

	None	Between 1 and 4	Between 5 and 10	Between 11 and 20	More than 20
a. Number of assigned textbooks, books, or book-length packs of course readings	☐	☐	☐	☐	☐
b. Number of books read on your own (not assigned) for personal enjoyment or academic enrichment	☐	☐	☐	☐	☐
c. Number of written papers or reports of **20 pages or more**	☐	☐	☐	☐	☐
d. Number of written papers or reports **between 5 and 19 pages**	☐	☐	☐	☐	☐
e. Number of written papers or reports **of fewer than 5 pages**	☐	☐	☐	☐	☐

4 In a *typical week*, how many homework problem sets do you complete?

	None	1-2	3-4	5-6	More than 6
a. Number of problem sets that take you **more** than an hour to complete	☐	☐	☐	☐	☐
b. Number of problem sets that take you **less** than an hour to complete	☐	☐	☐	☐	☐

5 Mark the box that best represents the extent to which your examinations during the current school year have challenged you to do your best work.

Very little ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very much

1 2 3 4 5 6 7

6 During the current school year, about how often have you done each of the following?

	Very often	Often	Some-times	Never
a. Attended an art exhibit, gallery, play, dance, or other theater performance	☐	☐	☐	☐
b. Exercised or participated in physical fitness activities	☐	☐	☐	☐
c. Participated in activities to enhance your spirituality (worship, meditation, prayer, etc.)	☐	☐	☐	☐
d. Examined the strengths and weaknesses of your own views on a topic or issue	☐	☐	☐	☐
e. Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	☐	☐	☐	☐
f. Learned something that changed the way you understand an issue or concept	☐	☐	☐	☐

7 Which of the following have you done or do you plan to do before you graduate from your institution?

	Done	Plan to do	Do not plan to do	Have not decided
a. Practicum, internship, field experience, co-op experience, or clinical assignment	☐	☐	☐	☐
b. Community service or volunteer work	☐	☐	☐	☐
c. Participate in a learning community or some other formal program where groups of students take two or more classes together	☐	☐	☐	☐
d. Work on a research project with a faculty member outside of course or program requirements	☐	☐	☐	☐
e. Foreign language coursework	☐	☐	☐	☐
f. Study abroad	☐	☐	☐	☐
g. Independent study or self-designed major	☐	☐	☐	☐
h. Culminating senior experience (capstone course, thesis, project, comprehensive exam, etc.)	☐	☐	☐	☐

8 Mark the box that best represents the quality of your relationships with people at your institution.

Relationships with:

a. Other Students	b. Faculty Members	c. Administrative Personnel and Offices
Friendly, Supportive, Sense of Belonging	**Available, Helpful, Sympathetic**	**Helpful, Considerate, Flexible**
7 ☐	7 ☐	7 ☐
6 ☐	6 ☐	6 ☐
5 ☐	5 ☐	5 ☐
4 ☐	4 ☐	4 ☐
3 ☐	3 ☐	3 ☐
2 ☐	2 ☐	2 ☐
1 ☐	1 ☐	1 ☐
Unfriendly, Unsupportive, Sense of Alienation	**Unavailable, Unhelpful, Unsympathetic**	**Unhelpful, Inconsiderate, Rigid**

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

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

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	☐	☐	☐	☐
b. Providing the support you need to help you succeed academically	☐	☐	☐	☐
c. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds	☐	☐	☐	☐
d. Helping you cope with your non-academic responsibilities (work, family, etc.)	☐	☐	☐	☐
e. Providing the support you need to thrive socially	☐	☐	☐	☐
f. Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)	☐	☐	☐	☐
g. Using computers in academic work	☐	☐	☐	☐

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

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: 1 9

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 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, specify:

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
☐ Fraternity or sorority house

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

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

28 Please print your primary major or your expected primary major.

29 If applicable, please print your second major or your expected second major (not minor, concentration, etc.).

THANKS FOR SHARING YOUR VIEWS!

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National Survey of Student Engagement 2008

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
a. Asked questions in class or contributed to class discussions	☐	☐	☐	☐
b. Made a class presentation	☐	☐	☐	☐
c. Prepared two or more drafts of a paper or assignment before turning it in	☐	☐	☐	☐
d. Worked on a paper or project that required integrating ideas or information from various sources	☐	☐	☐	☐
e. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments	☐	☐	☐	☐
f. Come to class without completing readings or assignments	☐	☐	☐	☐
g. Worked with other students on projects **during class**	☐	☐	☐	☐
h. Worked with classmates **outside of class** to prepare class assignments	☐	☐	☐	☐
i. Put together ideas or concepts from different courses when completing assignments or during class discussions	☐	☐	☐	☐
j. Tutored or taught other students (paid or voluntary)	☐	☐	☐	☐
k. Participated in a community-based project (e.g., service learning) as part of a regular course	☐	☐	☐	☐
l. Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment	☐	☐	☐	☐
m. Used e-mail to communicate with an instructor	☐	☐	☐	☐
n. Discussed grades or assignments with an instructor	☐	☐	☐	☐
o. Talked about career plans with a faculty member or advisor	☐	☐	☐	☐
p. Discussed ideas from your readings or classes with faculty members outside of class	☐	☐	☐	☐
q. Received prompt written or oral feedback from faculty on your academic performance	☐	☐	☐	☐
r. Worked harder than you thought you could to meet an instructor's standards or expectations	☐	☐	☐	☐
s. Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	☐	☐	☐	☐
t. Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	☐	☐	☐	☐
u. Had serious conversations with students of a different race or ethnicity than your own	☐	☐	☐	☐
v. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	☐	☐	☐	☐

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	☐	☐	☐	☐
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	☐	☐	☐	☐
c. **Synthesizing** and organizing ideas, information, or experiences into new, more complex interpretations and relationships	☐	☐	☐	☐
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	☐	☐	☐	☐
e. **Applying** theories or concepts to practical problems or in new situations	☐	☐	☐	☐

3 **During the current *school year*, about how much reading and writing have you done?**

a. Number of assigned textbooks, books, or book-length packs of course readings

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

b. Number of books read on your own (not assigned) for personal enjoyment or academic enrichment

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

c. Number of written papers or reports of **20 pages or more**

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

d. Number of written papers or reports **between 5 and 19 pages**

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

e. Number of written papers or reports of **fewer than 5 pages**

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

4 **In a *typical week*, how many homework problem sets do you complete?**

	None	1-2	3-4	5-6	More than 6
a. Number of problem sets that take you **more** than an hour to complete	☐	☐	☐	☐	☐
b. Number of problem sets that take you **less** than an hour to complete	☐	☐	☐	☐	☐

5 **Mark the box that best represents the extent to which your examinations during the current school year have challenged you to do your best work.**

Very little ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 Very much

6 **During the current school year, about how often have you done each of the following?**

	Very often	Often	Some-times	Never
a. Attended an art exhibit, play, dance, music, theater, or other performance	☐	☐	☐	☐
b. Exercised or participated in physical fitness activities	☐	☐	☐	☐
c. Participated in activities to enhance your spirituality (worship, meditation, prayer, etc.)	☐	☐	☐	☐
d. Examined the strengths and weaknesses of your own views on a topic or issue	☐	☐	☐	☐
e. Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	☐	☐	☐	☐
f. Learned something that changed the way you understand an issue or concept	☐	☐	☐	☐

7 **Which of the following have you done or do you plan to do before you graduate from your institution?**

	Done	Plan to do	Do not plan to do	Have not decided
a. Practicum, internship, field experience, co-op experience, or clinical assignment	☐	☐	☐	☐
b. Community service or volunteer work	☐	☐	☐	☐
c. Participate in a learning community or some other formal program where groups of students take two or more classes together	☐	☐	☐	☐
d. Work on a research project with a faculty member outside of course or program requirements	☐	☐	☐	☐
e. Foreign language coursework	☐	☐	☐	☐
f. Study abroad	☐	☐	☐	☐
g. Independent study or self-designed major	☐	☐	☐	☐
h. Culminating senior experience (capstone course, senior project or thesis, comprehensive exam, etc.)	☐	☐	☐	☐

8 **Mark the box that best represents the quality of your relationships with people at your institution.**

a. Relationships with **other students**

Unfriendly, Unsupportive, Sense of alienation ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 Friendly, Supportive, Sense of belonging

b. Relationships with **faculty members**

Unavailable, Unhelpful, Unsympathetic ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 Available, Helpful, Sympathetic

c. Relationships with **administrative personnel and offices**

Unhelpful, Inconsiderate, Rigid ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 Helpful, Considerate, Flexible

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)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30
Hours per week

b. Working for pay **on campus**

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30
Hours per week

c. Working for pay **off campus**

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30
Hours per week

d. Participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30
Hours per week

e. Relaxing and socializing (watching TV, partying, etc.)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30
Hours per week

f. Providing care for dependents living with you (parents, children, spouse, etc.)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30
Hours per week

g. Commuting to class (driving, walking, etc.)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30
Hours per week

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	☐	☐	☐	☐
b. Providing the support you need to help you succeed academically	☐	☐	☐	☐
c. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds	☐	☐	☐	☐
d. Helping you cope with your non-academic responsibilities (work, family, etc.)	☐	☐	☐	☐
e. Providing the support you need to thrive socially	☐	☐	☐	☐
f. Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)	☐	☐	☐	☐
g. Using computers in academic work	☐	☐	☐	☐

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

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:** 1 9 _ _

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	
☐	☐	Did not finish high school
☐	☐	Graduated from high school
☐	☐	Attended college but did not complete degree
☐	☐	Completed an associate's degree (A.A., A.S., etc.)
☐	☐	Completed a bachelor's degree (B.A., B.S., etc.)
☐	☐	Completed a master's degree (M.A., M.S., etc.)
☐	☐	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.):

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APPENDIX D: References for Level of Academic Challenge

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Carini, R. M., Kuh, G.D., Zhao, C.M., (2006)	Compare and contrast the undergraduate college experience of international students and their American counterparts	175,000 randomly selected undergraduate students who were either American, international Asians, international whites, or international blacks.	Quantitative	International students generally report higher levels of student involvement, and higher levels of academic challenge in their freshman year. In their senior year black international students show levels of academic challenge equal to their American counterparts.
Pendelton, S., (2006).	Does the undergraduate experience of transfer students in British Columbia differ to that of their American counterparts?	3,043 undergraduate students from UBC, 24% (730) of whom identified themselves as transfer students	Quantitative	Transfer students in BC are more likely to do more work than is required, will write longer papers, connect concepts from related courses and will work harder than they believed possible. In comparison to American students the BC findings contradict the American finding which states that "overall, transfer students are less engaged in effective educational activities than their non-transfer peers" (NSSE 2003 Overview)

APPENDIX D: References for Level of Academic Challenge (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Simmons, M., (2006).	Would students benefit from classes instructing on effective study skills?	254 undergraduate students from a community college in Mississippi	Quantitative	98% of surveyed faculty questioned believe that students need seminars in testing, reading and writing in order to be better equipped for college. Consequently, a majority of students also agreed. A minority of students report receiving this type of education in secondary schools.
NSSE				
Kuh (2009)	To examine the empirical basis for the NSSE	N?A	quantitative	A empirical data related to the NSSE indicates the validity of the foundations on which the NSSE was designed
Chen, Gonyea, Sarraf, BrckaLorenz, Korkmaz, Lambert, Shoup, Williams, (2009)	A guide for interpreting NSSE data	N/A	Qualitative/quantitative	Suggestions are given on how to interpret NSSE data.

APPENDIX D: References for Level of Academic Challenge (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Gratch-Lindauer, (2008)	To discuss the origin and relevance of various student engagement surveys including the NSSE	N/A	Qualitative	Suggests ways to utilize data from these surveys.
McCormick, (2009)	Examines the issues of transparency and accountability faced when using the NSSE	N/A	Qualitative	A detailed discussion is presented concerning proper handling of transparency and accountability issues

APPENDIX E: References for Active and Collaborative Learning

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Ahlfeldt, S., Mehta, S., Sellnow, T., (2005)	Relationship between class size, the use of problem-based learning teaching methods on the level of student engagement.	Students in 56 classes at an undeclared university in the upper-midwest.	Qualitative	Students in smaller classrooms whose teachers use PBL methods will have the greatest amount of in classroom engagement
Arum, R., Cho, E., Roksa, J., (2011)	Evaluate ways in which undergraduate students can experience higher levels of academic achievement	Several thousand traditional undergraduate students enrolled in a wide range of four year institutes. edresearch@ssrc.org for accurate numbers	Quantitative	Students who spend a large amount of time studying in a group of the peers are shown to show diminished levels of overall growth when compared to undergraduate students who spend significant amount of time studying on their own

APPENDIX E: References for Active and Collaborative Learning (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Center for Studies in Higher Education, (2010)	Analyze a variety of factors and their impact on student engagement and persistency within the University of California education system.	63,600 undergraduate students from various University of California campuses.	Quantitative	Students whose parents make a higher than average income were more likely to spend more time in social activities than in academic pursuits, while students from a lower income background were apt to spend a higher than average amount of time studying. These students were also more likely to be present in the classroom on a regular basis.

APPENDIX E: References for Active and Collaborative Learning (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Chen, P.D. Gonyea, R., Kuh, G.D., (2008)	Determine the effects of distance education on student engagement.	3, 894 undergraduate students who were taking all classes online	Qualitative/ Quantitative	Senior students are more likely to be enrolled full time via internet delivery methods than students who attend classes on campus, have better grades and also show higher levels of engagement and independent thinking. These students do show significantly less involvement in active and collaborative thinking.
Dixon, M.D., (2010)	What can faculty do to increase student engagement in online classrooms?	186 students on six campuses in the Midwest	Qualitative	No one way has shown how to increase student engagement, but the facilitation of active learning methods and student to student communication has proven effective in providing operative learning environments. Offering the "opportunity" for student- student communication is in itself not effective, but providing avenues where this communication is necessary is quite successful.

APPENDIX F: References for Student-Faculty Interaction

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Allen, B., Lynch, K., Whannell, R., *(*2010)	Are students who are enrolled in "bridge" programs who are unqualified for enrollment into undergraduate institutions victims of their high school education experience?	81 students between the ages of 18-22 who are enrolled in high-school bridge programs into a university	Quantitative	A majority of the students who participated in the study were underprepared academically and socially for enrollment in an undergraduate program due to poor academic performance in high school which was a direct result of poor student – faculty engagement which also resulted in poor overall academic engagement.
Carini, R.M., Klein, S.P., Kuh, G.D., (2006)	Analyze the effects of various levels of student engagement on both GPA and GRE in comparison to baseline SAT or ACT scores	1,024 undergraduate students in various years of education	Quantitative	A higher level of student-faculty interaction has a positive correlation on both GPA and GRE scores.

APPENDIX F: References for Student-Faculty Interaction (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Cotten, S.R., Wilson, B., (2006)	Identify various aspects of the student – faculty relationship that occurs outside the classroom and the affects these relationships have on student outcome.	49 undergraduate students from a single mid-size university	Qualitative	A student's perception of a faculty member (as empathetic, belittling etc.) greatly impacts the amount of out of class interaction that occurs. Low levels of interaction may be further explained by student unfamiliarity of faculty members responsibility. Regardless, high levels of interaction are great contributors to over-all student success.
Cruce, T.M; Nelson – Laird, T.F., (2009)	What is the correlation between student part-time enrollment and student – faculty interaction?	55,915 seniors at public institutes	Quantitative	Students who are enrolled in college part –time have a significantly lower level of student-faculty interaction and experience smaller educational gains. The number of part–time seniors enrolled in an institute have a negative impact on the interaction of full time students and faculty.

APPENDIX F: References for Student-Faculty Interaction (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOME
Kim & Sax, (2007)	Evaluate three different kinds of student – faculty interactions and their outcomes on students from a multitude of backgrounds	30,566 UC undergraduate students of both genders from various ethnic, racial and socioeconomic backgrounds	Quantitative	Different types of interaction prove beneficial to different portions of the student body. First – generation college students greatly benefit from faculty supervised research positions, while those who do so on a voluntary basis are more likely to attend some sort of graduate programs. Generally females will set higher goals under faculty advisement than males.

APPENDIX G: References for Enriching Educational Experiences

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Cruce, T.M.,Gonyea, R. M., Kinzie, J., Kuh, G. D., Shoup, R., (2007)	Analyze the relationship between student engagement, college GPA and persistence	11,000 students attending 18 different baccalaureate institutions	Quantitative	Campuses which provide and utilize a social system which compliments effective education practices will produce satisfied, persistent academically successful students.
Gonyea, R,M., Kuh, G.D., (2005)	Analyze the impact spirituality and religion have on a student's college experience	150,000 first year and senior year students at 461 four year schools	Quantitative	Student's who participate in faith based practices will generally participate in a broader amount of collegiate activities. However there is no correlation between faith and overall student success or GPA. Students who attend faith based establishments will generally not participate in liberal activities.

APPENDIX G: References for Enriching Educational Experiences (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Kinzie, J.L., Kuh, G.D., Palmer. M.M., Thomas, A.D., (2007)	Determine if women's colleges provide the same level of opportunity as coeducation institutions	42,112 freshman and senior females attending 264 coed schools and 26 women institutes.	Quantitative	Women who attend institutes strictly for their gender show greater participation in enriching educational activities than the women who attend coeducation institutes. These women will also show significantly higher levels of educational and social success.
Kuh, G.D., Umbach, P.D. (2006)	How does a diversity of student experiences benefit the undergraduate student?	98,744 undergraduate students at 349 four year institutes	Quantitative/ Qualitative	Students who participate in diversity-related activities also participate in more active and collaborative learning, perceive a more supportive environment on campus and report a higher level of academic challenge

APPENDIX G: References for Enriching Educational Experiences (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Russell – Bowie, D., (2009)	To what extent is student participation in the community beneficial.	13 undergraduate creative art students	Qualitative	The students who participated in community engagement experienced increased confidence and competence, and were more likely to attend graduate school following their graduation

APPENDIX H: References for Supportive Campus Environment

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Gordon, Ludlum, & Hoey (2008)	Investigates relationship between NSSE benchmark responses and student outcomes	1,244 first-year students and 629 seniors at Georgia Tech	Quantitative	Of all five of the NSSE benchmarks, supportive campus environment had the strongest positive correlation to freshman student persistence
Hendrick, B., Dizen, M. Collins, K. Evans, J., Grayson, T., (2010)	Determine the degree to which students with disabilities perceived a supportive campus environment in comparison to students who did not have disabilities.	4,467 undergraduate students	Quantitative	Students with disabilities tend to have more favorable student – faculty interactions, but reported a less supportive campus environment than their counterparts who were not disabled. Students in STEM related fields reported an even lower level of campus support than their counterparts in non-STEM related majors. The students with disabilities typically show lower rates of persistency.

APPENDIX H: References for Supportive Campus Environment (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Harris, M., (2010)	Uses NSSE results to formulate a plan for student retention	1,738 seniors and 1,739 freshmen at the University of Wisconsin-Superior	Quantitataive	Of all five of the NSSE benchmarks, supportive campus environment was most relevant to creating a plan for student retention
Sandler, M.E. , (2010)	Use ePortfolios as a means to monitor student engagement and promote deeper thinking.	366 freshman students with a cumulative GPA between 2.5 and 3.2	Qualitative	Students who earned a GPA closer to the 3.2 range experienced a higher level of perceived support on campus and were also found to be more persistent.

APPENDIX I: References for National Survey for Student Engagement (NSSE)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Nelson Laird, Shoup, & Kuh, 2006	Examines effect of faculty research projects on the student learning process.	29,444 faculty members and 65,633 seniors at 209 four year U.S. colleges that used both the FSSE and the NSSE	Qualitative	Faculty must put forth effort to get students involved in research projects that enhance student learning.
Nelson Laird, Shoup, Kuh, & Schwartz, 2008	Examines how different faculty disciplines affect teaching in general education courses.	Over 8,000 faculty members from the 2007 FNSSE	Quantitative	Suggests that supporters of reform in general education must have a clear understanding of the differences among faculty disciplines.
NSSE (2009)	Foundational research	N/A	N/A	N/A
NSSE (2009)	Replicates the study of Nelson Laird, Shoup and Kuh (2005) using 2009 data to determine if this structure fits with more recent data.	160,755 first year and 175,936 senior students from 617 colleges and universities.	Exploratory factor analysis, oblique rotation, and confirmatory factor analysis	Strong connection between 2009 data and their second order factor solution (three subscales of deep learning).

APPENDIX I: References for National Survey for Student Engagement (NSSE) (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
NSSE (2010)	Annual report concerning NSSE findings.	362,000 students attending 564 baccalaureate programs	Quantitative	Participation varies according to college major.
Pascarella, et al. (2009)	Estimates the validity of the NSSE in predicting seven skills and traits among students	19 institutions	Quantitative	The NSSE is a reliable measure of intercultural effectiveness, critical thinking, moral reasoning personal well-being and positive orientation

APPENDIX J: References for Persistence

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
	Describes the results of an investigative study of the factors related to the retention of first year students on the main campus at BGSU from Fall 1996 to Fall 1997. A path analytic method was utilized to investigate the effects of a variety of college environment, perception variables, demographic upon retention.	Quantitative		Results showed that students who had higher ACT scores and freshman year grades; who experienced more positive interactions with the community, fellow students, staff, and faculty members; were more satisfied; who were more likely to perceive that BGSU encourages personal and educational growth and to report that they had experienced such growth; and were more determined to graduate from BGSU; were more likely to re-enroll. Further research must be performed using additional data which is not yet available in order to further develop this initial study.

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Astin (1993)	Reports the findings of a four-year, comprehensive longitudinal study.	National sample of approximately 500,000 college students at 1300 institutions	Quantitative	The courses comprised of varying general education curricula had a minimal effect on a wide array of educational outcomes. The only curricular variable that had positive effects on educational outcomes was a *"true-core" curriculum*, in which students enrolled in exactly the same courses. Thus, whether or all students were exposed to the same content had a greater effect than the actual content covered in the general education curriculum
Barefoot et al. (2005)	Studies how 13 higher educational institutions achieved their rating as "Institutions of Excellence".	13 HEIs rated as "Institutions of Excellence"	Qualitatve	Offers suggestions for institutions to improve success rates and achieve excellence.

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Bensimon (2007)	Examines results from studies researching success rates of low-income students who transfer from community colleges to more prestigious universities.	Low-income students transferring from community colleges	Qualitative	Results showed that low-income students have better success rates at high-level educational institutions if they are able to form a sound peer support group and if they are willing to put forth individual effort.
Beven (2007)	Examines use of "game show" method as a unique way to stimulate student engagement.	First-year undergraduate Australian students	Qualitative	Higher engagement levels resulted from students being entertained in an atypical educational setting.
Boylan, Bliss, & Bonham (1997)	Studies correlation between student retention and 7 service components.	N/A	Qualitative	Found that success rates were most closely related to 4 factors.
Braxton & McClendon (2001-2002)	Examines effects of empirical forces on student retention and integration.	N/A	Qualitative	Suggests 20 ways to improve student retention and integration involving 8 aspects of higher education.

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Braxton, Sullivan, & Johnson (1997)	Examines the relationship between student departure and the communities that exist within the higher education learning environment.	N/A	Qualitative	Found that student departure rates were higher with in non-stimulating educational environments.
Congos, Schoeps (1999)	Analyzes the effect of supplemental instruction programs on higher education institutions	N/A	Qualitative	Provides three part guide to assess the effectiveness of supplemental instructional programs
DeBerard, M. S., Spielmans, G., Julka, D. (2004)	Determines whether psychosocial factors can predict freshman retention and academic achievement.	First year students	Quantitative	This method may be utilized as a tool to identify students at high risk for poor academic performance early in their freshman year and to offer guidance concerning proactive intervention policies for behaviors predictive of poor academic performance (e.g., coping, social support, and smoking).

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Dowd et al. (2006)	Examines challenges faced by low-socio-economic-status community college students after transferring to a 4 year university.	Low-socio-economic-status students transferring from community colleges to 4 year universities	Quantitative	Findings show that transfer students from the lowest socio-economic level have higher success rates than low-socio economic students who began at 4 year universities.
Engle & O'Brian (2007)	Examines why differences exist between retention rates among higher education institutions with high numbers of low-income students.	N/A	Qualitative	Results show that differences exist due to each institutions policies, and offers suggestions to improve retention rates among low-income students.

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Gattis (2002)	Studies effect of supplemental instruction programs on student success rates.	N/A	Qualitative	Findings show that participation in supplemental instruction programs improved student success rates.
Gordon & Palmon (2010)	Analyzes the different benefits of teaching and research.	Annual NSSE reports	Quantitative	Faculty members see that student participation is unsatisfactory, but they are unwilling to raise their requirements.
Guthrie (1992)	Examines success rates of at-risk California State University students	At-risk California State University Students	Qualitative	Students enrolled in orientation and remedial programs had higher success rates
Hossler, D., Ziskin, M., Moore, J.V. III, & Wakhungu, P.K. (2008)	Researches the effects of institutional practices on retention and seeks relationships among these effects among varying institutional contexts. The authors present their findings from the second year of a funded pilot study exploring the correlation between student persistence and campus policies	NSSE participating institutions (Residential, Coastal, and Urban Institutions)	Quantitave	Unique factors occur among three types of institutions. The results showed that family encouragement is significant in three schools.

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Fisher, M. (2007).	Evaluates the social and academic adjustment of first year minority (Black/Hispanic/Asian) students to college life.	4,573 students were selected to participate through a stratified random sample from which there were 3,924 completed face-to-face interviews in the first wave of data collection.	Quantitative	Results of this study strongly support the theory that participation in various features of college life is essential for academic success. Involvement in formal school organizations is a particularly important factor for Black and Hispanic students. Black and Hispanic students who participate more in formal social activities not only achieve higher grades but are also significantly more likely to re-enroll.
Friedman & Mandel (2010)	Investigates the relationship between retention and academic performance		Quantitative	Students who re-enrolled reported: -greater competition with peers-desire for better grades-willing to put forth more effort
Gardenhire-Crooks, et al. (2010)	Examines engagement and retention among minority students	87 African-American, Hispanic, and Native American men	Qualitative	-Male minorities need support in order to succeed

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Hu, S., McCormick, A.C., & Gonyea, R.M., (2011)	Examined correlation between three specific student learning outcomes and student persistence from the freshman to the sophomore year.	2,200 students at 17 four-year colleges and universities in the 2006 cohort of the Wabash National Study.	Quantitative	Of the three student learning outcomes examined, GPA was the greatest predictor of student persistence from the freshman to the sophomore year.
Jones (2010)	Examines the effect of college athletics on retention	NCAA division 1A and 1AA schools	Quantitative	Positive relationship between retention and football attendance, more substantial for 1A schools
Jones & Braxton (2010)	Focuses on understanding activities engaged in by institutions in order to reduce student dropout rate		Qualitative	Found that greater transparency among institutions is needed.
Kezar & Kinzie (2006)	Examines mission statements of 20 institutions and how these missions are relevant to student engagement.	N/A	Qualitative	Study shows that relationships exist between the missions of each institution and their NSSE results.

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Kinzie, et al. (2008)	Assesses the enrollment rate of minorities in higher educational institutions	6,200 first year students and 5,227 senior year students	Quantitative Survey	Encouraging student engagement I individuals with lower standardized test scores increases a student's ability to earn higher grades and produces desired academic progress. Campus environments that are culturally sensitive and employ enriching opportunities also impact minority success.
Nichols (2010)	Investigates student retention in distance learning	Laidlaw College in New Zealand	Quantitative and Qualitative	Students credit their success to their own efforts
O'Hear & McDonald (1995)	Investigates the way research is conducted in developmental educational institutions.	N/A	Qualitative	Problems were found related to the way research was implemented and the way results were interpreted.
Pascarella & Terenzini (2005)	Studies the effect that attending a college or university has on students.	N/A	Qualitative	Regarded in the field as an important reference for those interested in the effect of college on students.

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Peterson (1993)	Examines rates of students that persist of academically under-prepared college students.	418 academically under-prepared college students	Qualitative	Found a relationship between students self perception about efficacy and adjustment to their educational environment and higher persistence levels.
Tinto (1993)	Distinguishes three major sources of student departure: their failure to become or remain incorporated in the academic and social life of the institution, the failure of students to achieve their occupational and educational goals, and academic struggles.	N/A	N/A	Tinto's "Model of Institutional Departure" claims that, in order to persist, students need integration into both informal (faculty/staff interactions) and formal (academic performance) academic systems and informal (peer-group interactions) and formal (extracurricular activities) social systems.

APPENDIX J: References for Persistence (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Tinto, Russo, & Kadel (1994)	Compares Seattle Central Community College's Coordinated Studies Program students persistence levels and academic performance with those of other Seattle Central Community College students.	Seattle Central Community College's Coordinated Studies Program students, other Seattle Central Community College	Quantitative	Found that students participating in the Coordinated Studies program showed higher persistence and better performance levels due to the extra faculty and peer support provided by the program.
Tobolowsky, Cox & Wagner (2005)	Examines benefits of first year seminar courses for students	N/A	Qualitative/Qualitative	Effectiveness varied according to individual institution and method of implementation
Whalen, et al. (2010)	Studies long-term and short-term retention	1,905 students	Quantitative	Re-enrollment in the second year was predicted by: in-state residence, learning community membership, financial aid, IT use, and GPA.
Williford & Wadley (2008)	Examines problems with retention, policy and predictors.	1 large public research university	Qualitative	Disseminate data based on reliable methods: Supplemental Instruction and Residential Learning Communities.

APPENDIX K: References for Engagement

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Ainley (2006)	Examines effect of student interest level on learning.	N/A	Qualitative	Found positive correlation between higher student interest levels and more effective learning; suggests ways to improve student interest levels.
Allen, et al. (2008)	Analyzed the effects of connectedness, motivation, and performance on dropout, retention, and transfer	6,872 students	Quantitative	- Transfer and retention are directly affected by performance - Pre-college development, pre-college performance, and self-discipline have an indirect effect on transfer and retention-Connectedness and commitment have a direct effect upon transfer and retention
Beven (2007)	Examines use of "game show" method as a unique way to stimulate student engagement.	First-year undergraduate Australian students	Qualitative	Higher engagement levels resulted from students being entertained in an atypical educational setting.
Bowl, Cooke, & Hockings, (2008)	Examines effect of students' living environment on their educational experience.	First year undergraduate students	Qualitative	Study lists ways that living environment may support or hinder students' learning process.

APPENDIX K: References for Engagement (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Brint & Cantwell (2008)	Examines student engagement in school and student active engagement with family and friends.	6300 undergraduate University of California students	Qualitative: University of California's Undergraduate Experience Survey (UCUES)	More engagement with family and friends leads to greater engagement in school.
Bryson & Hand (2007)	Analyzes relationship between student engagement and improved student learning.	Case study in UK university	Quantitative/Qualitative	Higher student engagement levels result in improved student learning.
Carle, et al. (2009)	Examined the three scales of engagement (TLO, SFE, and CBA,)	941 students	Quantitative	IRT: measured student-faculty engagement CBA: measured above average engagement TLO: best across the spectrum
Case (2008)	Analyzes effect of student alienation on engagement levels	N/A	Qualitative	Provides tools for assessing student alienation using three categories of alienation

APPENDIX K: References for Engagement (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Clark & Schroth (2010)	Examined the relationship between motivation and personality	451 first-year students	Quantitative	-A motivation:, careless, disagreeable -Extrinsic motivation: agreeable, neurotic, conscientious, extroverted-Intrinsic motivation: open, agreeable, extroverted, conscientious
Coates, Hillman, Jackson, Tan, Daws, Rainsford, & Murphy (2008)	One of the first studies on student engagement levels of Australasian students	Australasian students	Quantitative/ Qualitative	Provides framework for assessing and improving student engagement levels
Deci & Ryan (200)	Studies the SDT concept of need as it correlates to previous need theories, stressing that needs determine the necessary conditions for integrity, and well-being and psychological growth.	229 citations	Qualitative	Results indicate that social contexts supporting the needs for relatedness, competence, and autonomy: ● Maintain or enhance motivation intrinsically ● Increase the aspiration for goals in life that will continue to be satisfactory to one's essential needs.

APPENDIX K: References for Engagement (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Fredricks, Blumenfeld & Paris (2004)	Examines relationship between student engagement levels and academic success and student motivation levels.	N/A	Qualitative	Results show that current research on engagement is lacking in certain areas and stresses the importance of studying student engagement levels properly.
Friedman & Mandel (2010)	Investigates the relationship between retention and academic performance	N/A	Quantitative	Students who re-enrolled reported: -greater competition with peers-desire for better grades-willing to put forth more effort
Gaston, E., Gayles, J., Hu, S., Li, S. Scheuch, K., Schwartz, R. (2007).	Examines student engagement in creative activities and research.	Review of a variety of Research and Creative programs at institutions such as MIT, FSU, UMI,	Qualitative Quantitative	Engagement in research and creative activities impacts a student's cognitive function Academic institutes can impact a student's participation in research and creative activities

APPENDIX K: References for Engagement (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Gauci, et al. (2009)	A study to determine whether an active learning approach would improve engagement among students.	Undergraduate science (physiology) students.	Qualitative and quantitative	Higher student participation = higher student engagement levels. Active lectures increased student motivation and engagement.
Henning (2009)	Determined whether there is a relationship between student intention and motivation		Quantitative	Students who were more motivated were more likely to seek help from academic advisors more often.
Krause & Coates	Uses 7 scales to research student engagement levels among first year undergraduate students in Australia.	Australian first year undergraduate students	Quantitative/Qualitative	Results convey the importance of seeking a more comprehensive understanding of student engagement.
Kuh (2009)	Examined the development of the NSSE and the history of engagement	NSSE	Qualitative	Using assessment tools aids institutions in identifying areas that can be changed in order to produce a more favorable students outcome

APPENDIX K: References for Engagement (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Kuh et al. (2007)	Examines the effect faculty members and their teaching methods have on student engagement levels.	29,444 and 65,633 randomly sampled senior students at 209 four-year colleges in the U.S. that administer the NSSE.	Quantitative/Qualitative	Faculty members must put forth effort into getting students involved in research projects in order to improve engagement levels.
Pike, et al. (2008)	Relationship between academic achievement, engagement and employment	First-year undergraduate students	Quantitative	There is a negative relationship between students working more than 20 hours a week in a job and engagement in their school environment.
Pisarik (2009)	Examining correlations among motivational orientations based on burnout rates.	191 undergraduate students	Quantitative	-more intrinsic motivation = lower burnout rate- more external regulation and motivation = higher burnout rate
Sheard, et al. (2010)	Analyzed engagement among first year undergraduate students	Students enrolled in four undergraduate ICT degree classes and their faculty members	Qualitative and quantitative	Students perceived as having low levels of engagement by faculty

APPENDIX K: References for Engagement (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
St. John et al. (2009)	Studied leadership and engaged learning in high-achieving, low income students of African American descent.			Holding a leadership position is positively correlated with social and academic engagement.
Svanum & Bigatti (2009)	Analyzed the relationship between success and engagement		Quantitative	
Symonds, M. L. (2009)	Effect of athletic participation on engagement using NSSE data	All undergraduate students who responded to the 2008 NSSE	Quantitative	-Athletes are equally as engaged as non-athletes-Revenue sport participants were less engaged than non-revenue sport participants

APPENDIX K: References for Engagement (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Trowler (2010)	Demonstrates the reliability and validity of the concept of engagement as well as its possible in delivery and management of education.	A literature search on 'student engagement' of some 1,000 results, including articles in peer-reviewed journals (both print and online), books, monographs, project reports, syllabi, conference papers (both published, refereed conference proceedings and 'raw' presentations), evaluation reports, pamphlets, action guides, and speeches	Qualitative	A majority of research has been conducted in the United States and Australia with the real roots developing in the 1980s which began focusing on student involvement. UK research differs in that it focuses on individual student learning tools and techniques. Studies tend to focus predominantly on student perceptions.

APPENDIX L: References for Intervention

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Bai & Pan (2010)	Analyzed 4 types of intervention on student retention		Quantitative	-Retention rates among 1st yr females is improved by social integration- Social integration/ advising programs work best within selective universities. Advising programs produced greater results than general orientation programs
Cox et al. (2005)	Analyzed the retention and academic success rates of first-year business students enrolled in a course designed to provide a realistic preview of business school expectations, provide a sense of community, ease the transition from high school to college, and develop skills for academic success	150-200 freshmen that have declared their majors to be in the field of business	Quantitative	Results show that MGT 110 students are at higher risk for lower retention rates and higher disqualification rates. -students enrolled in MGT 110 have lower high school averages and lower SAT scores

APPENDIX L: References for Intervention (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Jankowska & Atlay (2008)	Examines the impact that specifically designed 'creative learning spaces' has on student engagement and motivation.	N/A	Qualitative	Creative learning spaces are becoming necessary due to increased student diversity and new technological advancements in education.
Kuh (2009)	Examines how having a job while being in school impacts student learning.	406 University of Iowa students	Qualitative	Having a job is positively related to student engagement in full time students
Porter & Swing (2006)	Studied how aspects of first-year seminars affect rates of students that persist early in students' academic careers	20,000 first-year students at 45 four-year institutions	Quantitative	-Used five measures of learning outcomes in transition-themed first-year seminars -Of the five measures, only academic engagement and study skills, and health education, have a significant effect on early rates of students that persist

APPENDIX L: References for Intervention (continued)

STUDY	PURPOSE	PARTICIPANTS	DESIGN/ ANALYSIS	OUTCOMES
Spoerre (2010)	Determined the correlation between selected student academic factors and retention in a construction management program in a community college	233 full-time students	Quantitative	- Students who continued in the program tended to be the students with the highest GPA's and higher course completion rates
Weerts & Hudson (2009)	Analyzed student, community, and faculty engagement	Institutions who receive the Carnegie Foundations elective classification in curricular engagement and outreach and partnerships	Qualitative	Students benefit not only from taking part in engagement activities, but also from participating in the actual fundraising

APPENDIX M: Tables of Interactions Between the Variables

Table 18

Probit Regression of Academic Challenge

Variable	B	S.E.	z	Sig.
Academic Challenge	0.01	0.005	2.09	0.037
Constant	0.838	0.244	3.43	0.001

Chi-squared (1) = 4.44, p<.001

Table 19

Probit Regression of Persistence on Academic Challenge and Control Variable

Variable	B	S.E.	z	Sig.
Academic Challenge	0.004	0.007	0.63	0.531
Age	-0.115	0.089	-1.30	0.195
High School GPA	-0.371	0.269	-1.38	0.168
SAT	-0.001	0.001	-0.7	0.486
Cumulative GPA	0.570	0.145	3.94	0
Zip code Median Income	-2.53E-06	5.11E-06	-0.5	0.62
Gender = Female	-0.055	0.193	-0.28	0.777
Race = Black	0.194	0.316	0.62	0.538
Race = White	0.110	0.248	0.45	0.656
College = Provost	0.658	0.459	1.43	0.152
Transfer status = Started elsewhere	-0.142	0.425	-0.33	0.739
Year = 2008	0.276	0.187	1.48	0.140
Constant	3.686	2.142	1.72	0.085

Chi-squared (12) = 26.57, $p<.001$

Table 20

Probit Regression of Active and Collaborative Learning

Variable	B	S.E.	z	Sig.
Active and Collaborative Learning	0.01	0.004	2.67	0.008
Constant	0.868	0.16	5.41	0

Chi-squared (1) = 7.49, $p<.001$

Table 21

Probit Regression of Persistence on Active and Collaborative Learning and Control Variable

Variable	B	S.E.	z	Sig.
Active and Collaborative Learning	0.003	0.006	0.61	0.539
Age	-0.114	0.089	-1.28	0.202
High School GPA	-0.376	0.270	-1.39	0.163
SAT	-0.001	0.001	-0.76	0.405
Cumulative GPA	0.571	0.144	3.98	0
Zip code Median Income	-2.25E-06	5.09E-06	-0.44	0.659
Gender = Female	-0.036	0.193	-0.19	0.852
Race = Black	0.174	0.316	0.55	0.582
Race = White	0.106	0.248	0.43	0.668
College = Provost	0.661	0.462	1.43	0.152
Transfer status = Started elsewhere	-0.143	0.425	-0.34	0.737
Year = 2008	0.281	0.186	1.51	0.131
Constant	3.762	2.128	1.77	0.077

Chi-squared (12) = 26.35, $p<.001$

Table 22

Probit Regression of Student-Faculty Interaction

Variable	B	S.E.	z	Sig.
Student-Faculty Interaction	0.005	0.003	1.46	0.145
Constant	1.131	0.143	7.94	0

Chi-squared (1) = 2.17, $p<.001$

Table 23

Probit Regression of Persistence on Student-Faculty Interaction and Control Variable

Variable	B	S.E.	z	Sig.
Student-Faculty Interaction	0.004	0.005	0.85	0.396
Age	-0.127	0.088	-1.43	0.152
High School GPA	-0.346	0.272	-1.27	0.205
SAT	-0.001	0.001	-0.75	0.453
Cumulative GPA	0.542	0.144	3.75	0
Zip code Median Income	-2.10E-06	5.16E-06	-0.41	0.685
Gender = Female	-0.013	0.195	-0.07	0.945
Race = Black	0.191	0.316	0.61	0.545
Race = White	0.150	0.250	0.60	0.548
College = Provost	0.649	0.461	1.41	0.159
Transfer status = Started elsewhere	-0.166	0.425	-0.39	0.696
Year = 2008	0.315	0.188	1.68	0.094
Constant	3.935	2.125	1.85	0.064

Chi-squared (12) = 25.75, $p<.001$

Table 24

Probit Regression of Enriching Educational Experiences

Variable	B	S.E.	z	Sig.
Enriching Educational Experiences	0.007	0.005	1.31	0.189
Constant	1.162	0.156	7.44	0

Chi-squared (1) = 1.77, p<.001

Table 25

Probit Regression of Persistence on Enriching Educational Experiences and Control Variable

Variable	B	S.E.	z	Sig.
Enriching Educational Experiences	0.001	0.007	0.17	0.864
Age	-0.135	0.096	-1.42	0.157
High School GPA	-0.376	0.272	-1.38	0.167
SAT	-0.001	0.001	-0.81	0.416
Cumulative GPA	0.589	0.143	4.11	0
Zip code Median Income	-2.28E-06	5.15E-06	-0.44	0.659
Gender = Female	-0.059	0.195	-0.30	0.763
Race = Black	0.206	0.315	0.65	0.513
Race = White	0.119	0.249	0.48	0.631
College = Provost	0.641	0.463	1.38	0.167
Transfer status = Started elsewhere	-0.097	0.429	-0.23	0.821
Year = 2008	0.271	0.186	1.45	0.146
Constant	4.232	2.214	1.91	0.056

Chi-squared (12) = 26.58, $p<.001$

Table 26

Probit Regression of Supportive Campus Environment

Variable	B	S.E.	z	Sig.
Supportive Campus Environment	0.018	0.004	4.25	0
Constant	0.338	0.239	1.41	0.158

Chi-squared (1) = 19.51, $p<.001$

Table 27

Probit Regression of Persistence on Supportive Campus Environment and Control Variable

Variable	B	S.E.	z	Sig.
Supportive Campus Environment	0.016	0.005	3.03	0.002
Age	-0.097	0.093	-1.05	0.296
High School GPA	-0.339	0.269	-1.26	0.208
SAT	-0.0003	0.001	-0.37	0.715
Cumulative GPA	0.519	0.144	3.61	0
Zip code Median Income	-1.74E-06	5.13E-06	-0.34	0.735
Gender = Female	-0.070	0.198	-0.35	0.725
Race = Black	0.225	0.323	0.70	0.486
Race = White	0.155	0.253	0.61	0.541
College = Provost	0.747	0.476	1.57	0.117
Transfer status = Started elsewhere	-0.247	0.414	-0.60	0.550
Year = 2008	0.295	0.190	1.55	0.120
Constant	2.394	2.237	1.07	0.284

Chi-squared (12) = 35.85, $p<.001$