The Role of a University College on Student Engagement

A Dissertation

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By

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DEDICATION

This dissertation is dedicated to two groups.

First, to my family, thank you all for supporting me in my goals to continue learning. I have discovered that researchers are lifelong learners. I am happy!

Second, to all first-generation students who have been challenged with self-doubt, you can do whatever you want. Don't ever become discouraged. You be happy!

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Finally, to my students, past, present, and future, thank you for what you will do! I agree with Captain America, "Believe in your country, but believe in yourself!" I believe in you!

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ABSTRACT

Advisor: Mark Hampton, Ph.D.

The purpose of this study is to examine the impact of University College at

Virginia Commonwealth University (VCU) on student engagement. A university college

is a comprehensive first-year college designed to support students as they transition into

higher education. The concept of a university college often includes many programs and

resources, such as advising, orientation, and general education that already exist on

college campuses. However, university colleges create organizational structures that

place them into one independent unit. Although much research exists on first-year student

experiences, there are limited studies on university colleges. Additionally, research on

student success is often based on grades, persistence, and graduation rather than on

measures of student learning and development. The National Survey of Student

Engagement (NSSE) is used to determine the extent to which students engage in

educationally purposeful activities. It has been argued that the survey's results serve as

proxies for institutional quality.

Astin's (1991; 1993) Input-Environment-Outcome (I-E-O) model of student

change inspires this study. A quantitative *ex post facto* design was used to determine

whether VCU impacted student engagement during the first college year after the

implementation of University College. Student input characteristics are included in this

study to reduce bias in the analysis.

One research question guides this study: do first-time freshmen at Virginia

Commonwealth University who were involved in University College report significantly

different levels of student engagement compared with first-time freshmen at the same

institution prior to the existence of University College?

     The significant finding is that University College did positively affect some

aspects of student engagement at VCU. However, the effect size of University College on

student engagement was modest with an overall partial eta squared value of 0.085.

Individual effect sizes were small for the significant dependent variables.

CHAPTER 1

INTRODUCTION TO THE STUDY

Introduction

Student success is a significant issue for all colleges and universities.

Policymakers, administrators, and the public have mounted increased pressure to provide

evidence of student learning, development, and success. However, assessing such

outcomes is difficult, as institutions have become larger, more diverse, and more complex

(Kramer & Associates, 2007). Proxies to measure success have included graduation and

retention rates. However, student success is more than degree completion and retention.

Others have called for standardized tests of students' knowledge and skills (Shavelson,

2007). There are also decades of research that describes a range of outcomes for college

students (Renn & Reason, 2013; Pascarella & Terenzini, 1991; Pascarella & Terenzini,

2005). How college and university leaders evaluate success is still problematic with some

continuing to focus on who gets in, how much are in the coffers, and the number who

graduate rather than how the environment affects students (Ramaley & Leakes, 2002).

What research illustrates though is that college can affect student success based

upon student effort and involvement in the college environment (Pascarella & Terenzini,

2005; Kuh, 2003), an environment that is supportive and challenging (Kuh, Kinzie,

Schuh, Whitt, & Associates, 2005; Upcraft, Gardner, & Barefoot, 2005). The relationship between the students' effort and the institutional policies produces a change for students that can be assessed if they are aligned with student success indicators. These indicators are sometimes referred to as "educationally purposeful" activities and have been shown to be the best predictors of learning and development. Colleges and universities that implement educationally purposeful activities can improve their students' experiences (Chickering & Gamson, 1991; Kramer & Associates, 2007) and produce gains, benefits, and outcomes. Additionally, students who participate in educationally purposeful activities are more likely to be retained and graduate (Harper and Quaye, 2009). According to Kuh, Kinzie, Schuh, Whitt, and Associates (2005), "what students *do* during college counts more in terms of what they learn and whether they will persist in college than who they are or even where they go to college" (p. 8). Educationally purposeful activities can serve as measurable proxies for institutional quality as they lead to high levels of student outcomes. These educationally purposeful activities can be measured by directly asking students about their experiences as done with the National Survey of Student Engagement (NSSE) (Kuh, 2009a; Kuh, Hayek, Carini, Ouimet, Gonyea, & Kennedy, 2001).

NSSE was created to help institutional leaders find ways to improve the student experience while also documenting good educational practices, reporting institutional performance, and other quality indicators (Kuh, 2009a). Astin's (1991; 1993) Input-Environment-Outcome (I-E-O) model suggests a college should be concerned about educationally purposeful activities, as they directly affect learning outcomes, student persistence, and graduation rates. Gains from college depend on the time and effort

students put into their schoolwork and other educationally purposeful activities. When colleges and universities organize resources for student success, their students should note higher levels of engaging activities on The College Student Report (CSR), NSSE's main instrument. The CSR is designed to ask students about their experiences and determine the level of engagement that exists on college and university campuses.

Engagement in college consists of the within-college effects, or the effects of the institutions' experiences, on college students' development based on the time and energy students dedicate to educationally purposeful activities (Astin, 1993; Pace, 1979, Pace; 1980; Pace, 1984; Pascarella & Terenzini, 1991; Pascarella & Terenzini, 2005). Engagement is defined as the depth to which a student is involved in a supportive college environment. Kuh (2004) believes that "those institutions that more fully engage their students in the variety of activities that contribute to valued outcomes of college can claim to be of higher quality in comparison with similar types of colleges and universities" (p. 1). Theoretically, the more a student is involved and integrated in educationally purposeful activities, the higher his/her level of engagement, thus resulting in a greater probability of student learning and personal development. Therefore, engagement considers both the student and the institution (Astin, 1993; Kuh, 2009a).

Research using NSSE data has shown that student engagement positively impacts learning outcomes (Carini, Kuh, & Klein, 2004), improves outcomes for students with lower SAT Scores (Carini, Kuh, & Klein, 2006), and that student engagement reported on NSSE is a good predictor for grades and persistence. Further, NSSE has a direct relationship with six learning outcomes for the liberal arts (Pascarella, Seifert, and Blaich, 2009). For purposes of this study, NSSE data are used to determine whether

Virginia Commonwealth University (VCU) positively impacted student engagement

following the development and implementation of University College.

Background of the Problem

Administrators at VCU identified the university's biggest strength: program and

student diversity, as having created its biggest challenges. *The University College Plan*

(Virginia Commonwealth University, 2006a) states that three of the biggest challenges

the University faced were that,

> More than one in five VCU students does not persist beyond his or her first year;
> one in four VCU students ends his or her freshman year on academic probation;
> and three in five VCU undergraduates do not earn a degree within six years (p.1).

Students at VCU were not persisting to graduation at the level that university leaders

wanted. According to the State Council of Higher Education for Virginia (RT01:

Retention Report (First-time, Full-time Students)), the first to second year student

persistence rate for individuals who began at VCU in 1998 was 73.8%, in 2001 was

78.3%, and in 2003 it was 79.1%. At the same time, first-year students were reporting

low levels of educationally purposeful activities on NSSE.

Administrators at VCU developed *The University College Plan* (VCU, 2006a),

which identified six key problems that affected the quality of the student experience. The

university used a variety of data sources including NSSE, the Cooperative Institutional

Research Program (CIRP), and student records that illustrated the needs for

improvement. These problems were affecting persistence, graduation rates, and student

success. First, from the 2004 NSSE administration, students reported poor academic

engagement amongst undergraduate students. More than half of the first-year students

reported spending less than 10 hours per week preparing for class. Over 75% of student respondents went to class without completing assignments and readings.

Second, a significant proportion of VCU students experienced academic difficulty. For example, of the students who entered in fall 2003 who were in good academic standing after their first semester, 84% returned for their second year. Conversely, of the students who were on academic warning after their first semester, only 61% returned for their second year. For first-year students who entered in fall 1999 only 55% of those in good standing after the first semester graduated in six years. However, for students who completed their first semester on academic warning, only 15% graduated in six years.

Third, only a fraction of students who needed additional assistance in their classes were receiving it. For students who entered in Fall 2003, 39% felt that VCU provided some or very little academic support.

Fourth, the advising experience for first-year students varied widely. Over one-third of first-year students rated the advising experience as fair or poor during the Spring 2004 NSSE administration.

Fifth, a loose collection of academic services existed across the university, but each had different missions and leadership from a range of academic units. These services were often duplicated and disjointed causing confusion for students and created competition among the disconnected units.

Finally, there was a lack of academic integration amongst the first-year experience. No opportunities existed for students to understand the relevance of the varying sets of general education requirements for the different colleges and schools.

Almost half of first-year students reported on NSSE that they never interacted with faculty outside of the classroom. Further, 53% of first-year students reported working minimally with other students on class activities. VCU administrators faced an opportunity to improve not just graduation rates, but also student outcomes and success.

Between 2005 and 2006 VCU developed a strategic plan known as *VCU 2020: Vision for Excellence* (Virginia Commonwealth University, 2006b). One area of focus for VCU 2020 was improving the student experience during the first college year. Policymakers and administrators invest much time and money into the college environment with goals to improve educational outcomes (Fink, 2003; Geiger, 2004; Pascarella & Terenzini, 1991; Pascarella & Terenzini, 2005). Further, colleges and universities often develop systems or structures to better serve the students enrolled in varying degree programs (Komives, Woodard, & Associates, 2003; MacKinnon & Associates, 2004). University and college decision-makers invest in structural facilities such as building residence halls, dining facilities, and student unions; sub-structural opportunities such as creating living-learning communities, social programs, and opportunities for student development; as well as restructuring university organizations, developing creative learning environments, and enhancing structures conducive to learning (Berger & Lyon, 2005; Fink, 2003; Komives, Woodard, & Associates, 2003; Kuh, Schuh, Whitt, & Associates, 1991; Kuh, Kinzie, Schuh, Whitt, & Associates, 2005; MacKinnon & Associates, 2004; Upcraft, Gardner, Barefoot, & Associates, 2005). Are these investments, however, worthwhile? It is important to understand the goals and expected outcomes to assess the answer to this question.

The first college year is considered a foundation for the remainder of a student's college experience. Significant evidence exists suggesting student success is determined during the first college year. It is a period that can make or break a student's chance to persist into the second year and eventually graduate. At all types of institutions, more than half of all students who withdraw from college do so during their first year (Cuseo, 2005). Acknowledging this fact, college and university administrators, federal and state policymakers, and those individuals allocating resources press for extensive focus during the first year of the college student experience (Upcraft, Gardner, & Barefoot, 2005).

The first-year experience is an organized system of resources, programs, and curricula that is often institutionalized at colleges and universities to assist students during the first college year (Upcraft, Gardner, Barefoot & Associates, 2005). The first-year experience may be structured through loosely coupled programs and courses, or by entire colleges dedicated to the first-year student. Because individual first-year programs have been effective in helping students succeed, the theory is that the collective of programs incorporated into a first-year (or university) college can more fully prepare students for successful college careers (Upcraft, Gardner, Barefoot & Associates, 2005; Barefoot, Gardner, Cutright, Morris, Schroeder, Schwartz, Siegel, & Swing, 2005).

A key goal for VCU's strategic plan, VCU 2020, was for VCU to become a learning and student-centered institution by establishing a university college for new students. To do this, University College would give students a shared experience that was both engaging and meaningful. The University College's goals were to address the issues that were found to diminish the quality of the undergraduate experience by enhancing the first college year (Virginia Commonwealth University, 2006a). According to the

Association of Deans and Directors of University Colleges and Undergraduate Studies (1999),

> The larger and more complex the institution, the wider the range of choices from which students select their programs and majors, and the more diverse student body in terms of educational preparedness and academic interests, the likelier it is that a university college will provide real benefits to the institution and its students. (p. 11)

Simply put, VCU hoped that a university college could create conditions for student success when the environment is difficult for students to navigate. A university college is a conceptual organization at a college or university that brings together currently existing programs and resources, creates new services, and brings them together to ensure students have better access to them. Thus, the university becomes student-centered with conditions guided by a philosophy that students are ends in themselves and not means to the institution's needs. The authors describe a student-centered university as one whose leadership organizes resources to "help the individual student attain full academic potential and clarify and achieve educational goals" (p. 2). Through the creation of a university college, VCU intended to remove some of the barriers that were preventing students from achieving their goals by creating and bringing together curriculum and programs that affect student learning, development, and outcomes.

Virginia Commonwealth University's University College

The argument for university colleges is that interconnected programs incorporated into the first college year more fully prepare students for successful undergraduate experiences (Upcraft, Gardner, Barefoot & Associates, 2005; Barefoot, Gardner, Cutright, Morris, Schroeder, Schwartz, Siegel, & Swing, 2005). University colleges often

include advising, learning support, residence halls, general education courses, orientation programs, service learning, and other programs defined with a focus on the first college year. According to *The University College Plan* (Virginia Commonwealth University, 2006a), VCU's University College would serve as the front door to the University. It provided a home for university-wide programs and services that were intended to build a foundation for student success. VCU leaders established its University College with six measurable objectives that, when realized, would increase student retention and graduation. These objectives were:

- Improving the academic engagement of VCU undergraduate students.

- Increasing the number of first-year students who achieve academic success.

- Expanding the number of students who access learning support services.

- Enhancing undergraduate academic advising.

- Increasing the quality and number of partnerships among student academic services offered at the university.

- Enhancing levels of academic integration among students.

To accomplish these goals, leaders were guided by five principles. First, University College would be administratively independent. Second, University College would be proactive. Third, University College would be a collaborative learning network. Fourth University College would serve as a change agent. And, fifth, University College would provide a common VCU experience for first-year students.

The result was a university college that focused on four areas as presented in *The University College Plan* (Virginia Commonwealth University, 2006a). These four areas were Academic Advising, Academic Resources, Core Curriculum, and New Student

Programs. Additionally, VCU administrators aligned University College with a new Honors College, the Center for Teaching Excellence, and the Director of Student Engagement under the leadership of the Vice Provost of Instruction. For an illustration of the VCU University College structure see Figure 1.1.

Deans who served as equals to other VCU academic deans would lead both the Honors College and University College. Additionally, both were independent from other academic units with the intent to allow student exploration between and within academic departments as well as provide a common experience for all students, regardless of intended major. Students were introduced to University College immediately after being admitted to the University when they registered and attended New Student Orientation.

VCU's goals to improve the student experience through University College were grounded in research on the first-year experience (Crissman Ishler & Upcraft, 2005; Upcraft, Gardner, Barefoot, & Associates, 2005; Association of Deans and Directors of University Colleges and Undergraduate Studies, 1999). Researchers have found that university colleges affect retention (Weaver, 1993; Raab & Adam, 2005), student grades (Ambrose, 2002), and graduation rates (Ambrose, 2002). However, very little research has been conducted on the relationship between university colleges and student engagement.

Figure 1.1. Virginia Commonwealth University's University College Structure

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                          ┌─────────────────────────────┐
                          │  Vice Provost of Instruction │
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| Administrative Services | Director Center for Teaching Excellence | Dean University College | Dean Honors College | Director of Student Engagement |

| Academic Advising | Learning Support | Orientation & New Student Programs | Core Curriculum |

Academic Advising
- Bachelor of Interdisciplinary Studies
- Discovery Program
- First-Year Advising
- Master Advising Program
- Pre-Health Advising
- Pre-Law Advising
- Student Athlete Advising

Learning Support
Campus Learning Center
- Focused Learning
- Supplemental Instruction
- Testing Center
- Tutoring

The Writing Center
- Focused Inquiry Associates
- Writing Center

Orientation & New Student Programs
- Introduction to the University Courses
- Mindset for Academic Success
- Career and Education Planning Course
- Learning Communities
- Parent Newsletter
- Summer Orientation
- Summer Reading Program
- VCU Works

Core Curriculum
- Focused Inquiry I
- Focused Inquiry II
- VCU Compact

Source: Virginia Commonwealth University, 2006b

Table 1.1 University College's 10 Expected Outcomes

Students will report that they have the support needed to succeed academically.
Source: NSSE
More students will access learning support.
Source: University College
Students will report greater satisfaction with advising.
Source: NSSE
Students will make more informed decision about education and majors.
Source: NSSE
Students will devote more time preparing for class.
Source: NSSE
More students will interact with faculty outside of class.
Source: NSSE
More students will work on coursework with their peers outside of class.
Source: NSSE
More students will experience academic success.
Source: VCU Center for Institutional Effectiveness
Students will report higher levels of satisfaction with their undergraduate experience.
Source: NSSE
Retention rates will increase.
Source: VCU Center for Institutional Effectiveness

Source: VCU Center for Institutional Effectiveness

VCU implemented University College with the intent to improve student engagement. Specifically, VCU developed 10 expected outcomes from University College's efforts. These expected outcomes are illustrated in Table 1.1. Seven of those outcomes were to be assessed using NSSE data. It is the purpose of this study to

determine whether University College affected the frequency of the educationally purposeful activities (student engagement) that first-year students reported.

After plans for University College were in place and approved by VCU's Board of Visitors, administrators began implementing changes across the university. The structural framework took shape as first-year advising and learning support moved to a newly renovated facility, more academic advisors were hired, a Dean of University College was appointed, a University Core Curriculum was established and implemented, and instructors for the Focused Inquiry program were hired. The Bachelor of Interdisciplinary Studies was also moved to University College. Additionally, faculty and staff from across the university's many programs were moved from the different colleges and schools to University College where they would fit into the new organization chart. Student Athlete Support Services (NCAA advising and learning support) became part of University College as well. Four specific areas were affected by these many changes: Academic Advising, Learning Support, New Student Programs, and the Core Curriculum.

Academic Advisors were organized with three different foci. First, specialists for different academic areas worked with students who declared their major. These specialists know most university curricula, but specialize in certain schools such as business, engineering, arts, or humanities and sciences. Second, discovery advisors were hired for undeclared students. Discovery advisors help students explore majors and work with the University Career Center to guide students towards a declared major by the end of their second year. Finally, pre-professional program advisors work with students interested in professional programs such as law, nursing, and medicine. Each advisor has a small caseload of around 150 students. They teach Orientation to the University courses

(UNIV 101 & 102) to students in their caseload. This helps maintain a low student to advisor ratio and allows for stronger relationships between students and advisors. Advisors are instructed to work intrusively with students to ensure they persist from semester to semester. Advisors have quotas for (and are evaluated by) phone calls, meetings, and students who register for the following semester. Additionally, students are required to meet with their advisor at least twice each semester before they can register for the subsequent semester.

University learning support is also streamlined. The Campus Learning Center and the Writing Center moved to a single location in the newly renovated facility beside Academic Advising. Additionally, a Campus Testing Center was established within the Campus Learning Center for students to make-up missed tests and take CLEP course exams. The new Writing Center now serves all students and includes editorial services, opportunities to improve student writing assignments, and a computer lab. The Campus Learning Center grew to include services for courses from across VCU. Previous services were for specific courses within the College of Humanities and Sciences. Tutoring, Supplemental Instruction, Foreign Language groups, and Focused Learning courses are now available for courses from across VCU and for students at all levels. Many of the additions were for courses in the Schools of Business and Engineering.

New Student Programs, including orientation, was moved from the Division of Student Affairs to University College. Additionally, the New Student Programs office is now responsible for building and assessing learning communities, enhancing parents and family programs, and collaborating with the Director of Student Engagement to build the VCU Summer Reading Program for first-year students.

The Director of Student Engagement was hired to build the Focused Inquiry (UNIV 111, 112, and 200) program within the Core Curriculum and collaborate with faculty from around VCU to enhance the required (non-major) courses students must complete for their degree. Previously, for example, students enrolled in one of a list of history courses to complete their history general education requirement. A course on historical inquiry was developed to replace the random nature of the previous requirement (for example: American History I or Latin American History). Further, the Focused Inquiry program was also developed to replace the English courses required of students. The new sequence of courses that students must complete uses contemporary themes to improve student writing, critical thinking, presentation skills, collaborative learning, information retrieval and evaluation, research and academic writing, and social and civic responsibilities. The intent is for all students to have common learning experiences that will support their future academic career. The theme for the Focused Inquiry courses is chosen annually. The book for the Summer Reading Program is chosen based on this theme and is used as a text in the first two courses. Finally, all students are now required to complete a capstone project or course within their major(s) in order to graduate. This project or course wraps up the Core Education Program with a practical application within the students' major(s).

In 2006, VCU invested time, people, and money to ensure that University College was successful in student graduation, persistence, and overall success. They implemented programs, renovated facilities, hired new employees and faculty, and completely changed the student curriculum to meet goals that included improving student engagement.

Data illustrate the strides VCU has made regarding student success since the early 2000s. For example, a recent study from The Education Trust (2015) placed VCU in the top-gaining four-year public institutions for graduation rates. The report found that VCU improved graduation rates between 2003 and 2013 by 12.2%. Moreover, VCU was able to improve underrepresented minority students' graduation rates by 15.5% during this period and white students' graduation rates by 13.2%. According to the NCAA (2015), student-athletes who began in 2001 graduated at 62% in six years. That number improved to 76% for students who began in 2008. Further, all of these changes occurred during a ten-year period in which VCU increased its student enrollment by 34% (Chmura Economics & Analytics, 2011) and state support for VCU (2011) was cut by 43% or $4,353 per in-state student between 2001 and 2012. The University has made strides in improving graduation and persistence. However, what about the University's intended goal to improve student engagement?

Problem Statement

There is extensive research on the first-year experience and how college affects students during the first college year (Upcraft, Gardner, Barefoot, & Associates, 2005). Additionally, multiple institutional studies have illustrated the effects of first-year colleges, such as University College, on student retention, grade point average, and graduation rates (Strommer, 1993). Further, the uses of NSSE data have illustrated the impact of educationally purposeful activities on student success such as retention and graduation rates (Kuh, 1993; Kuh, 1995; Kuh, 2003; Kuh, 2004; Kuh, 2008; Kuh, 2009a; Kuh, 2009b; Kuh, Kinzie, Cruce, Shoup, & Gonyea, 2007; Pike, 2004; Tinto, 1993).

However, there are limited empirical studies on how university colleges affect educationally purposeful activities as reported on NSSE. Additionally, VCU developed seven outcomes where they expected students would report improvements on NSSE from the implementation of University College.

Nature of the Study

The purpose of this study is to determine whether University College as a treatment affected first-year student engagement at VCU. The study fills the research gap on university colleges that exists as it relates to student engagement. This study uses an *ex post facto* design that explores the cause and effect relationship between a treatment, University College, and student engagement variables (Mertler & Charles, 2008). The study uses a quantitative research design with student-level data from NSSE as well as Banner and SIS+ (VCU's student information systems) to determine whether VCU's University College affected student engagement.

Alexander Astin's (1991, 1993) college impact model loosely guides this study. This model uses three elements to determine how college affects students. The model is often referred to as the I-E-O model as college outcomes are a function of student inputs and the college environment. To determine the effect of University College on student engagement, this study is inspired by Astin's I-E-O model of college impact, which requires a multivariate block regression analysis. This regression method wields as much control as possible on biases from student input characteristics (Astin, 1993). It is important to note that this study uses only one environmental condition, University College, in the analyses.

The impact of University College at VCU is examined by conducting multiple linear regressions for each dependent variable. Two different regression models are needed to determine whether the University College variable improves the explanatory value of the multivariate multiple linear regression model. First, the multiple linear regression analyses examine the student input characteristics (independent variables) of race, gender, high school GPA, SAT total score, admissions decision, and University College with each outcome (dependent) variable from NSSE. The NSSE variables that are examined in this study are

- FACPLANS – Talking about career plans with a faculty member or advisor,

- FACIDEAS – Discussing ideas about readings or classes with faculty members outside of class,

- WORKHARD – Working harder than one thought they could to meet an instructor's standards or expectations,

- OCCGRP – Working with classmates outside of class to prepare for class assignments,

- LEARNCOM – Participating in a learning community or formal program where groups take two or more classes together,

- ENVFAC – Improving student relationships with faculty members,

- ENVSUPRT – Feeling supported academically, and

- ACADPR01 – Increasing the number of hours students spend preparing for class.

The analyses determine whether the addition of University College improved the prediction of each dependent variable above the student input characteristics. Second, two multivariate multiple linear regression analyses help determine whether the addition

of University College improves the prediction of student engagement by including all dependent variables in the model.

This study's sample comes from the first-year student population at VCU who began in the fall semesters of 2003 and 2007 and who completed The College Student Report (CSR). Three student populations were removed from the NSSE dataset. Due to VCU's intent to increase recruitment of out-of-state and international students between 2003 and 2007, these groups have been removed from the sample group. Second, VCU's honors students were tracked through the Honors College and did not participate equally in University College's services. Therefore, honors students are not included in this study. By removing these groups, it is assumed that the sample was otherwise equal between the 2003 and 2004 cohorts. The remaining students in the sample for this study are in-state, U.S. citizens who were advised within University College during their first year at VCU.

Significance of Study

This study adds to the literature on the college student experience. First, this study adds to the literature on student engagement (and NSSE) during the first college year by providing empirical research on whether a treatment affects student engagement. Additionally, this study provides VCU with an evaluation of whether its investment in the first-year experience impacted student engagement. Educators must ask, what can colleges and universities do to create efficient learning environments that result in positive learning outcomes? University colleges aspire to enhance a student-centered mission at any college or university by putting students first and providing experiences

that encourage learning and resource utilization. Additionally, university colleges incorporate a curriculum, which is meaningful and meets the needs of the institution, students, and society. The opportunities created by a university college develop the whole student, academically, and socially. Further, colleges and universities that focus on improving the student experience have developed a student-centered mission as they focus on forging collaborative working relationships (Kinzie & Kuh, 2007). However, limited research exists on the overall effects of university colleges on student engagement. This study fills in some of those gaps by determining whether VCU improved student engagement. Additionally, VCU leadership may use the results to improve the undergraduate student experience and better engage students.

Research Questions and Hypothesis

VCU administrators intended for University College to affect the undergraduate student experience during the first college year. University leaders expected students to report increases in educationally purposeful activities as reported to NSSE. The following research question guides this study:

Do first-time freshmen at Virginia Commonwealth University, who were involved in University College report significantly different levels of student engagement compared with first-time freshmen at the same institution when University College didn't exist?

The null hypothesis is:

The 2007 cohort of first-time freshmen did not report statistically significant differences in student engagement compared with the 2003 cohort.

Assumptions

Several assumptions exist for this study. First, it is assumed that students were truthful when responding to The CSR. Second, it is assumed that all students who enrolled at VCU, including those not involved in this study, would benefit from the services and curriculum that were available. For example, all students who enrolled at VCU could use the VCU Writing Center, tutoring, and Supplemental Instruction. Third, it is assumed that students in this study, who enrolled in 2003, were the same in all ways as the students who enrolled in 2007, except for the treatment condition of University College. Thus, it is also assumed that University College was the only difference between the 2003 and 2007 cohorts. Finally, it is assumed that the quantitative data that were collected, including high school GPA, SAT total score, and the NSSE variables, are accurate and valid measures.

Summary and Overview of Dissertation

This *ex post facto* quantitative study examines the impact of VCU's University College on student engagement as reported to NSSE. University colleges can positively impact persistence, grade point averages, and graduation rates (Weaver, 1992; Raab & Adam, 2005; Ambrose, 2002; Ambrose, 2002). Chapter 1 provides the foundation for the study's significance. Moreover, this chapter postulates the potential impact that a university college has on student engagement at VCU.

Astin's (1991; 1993) I-E-O model inspires the framework to analyze the impact of University College at VCU on student engagement data from NSSE. Chapter 2 provides a definition of terms and how Astin's I-E-O model inspires the study. Additionally,

Chapter 2 provides a review of literature on the first-year experience and student

engagement. Chapter 3 provides a description of the methodology used to collect and

analyze data. The fourth chapter describes the results from the analysis. Chapter 5

provides an interpretation of the results, the significance of the study, and

recommendations for future research. Finally, the appendices include IRB approval,

research site approval, and the two paper versions of the survey instrument.

CHAPTER 2

LITERATURE REVIEW

This study focuses on student engagement of undergraduate first-year students enrolled at Virginia Commonwealth University (VCU). Two bodies of literature guide this research and are reviewed in this chapter. First, however, this chapter provides a list of terms defined for this study. A review of the theoretical framework, Alexander Astin's (1991; 1993) Input-Environment-Outcome (I-E-O) model is then presented. Next, the literature on how students experience the first college year is introduced. This literature provides an overview of the research, best practices, and how university college structures have been found to affect students. Second, this study uses data from the National Survey of Student Engagement (NSSE). As such, it is important to critically review NSSE research and understand the survey's development, theory, and literature. Although some authors (Porter, 2011; Dowd, Sawatzky, & Korn, 2011; Campbell & Cabrera, 2011) have questioned the use and validity of NSSE, ample findings (McCormick & McClenney, 2012; and Harper & Quaye, 2009) exist to continue the use of The College Student Report (CSR) and the data that the survey provides. These data are enriched with the use of student input characteristics (Bowman & Herzog, 2011). As such, this study uses student input characteristics as defined within the aforementioned theoretical framework provided by Astin's (1993) I-E-O model. Accounting for these

pre-college characteristics serves to improve the findings of environmental effects on student outcomes.

Definition of Terms

For the purposes of this study specific terminology is used to guide the research process. Those terms are defined here to provide a better understanding of the research.

First-year student: First-year students are students who are matriculating at a college or university for the first time.

University College: Consisting of multiple departments, a university college is an administrative unit, also known as a first-year college, meant to foster the first-year experience by creating a student-centered learning environment. Such student-centered environments foster student success on campus and result in improved student persistence, learning, and degree completion (Kramer & Associates, 2007). Such structures include functional areas, resources, and programs that are critical for entering student transition and success and typically include curriculum, university advising, and academic support services. University colleges typically report to a dean and combine resources from both student and academic affairs that may have previously existed. Through the organizational structure and reporting lines, a university college is meant to garner the respect of other academic departments while maintaining a student-centered (Association of Deans and Directors of University Colleges and Undergraduate Studies, 1999; Kramer & Associates, 2007) mission dedicated to student growth and development during the first college year (Natalicio & Smith, 2005). These programs are intended to increase retention, satisfaction, and grade point averages of students.

First-Year Experience: A first-year experience is an intentional and comprehensive set of programs designed to provide a cohesive transition from high school to college. This collection of programs focus on the needs of first-year students that affect students' learning experiences, involvement, integration, persistence, and personal development.

Student Engagement: In this study, the concept of student engagement is defined using the definition presented in Wolf-Wendel, Ward, and Kinzie (2009). Student engagement is "the amount of time and effort students put into their studies and other activities that lead to the experiences and outcomes that constitute student success" (p. 412). Additionally, engagement shows "how institutions of higher education allocate their human and other resources and organize learning opportunities and services to encourage students to participate in and benefit from such activities" (pp. 412-3). When college administrators reflect upon and act on the practices considered relevant to student development, their concern is engagement. Specifically, administrators' concern regarding effective educational practices serve as measures of student engagement.

A hypothetical example of student engagement at VCU would be that University leaders recognize tutoring participation is on the decline at the Campus Learning Center. Those leaders invest in hiring more tutors, training and certifying those tutors, and partnering with VCU Athletics to give away special seats to students who participate in 10 hours of tutoring per week. The intended result is an increase in student participation in quality learning experiences.

Student Involvement: One term that is often confused with student engagement is student involvement, which is "the amount of physical and psychological energy a

student devotes to his/her academic experience" (p. 410). The individual and the individual's activities are the focal point of involvement. Where student engagement is a function of the student and environment, student involvement is simply the student's energy devoted toward her/his educational activities.

A hypothetical example of student involvement at VCU is that a student joins Rowdy Rams, VCU's student support organization for VCU athletics. Here the intended result is that a student belongs to an organization.

Student Integration: An additional term often confused with student engagement is student integration, which is "the extent to which students come to share the attitudes and beliefs of their peers and faculty and the extent to which students adhere to the structural rules and requirements of the institution—the institutional culture" (p. 414). When discussing integration, it is the individual's state of being, specifically regarding the institution's culture that is of concern.

A hypothetical example of student integration at VCU is that a student identifies as being a VCU Ram as a byproduct of student involvement and engagement. They identify as a Ram from their involvement as a member of the Rowdy Rams and the support provided in tutoring. Here, the combination of student involvement and engagement are intended to improve the connectedness a student has with the university.

Theoretical Framework

This study examines whether University College at VCU affects the frequency of educationally purposeful activities that engage undergraduate first-year students. Alexander Astin's (1993) college impact model inspires the theoretical framework for

this study. Astin's central premise holds that college outcomes are a function of student inputs and the college environment. This model is often referred to as the I-E-O model where three elements exist that affect student development. Those elements are known as the inputs, "characteristics of the student at the time of initial entry to the institution" (p. 7); the environment, "various programs, policies, faculty, peers, and educational experiences to which the student is exposed" (p. 7); and outcomes, "the student's characteristics after exposure to the environment" (p. 7). Additionally, Astin (1984; 1991; 1993) argues that the level and quality of student involvement in the college experience further enhances positive outcomes for successful students. Astin (1984) states that "the extent to which students can achieve particular developmental goals is a direct function of the time and effort they devote to activities designed to produce these gains" (p. 301). Therefore, the activities within the college environment are effective at producing positive learning outcomes only when students are actively involved in such activities.

It is widely theorized that different student characteristics or college environments result in dissimilar learning outcomes. Astin's research (1984; 1991; 1993) also explains that varying levels and types of environmental involvement encourage student development and learning. Astin (1993) identifies five specific environmental categories: (1) academic involvement, (2) involvement with faculty, (3) student peers, (4) work, and (5) other non-categorized involvement. The treatment variable in this study, University College, is an example of an environmental condition that is intended to ease student access to services and resources for higher-level academic involvement (Focused Inquiry courses), involvement with faculty (Focused Inquiry courses), peers (Supplemental Instruction, orientation, tutoring, and peer advising), and work (VCU Works). However,

in contrast to Astin's I-E-O model, this study uses only one environmental variable, University College.

NSSE measures the educational activities and environmental factors that affect student learning and development. Collectively, NSSE serves as "a proxy measurement for quality" of education (Kuh, Hayek, Carini, Ouimet, Gonyea, & Kennedy, 2001, p. 2). Based on Astin's I-E-O model, a college should be concerned about such questions as how educationally purposeful activities directly affect learning outcomes, student persistence, and graduation rates. This study utilizes NSSE's main instrument, the CSR, which is designed to ask students about their undergraduate experience and determine the level of educationally engaging activities that exist on college and university campuses.

For that reason, this study uses a model inspired by the I-E-O model to determine whether the institutional change in environment known as University College affects the educational activities reported by students. Based on this theoretical framework, the students in this study who experienced the environmental treatment known as University College should report statistically higher levels of academically engaging activities.

Factors Influencing First-Year Student Success

According to Upcraft, Gardner, Barefoot, & Associates (2005), the first college year is identified as the critical year for ensuring broad student success. The authors go on to say, since 1989, the national discourse and action by institutions of postsecondary education across the nation and around the world on the first college year is extensive. The authors identify nine major accomplishments within higher education concerning the first college year:

- Increased campus-wide, national, and international conversation and action about the first year of college,

- The introduction and revision of initiatives designed to help first-year students succeed,

- The expansion of research and scholarship on the first year of college,

- The development of closer collaboration between academic affairs and student affairs,

- The emergence of credible assessment studies to demonstrate the efficacy of initiatives to help first-year students succeed,

- The integration of technology into first-year initiatives,

- The inclusion of diversity in first-year initiatives,

- The classroom to promote first-year student success, and

- Increased external funding for the first-year experience.

These accomplishments, collectively, underscore the importance colleges and universities place on the first college year for undergraduate student success. However, empirical research that analyzes university colleges on undergraduate students is limited. This study adds to the research on the first-year experience by supporting the need for organizational structures in the first college year.

Research on the first year of college provides many explanations to student persistence. Crissman Ishler & Upcraft (2005) conducted a literature review on first-year success that identifies which factors are especially key in student persistence. Those factors are illustrated in Table 2.1. Most research on the first year of college analyzes unit-based resources rather than large-scale institutional changes. Understanding the large

changes that are implemented by colleges and universities, decision-makers are better prepared to justify resource allocations, program development, and institutional reorganization. As colleges and universities recognize the need to increase student persistence and ensure student learning and development, many administrators focus large amounts of resources, including time, money, and personnel, on the first college year. However, the way colleges and universities organize those resources are as diverse as American higher education is itself. Research on first-year experience (FYE) programs is extensive. Nonetheless, research on university colleges, that are collectives of first-year programs, is limited.

University Colleges

The Association of Deans and Directors of University Colleges and Undergraduate Studies (1999) states that first-year or university colleges arrange resources to establish a student-centered structure. This structure increases the learning opportunities for new students. The resources, when organized in an over-arching structure, should increase effectiveness because the organizational configuration exists based on student-centered philosophies. The university college that incorporates the many programs first-year students require allows for better internal communication and collaboration between academic and student services staff. These programs assist students on all fronts, inside and outside of the classroom, in the residence halls and dining facilities, from the library to the academic advisor's office (Upcraft, Gardner, Barefoot & Associates, 2005).

Table 2.1. Key Factors in First-Year Student Persistence

Student Input Variables	1.)	Prior Academic Achievement
	2.)	Socioeconomic Status
	3.)	Gender
	4.)	Age
	5.)	Race/Ethnicity
	6.)	Parents and Other Family
	7.)	Student Commitment to a Degree
Institutional Variables	1.)	Selectivity
	2.)	Institutional Type: Two Year and Four Year
	3.)	Size
	4.)	Control: Public and Private
	5.)	Gender Composition
	6.)	Racial Composition
Environmental Variables	1.)	First-Year Grade Point Average
	2.)	Academic Major Field
	3.)	Enrollment Status: Full Time and Part Time
	4.)	Quality of Student Effort
	5.)	Interactions with Faculty
	6.)	Interpersonal Interactions
	7.)	Participation in Extracurricular Activities
	8.)	Work
	9.)	Student Satisfaction
	10.)	Alcohol Abuse
	11.)	Participation in Greek Life
	12.)	Campus Climates
	13.)	Financial Aid
	14.)	Participation in Intercollegiate Athletics
	15.)	Intentional Institutional Interventions
	16.)	The Classroom
	17.)	First-Year Seminars
	18.)	Orientation
	19.)	Living Environments
	20.)	Learning Communities
	21.)	Academic Advising
	22.)	Service-Learning
	23.)	Supplemental Instruction
	24.)	Developmental Education
	25.)	Other Student Support Services
	26.)	Intervention Combinations

Adapted from Crissman Ishler & Upcraft (2005)

University colleges are designed to create a seamless transition between one point in life (typically high school) and another (the collegiate academic environment). Students should feel higher levels of attachment to the institution, their faculty, fellow students, and the learning environment because the institution is investing into a model of student-centered ideas and actions. More importantly, such student-centered decisions are linked to educationally purposeful activities that affect student engagement. To determine the effectiveness of a university college, an institution can utilize the CSR to ask students about their undergraduate student experiences, thereby gaining better information to develop a picture of the institution's quality.

According to Diane W. Strommer (1993) almost no research existed when The National Resource Center for The Freshman Year Experience published the Number 12 Monograph, *Portals of Entry: University Colleges and Undergraduate Divisions*. Yet, today, the university college concept is almost seventy years old. Moreover, most research conducted on university colleges or other structured first-year programs are done so for internal institutional needs, rather than for mass publication. The research base is limited to small institutional unit assessments and the occasional descriptive monograph. However, information does exist describing the basic impact university colleges have had as well as how some institutions utilize those structures in the undergraduate student experience.

Strommer (1993) describes university colleges as structures that "typically focus on first-year students by offering orientation programs, academic advising, learning assistance, and first-year seminars" (p. 3). Additionally, the college or university allows the university college to "administer general education or the core curriculum, implement

retention programs, offer individualized degrees, and assess student learning" (p. 3) to better justify the units academic standing. Effective educational practices often included in the university college unit are learning communities, service learning, and other curricular innovations that enhance student learning. University college units are intended to provide the socialization to postsecondary education that many of today's students require.

Persistence and Grade Point

As with any higher education unit, university colleges require both program assessment and measures of student success. For example, Weaver (1992) explains that Ball State University (BSU) established their university college as a strategy to improve student retention. The results at BSU showed improvement in first year to sophomore year retention rates after the incorporation of their university college. Among undeclared students the first to second year retention rate went from 64% to 76% (1985-91), 61% to 69% among guided studies (1985-91), and 71% to 77% among all students (1987-91).

Another study was conducted at Prairie View A&M University (PVAMU) by Raab and Adam (2005) and had an experimental design. The researchers' findings were statistically significant and indicated that students who were involved in the university college structure were retained, from first year to second year, at 79.2% compared to 67.7% for students not involved in the structure. Additionally, the state average for the same measurement was 71.4%. The six-year graduation rate for those who were involved in the university college structure was 40.6% compared to 34.95 % for the remaining university students. Before the university college at PVAMU was instituted, the average first-year GPA never went above 2.33 and went as low as 2.06. While the average first-

year student GPA increased to 2.44 after their university college was established. This study illustrates the effectiveness university colleges can have on improving student grades.

At North Carolina State University (NCSU), Ambrose (2002) describes their version of a university college as one that fully immerses first-year students into academic, social, and cultural opportunities available at NCSU. The structure at NCSU requires students to apply to the First-Year College (FYC) program, thus restricting access to some of the services. However, the FYC students are typically retained at 90% into their sophomore year, which is at a higher rate than other students at the institution. Additionally, students enrolled in the FYC perform as well as, or better than, similar students at the university according to retention, grade point average, and graduation rates. The researchers, though, did not measure the impact of the FYC on student development, learning, or engagement.

Retention measures after the first college year do not always provide a clear picture for college success, much less actual student learning and development. Many stakeholders, instead, expect colleges and universities to provide evidence of learning and development in addition to retention and high graduation rates. For these reasons, college and university administrators should shift their focus to what students learn in addition to whether students persist and graduate. One way to determine whether colleges and universities affect student outcomes is to measure students' educational activities that correspond to learning and development. George Kuh (1993, 1995, 2003, 2004) considers these educational activities as part of the concept of "student engagement." This study examines whether student engagement improved during the first college year by using

data from NSSE. Student engagement history, theory, and the foundation for NSSE are reviewed in the following section.

Quality of Education

For many reasons, college and university stakeholders question the quality of American higher education. For example, educational measurements that are often presented in the national media, such as the U.S. News and World Report (USNWR), create competition between institutions, questions pertaining to value, and expectations for degree completion. However, the measures used by USNWR are based on student inputs, college and university resources, and public reputation rather than the quality of the institution or the student outcomes from postsecondary education. Recently, Secretary of Education Arne Duncan (2015) stated, "we need to build a system in which student learning, graduation and going on to get good jobs count most. That's what it means to focus on outcomes." This federal focus on the values gained by students, student learning, and college outcomes are a key issue for the federal government. In fact, during President Barack Obama's 2013 State of The Union speech, Obama announced the federal College Scorecard "that parents and students can use to compare schools based on a simple criteria – where you can get the most bang for your educational buck." Created to hold colleges accountable, the College Scorecard is part of Obama's effort to improve student learning and ability for students to choose an institution that meets their needs (Duncan, 2013). However, these data have major limitations. Michael Stratford (2015) explains how the data are skewed; only students who receive federal financial aid are included in the College Scorecard. Additionally, the College Scorecard's primary higher education outcome is earnings data rather than learning and development. An opportunity

arose in the early 1990s when political motivations encouraged dialogue regarding the quality of postsecondary education. This discourse resulted in the development of NSSE. This survey now serves as a proxy measurement for educational quality (Kuh, 2009a).

Student Engagement

How does NSSE serve as a proxy for quality? To understand this, recall that student engagement differs from involvement and integration. These three terms are often used interchangeably, but are really three separate concepts. Wolf-Wendel, Ward, and Kinzie (2009) submit an analysis of the three terms and how they are used in education research. This study uses Wolf-Wendel, Ward, and Kinzie's definition of student engagement (as described in the definition of terms section at the beginning of this chapter).

Engagement is when students participate in educational environments that encourage them to increase the time and effort they focus on learning and development through interactions with faculty, staff, and other students. In other words, students who regularly participate in educationally purposeful activities are engaged. These educationally purposeful activities have been identified as critical for student success. As researchers have shown, student engagement is critical in student persistence and graduation (Kuh, 1993; Kuh, 1995; Kuh, 2003; Kuh, 2004; Kuh, 2008; Kuh, 2009a; Kuh, 2009b; Kuh, Kinzie, Cruce, Shoup, & Gonyea, 2007; Pike, 2004; Tinto, 1993). Moreover, student engagement measures are those, which have been shown to improve student learning and development (Chickering and Gamson, 1991). Therefore, if the right conditions exist colleges and universities can expect positive student outcomes to occur.

More importantly, however, students are expected to develop (academically and socially) more at colleges and universities that exemplify high levels of educationally purposeful activities. These activities can be measured by directly asking students about their educational experiences. The CSR asks students these questions.

National Survey of Student Engagement Conceptual Framework

The current study assesses student engagement as developed by George Kuh (1993, 1995, 2003, 2004). Kuh's team used five previous works to form the basis of NSSE, which measures student engagement at individual institutions. Those five concepts were (1) time on task (Tyler, 1931), (2) quality of effort (Pace, 1979; Pace, 1980; Pace, 1984), (3) student involvement (Astin, 1984), (4) social and academic integration (Tinto, 1993), and (5) the seven principles for good practice in undergraduate education (Chickering & Gamson, 1991). Kuh based much of The CSR on Chickering and Gamson (1991).

Chickering and Gamson (1987 & 1991) wrote that the seven principles for good practice in higher education are (a) encouraging contact between students and faculty, (b) developing reciprocity and cooperation among students, (c) encouraging active learning, (d) giving prompt feedback, (e) emphasizing time on task, (f) communicating high expectations, and (g) respecting diverse talents and ways of learning. These seven principles are meant to guide higher education professionals to improve teaching and learning. According to the authors, the principles are based upon 50 years of research on student development. With the CSR founded primarily on these seven principles, NSSE

asks students about the quality of teaching, learning, and good educational practices at their institution.

Colleges and universities that participate in NSSE administer the CSR to a random sample of students in the spring semesters of the first and senior years (Kuh, Hayek, Carini, Ouimet, Gonyea, & Kennedy, 2001). Those students report the extent to which they participate in empirically measured good educational practices. The CSR asks students about behaviors that correlate with learning and student development. (See Appendix A for a copy of the CSR.)

NSSE results are classified into five benchmarks for effective educational practice: (a) level of academic challenge, (b) active and collaborative learning, (c) student interaction with faculty members, (d) enriching educational experience, and (e) supportive campus environment. These benchmarks are meant to serve institutions in two forms: internal evaluation and external comparisons. These benchmarks are displayed in Table 2.2.

NSSE is a tool that was designed to improve educational practices by using the CSR to ask students about active learning, student-faculty interaction, and the extent to which students find their campus environment supportive. College administrators can use the results from similar institutions as external comparisons to determine how their institution fairs on actively engaging students. Nationally, some generalizations have been made based on the NSSE data collected thus far.

Kuh and Hayek (2002) explain that student engagement varies according to campus size and mission, based on different practices utilized by colleges and universities, and that a gap exists between faculty expectations and student realities

regarding educational activities. The authors also discuss additional findings that illustrate that most students ask questions in class; occasionally work with other students on class projects; participate in community service, volunteer work, and internships; converse with students who identify different from themselves; and rate their academic advising experience positively. However, students also show little emphasis on studying and academic work, limited interactions with faculty members outside of class, commuter and part-time students view campus less supportive than their on-campus, full-time counterparts, and African-American students are less positive about their relationships with other students and faculty. Institutions can use NSSE's data for benchmark comparisons to implement changes in student learning environments.

Empirical Findings

It is often argued that the concept of student engagement is closely tied with student learning. Carini, Kuh, and Klein (2004) used data from NSSE to study the extent to which the two are connected. The authors conclude that student engagement positively relates to desired learning outcomes. The authors explain that students who have lower SAT scores benefit more from positive reports of student engagement than those with higher SAT scores. Further, some institutions add more value to the learning environment than others. It is believed student engagement is one of the better predictors of learning and personal development in higher education.

Table 2.2. National Survey of Student Engagement (NSSE) Benchmarks

"The benchmarks are based on 42 key questions from the NSSE survey that capture many vital aspects of the student experience. These student behaviors and institutional features are some of the more powerful contributors to learning and personal development" (p. 1).

Level of Academic Challenge (LAC)
- Time spent preparing for class
- Worked harder than you thought you could to meet an instructor's standards or expectations
- Number of assigned textbooks, books, or book length packs of course readings
- Number of written papers or reports of 20 pages or more
- Number of written papers or reports of 5-19 pages
- Number of written papers or reports less than 5 pages
- Coursework emphasizes: Analyzing the basic elements of an idea, experience or theory
- Coursework emphasizes: Synthesizing and organizing ideas, information, or experiences
- Coursework emphasizes: Making judgments about the value of information, arguments, or methods
- Coursework emphasizes: Applying theories or concepts to practical problems or in new situations
- Campus environment emphasizes spending significant amounts of time studying and on academic work

Active and Collaborative Learning (ACL)
- Asked questions in class or contributed to class discussions
- Made a class presentation
- Worked with other students on projects during class
- Worked with classmates outside of class to prepare class assignments
- Tutored or taught other students
- Participated in a community-based project as part of a regular course
- Discussed ideas from your readings or classes with others outside of class.

Student Faculty Interactions (SFI)
- Discussed grades or assignments with instructors
- Talked about career plans with a faculty member or advisor
- Discussed ideas from your readings or classes with faculty members outside of class
- Worked with faculty members on activities other than coursework
- Received prompt written or oral feedback from faculty on your academic performance
- Worked with a faculty member on a research project

Enriching Educational Experiences (EEE)
- Talking with students with different religious beliefs, political opinions, or values
- Talking with students of a different race or ethnicity
- An institutional climate that encourages contact among students from different economic, social, and racial or ethnic backgrounds
- Participating in: internships, field experiences, community service, volunteer work, foreign language coursework, study abroad, independent study, self-assigned major, culminating senior experience, co-curricular activities, and/or learning communities

Supportive Campus Environment (SCE)
- Campus environment provides support you need to help you succeed academically
- Campus environment helps you cope with your non-academic responsibilities
- Campus environment provides the support you need to thrive socially
- Quality of relationships with other students
- Quality of relationships with faculty members
- Quality of relationship with administrative personnel and offices

Source: (Benchmarks of Effective Educational Practice, 2008)

Carini, Kuh, and Klein (2006) establish that student engagement is key for colleges and universities to add value to the institutional experience for their students. The authors use RAND, GRE, and SAT scores to investigate the relationship between learning and student engagement. RAND scores are measures developed by the RAND Corporation (RAND) that test cognition and performance. Additionally, the Graduate Record Examination (GRE) and the SAT are measures of knowledge and skills. The authors of the study investigated whether institutions positively influence student learning by comparing student pre-college SAT scores with late-college RAND and GRE scores. These comparisons illustrate change in student learning.

The measures of student learning were correlated with NSSE results. Institutions that report high levels of student engagement on NSSE correlate highly with greater differences found between SAT to RAND scores and SAT to GRE scores. Important in their findings is that institutional interventions to affect student engagement have a greater effect on those students who are most likely to leave college. For instance, students with lower SAT scores tend to benefit more from positive results on NSSE variables than students with higher SAT scores. The study found that students who are often considered low-ability benefit more from institutional strategies such as supportive campus climate and high-quality relationships.

On the contrary, Gordon, Ludlum, and Hoey (2007) explain that only a limited relationship exists between NSSE benchmarks and student outcomes. The data show that individual NSSE items can be used as predictors of student success. Although the authors' study is limited to the institution they observed, they recognize that "institutions must determine for themselves what policy changes are warranted from the data" (p. 38).

The authors recommend more empirical tests of NSSE benchmarks to improve accuracy and set aside any debate on the validity. Today, this is one of the only existing tools that asks students about their experiences rather than rely on student inputs and institutional reputation to evaluate educational quality.

Schlinsog's (2010) study examines the relationship of first-year students' academic achievement with engagement in educationally purposeful activities. His findings do not support the hypothesis that engagement is a predictor of GPA, persistence, and graduation. However, he recognizes that NSSE is designed as an instrument for institutions to compare quality measures rather than strictly determine student grades, persistence, and graduation.

In spite of this, Pascarella, Seifert, and Blaich (2010) find a significant relationship exists between six basic liberal arts outcomes, the NSSE benchmarks, and deep learning scales. The six learning outcomes in their study, known as the Wabash Study, were (a) effective reasoning and problem solving, (b) well-being, (c) inclination to inquire and lifelong learning, (c) intercultural effectiveness, (d) leadership, and (e) moral character. The results reveal that these liberal arts outcomes are significantly linked to engagement in educationally purposeful activities as measured by NSSE benchmarks. However, their research is based on 19 colleges rather than the one in Schlinsog's 2010 study. Moreover, their study looks at desired liberal arts outcomes rather than GPA, persistence, and graduation. The researchers' views of college go beyond GPA as a measure of success. Their interests are on changes in student growth and development. This view changes how one utilizes NSSE as a measurement of quality. Additionally, it is important to note that not all institutions' goals are to provide a liberal arts education.

Pike and Kuh (2005) realize that institutions provide more than a liberal arts education. They view NSSE with a broader lens by thinking about various areas of student learning. They analyzed data from NSSE to determine whether a typology of institutions could be presented as an alternative to current classification systems. The findings validate that institutions differ tremendously in how they engage students. However, seven types of engaging institutions can be identified: (a) diverse, but interpersonally fragmented; (b) homogenous and interpersonally cohesive; (c) intellectually stimulating; (d) interpersonally supportive; (e) high-tech, low-tech; (f) academically challenging and supportive; and (g) collaborative. These data show how engagement relates to Carnegie classification. It is important however, to remember institutions are unique and student engagement involves both students and the institution.

Criticism and Counter-Arguments of NSSE

NSSE has not been without criticism. Several articles have focused on NSSE's validity (Porter, 2011), intercultural effort (Dowd, Sawatzky, and Korn, 2011), and the benchmarks of effective educational practice (Campbell & Cabrera, 2011). This study recognizes the concerns presented by the authors, but the counter-arguments in support of NSSE outweigh the concerns. Additionally, NSSE is one of the only tools that measures quality of education as it relates to student experiences and/or outcomes rather than student inputs, institutional resources, grades, or graduation rates. This section provides a review of the concerns raised by a variety of authors.

Validity

Steven Porter speaks (Jaschik, 2009) and writes (Porter, Rumann, and Pontius, 2009; Porter, 2011) extensively about the validity and reliability of student survey data. Porter explains that too many limitations exist regarding the use of surveys on college student research and that NSSE's College Student Report is no different. Porter was interviewed by Jaschik (2009) concerning his study on the use of NSSE as a decision-making tool. Porter states that most research studies based on surveys of students are seriously flawed. Porter, Rumann, and Pontius (2009) attempt to illustrate some of these flaws when they studied the number of books and course packs students used in their courses. Their study analyzes course transcripts and syllabi versus student self-reports. The authors conclude that students "probably do not understand what is being asked of them in the area of academic challenge" (p. 97). The authors recognize that asking students about their educational experiences is a difficult task. Their study attempts to invalidate the use of surveys by explaining disconnects between student experiences and the reported perceptions of those experiences.

Herzog and Bowman (2011) expand on Porter's concerns about student self-reports in an edition of *New Directions for Institutional Research*. In the edition, the various authors present problems associated with research that rely on self-reports. Alternatively, they also provide ways to study student growth and development beyond student self-reports. Examples the authors provide include using longitudinal data, utilizing student demographic attributes, and improving survey instruments for students.

McCormick and McClenney (2012) explain that NSSE is an accurate tool for educational research. They find Porter's analysis is problematic in three areas:

(a) He assumes that NSSE seeks to produce precise point estimates of various quantities (number of papers written, number of books read, hours per week spent studying, college grades, etc.), and more generally he privileges criterion validity over other important validity considerations; (b) much of his argument is based on proposition and conjecture rather than evidence, sometimes overlooking contrary evidence; and (c) he offers little in the way of constructive suggestion to improve college student surveys (p. 313).

Additionally, Bowman and Herzog (2011) discuss three ways to correct the challenges made by Porter and others regarding survey research. First, use longitudinal research methods as often as possible. When researchers use cross-sectional methods to assess student growth, student-level input characteristics should also be analyzed. Second, reduce the use of jargon in survey research. Third, adjust the scales away from the traditional four-point scale. These suggestions will improve current survey methods and provide fewer opportunities for others to question a study's validity. Because of Porter's problematic arguments and NSSE's strategies to improve student survey responses, the concerns related to student survey validity do not discredit the use of NSSE as a tool for this study.

It is important, as Kuh, Hayek, Carini, Ouimet, Gonyea, and Kennedy (2001) remind us, that all surveys rely on self-reported data. A concern does exist regarding the accuracy of survey responses, which is discussed shortly. However, self-reports are considered valid when five general conditions are met. Those conditions are (a) the information requested is known to the respondents, (b) the questions are phrased clearly and unambiguously, (c) the questions refer to recent activities, (d) the respondents think the questions merit a serious and thoughtful response, and (e) answering the questions does not threaten, embarrass, or violate the privacy of the respondent or encourage the

respondent to respond in socially desirable ways. The authors go on to say that the CSR was intentionally designed and tested to meet these conditions.

Researchers at Indiana University's Center for Postsecondary Research have tested the reliability of NSSE in multiple ways. In NSSE Psychometric Properties (2009), the authors conducted test-retest studies in 2002 and again in 2005. NSSE researchers found little difference in students' responses between the two survey administrations. Further, at the institution level, NSSE researchers found that pending no major institutional changes, NSSE data are relatively stable from year-to-year. Additionally, the report explains that when non-respondents were interviewed by telephone, little difference existed between phone responses and survey responses through traditional methods.

According to NSSE Psychometric Properties (2009) the CSR is administered in both paper and digital formats. The NSSE staff explains that only a minute difference exists between the two formats. Specifically, among those who complete the survey electronically only a few report slightly higher levels of engagement compared to their counterparts who complete the survey on paper. In spite of this, it is important to note that by 2009 97% of respondents completed an electronic version of the survey. Collectively, NSSE (2009) researchers establish that the CSR is both reliable and valid.

Intercultural Effort

According to Dowd, Sawatzky, and Korn (2011), additional educational efforts are often required of non-White students and NSSE does not account for these efforts. The authors describe the idea of intercultural effort, which is the additional time, energy, and psychological effort needed by students of color to succeed in college. They also

explain that NSSE was created using variables for White undergraduate students. The authors explain that the foundation for NSSE's benchmarks, best practices for undergraduate education, do not account for the "racialized bad practices" that minority students experience throughout their education.

McCormick and McClenney (2012) counter that student engagement is both a broader idea than the benchmarks and the singular concept of student effort. The survey serves to examine students' realities on their campus with opportunities for colleges and universities to scrutinize student subgroups. An example McCormick and McClenney cite is a Lumina-sponsored multi-institutional project that explains student engagement factors have "stronger positive effects for underprepared students and students of color with respect to first-year GPA and retention" (p. 323).

Research that uses student input characteristics helps account for the concerns that are presented by Dowd, Sawatzky, and Korn's (2011) arguments. Additionally, Quaye and Harper (2009) add to the conversation by pointing out that an effective way to improve student engagement, especially with diverse student populations, is to invite those students to share their experiences with the university. In this study, the analysis of the data account for student input characteristics.

NSSE Benchmarks

Campbell and Cabrera (2011) argue that too few studies have been conducted looking at NSSE Benchmarks. Specifically, they question the construct and predictive validity of the five benchmarks of NSSE. Their analysis uses NSSE data and grades from a single institution to determine whether student engagement can predict GPA. The

results do not show that NSSE benchmarks hold nor do those benchmarks predict GPA as a student outcome.

McCormick and McClenney (2012) counter that Campbell and Cabrera's argument cannot be used to completely remove the usefulness of NSSE by college campuses. According to McCormick and McClenney the benchmarks "are summative indices of a range of effective educational practices (p. 324)." The benchmarks are simple explanations to be consumed for quick use by a range of stakeholders. The scores serve as a set of manageable results for everyday use – to initiate campus conversations. It is the overall data that should be used to more thoroughly develop programs and make decisions to improve campus environments. This study uses specific NSSE variables and not the NSSE Benchmarks.

Opportunities for Improving NSSE

Herzog and Bowman (2011) present a variety of reasons why a change is necessary for collecting and assessing data on student growth and development. Their arguments are necessary to improve educational research and practice. For example, developing new ways to collect data on student experiences and their frequency of specific activities may be a way to understand what our colleges are doing to improve student outcomes. The authors went on to discuss other findings where self-reports by students are accurate under ideal conditions. As an assessment tool, NSSE is useful in affecting college or university change that results in students participating more in, what NSSE creators identify as, effective educational practices. These practices have shown to be effective practices for student growth and development.

Even NSSE staff recognizes the need to improve current versions of the CSR, which include updating the questions on a regular basis (Jaschik, 2009). However, they also believe that Porter and others overstate the problems. NSSE (2009) staff have conducted a multitude of validity studies on its questions and have a variety of results on the psychometric properties listed on their website http://nsse.iub.edu/html/validity.cfm. NSSE staff recognizes its use as a quality study. As such, NSSE is meant as a way to implement change that improves upon the institution's educational environments.

According to *University College: The Front Door to VCU* (2005) NSSE data were used by VCU as a reason to institute changes with the intent to improve the first-year experience. For this study, NSSE data are used to look at specific student engagement variables that serve as intermediate outcome measures. Administrators acknowledge low results in the 2004 administration and felt they could develop opportunities to improve their scores. Additionally, the intent was to improve retention, GPA, and graduation rates through effective educational practices.

Conclusion

Although some (Porter, 2011; Dowd, Sawatzky, & Korn, 2011; Campbell & Cabrera, 2011) challenge NSSE, the counter arguments provided by others (McCormick & McClenney, 2012; and Harper & Quaye, 2009) still support the use of the CSR as used by NSSE. The opportunity to determine an institution's quality through proxy measurements, by asking students about their educational experiences, is still valuable for the use of educational improvements for student success. Virginia Commonwealth University (2006a) saw an opportunity to improve the student experience by changing the

environment to ultimately improve scores on NSSE. By using data from student records and their reports on educationally purposeful activities, this study is meant to determine whether VCU's University College impacted student engagement during the first college year. Chapter 3 presents the methodology this study uses to determine whether University College improved student engagement as reported on the CSR.

CHAPTER 3

METHODOLOGY

The research approach taken in this study was loosely inspired by Astin's (1991) Input-Environment-Outcome (I-E-O) model of student involvement to investigate differential treatment effects on first-year student engagement at Virginia Commonwealth University (VCU). The purpose of this quantitative study is to investigate the first-year experience of undergraduate students at an urban comprehensive doctoral institution with very high research activity located in Richmond, Virginia. VCU invested in the first-year experience, University College, with the intent to improve student success as measured through student engagement, retention, and GPA. This study compares the engagement data from students involved in University College with the engagement data from students not involved in University College. This study attempts to answer the following question: Do first-time freshmen at Virginia Commonwealth University who were involved in University College report significantly different levels of student engagement compared with first-time freshmen at the same institution when University College did not exist? This chapter explains the methodology that is used to investigate the research question and hypothesis for the study.

The research question that guides this study requires the use of a quantitative *ex post facto* research design to generate the results. The results are presented in the next chapter. This study was inspired by Astin's (1993) I-E-O model of student involvement, which requires a forced-block multivariate regression analysis. This type of analysis allows researchers to gain a better understanding of how treatments (environment) affect student outcome variables while taking into account their pre-college characteristics (inputs). Here, as the study was loosely guided by Astin's Model, a similar analysis is used to study the effects of University College on student engagement.

For this study, one survey was administered to two cohorts of VCU students during the end of their first college year. In addition, institutional data that include student input characteristics are incorporated into the final dataset.

Research Question and Hypotheses

This study is guided by the following research question: Do first-time freshmen at Virginia Commonwealth University, who were involved in University College report significantly different levels of student engagement compared with first-time freshmen at the same institution when University College did not exist?

The study is guided by the null hypothesis that University College did not improve student engagement during the first college year as compared to similar students who enrolled prior to the development of the university college. The hypothesis is constructed to examine whether an environmental treatment can change student engagement measures during the first college year. By using a multivariate multiple

linear regression analysis, a better understanding of university colleges and first-year student engagement can be gained.

As described in Chapter 2, Astin's I-E-O model accounts for both pre-college characteristics (Inputs, I) and the college experience (Environment, E) such as University College to affect Outcomes (O). In this study, student responses to NSSE represent intermediate outcomes. To determine the effects of University College on NSSE scores, the study includes multiple independent variables that are often identified as student inputs and a dummy variable that represents the college environment of University College. Specifically, the variables of Total SAT Scores, High School GPA, race/ethnicity, gender, and the University's admissions decision, as well as the University College experience are included in the multivariate analysis to help predict the dependent variables. The dependent variables were chosen from NSSE's extensive variable options as VCU intended for University College to affect outcomes that the variables represent in the student experience. The dependent variables in this study examine students' experiences or student engagement:

- Talking about career plans with a faculty member or advisor (FACPLANS),

- Discussing ideas about readings or classes with faculty members outside of class (FACIDEAS),

- Working harder than one thought they could to meet an instructor's standards or expectations (WORKHARD),

- Working with classmates outside of class to prepare for class assignments (OCCGRP),

- Participating in a learning community or formal program where groups take 2 or more classes together (LEARNCOM),

- Relating with faculty members (ENVFAC),

- Feeling supported academically (ENVSUPRT), and

- Preparing for class in total hours per week (ACADPR01).

Research Design

This study uses a quantitative *ex post facto* research design and compares the engagement of students who did not have the opportunity to participate in University College with those who did participate in University College during their first college year. The study's design utilizes NSSE student engagement variables as measures of student-reported, first-year outcomes. *Ex post facto* (or "after the fact") research is sometimes referred to as causal-comparative research, which researchers use to explore possible cause and effect relationships (Mertler & Charles, 2008).

According to John McMillan (2004), in *ex post facto* research, the investigator determines whether "one or more preexisting conditions have caused subsequent differences between subjects who experienced different types of conditions" (p. 192). This study examines University College (treatment) to determine whether it affects students' reported level of engagement compared with similar students' reported level of engagement when the University College condition did not (comparison) exist at VCU.

Institutional Setting

VCU is a large, complex institution located in Richmond, Virginia and serves a mixture of students from Virginia, the United States, and around the world. The university offers many educational degrees and programs while serving a wide range of students. Undergraduate, graduate, professional, and doctoral degrees are awarded every year from the College of Humanities and Sciences (Schools of Mass Communications, Government and Public Affairs, and World Studies); Schools of Allied Health Professions, Arts, Business, Dentistry, Education, Engineering, Medicine, Nursing, Pharmacy, and Social Work; a University College (Bachelor of Interdisciplinary Studies); Graduate School; and Life Sciences (VCU, n.d.).

According to the State Council of Higher Education for Virginia (SCHEV, n.d.), VCU is considered a selective institution with 12,767 students who applied for admission to the 2007 cohort and 9,564 (74.9%) who were accepted. The mean SAT score in 2007 (3,684 enrolled students) was 1040 (V:520, M:520). The mean ACT composite score was 21 (406 enrolled students). The mean high school GPA was 3.24.

As reported by the 2003 Cooperative Institutional Research Program (CIRP) survey, 40.9% of the entering freshmen chose VCU for its academic reputation and 29.3% chose the university for the cost of attendance. Of the respondents in the 2003 CIRP dataset, 77.8% of the entering freshmen estimated their family's income to be below $100,000 annually (VCU, n.d.).

According to SCHEV (n.d.), 3,885 first-time freshmen enrolled at VCU in fall 2007. A total of 88.9% came from the Commonwealth of Virginia. In comparison to the 2007 cohort, the fall 2003 cohort had 3,326 first-time freshmen enrolled. Of the first-time

freshman, 89.7% were from the Commonwealth of Virginia. Between 2003 and 2007, VCU's first-year class grew, became more racially and ethnically diverse, and fewer students were enrolled part-time (SCHEV, n.d.). A comparison of the two cohorts is illustrated in Table 3.1.

Table 3.1 Descriptive Statistics – Student Population Demographics

	Fall 2003 Cohort		Fall 2007 Cohort	
Variable	*N*	Percent	*N*	Percent
Gender				
Male	1,341	40.3	1,661	42.8
Female	1,985	59.7	2,224	57.2
Total	3,326		3,885	
Part-time (< 12 hours)	50	0.02	26	< 0.01
Race				
American Indian/Alaskan Native		1		<1
Asian or Pacific Islander		10.7		13.1
Black or African American		19.9		20.3
Hispanic		3.9		4.1
International		2.9		4.1
White		61.6		57.7

Population and Sample

This research looks at a sample from the population of all first-time, first-year students who enrolled at VCU in the fall of 2003 and fall of 2007. The staff at Indiana University's Center for Postsecondary Research, who administers NSSE, randomly chose

a sample of 50 percent of the total population to complete the College Student Report (CSR), NSSE's main instrument. The sample in this study begins with those first-year students who responded to the 2004 and the 2008 NSSE administrations. However, between 2003 and 2007 VCU intensified its efforts to recruit international and out-of-state students. Additionally, students who were admitted as honors students were tracked differently than the general student population. VCU honors students had minimal interaction with most University College programs. In fact, VCU established an Honors College at the same time as the University College (VCU, 2006b). Too many uncontrolled factors existed to account for possible treatment effects on honors, out-of-state, and international students. Therefore, this study does not include those students and VCU's Office of Institutional Effectiveness eliminated international, out-of-state, and honors students from the dataset before the analysis.

Data Collection

In spring 2004, VCU collected data using the CSR from students enrolled in their first college year who had completed one semester at the institution. The sample consists of randomly chosen first-year students enrolled at VCU with 89% completing the web version of the CSR and 11% completing the paper version of the CSR. According to Carini, Hayek, Kuh, Kennedy and Ouimet (2003), responses on paper surveys elicit similar results as compared with web survey results. Therefore, any difference in the number of surveys that were collected by web or paper did not affect the final results (or this study).

The CSR is an instrument used to collect data from students regarding the frequency with which they engaged in activities representing good educational practices. According to Kuh, Hayek, Carini, Ouimet, Gonyea, and Kennedy (2001), NSSE administers the survey instrument in a four-step process. First, the institution chooses the mode in which they will administer the survey. Second, the college or university provides NSSE with information and materials including (a) a data file of all first-year and senior students for NSSE to sample randomly selected participants, (b) customized invitations to participate and follow-up letters from an institutional representative, (c) electronic signatures for the letters, and (d) institutional letterhead. Third, NSSE selects a random sample consisting of half the first-year students and half the seniors from the institution. Those students are contacted in February to complete the survey, which takes twelve minutes or less. The student responses are submitted directly to NSSE. Finally, NSSE staff follows-up with non-respondents, who will receive a postcard or e-mail, then a second survey with a more personalized letter. Additionally, students, regardless of survey mode, will receive an electronic survey to increase response rates.

Instrument

The National Survey of Student Engagement (NSSE) is a systematic research program utilized by colleges and universities across the country to measure the level of engagement among their students (Kuh, 2003). Institutions can use NSSE's five benchmark measurements to quickly illustrate, to both internal and external constituents, students' experience of educational quality. Those five benchmarks are (1) Level of Academic Challenge, (2) Active and Collaborative Learning, (3) Student-Faculty

Interaction, (4) Enriching Educational Experiences, and (5) a Supportive Campus

Environment (Benchmarks of Effective Educational Practice, n.d.). Alexander

McCormick and Kay McClenney (2012) state,

> The benchmarks distill survey results—frequency distributions for a large
> number of survey questions that fill 15-20 pages—into a manageable,
> easily digested overview of results that afford a sort of dashboard display
> of several important facets of student engagement (p. 326).

Simply put, the benchmarks are simple and organized descriptions of the results.

Although the benchmarks serve as great descriptions of the institution, it is the student-

level data that is critical for institutional improvement. This study uses specific variables

from NSSE, rather than the benchmarks, as measures for engagement. The variables

chosen for this study have been selected because of the theoretical underpinnings of, and

expected effects from, the implementation of University College (VCU, 2006a). By

implementing University College, administrators intended to improve students'

educational experience as defined by NSSE variables during their first college year.

Once collected, the data establish institutional points of reference to affect change

in the quality of education that colleges and universities provide (Kuh, 2003).

Administrators can use the results to set goals for institutional improvements. Repeat data

collection periods demonstrate whether institutional efforts are a factor in changes in the

reported quality of education. Additional data collection from the same students provides

longitudinal information pertaining to student experiences during their college career.

NSSE staff, however, recommends using a multi-year data collection for cohort

comparisons (National Survey of Student Engagement Multi-Year Data Analysis Guide,

2009). This study uses cohort comparisons to ascertain the effects of institutional changes

on the reported quality of the learning environment during the first college year.

The College Student Report (CSR) is the instrument used by administrators of NSSE to collect data pertaining to frequency for which students participate in educationally purposeful activities associated within the five primary benchmarks. Additionally, students report minimal information about their background, such as age, gender, race or ethnicity, living situation, educational status, and major. All of this information creates an individual data record within the annual dataset. These records are disaggregated to compare different groups as well as determine the relationships between groups and student engagement levels. For example, in this study the 2004 VCU NSSE data serve as a comparison group to the 2008 treatment data. Institutions may also use additional data sources for further assessment and evaluation. This study includes data that VCU maintained regarding student inputs, or background characteristics, to better attribute changes in student engagement to the environmental condition as motivated by Astin's (1993) I-E-O model.

Instrument Validity and Reliability

As discussed in depth in Chapter 2, some questions have risen regarding NSSE's reliability and validity. Enough counter-arguments for NSSE are also presented that support the survey's use by colleges and universities that enough confidence exists for its use in this study. Kuh (2004), Kuh, Hayek, Carini, Ouimet, Gonyea, and Kennedy (2001), and NSSE (2009) present arguments supporting the validity and reliability of self-reported data collected from student surveys, especially NSSE. Although arguments have been made against NSSE's use of self-reports, these same arguments would stand for all survey methods using self-reported data. The CSR was designed and tested to meet

five conditions to improve the validity of self-reported survey methods. The five

conditions that validate self-reported data are (1) the information requested is known to

the respondents, (2) the questions are phrased clearly and unambiguously, (3) the

questions refer to recent activities, (4) the respondents think the questions merit a serious

and thoughtful response, and (5) answering the questions does not threaten, embarrass, or

violate the privacy of the respondent or encourage the respondent to respond in socially

desirable ways.

Data, Variables, and Data Manipulation

Data

The data required for this study originates from two sources. The initial data for

first-time freshmen was provided from VCU's student databases. New student data from

those who began fall 2003 were maintained in the Student Information System (SIS) +

while comparable student data from those who began fall 2007 were maintained in the

Banner Student System. These initial data include the following variables: gender,

race/ethnicity, SAT Score, high school GPA, residency status (in-state/out-of-state),

international student status, and admissions status (conditionally admitted, fully admitted,

honors student). The second data source is NSSE. NSSE data were collected in spring

2004 and spring 2008.

Prior to this study, the necessary dataset was incomplete. NSSE student-level data

does not include information for certain pre-enrollment characteristics. These variables

serve as the Inputs described in Astin's (1993) I-E-O model. As such, the host institution

(VCU) developed the necessary dataset by merging information from NSSE with the

student-level data from the two student information systems. Next, VCU staff removed

students whose populations were (1) significantly different between the two data

collection periods due to increased recruitment efforts for these populations (international

and out-of-state students) and (2) not involved in University College (Honors students).

This helps ensure that the two student cohorts were as similar as possible. As an *ex post*

facto study, according to McMillan (2004), the researcher "selects subjects who are as

similar as possible except for the independent variable that is being investigated" (p.

192). This study is constructed using two comparable groups by eliminating out-of-state,

international, and honors students from the dataset. These groups are excluded due to the

University's efforts to increase the out-of-state and international student populations. In

addition, University College is not a resource utilized heavily by Honors students.

VCU gathered a dataset that includes the student input characteristics and

background information from the University's student information systems (SIS+, 2004

and Banner, 2007). These data serve as independent variables in the multiple regression

analyses used in this study. Additionally, the dependent variables for the multiple

regression analyses come from the two NSSE data collections. Once the dataset was

created, VCU staff removed students who identified as non-Virginia residents,

international students, and/or who enrolled in the Honors Program/College. Finally, VCU

staff removed the student identifiers they used to combine the data collected from the two

sources. Table 3.1 presents the variables provided by VCU and used in this study.

Table 3.2 Research Variables collected on Fall 2003 and Fall 2007 first-time freshmen

Independent Variables (Covariates)
Gender (dummy variable)
Race/Ethnicity (dummy variables)
SAT Score
High School GPA
Admission Status (Dummy Variable)
Regular Admission, Conditional Admission
University College (Dummy Variable)

Dependent Variables
NSSE Reports
FACPLANS, FACIDEAS, WORKHARD, OCCGRP, LEARNCOM,
ENVFAC, ENVSUPRT, ACADPR01

Data Manipulation

The data in this study are modified in several ways. First, to account for the condition of University College a dummy variable is created to account for the qualitative entity of the independent variable. According to Singleton and Straits (1999), dummy variables are

> A data-modification procedure that involves recoding the categories of nominal- or ordinal-scale variables for the purpose of regression or other numerical analysis. For example, gender categories may be represented by a single dummy variable having a value of 1 if the respondent is female and a variable of 0 if male (p. 557).

In this case, the 2003 cohort has a value of 0 and the 2007 cohort had a value of 1.

Additionally, to account for the qualitative nature of Gender (Male = 0 & Female = 1)

and Admission Status (Conditionally Admitted = 0 & Fully Admitted = 1) those variables must become dummy variables. Race/ethnicity data are also recoded into a new variable of White/Students of Color. The treatment of race/ethnicity data was necessary and is a limitation, as is discussed shortly.

Variables

Dependent Variables

The dependent variables in this study are the reported NSSE results FACPLANS, FACIDEAS, WORKHARD, OCCGRP, LEARNCOM, ENVFAC, ENVSUPRT, ACADPR01. With each of the dependent variables, it is important to note that the larger numerical value corresponds with a more desirable student outcome. Four of these variables (FACPLANS, FACIDEAS, WORKHARD, OCCGRP) are measured on a four-point scale: 1 = Never, 2 = Sometimes, 3 = Often, 4 = Very Often. Another variable (LEARNCOM) uses a different four-point scale: 1 = Have not decided, 2 = Do not plan to do, 3 = Plan to do, 4 = Done. While the ENVSUPRT variable uses a third four-point scale: 1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much. The variable ENVFAC uses a seven-point scale with 1 = Unavailable, Unhelpful, Unsympathetic to 7 = Available, Helpful, Sympathetic. Finally, the variable ACADPR01 is an eight-point scale of time categories: 1 = 0 hr/wk, 2 = 1-5 hr/wk, 3 = 6-10 hr/wk, 4 = 11-15 hr/wk, 5 = 16-20 hr/wk, 6 = 21-25 hr/wk, 7 = 26-30 hr/wk, 8 = 30+ hr/wk. Again, all of the dependent variables measure higher levels of student engagement with increasing values.

Independent Variables

There are five independent variables in this study that serve as covariates. These independent variables are Gender (Male/Female), Race/Ethnicity (White, Students of Color), SAT Scores, High School GPA, and Admissions Status (Fully Admitted & Conditionally Admitted). A sixth independent variable serves as the treatment variable, which is the University College (2003 Cohort & 2007 Cohort) variable.

Human Subjects Research

For this study, the Center for Institutional Effectiveness at VCU provides written approval to access both the 2003 and 2007 student-level data and the student-level data from NSSE. This approval can be found as Appendix B.

Following the approval of the research proposal, The University of Virginia Institutional Review Board approved this study as SBS Protocol 2012-0146-00. A letter of approval can be found as Appendix C. As the research uses archival data and administrators at VCU merged the datasets, no identifying information is available for the researcher, nor the University of Virginia faculty committee members for this dissertation to identify participants. Further, the data are maintained on a password-protected computer that is in a secured and locked office. The only individual with access to the data is the researcher.

Data Analysis

As Chapter 2 describes, NSSE is grounded in various student development theories and models including Astin's (1991; 1993) College Student Impact Model. This

study is inspired by Astin's I-E-O model as an analytic framework to explore NSSE data in the context of an environmental treatment that was instituted in Summer 2006. NSSE researchers explain in the Multi-Year Data Analysis Guide (2011) "many schools use NSSE to gauge whether new initiatives are associated with higher levels of student engagement" (p. 2). To analyze the data, NSSE researchers suggest using multivariate regression when determining significant changes between cohort years. They explain this is especially true when new programs are being assessed using engagement measures.

Similarly, Astin and Sax (1998) state, "the most versatile method for implementing the I-E-O model is blocked stepwise regression analysis" (p. 252). The idea behind this regression analysis is the ability to control different blocks of variables (Astin, 1993). Additionally, this model allows researchers to exert as much control on possible biases from student input characteristics. As VCU staff and administrators based many of the goals for University College on the extent to which students report increased engagement according to NSSE results, this study uses multiple regression to estimate changes in specific NSSE variables.

First, this study uses multiple linear regression analyses for exploratory purposes. These were followed-up with two multivariate multiple linear regressions that were used to determine whether or not to reject the null hypothesis. The exploratory multiple linear regressions serve to determine the role of University College on predicting individual dependent variables. Additionally, the beta coefficients for the independent variable in the multiple regression models provide directionality of any relationship that exists. Mertler and Charles (2008) state, "multiple regression is used to determine the degree of correlation between a continuous criterion variable and a combination of two or more

predictor variables" (p. 252). Multiple linear regressions are conducted in an order based on the theoretical framework (Field, 2009). In this study, the order is based on Astin's (1993) I-E-O College Impact Model where inputs are entered before the environmental treatment variable to determine whether the model's ability to predict each dependent variable improves with the addition of the University College variable.

An extension of multiple regression is the addition of further dependent variables in multivariate regression. According to Field (2009), by using a multivariate regression analysis, the study accounts for the relationships between the dependent (outcome) variables. As such, multivariate analysis has the power to detect whether groups differ along a variety of dimensions. By doing so, this technique improves the ability to detect any effect in a model. Through multivariate regression, this study estimates the effect size of the independent variables on the dependent variables from NSSE. By creating two multivariate regression models that are equal in all variables except for the addition of the treatment variable, F-values can be calculated to determine which of the two models have the best fit.

Did involvement in University College result in greater student engagement compared to those students who were not involved? This study uses multivariate regression models to determine whether or not to reject the hypothesis that the 2007 cohort of first-time freshmen did not report statistically significant differences in student engagement compared with the 2003 cohort. The Statistical Package for Social Sciences (SPSS) is used to conduct these analyses. Additionally, Microsoft Excel (Excel) is used to calculate F-values. These values are computed to determine whether the model with the University College variable improves from the less complicated model.

Delimitations

This study takes place at an individual institution, Virginia Commonwealth University, with distinct students and programs. This urban, research extensive, doctoral university is unique with a distinct mission. As such, the generalizable nature of the study is limited. However, the study can provide a framework for institutions to assess programs using student engagement as a measure of institutional quality. The study also provides information for administrators regarding first-year experience programs.

Limitations

As an *ex post facto* study, several limitations exist (Mertler & Charles, 2008). First, the researcher cannot manipulate the independent variable and therefore cannot conduct a true experimental study. This limits the research findings by leaving them open for debate. Second, some questions may exist regarding which was cause and which was effect, much less whether the causative factor is in fact included in the analysis. Thus, in regression, only relationships can be ascertained. Finally, as the data were collected in the past, the subjects cannot be randomly assigned to groups.

An additional limitation is the response rate and sample in the study. As the data were collected prior to the study, the research is limited to the two groups that responded. The 2007 cohort was much larger (546) than the 2003 cohort (171). Additionally, there are significant differences between the sample and student population, which could affect the findings.

Additionally, this study is limited to students in their first-year of college during either 2003-2004 or 2007-2008. Changes do occur at institutions on a regular basis.

Decision-makers would certainly make necessary changes when programs are assessed and goals are or are not met. Further, faculty and staff can change incrementally over time. For example, in summer 2009, a new president took the helm of VCU. Since then he has assessed VCU's strategic plan, VCU 2020, and laid out new goals and initiatives. It is important to assess programs on our campuses. This research is meant to provide practitioners with a better understanding of the effects University College (and other covariates) have on student engagement variables. This study looks at only one environmental variable, University College, and assumes that no other changes occurred between the two groups. However, it is recognized that other environmental conditions did change between 2003 and 2008 that affect students. This limits the scope of this study.

An additional limitation exists in this study. Regarding the data manipulation, the race/ethnicity variable is coded as either White/Students of Color. Due to the low response rates for some race/ethnicity categories it is not appropriate to utilize alternate or effect coding to analyze and interpret these categorical predictors. Mayhew and Simonoff (2015) recommend the use of effect coding as an alternative to dummy codes that imply one group will be a reference group. In this case, the data are limited due the number of race categories within a small sample size. Related to the data limitations, this study is also limited in the sample's representation of the student population. As will be discussed in the next chapter, the sample is not as representative of the population as the researcher would have wanted. This limits the ability to generalize the results of the study.

Further, research limitations exist beyond those in this type of study. One limitation is the survey completion rate. Next, the study is affected by the persistence of enrolled students. Students who were enrolled in fall of 2003 or fall 2007 may not have reenrolled for spring 2004 or spring 2008 when the survey was administered. They were sent the survey, but may not have felt compelled to complete the survey. Collectively, these limitations may affect the findings provided herein.

CHAPTER 4

RESULTS

Purpose of the Study

This study examines the impact of University College at Virginia Commonwealth University (VCU) on student engagement. The goal of the study is to analyze the impact of University College, VCU's college for first-year students, while accounting for the influence of pre-college inputs of race, gender, high school GPA, SAT total score, and admissions type, on NSSE variables. The NSSE variables used in this study were based on the expected outcomes VCU (2005; 2006b) leaders intended for University College. Those variables are:

- FACPLANS – Talking about career plans with a faculty member or advisor,

- FACIDEAS – Discussing ideas about readings or classes with faculty members outside of class,

- WORKHARD – Working harder than one thought they could to meet an instructor's standards or expectations,

- OCCGRP – Working with classmates outside of class to prepare for class assignments,

- LEARNCOM – Participating in a learning community or formal program where groups take 2 or more classes together,

- ENVFAC – Improving student relationships with faculty members,

- ENVSUPRT – Feeling supported academically, and

- ACADPR01 – Increasing the number of hours students spend preparing for class.

Two student cohorts are used in this study. The fall 2003 cohort (non-treatment) enrolled before University College existed. The fall 2007 cohort (treatment) enrolled at VCU during University College's second year. Both cohorts were surveyed in the spring semester during their first year at VCU.

This chapter presents the results from the study. The initial descriptive statistics are presented first. These statistics are followed by results from multiple linear regression analyses of the dependent variables. The multivariate multiple linear regression analyses results follow. Finally, the findings are presented to determine the decisions made for the hypothesis.

Initial Descriptive Statistics

There are 717 total students remaining in the sample for this study. VCU staff removed members of the first-year student population who did not meet the conditions for this study to ensure the two cohorts were as similar as possible. VCU staff were asked to remove students who were not tracked through University College (honors students) and students who were recruited disproportionately (out-of-state and international students) between cohort years. The sample consists of 171 participants in spring 2004 and 546 participants in spring 2008 who completed the CSR. A larger population completed the CSR but did not meet the conditions for this study as described. This sample was extracted from the larger group of participants within the population who

completed the CSR. The participants' student demographics are included in this study. Those data (input variables) are reflected in Table 4.1.

It should be noted that the sample size is similar, but not fully representative of the student populations. For example 72.5% of the 2003 sample were female while 59.7% of the 2003 population were female. In fall 2007, 56.8% of the sample was white while 57.7% of the population was white. In fall 2007, 34.1% of the sample was female, while 57.2% of the population was female. This is one limitation for this study and affects the results.

Table 4.1 Descriptive Statistics – Student Demographics

	Fall 2003 Cohort		Fall 2007 Cohort	
Variable	N	Percent	N	Percent
Gender				
Female	124	72.5	360	65.9
Male	47	27.5	186	34.1
Race				
American Indian/Alaskan Native	4	2.3	6	1.1
Asian or Pacific Islander	17	9.9	62	11.4
Black or African American	35	20.5	94	17.2
Hispanic	9	5.3	22	4.0
Unknown/Not Specified	16	9.4	51	9.3
White	90	52.6	310	56.8

Note. N = 717

In addition to the student demographic characteristics, student application data (input characteristics) are also used "to exert as much control as possible over potentially

biasing student input variables before examining the possible effects of environmental variables (Astin, p. 90)." These data included SAT scores, high school GPA, and each student's admissions decision (conditionally admitted or fully admitted). For students who entered in fall 2003, the mean SAT score was 1061.46 and the mean high school GPA was 3.127. Of those in the fall 2003 cohort 36 or 21.1% were conditionally admitted. For the fall 2007 cohort, the mean SAT score was 1063.14 and the mean high school GPA was 3.327. Of those in the fall 2007 cohort 76 or 13.9% were conditionally admitted. These results are presented in Table 4.2.

Table 4.2 Descriptive Statistics – Student Input Characteristics

Variable	M	SD	Min	Max	N
Fall 2003 Cohort					
High School GPA	3.127	0.551	2.1	4.51	171
SAT Total	1061.46	134.708	760	1360	164
Admission Type	1.21	0.409	1	2	171
Fall 2007 Cohort					
High School GPA	3.327	0.476	2.1	4.88	541
SAT Total	1063.14	131.957	760	1460	538
Admission Type	1.14	0.346	1	2	546

Note. N = 717

Additionally, the dependent variables in this study are from the CSR. This study looked at eight items from the CSR that represent various goals created for VCU's University College when it was developed in 2005 and 2006. Those items are used as dependent variables in this study. Table 4.3 provides a comparison of the dependent variables for both cohorts.

Table 4.3 Descriptive Statistics – Dependent Outcome Variables

	Fall 2003 Cohort		Fall 2007 Cohort	
Variable	*N*	Percent	*N*	Percent
OCCGRP –				
Working with classmates outside of class to prepare for class assignments.				
Never	33	19.5	43	7.9
Sometimes	94	55.6	264	48.7
Often	34	20.1	170	31.4
Very Often	8	4.7	65	12.0
FACPLANS –				
Talking about career plans with a faculty member or advisor.				
Never	34	20.0	75	14.9
Sometimes	81	47.6	229	45.5
Often	39	22.9	137	27.2
Very Often	16	9.4	62	12.3
FACIDEAS –				
Discussing ideas about readings or classes with faculty members outside of class.				
Never	83	48.8	193	38.1
Sometimes	69	40.6	187	37.0
Often	13	7.6	88	17.4
Very Often	5	2.9	38	7.5
WORKHARD –				
Working harder than one thought they could to meet an instructor's standards or expectations.				
Never	20	11.8	48	9.7
Sometimes	78	45.9	182	36.8
Often	48	28.2	187	37.8
Very Often	24	14.1	78	15.8
ENVSUPRT –				
Feeling supported academically.				
Never	12	7.7	11	2.4
Sometimes	51	32.7	94	20.2

Often	62	39.7	203	43.6
Very Often	31	19.9	158	33.9

LEARNCOM –

Participating in a learning community or formal program where groups take 2 or more classes together.

Never	54	32.9	145	29.9
Sometimes	43	26.2	115	23.7
Often	31	18.9	134	27.6
Very Often	36	22.0	91	18.8

ENVFAC –

Improving student relationships with faculty members.

1 = Unavailable, Unhelpful, Unsympathetic	0	0.0	8	1.7
2	9	5.5	15	3.1
3	18	11.0	43	8.9
4	31	18.9	113	23.4
5	56	34.1	125	25.9
6	31	18.9	117	24.3
7 = Available, Helpful, Sympathetic	19	11.6	61	12.7

ACADPR01 –

Increasing the number of hours students spend preparing for class.

0 Hours	2	1.3	4	0.8
1-5 Hours	40	25.6	99	20.8
6-10 Hours	42	26.9	134	28.2
11-15 Hours	30	19.2	104	21.8
16-20 Hours	26	16.7	70	14.7
21-25 Hours	8	5.1	31	6.5
26-30 Hours	4	2.6	16	3.4
More than 30 Hours	4	2.6	18	3.8

Multiple Linear Regression

This study includes multiple regression analyses for exploratory purposes. These analyses are conducted using the General Linear Model (GLM) function in SPSS. When more than one continuous independent variable exists, a multiple linear regression analysis can be conducted using the GLM function. By doing so, you can control different blocks of variables based on a theoretical understanding of their significance in the study. These variables serve as covariates in this study. According to Field (2009),

> If we enter the covariate into the regression model first, and then enter the dummy variables representing the experimental manipulation, we can see what effect an independent variable has after the effect of the covariate. As such, we partial out the effect of the covariate (p. 396).

These analyses are used to explore the effects of student input characteristics (covariates) and University College (independent variable) on the individual dependent (outcome) variables.

Tests for assumptions of independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality were run in SPSS prior to running forced-block multiple regressions. A total of eight multiple linear regressions were run to determine if the addition of University College improved the prediction of the dependent variables of OCCGRP, FACPLANS, FACIDEAS, WORKHARD, ENVFAC, ACADPR01, ENVSUPRT, and LEARNCOM over and above student input characteristics of race, gender, high school GPA, SAT total, and admission type.

The results suggest that the effect of the addition of University College as a treatment to the prediction of each of these dependent variables is not consistent. The treatment of University College improves the prediction of OCCGRP, FACPLANS, FACIDEAS, WORKHARD, and ENVSUPRT at a statistically significant level ($p <$

0.05), though each vary in their level of significance. However, University College does not improve the prediction of the remaining dependent variables (LEARNCOM, ENVFAC, and ACADPR01) in their corresponding regression analyses. The full models, which include University College for each dependent variable, except ENVFAC, are statistically significant. These results are broken down in the following sections. A summary of the results is presented in Table 4.4. The results of these multiple linear regressions seem to illustrate that the environmental condition of University College improves the prediction of student engagement variables while accounting for the covariates of student input characteristics. However, for this study, the multivariate multiple linear regression analyses will confirm whether or not to reject the null hypothesis.

Source	Model 1			Model 2 (With University College)					
	R^2	F	$p*$	R^2	F	p	ΔR^2	ΔF	p
OCCGRP - Working with classmates outside of class to prepare for class assignments.	0.019	2.728	0.019	0.054	6.524	0.000	0.035	25.03	0.000
FACPLANS - Talking about career plans with a faculty member or advisor.	0.064	8.808	0.000	0.073	8.502	0.000	0.009	6.593	0.010
FACIDEAS - Discussing ideas about readings or classes with faculty members outside of class.	0.018	2.378	0.037	0.040	4.480	0.000	0.022	14.739	0.000
WORKHARD - Working harder than one thought they could to meet an instructor's standards or expectations.	0.058	7.847	0.000	0.065	7.470	0.000	0.008	5.321	0.021
ENVSUPRT - Feeling supported academically.	0.027	3.292	0.006	0.067	7.159	0.000	0.040	25.817	0.000
LEARNCOM - Participating in a learning community or program where groups take 2 or more classes together.	0.043	5.591	0.000	0.044	4.770	0.000	0.001	0.675	0.412
ENVFAC - Improving student relationships with faculty members.	0.008	0.948	0.449	0.008	0.834	0.544	0.000	0.268	0.605
ACADPR01 - Increasing the number of hours students spend preparing for class.	0.032	4.012	0.001	0.034	3.526	0.002	0.002	1.094	0.296

Note. Model 1 represents the effects of all input characteristics on the individual dependent variables. *Significance of model.

Model 2 represents the effects of all input characteristics and University College on the individual dependent variables.

The Δ values represent the changes between the two models.

Significant at the $p < 0.05$ level.

Outside of Class Group Work

This study includes a multiple regression analysis to determine if the addition of University College improves the prediction of whether students reported that they worked harder than they thought they could to meet an instructor's standards or expectations (OCCGRP) over and above the student input characteristics. Tests of assumptions were met for independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality. See Table 4.5 for full details on the regression models. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.895. The addition of University College as a treatment to the prediction of OCCGRP (Model 2), led to a statistically significant increase in R^2 of 0.035, $F(1, 685) = 25.027$, $p < 0.005$. In other words, the variance in the dependent variable explained by the model increased by 3.5% as a result of the inclusion of University College. The full model of student input characteristics and University College to predict OCCGRP (Model 2) was statistically significant, R^2 of 0.054, $F(6, 685) = 6.524$, $p < 0.0005$.; adjusted $R^2 = 0.046$.

Table 4.5 Multiple Linear Regression Predicting OCCGRP (Working with classmates outside of class to prepare for class assignments) From Race, Gender, High School GPA, SAT Total, Admission Type, and University

Working with classmates outside of class to prepare for class assignments.

	Model 1		Model 2	
Variable	B	β	B	β
Constant	3.29**		2.75**	
Race	-0.06	-0.03	-0.07	-0.04
Gender	0.08	0.05	0.05	0.03
High School GPA	0.02	0.01	-0.04	-0.02
SAT Total	-0.001*	-0.14	-0.001*	-0.13
Admission Type	-0.09	-0.04	-0.07	-0.03
University College			0.36**	0.19
R^2	0.019		0.054	
F	2.728*		6.524**	
ΔR^2			0.035	
ΔF			25.03**	

Note. $N = 692$ * $p < 0.05$, ** $p < 0.001$
Significant at the $p < 0.05$ level.

Career Plans with Faculty

This study includes a multiple regression analysis to determine if the addition of University College improves the prediction of whether students reported that they talk about career plans with a faculty member or advisor (FACPLANS) over and above student input characteristics. Tests of assumptions were met for independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality. See Table 4.6 for full details on the two regression models. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.079. The addition of University College to the prediction of FACPLANS (Model 2) resulted in a slightly significant increase in R^2. The addition of University College increased the value of R^2 by 0.009, $F(1, 648) = 6.593$, $p = 0.01$. This illustrated a slight increase in explained variance by the model of the dependent variable by 0.9%. The full model of student input characteristics and University College to predict FACPLANS (Model 2) was significant, $R^2 = 0.073$, $F(6, 648) = 8.502$, $p < 0.005$.; adjusted $R^2 = 0.064$.

Table 4.6 Multiple Linear Regression Predicting FACPLANS (Talking about career plans with a faculty member or advisor) From Race, Gender, High School GPA, SAT Total, Admission Type, and University College.

	Talking about career plans with a faculty member or advisor.			
	Model 1		Model 2	
Variable	B	β	B	β
Constant	3.93**		3.64**	
Race	-0.13	-0.07	-0.13	-0.08
Gender	-0.07	-0.04	-0.09	-0.05
High School GPA	-0.06	-0.03	-0.09	-0.05
SAT Total	-0.001**	-0.19	-0.001**	-0.18
Admission Type	0.08	0.03	0.09	0.04
University College			0.20*	0.10
R^2	0.064		0.073	
F	8.808**		8.502**	
ΔR^2			0.009	
ΔF			6.593*	

Note. $N = 655$ * $p < 0.05$, ** $p < 0.001$
Significant at the $p < 0.05$ level.

Ideas with Faculty Outside of Class

This study includes a multiple regression analysis to determine if the addition of University College improves the prediction of whether students reported that they discuss ideas about readings or classes with faculty members outside of class (FACIDEAS) over and above student input characteristics. Tests of assumptions were met for independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality. See Table 4.7 for full details on the regression models. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.028. The addition of University College as a treatment to the prediction of FACIDEAS (Model 2) results in statistically significant value for R^2 of 0.022, $F(1, 651) = 14.739$, $p < 0.005$. This is an increase of 2.2% in explained variance in the dependent variable explained by the model. The full model of student input characteristics and University College to predict FACIDEAS (Model 2) was statistically significant, R^2 of 0.040, $F(6, 651) = 4.480$, $p < 0.005$; adjusted $R^2 = 0.031$.

Table 4.7 Multiple Linear Regression Predicting FACIDEAS (Discussing ideas about readings or classes with faculty members outside of class) From Race, Gender, High School GPA, SAT Total, Admission Type, and University College.

Discussing ideas about readings or classes with faculty members outside of class.

	Model 1		Model 2	
Variable	B	β	B	β
Constant	2.45**		2.01**	
Race	-0.04	-0.02	-0.05	-0.03
Gender	0.13	0.07	0.10	0.05
High School GPA	0.03	0.02	-0.02	-0.01
SAT Total	-0.001*	-0.12	-0.001*	-0.11
Admission Type	0.03	0.01	0.05	0.02
University College			0.31**	0.15
R^2	0.018		0.040	
F	2.378*		4.480**	
ΔR^2			0.022	
ΔF			14.739**	

Note. $N = 658$ * $p < 0.05$, ** $p < 0.001$
Significant at the $p < 0.05$ level.

Worked Harder than You Thought

This study includes a multiple regression analysis to determine if the addition of University College improves the prediction of whether students reported that they worked harder than they thought they could to meet an instructor's standards or expectations (WORKHARD) over and above student input characteristics. Tests of assumptions were met for independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality. See Table 4.8 for full details on each regression model. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.970. The addition of University College as a treatment to the prediction of WORKHARD (Model 2), led to an increase in R^2 of 0.008, $F(1, 640) = 5.321$, $p = 0.021$. This is a 0.8% increase in variance of the dependent variable explained by the model. The full model of student input characteristics and University College to predict WORKHARD (Model 2) was significant, R^2 of 0.065, $F(6, 640) = 7.470$, $p < 0.0005$; adjusted $R^2 = 0.057$.

Table 4.8 Multiple Linear Regression Predicting WORKHARD (Working harder than one thought they could to meet an instructor's standards or expectations) From Race, Gender, High School GPA, SAT Total, Admission Type, and University College.

	Working harder than one thought they could to meet an instructor's standards or expectations.			
	Model 1		Model 2	
Variable	B	β	B	β
Constant	3.42**		3.16**	
Race	-0.13	-0.08	-0.14	-0.08
Gender	-0.16*	-0.09	-0.18*	-0.10
High School GPA	0.11	0.07	0.08	0.05
SAT Total	-0.001**	-0.16	-0.001*	-0.15
Admission Type	0.12	0.05	0.13	0.06
University College			0.18*	0.09
R^2	0.058		0.065	
F	7.847**		7.470**	
ΔR^2			0.008	
ΔF			5.321*	

Note. $N = 647$ * $p < 0.05$, ** $p < 0.001$
Significant at the $p < 0.05$ level.

Campus Support for Academic Success

This study includes a multiple regression analysis to determine if the addition of University College improves the prediction of whether students reported that they feel supported academically (ENVSUPRT) over and above student input characteristics. Tests of assumptions were met for independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality. See Table 4.9 for full details on the two regression models. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.027. The addition of University College as a treatment to the prediction of ENVSUPRT (Model 2), led to a statistically significant increase in R^2 of 0.040, $F(1, 601)$ = 25.817, $p < 0.005$. This is a 4% increase in the variance explained in the dependent variable for the model. The full model of student input characteristics and University College to predict ENVSUPRT (Model 2) was statistically significant, R^2 of 0.067, $F(6, 601) = 7.159$, $p < 0.005$; adjusted $R^2 = 0.057$.

Table 4.9 Multiple Linear Regression Predicting ENVSUPRT (Feeling supported academically) From Race, Gender, High School GPA, SAT Total, Admission Type, and University College.

| | Feeling supported academically. | | | |
| | Model 1 | | Model 2 | |
Variable	B	β	B	β
Constant	3.42**		2.82**	
Race	-0.06	-0.03	-0.07	-0.04
Gender	-0.03	-0.02	-0.06	-0.03
High School GPA	0.13	0.08	0.07	0.04
SAT Total	-0.001*	-0.13	-0.001*	-0.11
Admission Type	0.06	0.03	0.09	0.04
University College			0.39**	0.21
R^2	0.027		0.067	
F	3.292*		7.159**	
ΔR^2			0.040	
ΔF			25.817**	

Note. $N = 608$ * $p < 0.05$, ** $p < 0.001$
Significant at the $p < 0.05$ level.

Participate in a Learning Community

This study includes a multiple regression analysis to determine if the addition of University College improves the prediction of whether students reported that they participated in a learning community or formal program where student groups take 2 or more classes together (LEARNCOM) over and above student input characteristics. Tests of assumptions were met for independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality. See Table 4.10 for full details on the two models. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.022. The addition of University College as a treatment to the prediction of LEARNCOM (Model 2), led to an increase in R^2 of 0.001, $F(1, 624) = 0.675$, $p = 0.412$. This is an increase in explained variance of the dependent variable of .1% and is not significant. The full model of student input characteristics and University College to predict LEARNCOM (Model 2) was significant, R^2 of 0.044, $F(6, 624) = 4.770$, $p < 0.005$; adjusted $R^2 = 0.035$.

Table 4.10 Multiple Linear Regression Predicting LEARNCOM (Participating in a learning community or program where groups take 2 or more classes together) From Race, Gender, High School GPA, SAT Total, Admission Type, and University College.

Participating in a learning community or program where groups take 2 or more classes together.				
	Model 1		Model 2	
Variable	*B*	*β*	*B*	*β*
Constant	3.73**		3.61**	
Race	-0.06	-0.02	-0.06	-0.03
Gender	-0.11	0.05	-0.12	-0.05
High School GPA	-0.1	-0.04	-0.11	-0.05
SAT Total	-0.001*	-0.13	-0.001*	-0.13
Admission Type	0.22	0.07	0.23	0.07
University College			0.09	0.03
R^2	0.043		0.044	
F	5.591**		4.770**	
ΔR^2			0.001	
ΔF			0.675	

Note. $N = 631$ * $p < 0.05$, ** $p < 0.001$
Significant at the $p < 0.05$ level.

Quality of Relationships with Faculty Members

This study includes a multiple regression analysis to determine if the addition of University College improves the prediction of whether students reported improved relationships with faculty members (ENVFAC) over and above student input characteristics. Tests of assumptions were met for independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality. See Table 4.11 for full details on the two regression models. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.118. The addition of University College as a treatment to the prediction of ENVFAC (Model 2) did not improve the model. When the University College variable was used it led to no change of R^2, $F(1, 622) = 0.268$, $p = 0.605$. The full model of student input characteristics and University College to predict ENVFAC (Model 2) was not changed, R^2 of 0.008, $F(6, 622) = 0.834$, $p = 0.544$; adjusted $R^2 = -0.002$.

Table 4.11 Multiple Linear Regression Predicting ENVFAC (Improving student relationships with faculty members) From Race, Gender, High School GPA, SAT Total, Admission Type, and University College.

| | Improving student relationships with faculty members. | | | |
| | Model 1 | | Model 2 | |
Variable	B	β	B	β
Constant	4.58**		4.48**	
Race	0.13	0.05	0.13	0.05
Gender	0.17	0.06	0.16	0.06
High School GPA	0.02	0.01	0.01	0.01
SAT Total	0.00	-0.03	0.00	-0.02
Admission Type	0.19	0.05	0.19	0.05
University College			0.07	0.02
R^2	0.008		0.008	
F	0.948		0.834	
ΔR^2			0.000	
ΔF			0.268	

Note. $N = 629$ * $p < 0.05$, ** $p < 0.001$
Significant at the $p < 0.05$ level.

Hours Preparing for Class

This study includes a multiple regression analysis to determine if the addition of University College improves the prediction of whether students reported that they increased the number of hours spent preparing for class (ACADPR01) over and above student input characteristics. Tests of assumptions were met for independence of cases, linearity, homoscedasticity, multicollinearity, outliers, and normality. See Table 4.12 for full details on each model. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.132. The addition of University College as a treatment to the prediction of ACADPR01 (Model 2), led to a slight increase in R^2 of 0.002, $F(1, 610) = 1.094$, $p = 0.296$. Thus, the addition of the treatment was not significant. The full model of student input characteristics and University College to predict ACADPR01 (Model 2) was significant, R^2 of 0.034, $F(6, 610) = 3.526$, $p < 0.005$; adjusted $R^2 = 0.024$.

Table 4.12 Multiple Linear Regression Predicting ACADPR01 (Increasing the number of hours students spend preparing for class) From Race, Gender, High School GPA, SAT Total, Admission Type, and University College.

	Increasing the number of hours students spend preparing for class.			
	Model 1		Model 2	
Variable	B	β	B	β
Constant	3.29**		3.05**	
Race	0.23	0.07	0.22	0.07
Gender	-0.42*	-0.13	-0.43*	-0.13
High School GPA	0.28*	0.09	0.25*	0.08
SAT Total	-3.535E-5	-0.003	1.271E-5	0.001
Admission Type	0.02	0.004	0.03	0.01
University College			0.15	0.04
R^2	0.032		0.034	
F	4.012*		3.526*	
ΔR^2			0.002	
ΔF			1.094	

Note. $N = 617$ * $p < 0.05$, ** $p < 0.001$
Significant at the $p < 0.05$ level.

Multivariate Multiple Linear Regression

This study requires multivariate multiple linear regression to determine whether the addition of University College improves student engagement at VCU. The results in this section are key for determining whether or not to reject the null hypothesis in this study. Additionally, Astin's Input-Environment-Outcome (I-E-O) theoretical framework requires an analysis that places input characteristics and environmental characteristics into specific blocks (Astin, 1993). As Astin's model inspires this study, those characteristics were limited to two blocks or models. Thus, this study requires two multivariate multiple linear regressions, one with and without the treatment variable (University College). The results of these analyses were then followed with calculations of *F*-values to determine whether the null hypothesis was correct.

The benefit of using a multivariate multiple linear regression analysis is that it accounts for relationships between the dependent variables. In the case of this study, a multivariate multiple linear regression analysis creates a model that includes the relationships between student engagement variables. The first analysis (Multivariate Model 1) observes the dependent variables by the covariates without the use of the independent variable of University College. This is the simpler model, which is assumed to be correct by the null hypothesis for this study. The second model (Multivariate Model 2) is the more complicated model and is assumed correct by the alternative hypothesis. This section describes the results of both of those analyses.

Multivariate Model 1

The first analysis in this section was a multivariate multiple linear regression analysis of the dependent variable with all covariates except the treatment (University

College) variable. To determine the requirement of homogeneity of variance Levene's

Test of Equality of Variances found that there were significant differences in error

variance for several variables ($p < 0.05$). Table 4.13 illustrates where variables in the first

multivariate model did not meet the requirements for homogeneity of variance. However,

Box's Test of the Assumption of Equality of Covariance Matrices provides a test statistic

that is non-significant $p = 0.192$. This statistic supports that the covariance matrices are

equal and the assumption is met. Therefore, Pillai's trace is assumed to be accurate. In

this study, the use of Pillai's trace is used due to the robustness of the test statistic as

explained by Field (2009). Using Pillai's trace, there is a significant effect on student

engagement variables from gender, $V = 0.040$, $F(8, 579) = 2.98$, $p < 0.05$ and SAT total,

$V = 0.064$, $F(8,579) = 4.93$, $p < 0.05$. In this model, SAT total score is the variable that

had the largest explained variance for predicting student engagement with 6.4%. In

Model 1 the covariates race, admission type, and high school GPA do not have a

significant impact in this regression model.

Table 4.13 Model 1 Levene's Test – Homogeneity of Variance

Dependent Variable	*F*	*df*1	*df*2	Significance
FACPLANS	1.239	7	584	0.279
OCCGRP	.958	7	584	0.461
FACIDEAS	1.830	7	584	0.079
WORKHARD	2.804	7	584	0.007
ENVFAC	0.857	7	584	0.540
ACADPR01	0.805	7	584	0.583
ENVSUPRT	2.116	7	584	0.040
LEARNCOM	1.376	7	584	0.213

Note. Significant at the $p < 0.05$ level.

Multivariate Model 1 also provides results that illustrate how the covariates account for variability for the multiple dependent variables. There is significance by gender on ACADPR01 ($p < 0.01$), high school GPA on ENVSUPRT ($p < 0.05$), and SAT total on FACPLANS ($p < 0.01$), OCCGRP ($p < 0.01$), FACIDEAS ($p < 0.05$), WORKHARD ($p < 00.01$), ENVSUPRT ($p < 0.01$), and LEARNCOM ($p < 0.05$). These results are illustrated in Table 4.14.

Table 4.14 Model 1 Tests of Between-Subject Effects

Source	Dependent Variable	df	MS	F	Significance
Gender	FACPLANS	1	0.572	0.809	0.369
	OCCGRP	1	1.541	2.407	0.121
	FACIDEAS	1	1.000	1.312	0.253
	WORKHARD	1	2.600	3.520	0.061
	ENVFAC	1	3.098	1.667	0.197
	ACADPR01	1	23.203	9.873	0.002
	ENVSUPRT	1	0.208	0.306	0.580
	LEARNCOM	1	1.051	0.879	0.349
Race	FACPLANS	1	2.157	3.049	0.081
	OCCGRP	1	0.250	0.390	0.533
	FACIDEAS	1	0.459	0.603	0.438
	WORKHARD	1	2.183	2.956	0.086
	ENVFAC	1	1.249	0.672	0.413
	ACADPR01	1	7.209	3.067	0.080
	ENVSUPRT	1	0.514	0.758	0.384
	LEARNCOM	1	0.328	0.274	0.601
Admissions Type	FACPLANS	1	0.174	0.246	0.620
	OCCGRP	1	0.318	0.497	0.481
	FACIDEAS	1	0.325	0.426	0.514
	WORKHARD	1	1.103	1.493	0.222
	ENVFAC	1	2.915	1.569	0.211
	ACADPR01	1	0.000	0.000	0.990
	ENVSUPRT	1	0.286	0.421	0.517
	LEARNCOM	1	3.415	2.858	0.091
High School GPA	FACPLANS	1	0.238	0.337	0.562
	OCCGRP	1	0.009	0.015	0.904
	FACIDEAS	1	0.378	0.365	0.546
	WORKHARD	1	1.733	2.346	0.126
	ENVFAC	1	0.118	0.064	0.801
	ACADPR01	1	8.673	3.690	0.055
	ENVSUPRT	1	3.232	4.760	0.030
	LEARNCOM	1	0.649	0.543	0.462
SAT Total	FACPLANS	1	16.064	22.709	0.000
	OCCGRP	1	6.508	10.164	0.002
	FACIDEAS	1	4.163	5.464	0.020
	WORKHARD	1	8.174	11.068	0.001
	ENVFAC	1	0.280	0.151	0.698
	ACADPR01	1	0.066	0.028	0.867
	ENVSUPRT	1	5.338	7.863	0.005
	LEARNCOM	1	7.848	6.567	0.011

Note. Significant at the $p < 0.05$ level.

Multivariate Model 2

The second analysis in this section is a multivariate multiple linear regression

analysis of the dependent variable with all covariates and the independent (University

College) variable. To determine the requirement of homogeneity of variance Levene's

Test of Equality of Variances suggests that there are significant differences in error

variance for several variables ($p < 0.05$). Table 4.15 illustrates where variables in the first

model do not meet the requirements for homogeneity of variance. However, Box's Test

of the Assumption of Equality of Covariance Matrices provides a test statistic that is non-

significant $p = 0.177$. This statistic supports that the covariance matrices are equal and the

assumption is met. Therefore, Pillai's trace is assumed to be accurate. Using Pillai's

trace, there is a significant effect on student engagement variables from gender, $V =$

0.039, $F(8, 578) = 2.90$, $p < 0.005$, SAT total, $V = 0.058$, $F(8,578) = 4.45$, $p < 0.005$, and

University College, $V = 0.085$, $F(8, 578) = 6.71$, $p < 0.005$. In this model, SAT total

accounts for 5.8% of the covariance while the University College variable accounts for

8.5% of the covariance. The 8.5% of the covariance for University College accounts for

only a small portion of explained variance. The remaining covariates, race, admission

type, and high school GPA do not have a significant effect in the regression model.

Table 4.15 Model 2 Levene's Test – Homogeneity of Variance

Dependent Variable	F	$df1$	$df2$	Significance
FACPLANS	1.686	15	576	0.050
OCCGRP	2.198	15	576	0.006
FACIDEAS	1.482	15	576	0.106
WORKHARD	2.667	15	576	0.001
ENVFAC	0.956	15	576	0.501
ACADPR01	0.484	15	576	0.183
ENVSUPRT	1.322	15	576	0.183
LEARNCOM	1.183	15	576	0.280

Significant at the $p < 0.05$ level.

The covariates account for variability for the multiple dependent variables and these results are illustrated in Table 4.16. There is a significant effect ($p < 0.05$) by gender on WORKHARD and ACADPR01 ($p < 0.05$), SAT total on FACPLANS ($p < 0.001$), OCCGRP ($p < 0.01$), FACIDEAS ($p < 0.05$), WORKHARD ($p < 0.01$), ENVSUPRT ($p < 0.05$), and LEARNCOM ($p < 0.05$). Finally, University College has a significant effect on OCCGRP ($p < 0.001$), FACIDEAS ($p < 0.001$), WORKHARD ($p < 0.05$), and ENVSUPRT ($p < 0.001$).

Table 4.16 Model 2 Tests of Between-Subject Effects

Source	Dependent Variable	df	Mean Square	F	Significance
Gender	FACPLANS	1	0.781	1.108	0.293
	OCCGRP	1	0.747	1.225	0.269
	FACIDEAS	1	0.531	0.722	0.399
	WORKHARD	1	3.096	4.216	0.040
	ENVFAC	1	2.913	1.565	0.211
	ACADPR01	1	24.432	10.399	0.001
	ENVSUPRT	1	0.642	0.983	0.322
	LEARNCOM	1	1.238	1.036	0.309
Race	FACPLANS	1	2.337	3.316	0.069
	OCCGRP	1	0.457	0.749	0.387
	FACIDEAS	1	0.646	0.865	0.353
	WORKHARD	1	2.399	3.266	0.071
	ENVFAC	1	1.197	0.644	0.423
	ACADPR01	1	6.836	2.910	0.089
	ENVSUPRT	1	0.776	1.190	0.276
	LEARNCOM	1	0.379	0.317	0.574
Admission Type	FACPLANS	1	0.240	0.341	0.559
	OCCGRP	1	0.124	0.203	0.653
	FACIDEAS	1	0.520	0.697	0.404
	WORKHARD	1	1.291	1.758	0.185
	ENVFAC	1	2.999	1.612	0.205
	ACADPR01	1	0.004	0.002	0.967
	ENVSUPRT	1	0.535	0.821	0.365
	LEARNCOM	1	3.602	3.013	0.083
High School GPA	FACPLANS	1	0.571	0.810	0.369
	OCCGRP	1	0.486	0.797	0.372
	FACIDEAS	1	0.003	0.003	0.953
	WORKHARD	1	0.938	1.277	0.259
	ENVFAC	1	0.057	0.031	0.861
	ACADPR01	1	6.704	2.853	0.092
	ENVSUPRT	1	1.059	1.624	0.203
	LEARNCOM	1	0.973	0.814	0.367
SAT Total	FACPLANS	1	14.921	21.173	0.000
	OCCGRP	1	4.698	7.708	0.006
	FACIDEAS	1	3.113	4.169	0.042
	WORKHARD	1	7.260	9.887	0.002
	ENVFAC	1	0.231	0.124	0.725
	ACADPR01	1	0.012	0.005	0.942
	ENVSUPRT	1	3.816	5.849	0.016
	LEARNCOM	1	7.286	6.096	0.014

Table 4.16 Model 2 Tests of Between-Subject Effects Continued

Source	Dependent Variable	df	Mean Square	F	Significance
University	FACPLANS	1	2.264	3.212	0.074
College	OCCGRP	1	18.678	30.645	0.000
	FACIDEAS	1	9.617	12.879	0.000
	WORKHARD	1	3.155	4.296	0.039
	ENVFAC	1	0.294	0.158	0.691
	ACADPR01	1	2.784	1.185	0.277
	ENVSUPRT	1	16.200	24.832	0.000
	LEARNCOM	1	1.124	0.940	0.333

Note. Significant at the $p < 0.05$ level.

Multivariate Model Change

The results from the two regression models are used to calculate F-values to test for model improvement. According to Frees (1996), the F-value is used to summarize model adequacy. The value is the ratio between two variances or in this case, the ratio of two expected mean squares. The larger the F-ratio, the better the model fit. Hinkle, Wiersma, and Jurs (2003) explain that if the null hypothesis is true then the F-value is one (or close to that value). Calculating F-values to test the models require results from the two multivariate multiple linear regression models. The results were used to develop ANOVA tables that include the necessary sums-of-squares. These results are illustrated in Table 4.17.

Table 4.17 Test for Model Improvement

| | Multivariate Model 1 | | | | | Multivariate Model 2 | | | | | Test for Model Improvement | |
Source	df	SS	MS	F	R^2	df	SS	MS	F	R^2	F	Sig.
FACPLANS	586	414.521	0.707	9.209	0.073	585	412.286	0.705	8.238	0.078	3.171	0.075
OCCGRP	586	375.217	0.640	2.655	0.022	585	356.547	0.609	7.432	0.071	30.632	0.000
FACIDEAS	586	446.476	0.762	2.142	0.018	585	436.809	0.747	3.968	0.039	12.947	0.000
WORKHARD	586	432.770	0.739	6.818	0.055	585	429.591	0.734	6.430	0.062	4.329	0.038
ENVFAC	586	1088.965	1.858	0.813	0.007	585	1088.450	1.861	0.703	0.007	0.277	0.599
ACADPR01	586	1377.286	2.350	3.772	0.031	585	1374.423	2.349	3.342	0.033	1.219	0.270
ENVSUPRT	586	397.854	0.679	3.560	0.029	585	381.648	0.652	7.226	0.069	24.842	0.000
LEARNCOM	586	700.317	1.195	4.594	0.038	585	699.137	1.195	3.985	0.039	0.987	0.321

Note. Significant at the $p < 0.05$ level

The analysis of change in the F-statistics for the two models illustrates significance ($p < .05$) in the improvement in Multivariate Model 2's ability to explain 4 of 8 dependent variables. First, no significance is found in the more complicated models ability to explain the following variables: FACPLANS (a change in R^2 of 0.005, F(586, 585) = 3.171, p = 0.075), ENVFAC (no change in R^2, F(586, 585) = 0.277, $p = 0.599$), ACADPR01 (a change in R^2 of .002, F(586, 585) = 1.219, $p = 0.270$), and LEARNCOM (a change in R^2 of 0.001, F(586, 585) = 0.987, $p = 0.321$).

Multivariate Model 2 seems to be significantly better in explaining the following variables: OCCGRP (a change in R^2 of 0.049, F(586, 585) = 30.632, $p = 0.000$), FACIDEAS (a change of R^2 of 0.021, F(586, 585) = 12.947, $p = 0.000$), WORKHARD (a change of R^2 of 0.007, F(586, 585) = 4.329, $p = 0.038$), and ENVSUPRT (a change of R^2 of 0.04, F(586, 585) = 24.842, $p = 0.000$). Finally, by reviewing the beta coefficients for the multiple regression models it is determined that the impact of University College on student engagement is positive. Specifically, the beta coefficients are positive for the impact of University College on each dependent variable.

Findings

This study is guided by the research question: Do first-time freshmen at Virginia Commonwealth University, who were involved in University College report significantly different levels of student engagement compared with first-time freshmen at the same institution when University College did not exist? The null hypothesis was that the 2007 cohort of first-time freshmen did not report statistically significant differences in student

engagement compared with the 2003 cohort. Based on the results presented in this

chapter it is established that University College does statistically impact some student

engagement outcomes. Specifically, the F-ratios comparing the two multivariate multiple

linear regression models explain that the more complex model (Multivariate Model 2)

that includes University College is the stronger of the two. Therefore, the null hypothesis

is rejected at the 0.005 level of significance.

<div align="center">Effect Size</div>

As stated earlier, the variance explained by University College is only 8.5%

where University College, $V = 0.085$, $F(8, 578) = 6.71$, $p < 0.005$, $\eta_{partial}^2 = 0.085$. Partial

eta squared represents effect size due to the multivariate nature of this study. According

to Levine and Hullett (2002), "partial eta squared can be more comparable when

additional manipulated or control variables are added to a design" (p. 622). Richardson

(2011) and Lomax (2007) categorize effect size for partial eta squared values as small

equal to 0.0099, moderate equal to 0.0588, and large equal to 0.1379. Thus, the effect

size of University College on student engagement is moderate. Table 4.18 illustrates the

effect size for the University College variable on the Dependent Variables from

Multivariate Model 2.

Those dependent variables that are significantly impacted by University College

have low effect sizes. Working with classmates outside of class to prepare for class

assignments is significant and had a partial eta squared value of 0.05. Discussing ideas

about readings or classes with faculty members outside of class is significant, but had a

partial eta squared value of 0.022. Working harder than one thought they could to meet

an instructor's standards or expectations is significantly affected by University College, but had a partial eta squared value of 0.007. Finally, feeling supported academically is significantly affected by University College, but had a partial eta squared value of 0.041. These variables have fairly low effect sizes as measured by partial eta squared values. University College within Multivariate Model 2 has a more moderate effect size of a 0.085 partial eta squared value.

Table 4.18 Effect Size (Partial Eta Squared Values) for University College on
    Dependent Variables

Source	Significance	$\eta_{partial}^2$
FACPLANS - Talking about career plans with a faculty member or advisor.	0.074	0.005
OCCGRP - Working with classmates outside of class to prepare for class assignments.	0.000	0.050
FACIDEAS - Discussing ideas about readings or classes with faculty members outside of class.	0.000	0.022
WORKHARD - Working harder than one thought they could to meet an instructor's standards or expectations.	0.039	0.007
ENVFAC - Improving student relationships with faculty members.	0.691	0.000
ACADPR01 - Increasing the number of hours students spend preparing for class.	0.277	0.002
ENVSUPRT - Feeling supported academically.	0.000	0.041
LEARNCOM - Participating in a learning community or program where groups take 2 or more classes together.	0.333	0.002

Note. Significant at the $p < 0.05$ level.
$\eta_{partial}^2$ small = 0.0099, moderate = 0.0588, large = 0.1379

To improve these effect sizes, Richardson (2011) suggests using larger sample sizes. Additionally, a true experimental design would ensure that a treatment and control group are more similar than in an ex post facto design. Bowman (2011) states, "sampling, measurement, and analyses used within a study often have some impact on the observed effect size" (p. 33). Additionally, the author adds (in line with previously discussed

concerns regarding self-reported data) that longitudinal data may improve the effect size. Finally, results from Senior-Year NSSE data may result in larger effect sizes, as the frequency with which students engage in educationally purposeful activities will differ drastically after four (or more) years compared to students who complete the survey during their first year.

Conclusion

This study suggests that VCU's University College affects student engagement as reported on NSSE's College Student Report. Additionally, the beta coefficients are positive for University College's impact on the dependent variables in the multiple regression models. Thus, University College at VCU appears to positively impact some aspects of student engagement as measured by NSSE. However, the effect size of this impact is moderate with a partial eta squared value of 0.085 and an explained variance of 8.5%. Other factors not explored by this study may have a greater ability to explain variation in student engagement. This study focused on one environmental condition as it is assumed that the addition of University College is the only change that occurred between the two cohorts, in all likelihood, other changes might have occurred. Chapter 5 provides an overview and interpretation of these findings. Additionally, Chapter 5 also includes sections on the implications for this study on student engagement, recommendations for future research, and a summary of the research study.

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

Introduction and Overview

This *ex post facto* study examines the role of a university college on student engagement measures from the National Survey of Student Engagement (NSSE). Specifically, the study examines how University College at Virginia Commonwealth University (VCU) affects the reported student engagement variables from NSSE. The study's framework is motivated from Astin's (1993) Input-Environment-Outcome (I-E-O) model of student change. This framework typically requires the use of multiple linear regression, where environmental treatments are analyzed while accounting for bias from student input characteristics. This study, however, includes only one environment, University College. This chapter explores the study's findings and provides implications for future research. Additionally, overall conclusions of the study are offered.

For this study, data were collected using NSSE's main instrument, The College Student Report (CSR), and from VCU's student databases. The study's sample is from the population of VCU first-year students who completed NSSE in 2004 and 2008. This population was then reduced to in-state and non-Honors students to ensure the two cohorts were as similar as possible. VCU staff created the dataset, which includes student input characteristics (GPA, SAT score, admissions status, race/ethnicity, and gender), the

environment (University College) based on when a student enrolled at VCU, and outcomes (NSSE variables). This study requires using the General Linear Model (GLM) in SPSS to answer the research question. The research question that guides this study was: Do first-time freshmen at Virginia Commonwealth University who were involved in University College report significantly different levels of student engagement compared with first-time freshmen at the same institution when University College didn't exist?

Many studies have been conducted on first-year student success (Upcraft, Gardner, Barefoot, & Associates, 2005) with some focusing on how university colleges affect persistence and GPA (Weaver, 1992; Raab & Adam, 2005; Ambrose, 2002). However, limited research exists on the effects of university colleges on student success beyond GPA and persistence. Studies have shown NSSE benchmarks and individual variables are closely related to GPA and student persistence (Carini, Kuh, & Klein, 2004; Carini, Kuh, Klein, 2006; Gordon, Ludlum, Hoey, 2007; and Schlinsog, 2010). Pascarella, Seifert, and Blaich (2010) have found a significant relationship exists between liberal arts outcomes and NSSE benchmarks. While Pike and Kuh (2005) found that institutional type affects student engagement. Few empirical studies, however, have been conducted at institutions whose goals have been to improve scores on NSSE. Kuh (2009b) called for empirical research on what conditions, if any, can alter student engagement and improve the student experience. This study looks at the role University College had on specific NSSE variables.

VCU's (2005; 2006a; 2006b) strategic plan, VCU 2020, developed between 2005 and 2006 intended to improve student engagement during the first college year. Kuh (2009a) describes student engagement data as process indicators for learning outcomes

when actual measures of student learning aren't available. Often, these indicators can identify areas for improvement. VCU administrators identified areas for improvement in the first-year student experience and wished to improve student engagement, persistence, and GPAs. The development and implementation of University College was meant to affect these outcomes (VCU, 2005; VCU, 2006a; VCU, 2006b). The expected outcomes from University College were presented in Table 1.1. This study determines whether VCU did improve student engagement after the implementation of University College. Furthermore, this study was meant to fill the gap in the research on university colleges, student engagement, and to document effective educational practices.

The results in the study suggest that University College at VCU did positively affect certain aspects of student engagement. *F*-values compare the two regression models and are used to reject the null hypothesis. Therefore, it is concluded that University College did affect certain aspects of student engagement at VCU. Adding to the findings that University College did seem to affect student engagement, the beta coefficients for the independent (University College) treatment variable in the multiple regression analyses were all positive. This suggests that the impact University College does have on student engagement is positive.

Interpretation of Findings

The results from the study are summarized in this section. The research question in this study examines the role University College at VCU has on student engagement. The study's multiple linear regression analyses found that University College

significantly improves the prediction of five NSSE variables. These results are useful for VCU to explain that University College had an impact on:

- How often VCU students worked with other students outside of class to prepare class assignments,

- How often VCU students talked about career plans with a faculty member or advisor,

- How often VCU students discussed ideas from readings or classes with faculty members outside of class,

- How often VCU students worked harder than they thought they could to meet an instructor's standards or expectations, and

- How well VCU provided support for students to succeed academically.

Moreover, it allows VCU to recognize that University College was not successful in improving student responses for three other variables. VCU administrators should recognize that University College did not significantly change:

- Whether their students participated (or planned to participate) in a learning community or other formal program where groups of students take two or more classes together,

- The quality of their students' relationship with faculty members, and

- The number of hours per week students spent preparing for classes.

This study, however, looks at whether University College has a role in student engagement, not simply the NSSE variables. Therefore, it is critical to conduct multivariate multiple linear regression analyses that can detect differences along the multiple dependent variables. The multivariate multiple linear regression analyses

illustrate that several student input characteristics significantly affect student engagement. When University College was included in the model, gender significantly affects:

- How often VCU students worked harder than they thought they could to meet an instructor's standards or expectations, and

- The number of hours per week students spent preparing for classes.

In addition, SAT total scores exhibit significant effect on:

- How often VCU students talked about career plans with a faculty member or advisor,

- How often VCU students worked with other students outside of class to prepare class assignments,

- How often VCU students discussed ideas from readings or classes with faculty members outside of class,

- How often VCU students worked harder than they thought they could to meet an instructor's standards or expectations,

- How well VCU provided support for students to succeed academically, and

- Whether VCU students participated (or planned to participate) in a learning community or other formal program where groups of students take two or more classes together.

More importantly, when University College is included in the analysis significant relationships are observed between University College and four dependent variables. University College has a significant impact on:

- How often VCU students worked with other students outside of class to prepare class assignments,

- How often VCU students discussed ideas from readings or classes with faculty members outside of class,

- How often VCU students worked harder than they thought they could to meet an instructor's standards or expectations, and

- How well VCU provided support for students to succeed academically.

These results appear to illustrate that University College, as an environmental treatment, affect student engagement at VCU. However, to test the null hypothesis for this study *F*-values compare which of the two multivariate multiple linear regression models have the best fit.

Comparisons between the two models illustrate that when University College is included, the *F*-values are significant in four of the eight NSSE variables. Furthermore, the beta coefficients for the independent variable (University College) in the multiple linear regressions are all positive. This illustrates that University College improved:

- The frequency VCU students worked with other students outside of class to prepare class assignments,

- The frequency VCU students discussed ideas from readings or classes with faculty members outside of class,

- The frequency VCU students worked harder than they thought they could to meet an instructor's standards or expectations, and

- How well VCU students felt supported to succeed academically.

These results lead to the null hypothesis being rejected. Therefore, University College does seem to improve some aspects of student engagement.

In addition to determining that University College affects some aspects of student engagement, the variance explained seems to suggest those effects are minimal. The variance explained by University College is only 8.5%. Overall, this is moderate at best and explains only a small portion of the variability. Additional treatments at VCU that are unaccounted for in this study may have a stronger impact than University College. As mentioned, this study is loosely based on Astin's I-E-O model. This model typically includes a variety of environmental conditions that affect student outcomes. This study is limited by the assumption that University College at VCU is the only difference between the two cohorts.

In addition, the partial eta squared values for the dependent variables, which have a significant relationship with University College, have a low to moderate effect size. Using Richardson (2011) and Lomax's (2007) categories for partial eta squared effect size (small = 0.0099, moderate = 0.0588, and large = 0.1379), University College has a small effect on three of the four dependent variables and a small to moderate effect on one of the variables. Specifically, University College has a small effect on students discussing ideas about readings or classes with faculty members outside of class (FACIDEAS, $\eta_{partial}^2 = 0.022$), students working harder than one thought they could to meet an instructor's standards or expectations (WORKHARD, $\eta_{partial}^2 = 0.007$), and students feeling supported academically. Finally, University College exerts a small to moderate effect size on whether students worked with classmates outside of class to prepare for class assignments (OCCGRP, $\eta_{partial}^2 = 0.050$). Although the effect of University College on student engagement is statistically significant, the effect size for practical purposes of the treatment on student engagement is small.

The results indicate that student engagement is higher for students who entered in 2007 than students who entered in 2003 when University College did not exist. For VCU, the goals to improve student engagement were based on NSSE results. The results in this study suggest that VCU created environmental conditions that improve some aspects of student engagement. However, University College's effect on student engagement is small at best, and may be even smaller when other factors at VCU, between the cohorts, are taken into account.

Limitations

Though the study found that University College is effective in altering some aspects of student engagement as reported by first-year students at VCU, several limitations of this study should be noted. First, the effect size of University College on student engagement variables at VCU is small. The variance explained by University College is also moderate (8.5% of the explained variance) with partial eta squared equal to 0.085. This study was inspired by Astin's I-E-O model, which typically includes a variety of environmental conditions to determine effects on student outcomes. However, this study only includes one environmental condition, University College. It is critical to recognize the complexity of any university. As such, this study does not include a number of variables that affect students and that possibly changed between the collection of the 2004 NSSE data and the 2008 NSSE data. Examples of these variables include campus residence halls, faculty members and their teaching styles, roommate relationships, and academic spaces. These environments directly affect students and this study assumed that University College was the only difference between the 2003 and 2007 cohorts. Even the

manner in which NSSE was administered to VCU students may affect the results. These other variables may very well explain some of the observed variance that University College has on student engagement. Therefore, conditions other than University College may better improve student engagement. And, VCU must recognize that University College alone may not have met the intended goals to improve NSSE scores.

It is also important to remember this study examines a unique institution with unique students. As such, findings cannot be generalized for other institutions. Furthermore, this study has a small (and disproportionate) sample size. In fact, this could have a direct impact on the aforementioned effect size. This also creates a limitation of nonresponse bias in this study. Those students who did not complete the CSR could have answered differently from those students who did complete the CSR. Of those students who are included in this study, another limitation in the research was that it did not include more detailed variables for race/ethnicity. Therefore, the only race/ethnicity variable consists of white students or students of color options. Students of color do not have the same experiences within groups as this study may suggest (Harper & Quaye, 2009). It is difficult to make assumptions about the ability of the university college model to affect student engagement at all colleges and universities. Every institution must assess their needs and create conditions that matter for their students.

Implications for Future Research

Following the completion of this study, numerous implications emerged for future research. These implications are divided into three areas of interest. First, an expansion of the current study would likely provide more meaningful and, perhaps, even different

results. Specifically, the study would be strengthened with the addition of more environmental conditions at VCU. Second, further studies are necessary on university colleges. Finally, SAT scores seem to affect NSSE results and further research should be completed regarding this relationship.

Expansion of this Study

The dependent variables that were chosen for this study represent only part of NSSE's results, but were chosen due to the intended impact University College was expected to have on student engagement. Almost 100 variables exist within NSSE (Kuh, Hayek, Carini, Ouimet, Gonyea, & Kennedy, 2001). Only eight of those variables were chosen for this study and correspond with the goals for VCU's (2005; 2006a; 2006b) University College. However, additional NSSE variables are opportunities for further study.

In addition, this study assumes that University College is the only environmental condition that changed between the two cohorts. The realistic nature is that college and university environments are complex. Therefore, it is not conclusive that University College was completely responsible for changes in student engagement. Instead, changes in faculty, living conditions, classroom buildings, university administration, general education courses, and much more could account for change in student engagement. By adding environmental variables, and more fully embracing Astin's I-E-O model, further research may supplement the reasons for changes in student engagement. It is important to ascertain the effects of University College on student engagement and an expansion of

this study that includes additional environmental variables would more fully account for such change.

Future Studies on University College

As mentioned earlier in this chapter, some variables are not significantly affected by VCU's University College. One area of study would be to determine whether other cohorts report similar results. However, the more interesting analysis would be to collect qualitative data on the student experience as it relates to two of these variables. Specifically, the relationships that VCU students forge with faculty members and how many hours per week students spend studying and preparing for class are both areas that VCU hoped to improve when they established University College. However, the results of the regression analyses in this study did not show significant changes in these variables. As such, it would befit VCU leadership to more deeply explore their students' relationships with faculty. Further, a qualitative study that relates to first-year student courses would benefit VCU leaders in understanding their student academic experiences. Faculty members would best understand the demands on students as it relates to hours spent preparing for class. By comparing faculty expectations with student experiences through qualitative research, VCU can better understand why students report the number of hours they spend preparing for class at the levels they do.

As noted in Chapter 2, university college research is limited. VCU's University College has now enrolled its 9th cohort since it was established in 2006. Additionally, the 2006 cohort that enrolled in University College has graduated. This study adds to the research by providing some evidence of University College's effects on certain aspects of

student engagement. However, how do university colleges affect student engagement over time? VCU has had a university college for many years. This provides an opportunity to conduct several longitudinal studies comparing first- and senior-year NSSE data. Or possibly include multiple cohorts in a variety of analyses. As explained by Kuh (2009b), NSSE provides an opportunity to examine student engagement longitudinally with data collection points during the first and senior years. Furthermore, students from the different cohorts could be added to a variety of studies on student engagement, satisfaction, graduation, and career/graduate school placement.

In addition, this study is limited in the disproportionate sample size. The use of more cohorts of students may produce better results that represent changes in student engagement over time as well as within student groups. A limitation in this study is the coding for race/ethnicity. With a better sample, the results concerning different racial and ethnic groups would improve how higher education professionals understand intercultural effort that was critiqued by several researchers (Dowd, Sawatzky, and Korn, 2011).

<center>Student Engagement and SAT Scores</center>

The results of this study add to the research on student engagement. To determine the effects of University College on student engagement, various student input characteristics are included in the analyses. Race/ethnicity, gender, high school GPA, SAT total score, and admissions status are included to account for any bias these characteristics may have on student engagement. During the analysis, one of these input variables continuously exhibits a relationship with NSSE variables. Evidence that SAT scores correlate with student engagement exist throughout the study. In addition, the

multiple linear regressions illustrate that the relationship between SAT scores and student engagement are negative. The negative relationship between SAT scores and NSSE variables is another area that should be studied.

Conclusion

This dissertation began with a focus on student success and the difficulty that exists in defining and assessing that concept. Decades of research (Chickering & Gamson, 1987; Evans, Forney, & Guido-DiBrito, 1998; Pascarella & Terenzini, 1991; Pascarella & Terenzini, 2005; Renn & Reason, 2013) have demonstrated that college affects students. Yet, campus leaders continue to report GPA, retention, and graduation rates as the measures of student success. Although these are critical measures for student success, measures of student change are just as important. NSSE was developed from multiple concepts on student learning with a goal to better understand the relationships between college outcomes, student effort, and institutional activities that affect learning (Kuh, 2009b). It is important for college leaders to collect data about what their students are doing on campus and to use those data to try to improve learning outcomes. The use of NSSE allows for within and between institutional comparisons, opportunities for improvement, and areas of improvement.

This study stems from the creation and implementation of University College at VCU. The purpose of this study is to determine whether VCU's University College affects student engagement. Minimal research exists on the effects of university colleges on student outcomes beyond GPA and student persistence. This study suggests that VCU's University College positively affects some pieces of student engagement.

Students enrolled in VCU's University College reported significantly higher levels on four of the NSSE variables than did students enrolled before University College was introduced. Reports on the CSR indicate that University College affects (a) how often VCU students worked with other students outside of class to prepare class assignments, (b) how often VCU students discussed ideas from readings or classes with faculty members outside of class, (c) how often VCU students worked harder than they thought they could to meet an instructor's standards or expectations, and (d) how well VCU provided support for students to succeed academically. Further, beta coefficients from multiple linear regression analyses provide evidence of positive directionality of University College's relationship on certain aspects of student engagement.

University College's effect, however, on some aspects of student engagement is limited. This study suggests that University College positively affects certain aspects of student engagement. However, those effects are limited both in scope and practicality, as other factors may have had a role in the change in student engagement. Does this mean University College has failed? No. VCU has seen gains in many important measures of student success over the past decade. For example, The Education Trust (2015) has recognized the university for gains in graduation rates, especially for underrepresented minorities. Furthermore, student-athletes who began in 2008 graduated 14% better than their 2001 counterparts. Data from the State Council of Higher Education for Virginia (SCHEV, n.d.) show the six-year graduation rate for students who began in 1994 was 37%. Forty-five percent of the students who began in 2000 graduated in six years. However, that rate increased to 59% for students who began in 2008. Additionally, VCU has built three residence halls for three major living-learning communities that integrate

classroom learning with real-world experiences. Living-learning communities are one of many educationally purposeful activities that Kuh (1993; 1995) acknowledges.

The actions of VCU to implement effective educational practices, such as University College, could be one reason for improvements in graduation rates, persistence, and student engagement. This study's findings, although limited in scope, certainly suggest that VCU's University College was successful in improving certain aspects of student engagement, and that it was part of a larger effort that actually did improve overall student outcomes at VCU.

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APPENDIX A

The College Student Report

The College Student Report 2004

National Survey of Student Engagement

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)	☐	☐	☐	☐

	Very often	Often	Some-times	Never
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 Mark the box that best represents the extent to which your examinations during the current school year challenged you to do your best work.

Very little ▼ ... Very much ▼

☐ ☐ ☐ ☐ ☐ ☐ ☐
1   2   3   4   5   6   7

4 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**	☐	☐	☐	☐	☐

5 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	☐	☐	☐	☐	☐

6 In your experience at your institution 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.)	☐	☐	☐	☐

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 (comprehensive exam, capstone course, thesis, project, 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, exercising, 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 Are you of Hispanic, Latino, or Spanish origin?
☐ Yes ☐ No

19 What is your racial or ethnic identification? (Mark all that apply.)
☐ American Indian or other Native American
☐ Asian American or Pacific Islander
☐ Black or African American
☐ White
☐ Other, specify: _____

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

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

22 Since 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: _____

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

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

25 Are you a student-athlete on a team sponsored by your institution's athletics department?
☐ Yes ☐ No (go to question 26)

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

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

27 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

28 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.)

29 Please print your primary major or your expected primary major.
_____

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

THANKS FOR SHARING YOUR VIEWS!

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	☐	☐	☐	☐

	Very often	Often	Some-times	Never
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 → 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, 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 → Friendly, Supportive, Sense of belonging

| ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 | ☐ 6 | ☐ 7 |

b. Relationships with **faculty members**

Unavailable, Unhelpful, Unsympathetic → Available, Helpful, Sympathetic

| ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 | ☐ 6 | ☐ 7 |

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

Unhelpful, Inconsiderate, Rigid → Helpful, Considerate, Flexible

| ☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5 | ☐ 6 | ☐ 7 |

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.):

THANKS FOR SHARING YOUR RESPONSES!

After completing the survey, please put it in the enclosed postage-paid envelope and deposit it in any U.S. Postal Service mailbox. Questions or comments? Contact the National Survey of Student Engagement, Indiana University, 1900 East Tenth Street, Eigenmann Hall Suite 419, Bloomington IN 47406-7512 or nsse@indiana.edu or www.nsse.iub.edu. Copyright © 2007 Indiana University.

SAMPLE

APPENDIX B

Institutional Approval and Support

VCU

Virginia Commonwealth University

July 12, 2011

Center for the Study of Higher Education
Curry School of Education
The University of Virginia
P.O. Box 400265
Charlottesville, VA 22904

Dear Dr. Brian Pusser and Center Faculty,

As Assistant Vice Provost for the Center for Institutional Effectiveness at Virginia Commonwealth University, I am pleased to provide my support and endorsement for Robert Jason Cottrell's dissertation research. The Center for Institutional Effectiveness supports decision making throughout the institution and as such, the Center manages a variety of data, including student demographic information, for institutional studies and evaluations. These studies include the annual National Survey of Student Engagement (NSSE) data. CIE has been unable to provide the type of analysis Mr. Cottrell will be exploring, but are interested in learning more from his study.

I am pleased to be able to offer commitments in several areas to support Mr. Cottrell's research. Mr. Cottrell will have access to the data that were collected for the National Survey of Student Engagement. In addition, he will have access to student-level data for students who have entered since the Fall 2004 cohort. Our office will also be able to provide support for any questions he may have regarding the data sets.

We forward to Mr. Cottrell's research and hopes he will shed light on our University College as well as our commuter student population. This research will provide insights for Virginia Commonwealth University as well as other colleges and universities in the areas of the first-year experience and commuter student engagement.

Sincerely,

Kelli Parmley
Assistant Vice Provost for the Center for Institutional Effectiveness

APPENDIX C

IRB Approval

UNIVERSITY *of* VIRGINIA

OFFICE OF THE VICE PRESIDENT FOR RESEARCH
INSTITUTIONAL REVIEW BOARD FOR THE SOCIAL AND BEHAVIORAL SCIENCES

In reply, please refer to: Project # 2012-0146-00

April 26, 2012

Robert Cottrell and Mark Hampton
Leadership, Foundations & Policy
606 Remington Circle
Durham, NC 27705

Dear Robert Cottrell and Mark Hampton:

Thank you for submitting your project entitled: "A Study of Differential Treatment Effects on First-Time Freshmen Student Engagement at Virginia Commonwealth University" for review by the Institutional Review Board for the Social & Behavioral Sciences. The Board reviewed your Protocol on April 26, 2012.

The first action that the Board takes with a new project is to decide whether the project is exempt from a more detailed review by the Board because the project may fall into one of the categories of research described as "exempt" in the Code of Federal Regulations.

Since the Board, and not individual researchers, is authorized to classify a project as exempt, we requested that you submit the materials describing your project so that we could make this initial decision. As a result of this request, we have reviewed your project and classified it as exempt from further review by the Board for a period of four years. This means that you may conduct the study as planned and you are not required to submit requests for continuation until the end of the fourth year.

This project # 2012-0146-00 has been exempted for the period April 26, 2012 to April 25, 2016. If the study continues beyond the approval period, you will need to submit a continuation request to the Board. If you make changes in the study, you will need to notify the Board of the changes.

Sincerely,

Tonya R. Moon, Ph.D.
Chair, Institutional Review Board for the Social and Behavioral Sciences

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