ACT SCORES, SAT SCORES, AND HIGH SCHOOL GPA AS PREDICTORS OF SUCCESS IN ONLINE COLLEGE FRESHMAN ENGLISH

by
Cheryl Lynn Gregory
Liberty University

A Dissertation Presented in Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

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ABSTRACT

SAT and ACT scores are often used by colleges and universities as indicators of ability to perform college work in a residential setting, although few studies have focused on the use of these scores to predict success in an online setting. The purpose of this study is to examine the potential of the SAT score, ACT score, and high school grade point average (HSGPA) to predict success as indicated by a numerical grade in freshman college English for online students. Freshman English is considered crucial to successful completion of a college degree. The sample included 1,008 college freshmen taking English enrolled in multiple sections of an online English course. This hierarchical study will attempt to determine if there is a correlation between SAT or ACT scores, HSGPA, and the students' final grade in an online college freshman English composition course.

Descriptors: *SAT score, ACT score, HSGPA, college English, prediction of success, online students.*

Dedication

First, I want to dedicate this to my best friend, David. You have been with me throughout this entire process as we took online classes and back-to-back intensive courses together. You were my biggest cheerleader encouraging me through dissertation process. Through it all, you never let me quit—even when there were times that I really wanted to quit. You are my rock. I love you, and I know that I would not be the person that I am today, if it were not for your love and commitment to me. I know that this doctoral journey together is not a race for us, but, for the record, I win. Now, I will stand by you to help you to see your dissertation through to the end. We started this journey together, and I intend to see you through it to the finish line.

Also, I want to dedicate this dissertation to my parents, Thomas and Sharon Powell. Mom and Pop, you both worked hard and sacrificed your time and finances to make sure that Christy and I received a good Christian education. You taught us to love learning. Although I do not know if you ever expected that either of us would take our love of learning this far, I hope that this final degree makes you proud.

Finally, I dedicate this work to my Lord Jesus Christ. I do not know why you chose me to take this path, but I want to use the information that I have to help others to see how the Lord can use them.

"Let us run with patience the race that is set before us." Heb. 12:1b

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List of Abbreviations

Advanced Placement (AP)

American College Test (ACT)

College Level Examination Program (CLEP)

Freshman Year of College (FYC)

High School Grade Point Average (HSGPA

Scholastic Assessment Test (SAT)

CHAPTER ONE: INTRODUCTION

Stanford Aptitude Test (SAT) scores and American College Test (ACT) scores have long been touted as predictors of success in colleges and universities across America (Shaw, Mattern, & Patterson, 2011). Nearly every college and university across America, both public and private, requires that students submit SAT or ACT scores as a requirement for entrance into college (Atkinson & Geiser, 2009; Bowen, Chingos & McPherson, 2009). These scores, along with students' high school grade point average (HSGPA), become a part of the student's admissions record and form the basis of admission to college. Accredited institutions must have a clear basis of admission for all of their programs—both residential and online—that is in line with the mission and purpose of the institution (SACS, 2012). Although these scores are not always taken into consideration for acceptance into an online program with open enrollment, these scores are a part of the students' records and can provide institutions information that have been proven to show students' ability to be successful in residential program.

Since studies show differing opinions over which test is better suited to predict success in college-level studies whether these studies be online or residential, which pre-admission test score (SAT or ACT) will prove to be a better variable to predict success within the first year is not clear (Donnelly, 2010). In 2014, 1,672,395 students took the SAT test while 1,845,787 students took the ACT test (ACT, 2014a; College Board, 2014a) as part of college admission for both residential and online programs. Since each test is designed to test different aspects of student college readiness, both tests are acceptable for college admittance (Coyle & Pillow, 2008). The SAT test has been linked more with students' aptitude or ability to complete college than with their actual academic knowledge, while the ACT test is developed from standard high school

curriculum (ACT, 2012b; College Board, 2012). Choosing to use both of these pre-admission scores may prove helpful in that each of these scores has been connected to different levels of success based upon their testing design.

In addition to the SAT and ACT tests, students' high school grade point average (HSGPA) has been identified as a strong predictor of success in college (Geiser & Santelices, 2007; Noble & Sawyer, 2004). Although studies do indicate that there is a trend in both high school and college that point to grade inflation which fails to gives a clear picture of the student abilities causing these students to do well in high school only to struggle in college (Pattison, Grodsky & Muller, C. 2013; Woodruff & Ziomek, 2004; Zhang & Sanchez, 2013), these studies have indicated that this initial inflation of grades took place between 1972-2003 (Woodruff & Ziomek, 2004) and have not significantly increased since that time (Zhang & Sanchez, 2013). Even with some evidence of grade inflation on the secondary level, studies indicate that HSGPA is a stronger predictor of success in college than standardized tests such as the SAT or ACT (Gilroy, 2007). This finding has led some institutions to allow incoming students to choose to not submit an SAT or ACT score for college admittance (Gilroy, 2007). Colleges and universities that have chosen to adjust their admittance policy to eliminate the requirement of SAT or ACT scores have found that students' HSGPA is a better predictor of success noting that preparation and test bias influence the ability of the standardized test to predict college success as much as the HSGPA (Gilroy, 2007). Overall, a majority of colleges still hold to the traditional requirements of a standardized test score (SAT or ACT) combined with HSGPA as an admission requirement for all incoming students.

The current study's focus on online freshman English composition stems from the importance of critical thinking and communication skills. A survey by the Association of

American Colleges and Universities found that the top skills that employers are seeking in an employee are critical thinking skills and written and oral communication skills (Hart Research Associates, 2013). These skills are generally taught in today's freshman English composition classes. Although the specific learning outcomes for each freshman English course may vary from institution to institution as decided by that institution's English department, the Council of Writing Program Administrators (CWPA) identified four different categories that should be included in first-year composition: (a) Rhetorical Knowledge; (b) Critical Thinking, Reading, and Composing; (c) Processes; and (d) Knowledge of Convention (CWPA, 2014). Each of these categories identifies clear learning outcomes for the students' writing and gives methods that faculty can use to aid in the students meeting these outcomes. The CWPA statement is based upon research, theory, and practice in the area of composition instruction (CWPA, 2014).

With an increased number of students taking Advanced Placement (AP) courses in high school to earn college credit (College Board, 2014b), some may question the validity of using a freshman English composition course for the current study since not all students would be required to take freshman composition based upon AP scores. Although AP courses in English were two of the top three AP courses taken by high school students in 2014 and more than 50% scored a 3 or higher on the test (College Board, 2014b), success in AP English is not equivalent to freshman English composition (Dennis, 2014; Guzy, 2011; Hansen et al., 2006). Hansen et al. (2006) found that students who take AP English and freshman composition have better writing skills than those who only take AP English or only take freshman composition. These findings were based upon the papers of 182 sophomore students in a history of civilization course (Hansen et al., 2006). The study also sought to broaden the idea that students need more opportunities to learn to write—more than just high school. Hansen et al. (2006) concluded

students should take both AP English and freshman composition. The freshman composition course proved important to future writing skills simply because the students' writing matures as students matures (Hansen et al., 2006).

Guzy (2011) noted that even students who take AP English composition still need to take college-level or honors composition courses in either online or residential format. These conclusions were three-fold: (a) Students are not taught college-level writing skills that include proper use of APA, MLA, or Turabian in AP English; (b) Students who take both AP English and freshman composition tend to have stronger writing overall; (c) Students who have only taken AP English are not ready for the writing and research needed for college-level writing (Guzy, 2011). To prove some of these results, Guzy (2011) conducted a survey of a first assignment from the researcher's own Honors English course. Guzy (2011) found that the honors students' work contained common errors in grammar and punctuation which proved earlier studies show that students who take AP English show great weakness in their writing skills (Henderson, 1992). In addition, Dennis (2014) indicated that many of these problems linked to AP English courses arises from the fact that they are taken as early as the junior year of high school when students lack a maturity in their writing that comes with time, practice, and more writing instruction. The aforementioned research may indicate that intuitions should cease the practice of granting credit for AP or CLEP credits allowing students to be exempt from first-year composition. Since the goal of this current study is not to mandate first-year composition but to identify its ability to indicate success and retention, such an assertion will not be made by this study. Instead, discontinuance of AP scores will be left to the individual institutions and further research.

Studies indicate that freshman English composition (online or residential) is an important part of most students learning to think critically and to write critically (Adler-Kassner, Majewski, & Koshnick, 2012; Blaauw-Hara 2014; Condon & Kelly-Riley, 2004; CWPA, 2014). Unfortunately, when most students leave high school, they fail to have the adequate skills needed to write critically on a college level. Smith (2010) found that students do not have the ability to write critically and think critically across all secondary learning levels. With only 24% of 12th grade students writing at a proficient level, teaching students to think critically through their reading, writing, and revising of the text is more important than ever (National Assessment of Education Progress, 2011; Smith, 2010). Smith (2010) found that students can improve their critical thinking skills through a clear composition and rhetoric course that will teach them how to apply clear critical thinking skills.

Although some students may choose to take AP English instead of freshman English composition, this does not negate the importance of this course to the current research. Some colleges and universities do not require students to take composition courses, but these are the schools that have very high admission standards and expect students to be able to write on a tertiary level prior to acceptance. The other schools that do require an introductory course to expository writing as a general education requirement have discovered that students who pass this initial course have a higher probability of completing a degree (Calcagno, Crosta, Bailey, & Jenkins, 2007). It should be noted that these institutions do not differentiate between online or residential format for these introductory writing courses. Additionally, since English composition is considered an introductory course, the enrollments in this course are much higher than enrollments in upper-level or major-specific courses allowing for an analysis of a large sample size increasing the statistical power of this study (Gall, Gall, & Borg, 2007).

Furthermore, initial success in a program within an introductory course such as freshman English composition allows the students to form a connection with the institution (Tinto, 1987, 1993). Tinto's model of student integration (1987, 1993, 2006) has been used throughout literature as a basis of retention studies. According to Tinto's model of student retention (1987, 1993), students who connect to the institution academically during the first year have a stronger connection to the institution and are more likely to continue. Although Tinto's model does not make specific reference to freshman English composition, inclusion of this first-year course fits within Tinto's (1987, 1993) model in that the structure of the course combines faculty feedback and peer interaction which is important to the academic and social integration theories of Tinto's model. Tinto identifies the importance of students' academic and social integration through the use of studies related to retention, persistence and student academic integration. This academic integration along with social integration is key to students persisting from the first to second year (Tinto, 1987, 1993). Tinto (1987, 1993) also noted the importance of student connection to faculty within the academic setting. Faculty interaction within the classroom leads to social interactions outside the classroom. Tinto (1987, 1993) further noted that this classroom contact has a strong influence on student persistence or departure. Also, in a later update the theory, Tinto (2006) confirmed the importance of faculty interaction within the classroom since this interaction is "critical to institutional efforts student retention" (p. 7).

Tinto (1987, 1993) identified a direct link between student commitment to an institution and initial academic success. Academic connections and success leads to social connections within the institution which strengthens students' commitment to the institution in that these connections give students a learning community (Tinto, 1987, 1993). In FYC, students tend to have a stronger connection with their instructor in that the course since the classes tend to be

small and include more student/faculty interaction (Moon, 2003). Although this faculty connection leads to institutional connections, Tinto (2006) noted that many faculty are not aware of their influence on student retention. Moreover, initial first-year grade success is a strong indicator of continued persistence and program completion (Allen & Robbins, 2008). Since students will take general education courses in their first two years of college, which may include English composition, it is important that students find success in these early courses which may lead to success and persistence with the students' degree programs. The decision to focus on freshman English composition is that this course teaches valuable skills including writing, research, and critical thinking that may be transferred to upper-level and major courses.

Chapter 1 will provide background information relative to the study, the problems that will be examined, the purpose, significance of the study, research questions, hypotheses, variables, definitions, research summary, and assumptions and limitations.

Background

Online learning has increased exponentially over the past decade. Many traditional programs have launched partial or fully online programs that are surpassing the number of students in their residential programs (Allen, Seaman, Sloan, Babson, & Pearson, 2013; Liberty University Quick Facts). Although this increase has helped some students to complete their core courses or even complete a college degree in a format that is more flexible than a traditional residential program, studies have found that the nature of online programs tend to have a higher withdrawal rate decreasing student success (Wojciechowski & Palmer, 2005). Cochran, Campbell, Baker, and Leads (2014) study showed that the withdrawal rate for online courses is between 15-20 percent higher than for traditional face-to-face courses.

With the higher withdrawal rate attributed to online programs over residential ones, institutions must identify ways to retain students within these online programs. To help institutions to meet the needs of these students, charitable foundations, such as the Bill and Melinda Gates Foundation (2009), has launched an initiative to increase college completion for Washington State students. This initiative has sought to increase the number of "gatekeeper" courses available to students online in an effort to increase student success while decreasing the costs to students through the use of open-source materials and current library holdings (Gates Foundation, 2009; Roksa, Jenkins, Jaggars, Zeidenberg, & Cho, 2009). "Gatekeeper" courses are introductory courses that are taken by most students as required for degree completion. Studies show that success in these core courses plays a vital role in students completing a degree (Xu and Jaggars, 2011), and students who fail to find success in these courses may fail to complete their degrees (Roksa et al., 2009). Such failure will not only influence these students' drive to complete their degree programs, but institutions are significantly influenced financially by this lack of retention.

To avoid attrition within the first year, it is important that institutions, especially institutions with fully online programs, identify students who will find success in an online format before these students begin their coursework. The information drawn from this current study will allow institutions to establish pre-admission requirements that will help to identify students who may struggle in an online environment. With such information, institutions may decide whether or not to admit students who may struggle in an online environment as identified by their pre-admission scores. Still other institutions may choose to use the conclusions of this study to provide services that may help these weaker students to find success.

Studies identifying factors that lead to student success in online classes and programs do exist within the literature. However, many of these studies base the student's persistence and success upon interaction with instructors or fellow students as identified by the study of student computer access logs (Morris, Finnegan, & Wu, 2005). Although these studies do support the idea that students' persistence in a program made them more successful, none of the studies specifically address the ability of pre-admission requirements such as SAT/ACT scores or HSGPA (Hart, 2012). Pre-admission requirements such as ACT and SAT scores and HSGPA have been shown to be excellent predictors of success in a non-online learning environment but have not been studied in connection to online courses (Kobrin, Kim, & Sackett, 2012; Schmitt et al., 2011). Using pre-admission requirements as indications of success in online freshman English composition courses will allow institutions to identify students who may struggle in an online learning environment and provide these students with extra assistance the student may need to be successful. These pre-admission scores may also identify students who need to be directed to a traditional program where they would find greater success.

Studies have established that success in core content courses such as English predict success in major-specific courses (Smith & Schumacher, 2005; Goldstein & Perin, 2008). Considering the importance of the SAT and ACT, it is unclear why so few studies exist using these tests to predict success in a core subject such as freshman English (Aggarwal, Vaidyanathan & Rochford, 2004; Smith & Schumacher, 2005).

Although college and university use of the SAT and ACT to predict success in traditional non-online college programs has been studied (Bridgeman, Burton, & Pollack, 2008), few studies exist specifically analyzing the tests' ability to predict success, as validated by a passing grade, in a specific online core college course such as freshman English (Donnelly, 2011;

Goldstein & Perin, 2008). The focus of this current study is to identify the ability of the SAT and ACT tests and students' HSGPA of online students to predict success in an online freshman college English composition course. The results of this study will give colleges and universities information that will enable them to identify incoming freshmen students who are unlikely to succeed in the online format of this core subject based upon their SAT or ACT scores and HSGPA. Academic intervention may be made on behalf of these students in their first semester so that they may be redirected into a residential format or connected with online tutors and academic advisors who will help them to find the academic success that they need to complete a college degree.

Problem Statement

SAT and ACT scores and HSGPA have long been used by colleges and universities as a way to determine students' ability to successfully complete college-level work. Research has demonstrated that both the SAT and ACT tests are clear predictors of success (Bridgeman et al., 2008), while the addition of HSGPA strengthens the ability of these tests to predict success in the first year (DeBerard, Spielmans, & Julka, 2004). Further studies have shown that SAT and ACT scores predict student success in both specific majors (Aggarwal et al., 2004; Haungs, Clark, Clements, & Janzen, 2012; Sawtelle, Brewe & Kramer 2012; Smith & Schumacher, 2005), as well as predicting success in introductory college courses such as computer programming, mathematics, psychology, and physics (Foley-Peres & Poirier, 2008; Haungs et al., 2012; Marsh, Vendee, & Diekhoff, 2008; Sawtelle et al., 2012).

The problem with many of these studies is that they fail to focus on general education courses taken by a majority of students during their first year that require writing and critical thinking skills which are transferrable into future coursework. Freshman English composition is

a common general education course taken by students their first year. This course requires the use of critical thinking skills such as the analysis of arguments, claims, or evidence necessary for researched writing (Blaauw-Hara, 2014; Ennis, 1985; Facione, 1990; Halpern, 1998; Paul, 1992). Success in freshman English composition will not only equip students with critical thinking and writing skills that are transferrable to future coursework (Adler-Kassner et al., 2012; Blaauw-Hara 2014; Condon & Kelly-Riley, 2004), but this initial success in a general education course will lead to continued student persistence and retention (Tinto, 1987, 1993, 2006).

The increased popularity of online courses and their high rate of student withdrawal identifies this platform as a focus for research (Libby, Wu, & Finnegan, 2005; Wilson & Allen 2011). The problem is identifying the ability of SAT and ACT scores and HSGPAs to predict success in freshman English composition for online students is important to future research in degree persistence in online courses.

Purpose Statement

The purpose of this correlational study is to examine the correlation among SAT scores or ACT scores, HSGPAs, and students' final grade in freshman online college English composition course. If the conclusions of this study indicate a connection between pre-admission scores and success in an online English course, such information could be used by college administrators and admissions directors to help identify incoming students' who will be successful in such an environment while providing developmental courses for those who may struggle based upon their test scores. These conclusions will not only fill a needed gap in the literature in this area, but they will also provide support for college administrators, admissions counselors, and college advisors in a better understanding of the relationship among standardized test scores, HSGPA, and student success in core courses.

Significance of the Study

College retention is important to most colleges and universities. In an effort to retain students, institutions will work to find ways to keep as many students as possible and to see them through to graduation. Research on college retention pioneered by Tinto (1987, 1993, 2006) and Bean and Eaton (2001) have laid the groundwork for many of the theories used in most retention research. Unfortunately, much of this retention research is based upon residential students, omitting retention of online students.

Over the years, research has continued to build upon Tinto's (1987, 1993, 2006) ideas on retention. Some of these further studies used pre-admission variables such as SAT and ACT scores ascertaining their ability to predict success in college (Wonnell, Rothstein, & Latting, 2012). Bridgeman et al. (2008) found that although HSGPA is a better predictor of success in college, SAT scores predict success for males over females more than HSGPA. Throughout the literature, the ability of the SAT, ACT, and HSGPA to predict success in college has been able to extend Tinto's model of retention using variables that have been proven throughout the years to predict success in college (Bealing & Baker, 2011; Davis, Akers, Green & Zartman, 2006; Kruck & Lending, 2003). The focus of these studies on residential students as opposed to online students opens the door for further study using the SAT, ACT, and HSGPA as predictors with online students

The current study differs from other studies using SAT or ACT scores and freshman students in that these other studies either considered success in specific majors (Aggarwal et al., 2004; Smith & Schumacher, 2005) or concentrated upon major-specific introductory courses (Foley-Peres & Poirier, 2008; Marsh et al., 2008). Although core courses such as math and English or introductory major courses have been used to predict overall success in residential

programs as measured by student retention and degree competition (Bealing & Baker, 2011; Davis et al., 2006; Kruck & Lending, 2003), the current study will focus on online students. The significance of this study will assist colleges and universities to better understand the correlation between SAT/ACT scores and freshman college English for students in online courses. This understanding will lead to better student placement for online core subject area resulting in better student success and student retention.

Research Questions

The research questions for this study are:

RQ1: Does the SAT predict a first-year college/freshman student's success in an online core English course? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

RQ2: Does the ACT predict a first-year college/freshman student's success in an online core English course? Student success will be based upon a passing grade of 700-1000 on a scale of 0-1000.

RQ3: Does HSGPA predict a first-year college/freshman student's success in an online core English course? Student success will be based upon a passing grade of 700-1000 on a scale of 0-1000.

RQ4: Does the SAT predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

RQ5: Does the ACT predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

RQ6: Does HSGPA predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Hypotheses

The following are the hypotheses for this study:

H_1: The SAT predicts a first-year college/freshman student's success in an online English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_2: The ACT predicts a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_3: The HSGPA predicts a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_4: The SAT predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_5: The ACT predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_6: The HSGPA predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Alternatively, the following are the null hypotheses:

H_{o1}: The SAT does not predict a first-year college/freshman student's success in an online English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o2}: The ACT does not predict a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o3}: The HSGPA does not predict a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o4}: The SAT does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o5}: The ACT does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o6}: The HSGPA does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Identification of Variables

To study the research questions for this study, several variables have been identified. The predictor variables include SAT scores, ACT scores, and HSGPA. The three parts of the SAT score are identified as SAT critical reading score, SAT math score, and SAT composite score. The parts of the ACT score used as variables include ACT reading score, ACT math score, and ACT composite score. The HSGPA will be based upon a 4.00 scale.

The criterion variable for this study is the final grade in freshman college English composition. The criterion variable final grade in a freshman college English composition course

will be determined by the final numerical grade earned in the course based upon the combined points earned by the student for each assignment of the course. The final numerical grade will be a score of between 0-1000.

Definitions

1. *ACT score***.** The American College Test (ACT) is a standardized college entrance examination given to students prior to enrolling in college. The ACT includes multiple-choice tests given in the areas of mathematics, English, reading, and science. Each test is scored on a scale of 1-36 with the composite score composed of the average of the four tests (ACT, 2012a). The ACT also includes an optional writing test that is scored on a scale of 2-12 (ACT, 2012a). Since the writing test is optional, it will not be considered for this study. These scores will be obtained from the Registrar's Office of the college (ACT, 2012b).

2**.** *Freshman English Composition* Course: For this study, a general freshman course in English composition will be used. Although colleges and universities will differ in the specific requirements for their freshman or first-year English composition course, the course used for this study will include, but not be limited to, learning outcomes as outlined by the Council of Writing Program Administrators (CWPA, 2014). These outcomes include the following: (a) Rhetorical Knowledge; (b) Critical Thinking, Reading, and Composing; (c) Processes; (d) Knowledge of Conventions. Through rhetorical knowledge students will be able to identify and write to a specific audience and respond and communicate through different contexts. Critical thinking, reading, and composing includes student's ability to read differing genres across several disciplines. Processes will include how students will draft, revise, and rewrite documented essays based upon their reading and supporting their writing with outside sources that have been read, analyzed, and synthesized to critically support their work. Finally, knowledge of

conventions includes students' ability to implement proper grammar, structure, and style within their writing. This will include the students' ability to implement proper documentation style as specified by the course instructor (CWPA, 2014).

3. *HSGPA:* For this study, the HSGPA is the GPA a student earns during the four years of high school from 9th grade through 12th grade. Most HSGPAs are measured on a 4.00 scale. While some high schools include a weighted and unweighted score on students' transcripts; for the purpose of this study, the score submitted upon matriculation will be used whether it is weighted or unweighted (Donnelly, 2010).

4. *SAT score***.** The Scholastic Assessment Test (SAT) is a standardized test that is administered to students prior to entrance into college. The SAT includes three sections in Critical reading, mathematics, and writing. Each section is scored on a scale of 200-800. The highest composite score for the test is 2400 (College Board, 2012). The reading, mathematics, writing, and composite scores of the test will be used for this study. The scores will be obtained from the registrar's office of the college (College Board, 2012).

5. *Student persistence*. The ability of students to successfully continue a college education from the first year to the second year of college (Tinto, 1987, 1993, 2006).

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

Student retention and increased graduation rates are paramount to the success of today's colleges and universities. For the first time since the 2008 recession, college enrollments were up 12% while graduation rates for the 2008 cohort were down to 55% which is down from the 56.1% completion rate for the 2007 cohort (Shapiro, Dundar, Yuan, Harrell, & Wakhungu, 2014). Failure to retain and graduate students can mean a loss in income in a time when institutions are facing financial constraints from budget cuts and a strained economy.

For students, this failure to complete a degree can mean a loss of future earnings due to lack of educational credentials. Decreased graduation rates can also lead to a decrease in teachers who will train future students, engineers who will build new buildings and bridges or doctors who will heal the sick or find a cure for some dreaded disease. Students who leave high school with potential to continue their education and develop their talents and skills so that they can become a productive member of society, may face loss

Furthermore, students who fail to complete a degree will lack the skills that employers are desire in future employees. In a 2013 study, employers identified critical thinking skills (82%) and effective written communications skills (80%) as two of the top five abilities that they look for in an effective and productive employee (Hart Research Associates, 2013). When students fail to complete a degree where they will be taught such skills in a freshman English composition course, they will fail to have some of the skills that current employers are looking for in a workforce.

Our founding fathers knew the importance of education to the continuation of society. Thomas Jefferson made it his goal to set up an educational system to educate every citizen for

the good of the country and the continuation of liberty. In a correspondence to James Madison in 1787, Jefferson wrote, “Above all things I hope the education of the common people will be attended to, convinced that on their good sense we may rely with the most security for the preservation of a due degree of liberty” (Forman, 1900, p. 198). Jefferson was a strong advocate for education and used this focus by issuing a bill to set up a free school system in Virginia that would give every citizen a broad education that allowed these citizens to pursue a life of liberty and happiness. In correspondence to George Whythe in 1786, Jefferson states, “I think by far the most important bill in our whole code is that for the diffusion of knowing among the people, no other sure foundation can be devised for the preservation of freedom and happiness” (Forman, 1900, p. 198). Jefferson clearly understood the problems that come when students fail to graduate and attain an education in the form of a degree. This lack of education will mean more than a loss in income, job opportunities, talent, or skills. Jefferson understood that this lack of education can lead America’s citizens to where they lack an understanding of the importance of liberty, its history and influence in America, and its continuation within a society lacking education.

Studies have shown that 70 to 75 percent of the students who will drop out of college will do so in the first two years (Marsh et al., 2008). Based upon this statistic it is important for institutions help students to make a connection to the institution within the first two years in order to see them through to graduation (Tinto, 1987, 1993). One method of increasing student persistence within these first two years is to place students in classes where they will find success encouraging them to complete their education. Research focusing on the importance of retention and factors relating to retention are a main thrust for most predictive studies on the ability of the SAT or ACT test to predict success on the college level (DeBerard et al., 2004).

The present study was prompted by the researcher's own experience first working as an English teacher and later working as a college registrar. Noting the struggle many students were having in first-year English composition, the researcher chose to discover why many students struggle in introductory core courses such as English and how these struggling students can be identified in advance of college entry. This observed initial struggle often would lead to continued struggles, and eventually the student would leave college. These observations are in line with Tinto's (1987, 1993) model of persistence which reported that students must integrate themselves into the institution academically and socially in order to have success. This academic integration should begin at the formation of the students' relationship with the institution—through the admissions process (Tinto, 1987, 1993). Pre-entrance assessments such as the SAT, ACT, and HSGPA have been used across institutions as a way to identify quality students for college entrance. Tinto suggests that institutions use such assessments as a way to identify students who may need extra assistance to fully integrate academically into the institution (Tinto, 1987, 1993). Although employing such pre-entry identifiers as SAT, ACT, HSGPA have been used in other past studies to predict academic success in traditional learning environment, an initial review of the literature failed to show a clear link between standardized test scores or HSGPA and success in freshman English for the online student.

Many predictive studies that focus on student success and retention include such variables as ethnicity, student motivation, study habits, socio-economic status, and other non-academic factors in student success and retention (Allen, J. & Robbins, S., 2008; Allen, J. & Sconing, J., 2005; Lau, 2003; Montgomery, Jeffs, Schlegel, & Jones, 2009). Although studies have shown that these non-academic factors may contribute to student success and retention, the current study will focus mainly on academic factors that can be measured though standardized

testing and HSGPA (Tinto, 1993, 2006). One main factor for not including non-academic variables is that many of these non-academic variables are not included in an archival data set. Using an archival data set that covers up to three years of freshmen students will allow the researcher to draw from a larger pool of information. The choice of drawing data from the last three years will give the researcher data since the revision of the SAT test (College Board, 2012). The additional focus on gender for this study is based upon studies showing distinct differences between standardized test scores and college course scores based upon gender (Rosser, 1989; Soares, 2012).

The goal of this literature review is to focus on the SAT, ACT tests, and HSGPA as strong predictors of success in core classes such as freshman English composition in an online course environment. In reviewing the literature, the researcher noted a strong connection between studies using standardized tests and high school grade point average as predictors of success and college retention.

Conceptual Framework

The conceptual framework governing this study will focus both on the predictive nature of standardized tests such as the SAT and ACT and the important role of college retention. Both of these concepts provide a foundation that drives a majority of retention studies and the predictive ability of standardized tests (Marsh et al., 2008; Tinto, 2006).

Student Retention

For more than 40 years, much educational research has focused on the importance of student retention (Tinto, 2006). Noted in this field of study, Tinto (1987, 1993, 2006) developed a student integration model in an effort to identify what causes students to drop out of college. In his study, Tinto (1987) found that “39 percent of all entrants can be expected to depart the

system without ever completing their four-year degree programs" (p. 17). Tinto (1987) also focused upon the source of student retention. In this study, he evaluated both the individual influences of retention and institutional influences of retention. Personal grounds for leaving include "intention and commitment . . . adjustment, difficulty, incongruence, and isolation" (Tinto, 1987, p. 39). Tinto's (1993) theoretical model found that in order for students to be successful and persist to graduation they must integrate themselves into the institution academically and socially. For this particular study, the focus will be on the academic integration as it influences student success in first-year courses. This integration into an institution academically begins for many students with general course requirements that most first- and second-year students must all take. As many first-year students will take freshman English composition, its service as a barometer of student persistence is two-fold. First, the nature of freshman English composition lends to its engagement of the student through the course assignments, small class size, and student/faculty interaction that comes with the process of writing (Moon, 2003; NCTE, 2013). Secondly, the course teaches students writing and critical thinking skills that will be used throughout their college education.

The transition from high school into college and success in the first year is vital to student retention and degree completion (Tinto, 1987, 1993). Tinto (1987, 1993) acknowledged that first-year student integration socially and academically are fundamental to a successful transition and completion. During this first year, students with poor academic backgrounds will struggle and will not integrate themselves into the institution. This integration into an institution begins the first year. Tinto (1993) noted that this process of academic integration calls for students to "separate themselves from past associations and patterns of educational participation and to make the social and academic transition to the new and possibly much more challenging life of

the college" (p. 163). For many students, this new transition includes a freshman English composition course. For these students, this is the first time that they are learning and applying writing skills that are new to post-secondary work or were a weakness prior to college (Guzy, 2011; Henderson, 1992). For many first-year students, freshman English composition is where they begin to learn to think and to write critically. This acquisition and application of critical thinking skills for many new students is a challenge (National Assessment of Education Progress, 2011; Smith, 2010). This challenge of writing at a college level helps these new students to integrate academically as they move through the process of learning new skills and integrating academically through interactions within the composition classroom (Smith, 2010; Tinto, 1987, 1993).

For students who may struggle with this academic integration due to past secondary academic struggles, many institutions will use standardized tests such as the ACT and SAT to identify these struggling students prior to enrollment (Seidman, 2005). Theses test scores may be useful in course placement and early academic assistance that may increase student success and degree completion (Tinto, 1987, 1993). Some institutions will use ACT or SAT scores to identify students who may need remedial courses in writing or grammar to prepare them for freshman English composition. Proper placement of students within first-year courses will help with this academic integration and degree completion (Mattern & Shaw, 2010; Seidman, 2005, Tinto, 1987, 1993).

Bean and Eaton (2002) added to Tinto's (1987, 1993) Student Integration Model with their Psychological Model. This model went one step further than Tinto's, studying how several aspects of a student's interactions with the institution that they label as "bureaucratic, academic, and social" influence the students' success and retention from the first to second year (Bean &

Eaton, 2002, p. 3). The main focus of this particular study was to identify the "psychological processes that lead to academic and social integration and to describe the overall structure of retention models" (Bean & Eaton, 2002, p. 74). Although Bean and Eaton's (2002) focus was on the psychological theories that explain how students integrate into the institution both socially and academically, their focus on the academic adaption is important to the current study.

Student interaction within an institution can occur in any class that students may take, but this interaction is more evident in freshman English composition. Freshman English composition allows students the opportunity to interact with other students within their classes through the use of peer evaluation of student work and small class sizes (NCTE, 2013; Yu, 2014). This interaction allows students to connect on the academic level through class discussions. Freshman English composition is arranged to allow students to express their opinions and support these opinions through written communication (NCTE, 2013). Student discussion and reflection on these opinions with their classmates strengthens students' academic and social connections to the institution, to the instructor, and to their fellow students. These connections also increase student persistence (Bean & Eaton, 2002; NCTE, 2013; Tinto, 1987, 1993).

To further validate Tinto's retention model (1975), Terenzini and Pascarella (1980) use the data from six different studies to validate Tinto's model. The data used for these six studies draws from three different data sets from Syracuse University from 1974-1976. Four of the studies focused on the validity of Tinto's (1975) overall model while two of the studies looked at one aspect of the model (Terenzini & Pascarella, 1980). While Terenzini and Pascarella's (1980) studies validated the ability of Tinto's model to identify and explain student retention, their six studies were limited by the single-institution data set and the limited variables within the study

failed to encompass the complexity within Tinto's model. Terenzini and Pascarella's (1980) results consistently concurred with Tinto's concept that there are certain social and academic variables that identify student persistence. One area where Terenzini and Pascarella's (1980) model differed from Tinto (1975) is that their study did not show that pre-admission traits such as race, prior academic achievement, or academic aptitude did not have a significant influence on student persistence. Even with these conclusions, Terenzini and Pascarella (1980) felt that other research throughout the literature shows that such pre-admission traits have an influence on freshman persistence, but that institutional programs and policies may have more of an influence after the student arrives. Although Terenzini and Pascarella's (1980) findings are not directly connected to first-year English composition but applied to overall persistence, these results do support Tinto's model which validates the importance of studying freshman English composition based upon its connection to academic integration (Tinto, 1987, 1993).

Pascarella (2006) suggested further research in student retention in an effort to expand previous current research (Pascarella & Terenzini, 2005). Two key ideas that apply to the current study is the importance of replicating current retention research in an effort to not only add to the current literature, but replication will allow for more consistent data analysis that is not subject to findings from anomalous studies identifying singular or skewed results (Pascarella 2006). Pascarella (2006) also supports the importance of integrating the influence of technology on retention. At the time of Pascarella's original study, the use of online classes was not as prevalent as they are today. With the popularity of online courses and degrees, it is important that more research be done in the area of persistence in online education.

Reason, Terenzini, and Domingo (2006) built upon the concept of Pascarella and Terenzini (2005) that students come into their first year with varying social, personal, and

academic characteristics that influence their ability to connect to the institution. This ability to connect with the institution will, in part, be influenced by the students' connection via curriculum, within the classroom, and through extra-curricular events (Reason et al., 2006). Pascarella and Terenzini's (2005) identification of curriculum as a way for students to connect to an institution connects to the importance of freshman English composition. This connection is two-fold in that the curriculum of most freshman English composition courses includes teaching students research and writing skills and the application of critical thinking as they research and apply that research to their writing. Since the skills taught in freshman English composition are applicable to future courses, this course is important to students' ability to connect with their institution academically in that this course gives students skills that they can transfer to other classes within their major (Blaauw-Hara, 2014; Ennis, 1985; Facione, 1990; Halpern, 1998; Paul, 1992). This transferability of skills to other coursework makes freshman English composition a valuable choice for this current study.

Based upon its conceptual framework, Reason et al.'s (2006) study highlighted two key findings that are important to retention research. The first finding identified the importance of the first year and how it influences students' academic achievement. Secondly, academic competence within the first year is most closely tied to students' perception of institutional support (Reason et al., 2006). These results showed that when students perceived that the institution provided a learning environment that includes practices that are aimed to help them to connect with the faculty and staff inside and outside the classroom, that these student had a stronger academic connection to the institution (Reason et al., 2006). Freshman English composition is clearly an appropriate course to demonstrate a course's ability to connect students with faculty. This connection is based upon the environment of a writing course in that it

requires students to present their writing and to accept criticism and direction from the faculty member. This back and forth, give and take between student and faculty member that occurs in a freshman English composition course many times builds a bond between the student and faculty member based upon the structure of the writing process.

Thus, more than the demographic and cultural makeup of the institution, it is what the institution provides in the area of organizational policies and procedures that help students to connect to the institution that most closely connects the student during the first year leading to persistence and completion (Reason, 2009). One area in which institutions provide an institutional connection that also helps students within freshman English composition is through writing support through the availability of writing centers (Jones, 2001; Turner, 2006). Studies have shown that students who use writing centers connect to the institution in that they perceive the writing center as the institution's way of reaching out to support them. Turner (2006) identified the importance of the writing center to peer (social) interaction: "The dynamic peer interaction that is keynote of most writing center models has shown to be an effective teaching strategy across a variety of grade levels and disciplines" (p. 17). Along with this social connection provided by writing centers which supports Tinto's (1987, 1993) model of student persistence, Turner (2006) also identified the ability of the writing center to improve the students' writing skills as based upon the interaction of the writing student and writing center tutor. Although writing centers are not the specific focus of this current study, many institutions provide such services to their students. This importance of the interaction between the writing center, its ability to help students succeed in freshman English composition and the perceived institutional connection that students connect with this service support Reason's (2009) model of student retention and this connection to freshman English composition. Although Reason's

study (2009) included literature from studies done with residential courses, Xu and Jaggars (2013) identified the importance of student support (i.e., advising, library, and tutoring) as vital to student retention in online courses as they are in face-to face courses.

Also improving Tinto's model of retention (1987, 1993), Seidman's model (2005) provides institutions with a clear action plan that includes early and continued identification of students who may be at risk of attrition. Seidman (2005) goes as far as identifying students while they are in high school using common profile identifiers such as SAT and ACT scores, HSGPA, and other socioeconomic factors available to most institutions and using post-enrollment identifiers such as midterm grades. A key focus of Seidman's model (2005) that fits well with Tinto's model (1987, 1993) is that through the implementation of early, continual and intensive intervention by the institution, students will make the connections needed (Reason, 2009) to find success and complete a degree. Two conclusions of Seidman's model (2005) that need to be addressed by institutions with online programs are the focus of providing intervention programs that will meet the needs of an online learner and only accepting students who will have the academic skills to be successful in their institution and within the online environment. The problem with Seidman's (2005) latter conclusion is that excluding students from institutions that may not fit the needs of the learner will not only hurt the institutional enrollment, but this closes yet another opportunity for students who may not otherwise be able to attend a traditional four-year residential program. Understanding and identifying students prior to enrollment and providing programs, policies, and interventions that will help these students to connect to the institution and to find academic success (Reason, 2009; Seidman 2005; Tinto, 2006) will allow institutions to have an open enrollment policy for their online programs while still meeting the

needs of the students in allowing them to connect to the institution and increasing their chance for retention and degree completion.

In opposition to Tinto's (1975, 1987, 1993) internationalists theory, Braxton (2000) sought to reevaluate Tinto's research. Braxton (2000) specifically discusses Tinto's interactionalist theory. The theory proposes that students enter college with characteristics based upon their family background that can influence how they integrate in the academic community. Research has shown that students' family background may have an influence on their ability or inability to be successful in freshman English composition (Baer, Cook, & Baldi, 2006). Freshman English composition is a course that allows students to integrate into college or university. The small class size, one-on-one interaction with their instructors, and the ability of students to express their opinions through course assignments, allows students to integrate into the academic community of the institution (NCTE, 2013). This ability to integrate into the educational community, according to Tinto (1975, 1987, 1993), strongly influences student persistence and academic success. Braxton's (2000) research reviewed empirical research done on this topic that would contradict Tinto's interactionalist theory. The main theory driving Tinto's (1975, 1993) interactionalist theory is strongly based upon Durkheim's (1951) theories which are more linked to college student suicide: "Tinto's (1975, 1993) extension of Durkheim's (1951) formulations surrounding egotistical suicide provides a basis for rethinking the measurement of academic integration" (Braxton, 2000, p. 23). Braxton's (2000) outcome shows that there is a need to either adjust Tinto's theories or to disregard the theory altogether.

Further research by Braxton, Hirschy, and McClendon (2004) again noted the need for revision in Tinto's (1973, 1987, 1993) theories and proposed new theories relating specifically to student departure based upon school type—commuter or residential. In applying Tinto's theory

to a wide range of school types, Braxton et al. (2004) found the theory applicable only to the middle range of schools. These findings suggest that more research needs to be done in the area of student retention and that consideration needs to be given as to whether Tinto's (1975, 1987, 1993) theories should continue to be held in high regard in the overall study of student retention. Braxton stated the following:

> If Tinto's theory is a grand theory, then validity for this theory would result across different types of colleges and universities and different group of students. A theory in the middle range, however, best depicts Tinto's interactionalist theory as it partially accounts for student departure in residential colleges and universities but fails to account for student departure in commuter institutions. (Braxton et al., 2004, p. 79-80)

Braxton et al., (2004) have valid criticisms of Tinto's theories; however, Tinto's model stands as a solid theory that has been continually updated to broaden his research (Tinto, 1987, 1993, 2006) and Tinto's theories stand as a theoretical basis for many studies throughout the literature on retention (Calcagno et al., 2007; Guiffrida, Lynch, Wall, & Abel, 2013; Terenzini & Pascarella, 1980). Before Tinto's theories may be considered invalid as a whole, more research needs to be completed based upon Braxton et al.'s (2004) results in order to support such theoretical invalidation.

In a more recent update of Tinto's model (1975, 1987, 1993, 2006), Falcone (2011) sought to refine Tinto's model adding student qualities largely absent from previous models. In this new model, Falcone identifies several qualities that students may possess that will influence their awareness of belonging and, thus influence their persistence.

Habitus, which Falcone (2011) describes as students' "internalization of possibility" including "aspirations, beliefs, desires and self-efficacy" is the way that students find their place

in the academic world (p. 30). Falcone identifies habitus as a strong influence in this new model since students' beliefs of what they can or cannot accomplish educationally strongly influences their goals and commitments to an institution. Falcone (2011) finds this specifically true for this new model since it focuses on students in low socio-economic status. Many times, the habitus of students in a lower socio-economic status may cause them to strive to be the first in their family to complete a degree. Habitus, however, can become a "lack of choice" when they find that they cannot complete an education because they are needed at home to support their family (Falcone 2011, p. 31). Although a lack of choice is more consistent with students in a lower socio-economic status, Falcone (2011) believes that students from families where one or both parents completed an education may find that they do not have the choice to not attend or complete college.

Next, Falcone (2011) identified capital as a strong influence on students' belonging and, thus, an influence on their persistence. Falcone drew from Bourdieu's (1986) identification of three types of capital: (a) economic, (b) social, and (c) cultural. Capital could include money, cultural background, and social/academic connections both in connection to the institution or in connection to the students' families and friends. Falcone (2011) specifically focuses on how students' habitus is influenced their interaction socially and academically and how these interactions influence students' perception of themselves (habitus). These changes in self-perception can also affect students' capital causing an increase or decrease in capital and their interactions with their social and academic communities. All of these influences can cause students to change their academic direction whether it be something simple such as a change in major to a decision to change colleges or to drop out of college altogether (Falcone, 2011). In Falcone's (2011) model, this interaction between habitus, capital, and community influences are

in a looping system that cause students to make multiple decisions throughout their academic years that strongly influence their reenrollment and persistence which could cause some students to persist to completion of their degree while others may change direction or withdraw altogether. Falcone's (2011) focus on academic influences on students' persistence and the study's use of Tinto's retention model make this study important to the current study. Since, however, Falcone's model is merely a conceptual model and has yet to be verified, it is difficult to postulate this model's validity. Although Falcone's (2011) model is focused on student retention and persistence, these ideas still have valid connections to freshman English composition in that what students bring with them to a writing course—socially, economically, community—all have a clear influence on students' connections and persistence within the course (Baer et al., 2006).

In a revision and update to Falcone's (2011) transactional model of student persistence, Shea and Bidjerano's (2014) research on student persistence in online learning gives added support to the transactional view providing empirical support identifying online learning as one adaptation that students and institutions can add to Falcone's model. Shea and Bidjerano's (2014) findings identify online learning as a successful path to education. Based upon these conclusions, the use of online freshman English composition courses for the current study seems to strengthen the use of the online format.

In summary, the works of Braxton (2000; Braxton et al., 2004) postulates that Tinto's (1975, 1987, 1993) theories of student retention are flawed since it is Braxton's view that Tinto's theories are not valid when applied across different college, university, and student types. Falcone's (2011) model though supported by literature has yet to be proven based upon empirical data. Without a full body of literature that would support the idea that Tinto was wrong, Tinto's

ideas will continue to be a basis of many studies related to student retention. Based on this lack of literature and the fact that Tinto's theory has been proven valid by other predictive studies involving student persistence and success in college (Donnelly, 2010; Karp, Hughes, & O'Gara, 2010; Liu & Liu, 2000), the current study will use Tinto's ideas as a conceptional theory as its basis for student retention as it relates to the focus on freshman English composition.

Self-efficacy and Student Retention

Linked to the theories of Tinto (1975, 1987, 1993) and Braxton (2000; Braxton et al., 2004), Bandura's theories of self-efficacy have a direct link to student retention and persistence (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). Bandura et al. (2001) promoted the idea that self-efficacy has a positive influence on children's career choices and educational pursuits. This self-efficacy is strongly influenced by the self-efficacy of the parents: "The impact of parental self-efficacy and aspirations on their children's perceived career efficacy and choice is, in turn, entirely mediated through the children's perceived efficacy and academic aspirations" (Bandura et al., 2001, p. 187). In an earlier study, Zimmerman, Bandura, and Martinez-Pons (1992), identified the role of self-regulation in the influence of self-efficacy. Low self-efficacy students set low academic goals for themselves; while high self-efficacy students set high academic goals for themselves. The relationship between student self-efficacy and academic self-regulation has a direct link to student ability to academically achieve (Zimmerman et al., 1992). Zimmerman et al. (1992) stated the following:

> The scales for perceived self-efficacy for self-regulated learning assess students' perceived capability to use a variety of self-regulated learning strategies such as planning and organizing their academic activities, transforming instructional information using cognitive strategies to understand and remember material being taught, resisting

> distractions, motivating themselves to complete school work, structuring environments conducive to study, and participating in class. (p. 665)

When students' perceived self-efficacy is high, it motivates them to academic achievements that other academic factors (i.e. Standardized test scores or high school GPA) may not give an indication of academic success.

The literature did reveal studies that looked beyond standard academic predictors such as SAT scores and high school GPA. Mattern and Shaw (2010) used students' self-reported perception of mathematics and writing ability along with SAT scores, high school GPA, and a score based upon the number of institutions in which the students had their SAT scores sent in an effort to identify the role of self-efficacy in students' ability to attain degrees. Mattern and Shaw (2010) found that students with a higher self-efficacy attained higher SAT scores, grades, and degree attainment; while students with lower self-efficacy showed a poor academic performance. Their results indicated that institutions should seek out students with low self-efficacy and establish a culture that encourages students to seek academic help from faculty and institutional academic help programs that provide the support these students need to succeed. This support includes progress feedback from faculty, goal setting, and student self-evaluation of progress (Mattern & Shaw, 2010). Mattern & Shaw further suggested that colleges consider working with secondary schools to set up programs that include peer tutoring programs that will help students with lower self-efficacy to feel comfortable asking for help before they go off to college. An important part of helping students to succeed their first year comes in the ability of institutions to identify those who will succeed, using the students' previous academic success as indicated by ACT or SAT scores and high school GPA or by perceived self-efficacy as a statistical basis. These ideas on self-efficacy, although not directly linked to the current study, should be

considered in light of the self-efficacy literature of Zimmerman et al. (1992) and Bandura et al. (2001) and its link to the theories of Tinto (1987, 1992) and Braxton (2000).

SAT/ACT Scores as a Predictor of Success

In an effort to identify predictors of student success and retention, studies throughout the literature have tested the predictive nature of the ACT and SAT tests. Aggarwal et al. (2004) were specifically curious about the ACT and SAT tests' ability to predict performance for business majors. Identifying that each of these standardized tests focused on different levels of student learning, they were able to specifically identify how each of these tests predicted success among business majors in general and within specific business majors such as marketing and accounting. Drawing from a dataset of nearly 50,000 students from 1,000 different colleges, Aggarwal et al. (2004) sought to identify how well the ACT and SAT tests predicted performance for students majoring in accounting, management systems, marketing, finance, and management (p. 19-20). Results indicated that while both the ACT and SAT showed similar ability to predict performance in management majors, the ACT was the better predictor of performance for marking majors although it failed to predict performance for business majors as a whole (Aggarwal et al, 2004). These results may be based on the nature of each of the tests. While the SAT tests "academic aptitude—the ability to learn information independent from high school curriculum," the ACT is tied to the student high school curriculum (Aggarwal et al., 2004, p. 22).

In the wake of differing opinion on the validity of the ACT and SAT to predict students' ability to succeed in college (Aggarwal et al., 2004; DeBerard et al., 2004; Foley-Perez & Poirier, 2008; Kobrin, Patterson, Shaw, Mattern & Barbuti, 2008; Marsh et al., 2008; Mattern & Shaw, 2010; Smith & Schumacher, 2005; Zwick & Skylar, 2005), Cimetta, D'Agostino, and

Levin (2010) studied the ability of the Arizona Instrument to Measure Standards (AIMS) high school test to predict success in college. Their study sampled 1,673 students from the 1999 cohort and 2,222 students from the 2000 cohort (Cimetta, D'Agostino, & Levin, 2010). The research used a stepwise regression analysis to identify whether the AIMS test was a better predictor for success than traditional variables of SAT scores and HSGPA. The results of this study showed that for students attending the University of Arizona, the AIMS test did not significantly differ from traditional assessment tests such as the ACT or SAT in predicting student's ability to perform well in college. The study did find that the success of these tests was not enough for schools to discontinue the use of traditional methods of prediction such as the ACT or SAT and HSGPA (Cimetta et al., 2010).

Although evidence exists throughout the literature as to the ability of the ACT and SAT scores to predict success of students in their first year of college (Aggarwal et al., 2004), some institutions have made the use of the of the ACT or SAT score for college admission optional based upon the National Association of College Admission Counseling report (NACAC) (McDermott, 2008). The NACAC spent a year studying the SAT and its influence on college admission, and now 760 American schools have made this standardized test score an optional part of admission to their schools (McDermott, 2008).

In response to the NACAC study, Johns Hopkins University conducted its own investigation into the ability of high school GPA and SAT to predict first-year GPA. The results of the study were that high school GPA was the best predictor of success. This study specifically weighed their results as applied to different majors. Linear regressions were used focusing on four basic areas of study including natural science and mathematics, engineering, humanities, and social sciences. Of the four areas of study, natural sciences or mathematics was most highly

affected by the inclusion of SAT scores, yet it only increased the variance by 5.5% from 22.9% to 28.4% (Wonnell et al., 2012). The only area of study that was influenced by the inclusion of the SAT was Humanities. For this group, the SAT Critical Reading score was just as good a predictor as high school GPA; yet the SAT Writing test was not a significant predictor of college GPA (Wonnell et al, 2012). These studies alone, however, are not clear evidence that the use of standardized testing should be eliminated from the admission process or as indication of students' ability to successfully complete a college degree.

High School Performance as a Predictor of Success

High school performance as indicated by students' high school grade point average has been identified as a key component for predicting success and retention in the first year of college (Bridgeman et al., 2008; Reason, 2009). Mattson's (2007) study of pre-college variables of success for at-risk students, not only validated previous studies on high school GPA (Hoffman & Lowitzki, 2005; Schwartz & Washington, 2002), but the study also suggested that institutions consider putting more value on high school GPA and less value on SAT scores when considering students for admission (p. 12). One downfall to Mattson's (2007) study is the inability to generalize results across college populations since the study focused on at-risk student groups. Mattson's (2007) conclusion that admissions for at-risk and diverse student groups place more weight on other predictors of success such as HSGPA and leadership skills as opposed to heavily weighting SAT scores indicate the strength of HSGPA over SAT scores.

Varying opinions on the validity of high school GPA alone in predicting success in college run throughout the literature (Marsh et al., 2008; Zwick & Greif Green, 2007). Some studies in the review found that high school GPA is a stronger predictor of success while others

indicated the failure of today's high school curriculums (Marsh et al., 2008). Marsh et al. (2008) noted the following:

> High school performance fails to predict, with a high degree of accuracy, college success. First, the high school curriculum may not have prepared the student for college work, and second, high school GPA's are poor predictors of college success due to grade inflation and a lack of standardization in high school grading systems. (p. 244)

Despite such failure, a study of the literature suggests that a combination of high school GPA and standardized test scores form a better standard for predicting student success than either variable alone (Bridgeman et al., 2008).

Success in Introductory Courses and College Retention

A majority of students who will drop out of college will do so in the first two years (Tinto, 1987, 1993). The National Collegiate Retention and Persistence to Degree Rates showed that the first-to-second-year retention rate for 2-year institutions is 55.5 percent while 4-year institutions have a retention rate of 72.3 percent for public institutions and 74.4percent for private institutions (ACT, 2014b). Furthermore, the National Center for Educational Statistics (2012) reported that only 58 percent of bachelor-degree-seeking students who began in 2004 completed their degree in 6 years. In order for colleges and universities to see students continue to graduation, they need to focus on ways to retain these students beginning in the first to second year period. Since introductory freshman courses are where many students will decide whether or not they want to continue in the chosen major (Smith & Schumacher, 2005) or in college altogether (Bridgeman et al., 2008; Foley-Peres & Poirier, 2008; Stillman, 2007), institutions and research need to focus on ways to help students find success in these introductory courses.

Much of the current literature concentrates upon introductory courses as they relate to specific majors (Marsh et al., 2008; Smith & Schumacher, 2005) instead of aiming at general education courses that would broaden the applicability of the study. Smith and Schumacher (2005) focused specifically upon actuarial students and their grades in mathematics courses as a predictor of success. Although such study is needful and was found to be a gap in the literature for Smith and Schumacher (2008), the ability for such a study to be generalized among college students outside the actuarial as a whole is doubtful.

Marsh et al. (2008) studied the correlation between SAT and ACT scores and General Psychology grades in an effort to predict student success. The researchers chose to use General Psychology since this is a typical first-year course in many institutions and since many students have difficulty with such courses. Marsh et al. (2008) determined that introductory courses such as General Psychology proved to be a good choice in predicting student persistence and retention: "Students who perform poorly in introductory psychology class often continue to perform poorly three semesters later (lower GPA), and the higher rate of failure increases the cost of education and delays graduation (wasted hours)" (p. 252). The identification of courses that all students will take during their first or second year and designing studies to explore ways to help students before they fail these courses and withdraw from college is vital to increasing student retention.

DeBerard et al. (2004) use of an introductory psychology and sociology course gives credence to the importance of introductory courses as valid identifiers of success for first-year students. Their study, however, focused more on non-academic predictors of achievement. The results did show that SAT scores and HSGPA were more positively correlated with success as

demonstrated by the students' cumulative GPA than some of the non-academic predictors such as health, smoking, and drinking (DeBerard et al., 2004).

Correlating SAT or ACT scores and general education courses, Foley-Peres and Poirier's (2008) study *College math assessment: SAT scores vs. college math placement scores* focused more on whether the SAT or college math placement examinations are a better predictor of success for students in their first year. Although the findings indicated that the math placement examination was more effective than the SAT or ACT scores in predicting student success in a math course, Foley-Peres and Poirier (2008) did note that lack of success on a part of the students with high SAT scores may have been due to the students' boredom with the level in which they were placed. This study could have been stronger and more applicable if it had included the students high school GPA and math course grades and if it had used a multiple regression design instead of a simple tabulation.

The current literature clearly shows a link between success in an introductory course and retention and persistence in a degree program (Bridgeman et al., 2008; DeBerard et al., 2004; Foley-Peres & Poirier, 2008; Marsh et al., 2008; Smith & Schumacher, 2005; Stillman, 2007). The literature fails to identify a clear connection between success in online freshman English composition and completion of a degree. Since an online freshman English composition teaches students writing, research, and critical thinking skills that students can transfer to successful completion of upper-level and major courses (Condon & Kelly-Riley, 2004; van Gelder, 2005; Willingham, 2008) and successful completion of a degree; its inclusion in this study fills a gap in the literature.

First-Year English and Critical Thinking

The ability to think critically is an important skill to be successful in college and beyond. For many students, their first opportunity to use critical thinking skills in academic writing is in freshman English composition (Deitering & Jameson, 2008). A review of the literature indicated that critical thinking cannot be taught as a stand-alone skill (Condon & Kelly-Riley, 2004; van Gelder, 2005; Willingham, 2008). To be effective, critical thinking must be taught in accordance with specific subjects (Willingham, 2008) or in general education courses such as freshman English composition (Deitering & Jameson, 2008). Deitering and Jameson (2008) specifically noted that the variety researched writing and genres required by freshman English composition encouraged the use of critical thinking.

In contrast to research indicating that critical thinking cannot be taught as a stand-alone course (Condon & Kelly-Riley, 2004; van Gelder, 2005; Willingham, 2008), Halpern (1998) proposes that critical thinking can be taught as a skill that can then be transferred across the disciplines. Halpern (1998) recommends that students who are willing to change attitude, "persist at a complex task"; be open-minded and understand the social pressures that may cause them to make decisions based upon unanimity and concession will successfully implement critical thinking skills (p. 452). Halpern (1998) acknowledged several skills that must a part of critical-thinking instruction: (a) verbal reasoning; (b) argument analysis skills; (c) hypothesis testing skills; (d) likelihood and uncertainty; (e) decision-making skills. Skills identified by Halpern are skills that are taught in freshman English composition courses. Such general critical-thinking skills once learned by the students may be transferred to upper-level and major-specific courses (Blaauw-Hara, 2014; Deitering & Jameson, 2008; van Gelder, 2005).

Once students are able to learn critical thinking in a general sense through a course such as freshman English composition, they will need to be able to transfer that knowledge to other courses (Adler-Kassner et al., 2012; Blaauw-Hara 2014; Condon & Kelly-Riley, 2004). Transfer theory (Adler-Kassner et al., 2012; Blaauw-Hara 2014**)** is filled with research addressing the ability of students to transfer critical thinking and writing skills across other courses within their programs (Adler-Kassner et al., 2012; Blaauw-Hara, 2014; Deitering & Jameson 2008; Wardle, 2009). Blaauw-Hara (2014) found that this ability to transfer critical thinking skills and writing skills across to other courses is dependent upon continued discourse between departments and the broadening of writing and critical thinking skills within freshman English composition.

In contrast to the idea that critical thinking may be taught in general education courses such as freshman English composition, Willingham (2008) noted that students must have prior knowledge in subject areas to employ critical thinking skills in these subject-specific topics, i.e. science or history (Willingham, 2008). Willingham (2008) placed importance on prior knowledge and beliefs because they "not only influence which hypotheses one chooses to test, they influence how one interprets data from an experiment" (p. 26). Although Willingham's (2008) view that critical thinking can only occur where there is prior knowledge, he did acquiesce that critical thinking can occur even in those without prior knowledge in a specific field.

DeNoyelles and Reyes-Foster (2015) sought to identify whether the use of word clouds in an online language and culture course could help to cultivate and increase critical thinking skills and engagement in an online environment. In this study, one group of students was given a discussion prompt that was made up of two different word clouds based upon two speeches. These students were prompted to analyze the speech and write a discussion indicating the author

of the speech, its historical context, and its purpose. The other half of the class was given the same prompt with the entire speech in place of the word cloud. DeNoyelles and Reyes-Foster (2015) found that the students who were part of the group that discussed the word cloud exhibited stronger critical thinking skills, class engagement, and peer interaction in an online environment as opposed to those students who received the full-speech discussion prompt. Statistical findings along with comments from follow-up questionnaires indicated that the students felt challenged by the word cloud assignment and that it made them think through the ideas more than if they had been given the full speech. Although this study included a small sample size (n=132), it did add to the literature in support of the connection between writing and critical thinking in an online environment.

Paul (1992) identified writing as a way that students can use critical thinking. He specified that writing assignments that require students to analyze and synthesize reading material and implementing it into their writing causes them to think critically. General education courses, such as freshman English composition, that include critical reading and writing that require students to make assumptions based upon evidence and reasoning employ students to use critical thinking. Paul (1992) noted that such critical thinking skills can then be transferred to other subject areas through the application of more in-depth knowledge of each subject field. These ideas fall in line with Blaauw-Hara's (2014) suggestion that the writing skills taught in freshman English composition are patterned in other academic areas across the curriculum. Based upon the close relationship between critical thinking skills and academic writing, freshman English composition proves to be a strong course to predict persistence and success is college.

Standardized Testing and English Courses

Both the ACT and SAT tests students on their English ability. The SAT Verbal, Critical Reading, and Writing sections focus on skills that students will need to be successful in college while the ACT has a specific English section that is based upon a national English curriculum (ACT, 2012a; College Board, 2012).

In light of substantial changes in the SAT and the addition of the writing section in 2005, Mattern, Patterson, & Kobrin (2012) examined the predictive ability of the SAT to predict mathematics and English course grades for first-year students. The data included 196,364 first-year students from 110 different institutions from a 2006 cohort (Mattern et al., 2012). The study found that the SAT-M, SAT-CR, and SAT-W were successful in predicting student grades in mathematics and English. The study also found a stronger relationship between students' scores on SAT-M and mathematics grades and SAT-CR and SAT-W on English grades (Mattern et al., 2012). Although there were similarities between this study and the current study, the current study will also correlate HSGPA and ACT scores along with SAT scores as predictors of success in college English. Since most colleges accept both ACT and SAT scores for admittance, the addition of the ACT as a variable will help to broaden the applicability of the current study as compared to Mattern et al.'s (2012) study.

Online Students

In an effort to broaden the current literature focused on predictors of success in general education courses such as English and mathematics (Foley-Peres & Poirier's, 2008; Mattern et al., 2012), the focus on online students within the current study will add to the current literature.

Much of the current research in the area of online learning is focused upon the students' persistence as identified by the student's interaction online. Finnegan, Morris, & Lee (2008)

specifically focused on online students in general education courses. The study identified behaviors of online students that led to success in online general education courses. Success was defined as students who received a grade of A, B, or C. Students with a grade of D or F were considered unsuccessful. The key to this study was that the data was based upon students' online behavior as noted by their participation in the courses through the use of online discussion posts and reading and responding to other's online discussion posts (Finnegan et al., 2008). The results of the study show that students who participated in the online environment more frequently throughout the semester were more likely to complete the courses successfully (Finnegan et al., 2008). Although this study confirmed other studies identifying behaviors of students who are successful in online courses, it looked at the behaviors throughout the course. Part of Tinto's theory of academic connecting is that institutions need to be able to use pre-college entrance variables such as SAT scores, ACT scores, HSGPA in an effort to identify students who will be able to assimilate academically (Tinto, 1987, 1993). By identifying students who will be successful and students who may not be successful, an institution will be able to better advise students in the course delivery (traditional or online) that they may or may not be as successful.

Opposite of previous research of online and distance learning students conducted by Xu and Jaggars (2011), Shea and Bidjerano (2014) used a national sample to identify risk factors and credential completion among community college students. Their study revealed that these students displayed higher risk factors for dropping out of an online or distance learning classes. Unlike the conclusions of Xu and Jaggars (2011), Shea and Bidjerano (2014) found "an overrepresentation of higher risk drop out among distance students on six of the seven variables that make up the category. We [Shea and Bidjerano] also found that students who went to

private high schools were underrepresented among those who took online and distance courses" (p. 109). Although, Shea and Bidjerano (2014) do not comment on why there was an underrepresentation of students from private high schools taking distance courses, this underrepresentation could be attributed to their sample data including only community college students. Research shows that that students graduating from private high schools attend 4-year colleges over 2-year community colleges (NSCRC, 2014). Also Shea and Bidjerano (2014) noted a higher dropout rate among students based upon the National Center for Educational Statistics (NCES) variables, yet they failed to clearly identify these variables within their study. Although high-risk students within this study were identified as less prepared academically for online courses, the study's results indicate that students who took online courses early in their program had a greater chance of completing their credentials within a four-year period over students who did not take any online learning courses. Based upon these findings regarding early online courses, a focus on online English composition courses is an important facet of this study since students are successfully using the online format to complete some or all of their general education courses.

Success in core courses such as English composition play a vital role in students completing a degree since these core introductory courses are considered gatekeeper courses that lead to upper-level, major-specific courses (Xu and Jaggars, 2011), and students who fail to find success in these courses may fail to complete their degrees based upon self-selection by the student (Roksa et al., 2009). Such failure will not only influence these students' drive to complete their degree programs, but institutions are significantly influenced financially by this lack of retention.

Lorenzetti (2002) identified three areas of commitment and support in which the institution must have success if students are to succeed in an online program. The online program must include support for the student including academic support, technical support, and library support. Secondly, faculty must be supported as they develop new courses so that they have a better understanding of what works and what does not work in an online format. Finally, student commitment is the most important element to a successful online program. Lorenzetti (2002) found that students who took responsibility for their education found greater success in the online format. Lorenzetti's (2002) results are applicable to the study of English composition in that support services such as the library play an even bigger role in student success in freshman English composition based upon the use of such services to complete the course requirements.

Yukselturk and Bulut (2007) used a combination of quantitative and qualitative methods of research to identify student motivation and its influence on student behavior in an online computer programming course. Using the Motivated Strategies for Learning Questionnaire to measure motivation of the student, Yukselturk and Bulut (2007) found that the success of a student in an online course is dependent upon the student's ability to self-regulate within the course. Several factors that were identified as recommendations for success were that students should be self-motivated, receive regular feedback, and students should be informed before the course begins as to the requirements and dedication that are necessary to be successful. Although these motivation and self-regulation have proven important, these student characteristics are not always known before the student enrolls in an online course. Since Yukselturk and Bulut's (2007) study employed variables that were more linked to motivation than to actual academic ability (based upon pre-course predictors of success such as standardized

test scores and HSGPA), focusing on only pre-course variables may add to the current literature on online learning.

Yukselturk and Bulut's (2007) identification of individual feedback as a way to keep students motivated in an online environment, makes the use of freshman English composition in this current study significant since writing courses such as freshman English composition use feedback on written work as a way to guide students through learning the writing process.

Other Variables of Success

One variable identified in the literature review as having a strong correlation with SAT scores as a predictor of success is a student's socio-economic status (SES). Zwick and Greif Green (2008) studied the correlation between SAT scores and SES. Zwick and Grief Green were drawn to two prevailing hypotheses in such correlational studies. The first hypothesis was that the correlation between SAT and SES is based upon the content of the SAT being more geared toward white middle-class students. The second hypothesis driving this study was that a correlation exists between SAT and SES because wealthy students' grades are inflated since their families have the economic means to provide tutoring and test coaching (Zwick & Grief Green, 2008). Using a random sample (25%) from a data set provided from College Board, their study included 336,216 students from a total of 15,768 high schools. After excluding cases for missing data, the sample was reduced to 98,391 students representing 7,330 high schools. Zwick and Grief Green (2008) confirmed that there is a high correlation between SAT scores and SES.

Summary

The literature examined gives a clear context for which this study may be established. The conceptual theory of the predictive ability of ACT and SAT scores and their relationship to

student success in college laid a foundation in which to base this study. Further empirical evidence indicates the suitability of using high school GPA to gain a better understanding as to how these variables predict success in an introductory course and eventual college retention and graduation. Further evidence indicating the importance of the critical thinking and writing skills that are taught in freshman English composition identify this course as an important course in indicating success and persistence in college. A review of the current literature identifies one study concentrated on the ability of a standardized test to predict success in freshman English. Since this one study solely relied upon the predictive ability of SAT scores and HSGPA, the addition of the ACT will add to the body of literature and give empirical evidence of the predictive ability of both the ACT and SAT. Gaps in the literature related to the ability of these variables to predict success in core courses such as freshman English in an online format indicate a need for more study in this area. Since many colleges and universities accept both the ACT and SAT as a basis of college admission, the inclusion of both tests will provide more empirical research on predictive abilities of both tests as they relate to student success in college English.

Chapter three outlines the methodology for this study. This chapter will include a description of the design, hypotheses, participants, setting, instrumentation, and analysis. The results of this study will add to the current body of knowledge and literature in an effort to increase student retention and to raise graduation rates at institutions throughout the nation.

CHAPTER THREE: METHODOLOGY

Introduction

The purpose of this study was to identify a correlation between several predictor variables (SAT composite score, ACT composite score, and HSGPA) and the criterion variable of final grade in online freshman college English composition. The purpose of this study was to find out which predictor variable or combination of variables best predicts students' success in online college freshman English. The following chapter describes the participants, setting, instruments and research questions. This chapter also includes information regarding the research design and data analysis.

Design

This study used a correlational research design. A correlational research design may be used in both experimental and non-experimental research (Tabachnick & Fidell, 2013). A correlational study design is used when a researcher is trying to find a correlation between certain variables or when a researcher is trying to use a variable to predict an outcome (Gall et al., 2007). Since this study was a prediction study, the correlational research design is appropriate (Gall et al., 2007). When using a correlational study whether to show correlation or for prediction, the goal of the researcher is not to necessarily show cause and effect between the variables; but the goal is to show that a correlation does exist (Tabachnick & Fidell, 2013). The use of a correlational research design for this particular study will allow the researcher to study several predictor variables in an effort to find a relationship between these variables and students' success in freshman college English.

Questions and Hypotheses

The research questions for this study are:

RQ1: Does the SAT predict a student's success in a freshman English course? Student success will be based upon a passing grade of 700-1000 on a scale of 0-1000.

RQ2: Does the ACT predict a student's success in a freshman English course? Student success will be based upon a passing grade of 700-1000 on a scale of 0-1000.

RQ3: Does HSGPA predict a student's success in a freshman English course? Student success will be based upon a passing grade of 700-1000 on a scale of 0-1000.

RQ4: Do the SAT or ACT and HSGPA predict a first-year college/freshman student's success in a core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Hypotheses

H_1: The SAT predicts a first-year college/freshman student's success in an online English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_2: The ACT predicts a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_3: The HSGPA predicts a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_4: The SAT predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_5: The ACT predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Alternatively, the following are the null hypotheses:

H_6: The HSGPA predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Alternatively, the following are the null hypotheses:

H_{o1}: The SAT does not predict a first-year college/freshman student's success in an online English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o2}: The ACT does not predict a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o3}: The HSGPA does not predict a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o4}: The SAT does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o5}: The ACT does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o6}: The HSGPA does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Participants

The population for this study was drawn from first-year online students attending Liberty

University. All of the participants took ENGL 101 English within the first three semesters of their start date. The participants were limited to students taking the course for the first time during the Fall 2014 semester. Eliminating transfer students or students who have previously taken the course helped to eliminate the threat to internal validity caused by the previous college-level English training. The descriptive statistics listing the demographics and gender of the participants are listed in Table 1 and Table 2.

Table 1
Participants Demographics

	Number	Percent
African American/Black	32	3.2
American Indian/Alaska Native	3	.3
Asian	11	1.1
Hispanic or Latino	4	.4
White	234	23.2
Not Reported	723	71.7
Puerto Rican	1	.1
Total	1008	100.0

Table 2
Gender of Participants

	Number	Percent
Female	555	55.1
Male	453	44.9
Total	1008	100.0

The data was drawn from a data set obtained from the registrar's office that includes SAT and/or ACT scores, HSGPA, final grade in freshman English course, and cumulative college GPA. This data was drawn from students taking ENGL 101 Composition and Rhetoric during the fall 2014 A, B, C, or D terms.

Setting

Data was collected from Liberty University, a large (over 95,000 students) private Christian online university in the southeastern United States. The university confers both undergraduate and graduate degrees and offers both residence and online degree program across 230 programs of study. Liberty University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) accrediting body. The university is

classified under the Carnegie classification as a Master's Colleges and University, although it does offer doctoral programs. This college serves over 95,000 online students including students from all 50 states and over 95 different countries (Liberty University Quick Facts). The demographics are 54% White, 29% multi-racial, 13% Black or African American, 3% Hispanic, and 1% Asian. The student body is 53% female and 47% male. Over 60% of the student body attends full time, while 38% of the students attend part time (nces.ed.gov/collegenavigator). The university retention rates from first to second years is 73% for full-time students while only 36% for part-time students. The percentage of students who graduate with a 4-year baccalaureate degree within 6 years is 47% (nces.ed.gov/collegenavigator).

This particular institution was chosen based upon its strong academics, mission and purpose, large student body, and its availability to the researcher. Also, its open academic admittance policy allows students within a range of academic abilities acceptance into their programs. This varied academic makeup will provide a data set that includes a broader range of academic abilities within a single set of data. Such a varied range of scores will allow for a broader applicability of the study's conclusions.

The course used for this study will be English 101 Composition and Rhetoric (Appendix B). This course teaches students how to identify, analyze, and evaluate different types of rhetoric. Students also learn to apply these skills as they produce essays incorporating sound argument and clear audience. Each student produces a minimum of 4000 words presented in no fewer than five essays. At least three of these essays must incorporate outside sources using proper MLA documentation (ENGL 101 course syllabus). The course grade is determined by a combination of the graded assignments where the essays will count for at least half but not more

than two-thirds of the course grade. This grade is determined numerically with total points of 1000 on a scale of 0-1000 (ENGL 101 course syllabus).

Instrumentation

The instruments used for this study include student scores from the Scholastic Assessment Test (SAT), the American College Test (ACT), and high school grade point average (HSGPA). These instruments have long been studied and tested for their reliability and validity (Bridgeman et al, 2008).

The Scholastic Assessment Test (SAT) is a 10-part test that includes questions in three key areas—Critical reading, Mathematics, and Writing. Each section is scored on a 200-800 point scale with a total possible score of 2400 (College Board, 2012). According to a 2008 study conducted by College Board that included 196,364 college students from 110 different colleges, results indicated that the ability of the SAT to predict first-year grade point average has remained consistently valid even after the addition of the writing section (Kobrin et al., 2008). The results found that the writing portion of the SAT was a much better predictor of first-year college grade point average (r=.51) than the critical reading (r=.48) or mathematics (r=.47) portions of the examination. The validity of the SAT when combined with HSGPA for predicting first-year college grade point average had the strongest correlation (r=.62) (Kobrin et al., 2008).

The American College Test (ACT), developed in 1959, includes subjects in English, Mathematics, Reading, Science, and an optional writing test (ACT, 2012b). Unlike the SAT, the ACT is based upon high school curriculum and test information and skills thought to be pertinent to student success in college (ACT, 2012b). A study conducted in 2005 established benchmarks measuring college readiness for typical first-year courses (English Composition, College Algebra, Social Science courses, and Biology) in an effort to establish test validity (Allen &

Sconing, 2005). Each of the four subject sections of the test and the composite score is based upon a scale of 1-36. For the reliability of the ACT a correlation of the composite score is about .96 while the correlation between the composite score and college GPA is between .81 and .88 (ACT, 2012b). Further research (Noble & Sawyer, 2002) indicates that the ability of the ACT to predict first-year college GPA is more accurate when combined with the student's HSGPA. Noble and Sawyer found that although HSGPA alone was a more accurate predictor of moderate first-year GPAs (2.50-3.00) than ACT scores, the combination of both HSGPA and ACT scores clearly proved to be more accurate at predicting first-year GPA. Thus, the inclusion of HSGPA as a variable in the current study is in keeping with current empirical research.

HSGPA was also used as an instrument. The validity of this instrument is assumed based upon the high schools' use of it for graduation purposes and the university's use of the score for admissions purposes. For this study, unweighted HSGPA instead of a weighted HSGPA was used. The highest HSGPA students can attain in an unweighted system is a 4.00 GPA. One difficulty with using weighted HSGPAs as opposed to unweighted HSGPAs is that there is not a standard method for computing the weighted GPA among high schools (College Board, 2001a).

Another limitation in the use of HSGPA as an instrument is in validity of how the HSGPA is determined. Camara, Kimmel, Scheuneman, and Sawtelle (2003) study of grade inflation found a disparity in the increase in student's HSGPA as compared to the increase in SAT scores from 1976 to 2002. Over a period of more than two decades, students' HSGPA increased while there was little of no increase in the same student's SAT scores (Camara et al., 2003). Although the validity of HSGPAs may be in question, the use of this instrument in prediction studies has been found to be successful. Geiser and Santelices (2007) found that HSGPA is consistently a best predictor of student success in college.

Procedures

Permission was sought from the institution to conduct the study. Once approval from the Liberty University Institutional Review Board was received, the data was requested from Liberty University Registrar's office. Since the data collection involved minimal risk to the students, an IRB exempt form was submitted. The data was obtained from the institution's Analytics and Decision Support. Data was drawn from archival data of student records that meet the following criteria: students who have taken ENGL 101 online during the fall 2014 semester, SAT or ACT scores, HSGPA, grade in ENGL 101, and college GPA. These materials were delivered electronically in a secure method absent of student identifiers. Although this study involves minimal risk to the participants, care was taken to protect the data collected from the participants through the use of password-protected electronic files. Since the data was part of an archival dataset provided by Analytics and Decision Support, informed consent of the participants is not necessary. Data was analyzed using a multiple regression design and reported in chapter four of the dissertation.

Data Analysis

Each hypothesis will be analyzed using a multiple regression analysis. A hierarchical regression was used. A hierarchical or sequential regression was chosen over a standard multiple regression since the goal of this study was to identify which of the variables—SAT composite, ACT composite, or HSGPA—had a stronger correlation with the dependent variable of success in freshman English (Tabachnick & Fidell, 2013). The hierarchical regression analysis allows the researcher to run several regressions while controlling for another variable (Warner, 2013). Since the researcher decides the order in which each variable enters the regression, it is important that this decision be rooted in researched or theory (Warner, 2013). Since the use of the SAT

and ACT to predict success is rooted in theory and literature, the hierarchical regression analysis is appropriate for the current study (Tabachnick & Fidell, 2013). The goal in using the hierarchical regression is to find which of the variables have a stronger ability to predict success within the regression (Tabachnick & Fidell, 2013).

The sample size for this study was drawn from a dataset of students taking ENGL 101 English Composition and Rhetoric at Liberty University Online during the fall 2014 semester. A sample of this size is needed since the multiple regression will include 4 independent variables of SAT composite, ACT composite, HSGPA, and Cumulative College GPA. According to Tabachnick and Fidell (2013), "the simplest rules of thumb are $N \geq 50 + 8m$ (where m is the number of IVs) for testing the multiple correlation and $N \geq 104 + m$ for testing the individual predictors" (p. 123). Using this formula, the minimum number of participants needed would be 82 to test the regression ($N \geq 50 + (8)(4)$) and 108 ($N \geq 104 + 4$) to test individual predictors (Tabachnick & Fidell 2013). Since there is a possibility of grade inflation influencing the dependent variable (final grade in ENGL 101), drawing from a data set including more than the minimum number of participants needed will help to eliminate the possibility that grade inflation may influence the analysis. Increasing the sample size will also increase the power of the study and decrease the possibility of a Type II error or failure to reject a false null hypothesis (Singh, 2007). In addition to increasing power, drawing from a large sample size will allow for the removal of any participants who do not meet the criteria and ensure that the minimum number of participants is available per variable to strengthen the validity of the study.

To eliminate the possibility of a Type I error or failure to reject a true null hypothesis, a significance error of $p < .05$ will be used. Although raising the significance level from $p < .05$ to

$p < .01$ will reduce the level of a Type 1 error, the possibility of a Type II error greatly increases (Gall et al., 2007).

In using multiple regression analysis, assumptions must be made that the data will be collected in a way that it is free of errors (Tabachnick & Fidell, 2013). In educational research, it is nearly impossible to collect data free of errors; therefore, the researcher will focus on using the best and most reliable data for this multiple regression analysis. To help lessen the effect of these errors of assumption, the data was first be analyzed for normality, homoscedasticity, and for extreme outliers to avoid errors in assumptions.

To test the ability of the predictor variables SAT scores, ACT scores, and HSGPA to predict success in Freshman English, a hierarchical multiple regression analyses was performed. SAT scores were entered into the first block based upon the variable's strength within this model. Previous studies have shown that SAT scores are a very strong predictor of success in college and in specific college courses (Aggarwal et al., 2004; Kobrin et al., 2008; Mattern et al., 2012). Also, since more students take the SAT in comparison to the number who take the ACT, SAT scores will be entered into the first block as opposed to entering ACT scores first (ACT, 2012b; College Board, 2012). The ACT scores were entered into the second block since the ACT is closely related to the SAT score in its ability to predict success (Aggarwal et al., 2004; Donnelly, 2010). HSGPA were entered into the third block of the regression. Although some studies have shown that HSGPA may be a stronger predictor of success than both the SAT and ACT, most studies show that it is a weaker predictor of success on its own (Bridgeman et al., 2008; Geiser & Santelices, 2007; Marsh et al., 2008). The predictive ability of HSGPA is better when combined with SAT or ACT scores (Bridgeman et al., 2008). The controlling variable of

cumulative GPA was entered into the fourth block. The order of this variable's entry was based solely on the researcher's choice to add this variable at this time.

Before the analysis, assumptions of linearity, independence of observations, homoscedasticity, normality, multicollinearity, and outliers were tested. Tests of normality including, Box plots, and scatterplots were constructed for each variable to check for normality and absence of extreme outliers in the data distribution. Shapiro-Wilk test for normality was acceptable where $p<.01$. (Table 3).

Table 3

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SAT Composite	.054	187	.200*	.990	187	.245
ACT Composite	.098	103	.017	.973	103	.031
High School GPA	.057	1008	.000	.970	1008	.000
Current College GPA	.100	1008	.000	.926	1008	.000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The test for multicollinearity (Table 4) revealed that ACT Composite score and SAT Composite score were highly correlated at .622 at a significance at .01 level (2-tailed). Since this correlation is below $r = .7$ suggesting collinearity (Pallant, 2010), all variables were included in the model.

Table 4

Correlations

			SAT Composite	ACT Composite	High School GPA	Current College GPA
Spearman's rho	SAT Composite	Correlation Coefficient	1.000	**.622**	**.329****	**.295****
		Sig. (2-tailed)	---.	.000	.000	.000
		N	187	45	187	187
	ACT Composite	Correlation Coefficient	**.622**	1.000	**.497**	**.366**
		Sig. (2-tailed)	.000	---.	.000	.000
		N	50	125	103	125
	High School GPA	Correlation Coefficient	**.329**	**.497**	1.000	**.318**
		Sig. (2-tailed)	.000	.000	---.	.000
		N	187	103	1008	1008
	Current College GPA	Correlation Coefficient	**.295**	**.366**	**.318**	1.000
		Sig. (2-tailed)	.000	.000	.000	---.
		N	187	103	1008	1008

Correlations that are significant at the 0.01 level (2-tailed) are in boldface.

Q-Q Plots were examined to test the assumptions of linearity and bivariate normal distribution. The Q-Q Plots did not show any bivariate outliers. Also, the assumption of linearity was met. See Figures 1-4 for the scatterplots. (Gall et al., 2007).

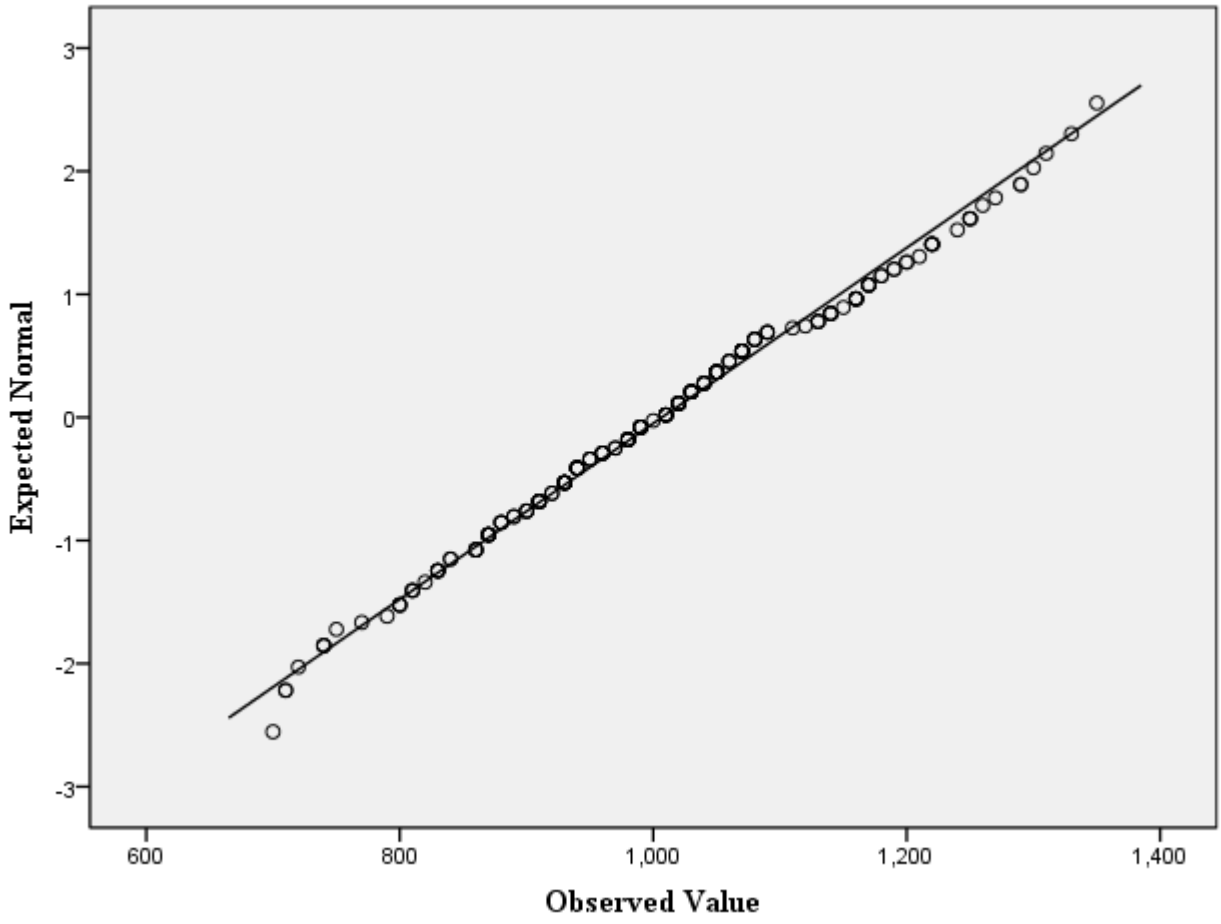

Figure 1 Normal Q-Q Plot of *SAT Composite*

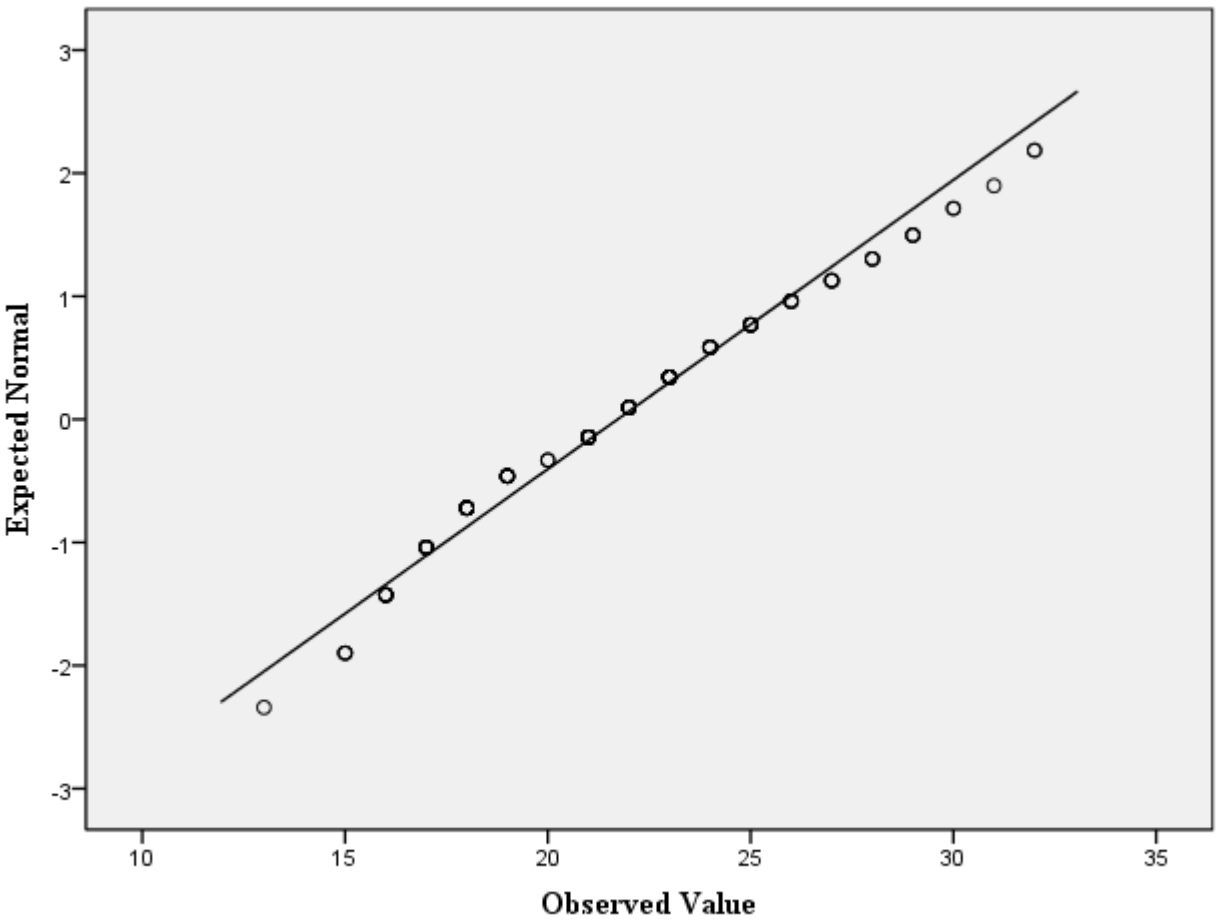

Figure 2 Normal Q-Q Plot of *ACT Composite*

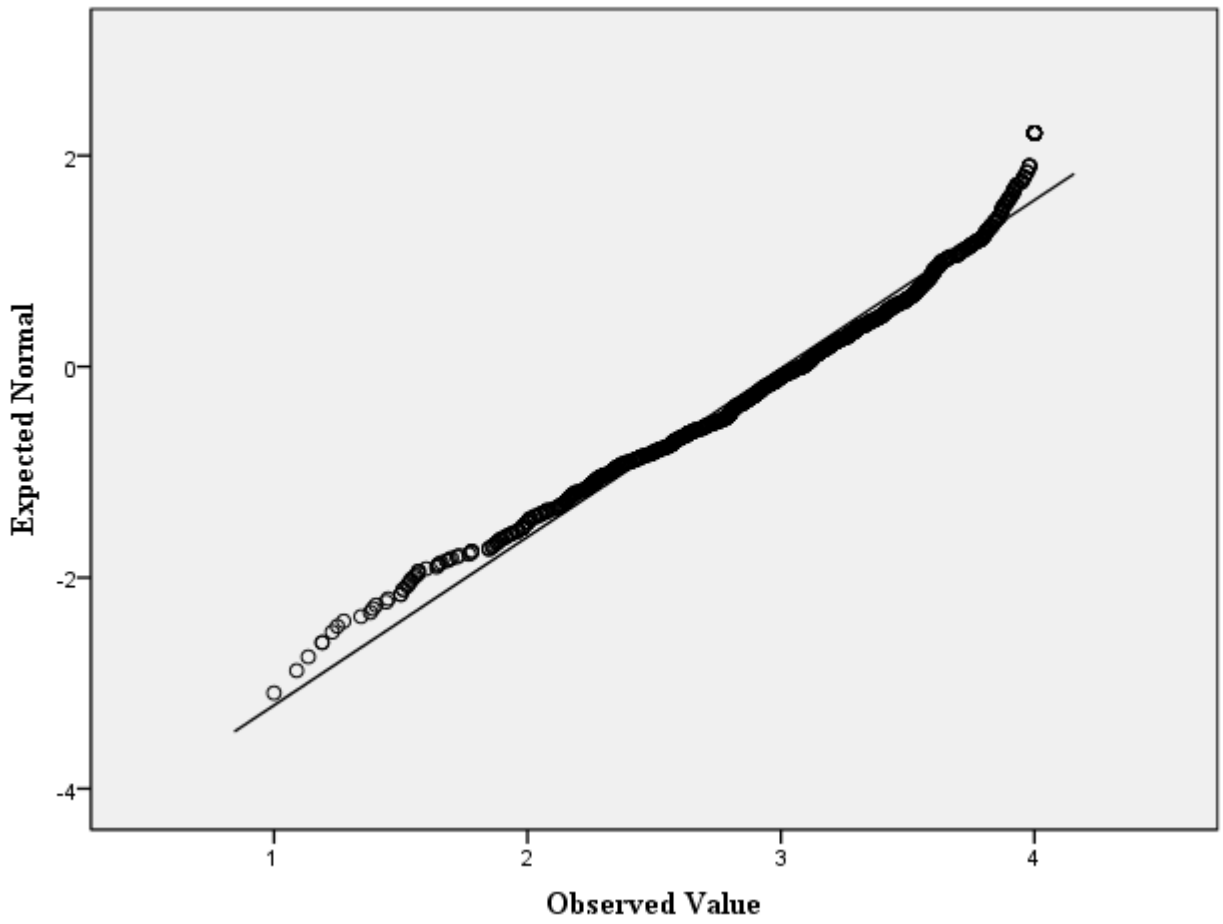

Figure 3 Normal Q-Q Plot of *High School GPA*

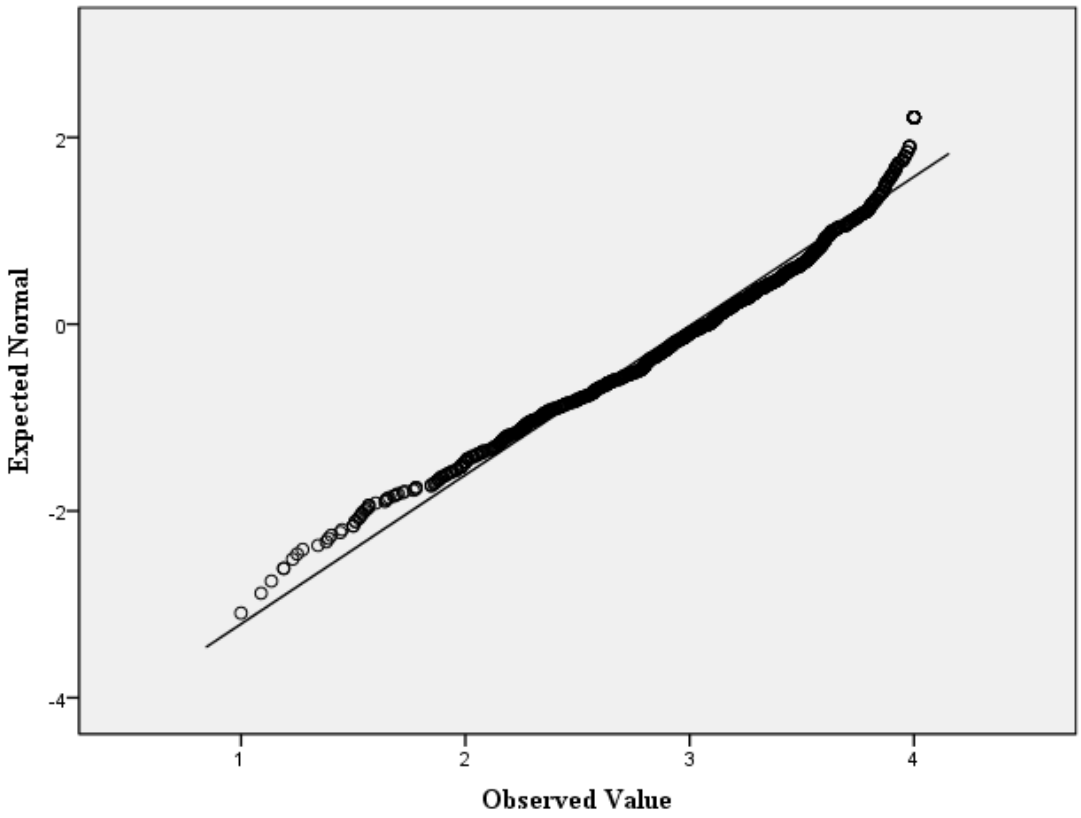

Figure 4 Normal Q-Q Plot of *Current College GPA*

CHAPTER FOUR: FINDINGS

Purpose

The purpose of this predictive correlational study was to examine the degree in which final score in and online English composition course (predictor variable) could be predicted from SAT scores, ACT scores, and HSGPA when controlling for cumulative GPA in a single online Virginia university. A hierarchical regression analysis was used to answer the research questions below. The data reported below will be detailed in the discussion in chapter five.

Research Question

The research questions for this study are:

RQ1: Does the SAT predict a first-year college/freshman student's success in an online core English course? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

RQ2: Does the ACT predict a first-year college/freshman student's success in an online core English course? Student success will be based upon a passing grade of 700-1000 on a scale of 0-1000.

RQ3: Does HSGPA predict a first-year college/freshman student's success in an online core English course? Student success will be based upon a passing grade of 700-1000 on a scale of 0-1000.

RQ4: Does the SAT predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

RQ5: Does the ACT predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

RQ6: Does HSGPA predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Hypotheses

The following are the hypotheses for this study:

H_1: The SAT predicts a first-year college/freshman student's success in an online English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_2: The ACT predicts a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_3: The HSGPA predicts a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_4: The SAT predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_5: The ACT predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Alternatively, the following are the null hypotheses:

H_6: The HSGPA predicts a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Alternatively, the following are the null hypotheses:

H_{o1}: The SAT does not predict a first-year college/freshman student's success in an online English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o2}: The ACT does not predict a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o3}: The HSGPA does not predict a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o4}: The SAT does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o5}: The ACT does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o6}: The HSGPA does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Descriptive Statistics and Correlations

A total of 1008 students who took ENGL 101, Fall 2014 as a part of the data set were included in the study. Those students who were missing HSGPA were eliminated from the data set. Table 5 summarizes the data for the three categorical predictor variables and the one controlling variable (current college GPA). For all variables (Table 5), descriptive statistics indicate the following: N = 187 for SAT composite score, N = 103 for ACT composite score, N = 1008 High School GPA, and N = 1008 Current College GPA. All three categorical variables (SAT composite score, ACT composite score, and HSGPA) and the controlling variable (current college GPA) were dummy coded prior to analysis.

Table 5

Descriptive Statistics

	Mean	Std. Deviation	N
Final Grade in ENGL 101	.80	.399	1008
SAT Composite	1006.95	140.091	187
ACT Composite	21.72	4.257	103
High School GPA	3.0111	.62655	1008
Current College GPA	2.8341	.91058	1008

Table 6 reports Pearson's Correlation for all variables. The correlation matrix provides a preliminary scan of multicollinearity and singularity in all the data. All intercorrelations between predictor variables were below $r = .7$ suggesting collinearity (Pallant, 2010).

Table 6

Intercorrelations for Final Grade in ENGL 101 and Predictor Variables

		Final Grade in ENGL 101	SAT Composite	ACT Composite	High School GPA	Current College GPA
Pearson Correlation	Final Grade in ENGL 101	1.000	.126	.000	.122	.551
	SAT Composite	.126	1.000	.630	.335	.232
	ACT Composite	.000	.630	1.000	.496	.345
	High School GPA	.122	.335	.496	1.000	.243
	Current College GPA	.551	.232	.345	.243	1.000

Results

To test all fixed hypotheses in one model, all independent variables were entered in a hierarchical multiple regression as follows: SAT composite scores in block one, ACT composite scores in block two, HSGPA scores in block three and cumulative college GPA in block four. The dependent variable was the student success (pass/fail).

Block 1 was not statistically significant F (1, 43) = .696, p .001 in the overall model, indicating that there is no effect of the SAT composite scores on the student success. The SAT

composite in the first block explained 1.6% of the variance in student success as noted in a passing grade in ENGL 101.

Block 2 was also not statistically significant F (2, 42) = .568, p .001 in the overall model. The model with SAT and ACT as independent variables explained 2.6% of the variance in student success. The addition of ACT composite scores was not a significant predictor variable (ES = 1.0%, β = -.31, p = -.699), indicating the two independent variables have no effect on student success.

Block 3 explained 4.5% of the variance in student success. Although HSGPA added significantly to the model, the model itself was not statistically significant F (3, 41) = .595, p .001, indicating that the addition of HSGPA has an effect on student success.

Block 4 explained 37.4% of the variance in student success. The addition of cumulative college GPA was statistically significant F (4, 49) = .5.98, p .001.

Table 7 reports the results of the hierarchical regression analysis that indicated that current GPA significantly predicted final grade in ENGL 101 (χ^2_1 = 19.231, p = 0.001) at the 95% confidence level, indicating that at least one of the independent variables has an effect on student success.

Table 7

Hierarchical Multiple Regression Model

	R^2	R^2 Change (Effect Size)	*F* Ratio for R^2 Change	B	SE	t	Sig.
Block 1	.016	.016	.409				
Block 2	.026	.010	.507				
Block 3	.045	.018	.381				
Block 4	.374	.330	.000				
SAT Composite				.001	.000	1.181	.245
ACT Composite				-.036	.017	-2.124	.040
High School GPA				.062	.092	.676	.503
Current College GPA				.269	.059	4.592	.000

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion

The purpose of this correlational study was to examine the correlation among SAT scores, ACT scores, HSGPAs, and students' final grade in freshman online college English composition course. Additionally, a further analysis examined the correlation among these independent variables when controlling for controlling for cumulative GPA. A hierarchical multiple regression analysis was initially utilized to examine the correlation between the predictor variables (SAT composite, ACT composite, HSGPA, and cumulative GPA) and the criterion variable (final grade in ENGL 101). An additional analysis using a

Null Hypothesis

H_{o1}: The SAT does not predict a first-year college/freshman student's success in an online English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o2}: The ACT does not predict a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o3}: The HSGPA does not predict a first-year college/freshman student's success in an online core English course. Success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o4}: The SAT does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o5}: The ACT does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

H_{o6}: The HSGPA does not predict a first-year college/freshman student's success in an online core English course when controlling for cumulative GPA? Student success will be based upon a passing score of 700-1000 on a scale of 0-1000.

Failure to Reject Null Hypothesis 1.

SAT and Final Grade. Association between SAT and Final Grade in online English course was not statistically significant F (1, 43) = .696, p .001, indicating that there is no effect of the SAT scores on the student success, resulting in failure to reject the null hypothesis. This finding is not congruent with the current literature that identifies the SAT is a strong predictor of success (Mattern et al., 2012). Current studies clearly identify the SAT as a strong predictor of success particularly in the humanities. Wonnell et al., (2012) found that the SAT was considered a stronger predictor for success in the humanities; although their overall study indicates that HSGPA is a better predictor of success. Although the findings of the current study did not show a statistical significance of the SAT in predicting success in an online English course, these findings do lend support to the current push to allow for test-optional admission (Espenshade & Chung 2010; Wonnell, Rothstein & Latting 2012). The argument for test-optional admissions has found some empirical evidence in the literature, but none in application to online English courses (Espenshade & Chung, 2010; Soares, 2012; Wonnell et al., 2012).

The results of this single study should not be interpreted to suggest that the SAT is not valuable in predicting success in college. Conversely, empirical evidence exists throughout the literature that supports the use of SAT scores to predict success in the humanities and in college in general (Mattern et al., 2012; Wonnell et al., 2012). The current findings do give admissions directors support to use variables other than the SAT to make their admissions decisions for online courses. Espenshade and Chung (2010) noted that other variables (class rank, high school GPA, or high school curriculum) may be stronger predictors of success in college academics depending up on the college.

Failure to Reject Null Hypothesis 2.

ACT and Final Grade. Association between ACT and Final Grade in online English course was not statistically significant F (2, 42) = .568, p .001, indicating that there is no effect of the ACT scores on student success. The model with SAT and ACT as independent variables was not statistically significant (ES = 1.0%, β = -.31, p = -.699), indicating the two independent variables have no effect on student success resulting in a failure to reject the null hypothesis.

Rejection of Null Hypothesis 3.

HSGPA and Final Grade. Association between HSGPA and Final Grade in online English course was not statistically significant F (3, 41) = .595, p <.001, but the addition of HSGPA added significantly to the model in that it added 4.5% of the variance in student success, therefore, the null hypothesis was rejected.

Finally, when controlling for cumulative college GPA (H_{04}, H_{05} and H_{06}), the fourth step was statistically significant F (4, 49) = .5.98, p < .001, indicating the cumulative college GPA scores had an effect on the student success. The model itself was statistically significant (β .614, p = 0.001), indicating that at least one of the independent variables has an effect on student success.

Failure to Reject Null Hypothesis 4.

SAT and Final Grade Controlling for Cumulative GPA. Association between SAT and Final Grade in online English course when controlling for cumulative GPA was not statistically significant F (2, 42) = 9.16, p < .001, resulting in failure to reject the null hypothesis.

Failure to Reject Null Hypothesis 5.

ACT and Final Grade Controlling for Cumulative GPA. Association between ACT and Final Grade in online English course when controlling for cumulative GPA had a statistical significance coefficient of .040 and was not statistically significant F (3, 41) = 7.93, p = .000 resulting in rejection of the null hypothesis.

Rejection of Null Hypothesis 6

HSGPA and Final Grade Controlling for Cumulative GPA. Association between HSGPA and Final Grade in an online English course when controlling for cumulative GPA was not significant F (4, 40) = 5.98, p = .001 resulting in the failure to reject the null hypothesis.

While the DVs of SAT scores, ACT scores, and HSGPA were not strong predictors of success in ENGL 101 when controlling for current cumulative GPA, the DV current cumulative GPA had a statistically significant coefficient of .614 (β .614, p = .000). In the final model that includes all four independent variables, only the current cumulative GPA coefficient is statistically significant.

Conclusion

The present research examined the relationship between four predictor variables (SAT composite, ACT composite, HSGPA, and controlling for cumulative college GPA) and students' final score in an online English composition course. Although the number of participants with ACT composite scores (N=103) meets the minimum number necessary for the regression (N=82), this number is just short of the minimum needed to test individual predictors (N = 108). The ability to generalize the ACT composite score findings based upon the minimum number of participants set at 108 will be limited (Tabachnick & Fidell, 2013). The overall model, however, did include the needed number of participants (n=1008) with SAT composite scores (n=187), HSGPA (n=1008), and Current College GPA (n=1008). Although all of the predictor variables were not found to be statistically significant in relationship to Final Grade in ENGL 101, HSGPA added 4.5% of the variance in in predicting success in an online English course (Table 7). While this finding was not in line with current literature as it applies to predictive nature of SAT or ACT over HSGPA with online first-year courses or fully online programs (Aggarwal et al., 2004; DeBerard et al., 2004; Foley-Perez & Poirier, 2008; Kobrin et al., 2008; Marsh et al., 2008; Mattern & Shaw, 2010; Smith & Schumacher, 2005; Zwick & Skylar, 2005), the identification of HSGPA as a stronger predictor of success is consistent with other studies in both residential (Geiser & Santelices, 2007; Nobel &

Sawyer, 2004) and online programs (Yukselturk & Bulut, 2007). These findings also support a change in the current theory that standardized tests such as the SAT and ACT should be optional for entrance into college (Soares, 2012). Soares' (2012) view opens doors for test-optional policies that could include a stronger reliance on HSGPA or other factors that were not tested in the current study. Each institution will need to decide individually how to apply these results in order to create admissions policies for both its online and residential programs that may open the door of college education to students who may not give indication of success through standardized means such as SAT or ACT scores

The HSGPAs prediction of success in an online English composition course indicates that other factors that may have influenced the strength of HSGPA. One factor may be that the institution in the current study is a private Christian university. The religious emphasis of the institution may draw students from a Christian, evangelical background who were reared to work hard and to live a life of integrity in accordance to principles outlined in the Bible. This background may drive students to complete online course that they have started and even persist to degree completion based upon their religious beliefs. Although current predictive retention studies have found HSGPA to be a strong predictor of success over standardized tests such as SAT or ACT based upon school type which included 2-year institutions versus 4-year institutions (Radunzel & Noble, 2012) or private and public institutions of varying sizes and selectivity (Wonnell et al., 2012), the inclusion of the influence of students' religious background and religious commitment which may include church attendance, prayer, scripture reading, and the adherence to religious traditions or rituals and its influence on the prediction variables is yet to be seen (Layton, Dollahite, & Hardy, 2011; Simoneaux, 2015).

A second factor that may have influenced the predictive ability of HSGPA could be attributed to the online format of the course. Most current research in online learning has focused on student persistence based upon students' online interaction (Finnegan et al., 2008). Finnegan et

al. (2008) specifically found that students who were highly interactive with the online discussions and reading during the course were more successful. Students who work hard to earn a good HSGPA will have academic skills that when applied to an online course platform can culminate in course success. This course success builds an academic connection of the student with the institution that can lead to persistence, retention, and even degree completion supporting Tinto's (1987, 1993, 2006) theory of student retention which is a basis for the current study. Although some studies that have claimed that grade inflation negates the predictive ability of HSGPA (Pattison et al., C. 2013; Woodruff & Ziomek, 2004; Zhang & Sanchez, 2013), this grade inflation took place between 1972-2002 and would not be an influence on the current study (Woodruff & Ziomek, 2004; Zhang & Sanchez, 2013).

Freshman English composition and critical thinking skills play an important role in student success during the first year (Deitering & Jameson, 2008). The online freshman English composition course in the current study teaches students critical thinking and writing skills (ENGL 101 Course Syllabus, 2014-15) that may be transferred to major-specific courses as they continue their program of study (Adler-Kassner et al., 2012; Blaauw-Hara, 2014; Deitering & Jameson 2008; Wardle, 2009). The addition of HSGPA added significantly to the model in that it added 4.5% of the variance in student success over SAT composite (1.6%) and ACT composite (2.6%). Although correlational studies such as the current model do not prove a cause and effect between the variables (HSGPA, cumulative college GPA, and success in online freshman English composition), this strong connection between these variables may be used by admissions departments and academic advisors to identify and place students who may be successful in online freshman English composition courses (Gall et al., 2007). Based upon the literature along with the current findings indicating a close relationship between critical thinking skills and academic writing, online freshman English composition proves to be a strong course to predict persistence and success is college (Deitering & Jameson, 2008; Paul, 1992)

Success in an online English composition course may be a metric that is influenced by a variety of factors that were not included in the current study. One exception worth noting as it applies to the predictive success of SAT scores was Wonnell et al.'s (2012) study which found that the SAT did have a stronger predictive ability in the humanities as opposed to HSGPA. Wonnell et al. (2012) accounted for this contradiction of results to the cohort effect. The cohort effect is where the make-up of the cohort can influence the outcome of the statistical analysis (Keyes, Utz, Robinson, & Li, 2010). Based upon Wonnell et al., (2012) study, the current research expected to find some statistically significant correlation of SAT scores to final grade in ENGL 101. It is unknown whether cohort affect or other factors not included in the current study had any influence on the current findings

Institutions with online courses or fully online programs will need to determine how beneficial it is to continue to use standardized test scores such as SAT and ACT as a requirement for program admission. In the literature, HSGPA has proven to be a better predictor of success over SAT and ACT scores in residential programs (Cimetta et al., 2010). Furthermore, additional studies have called for an elimination of the SAT or ACT for college admission (McDermott, 2008; Wonnell et al., 2012). The goal of this current study is not to rewrite admissions policies eliminating the use of standardized testing altogether but to encourage admissions directors and academic advisors working with online students to consider the weight given to these standardized tests as opposed to HSGPA. Continued research in this area will give admissions directors data useful in setting admissions and academic advising policies that will help to admit and place students within online course and programs where they will find success.

Limitations

This study restricted the predictive variables to include only academic variables such as SAT and ACT scores, HSGPA, and grades. The researcher's choice of using only pre-admission academic factors is an effort to identify academically weak students using known factors such as

ACT or SAT scores and HSGPA before the student begins an online course. Identifying such students from the beginning allows instructors to provide additional assistance in the online class from the onset of the class and to properly advise such students as to their ability to be successful in the online environment. By eliminating the use of other socioeconomic variables (such as family background and education, socio-economic status, study habits, and choice of college major) the findings may not be applicable to students entering college for the first time as a whole (Tumen, Shulruf, & Hattie, 2008).

Another limitation to this study relates to the method of data analysis. Although a regression analysis is a common choice of data analysis for a predictive study (Gall et al., 2007), a regression analysis will only indicate that a relationship exists between the different variables. A regression analysis cannot indicate a clear cause and effect between the variables (Tabachnick & Fidell, 2013). Once a relationship has been identified among the variables, further empirical research will be needed to identify if a particular cause and effect between the variables exists.

Another limitation to this study is the setting of the study. Since data will only be collected from one institution, the results may or may not be applicable to other institutions that do not fit this particular institution's academic student make-up. Although the liberal admittance policy and varied socio-economic diversity of the student body could make this institution comparable to many institutions of its size, the institution's religious mission and purpose has a strong impact on the type of student attending. The institution is made up of more than 81,000 students including 45% part-time status and 55% full-time status. The student body includes 59% female and 41% male. The ethnicity makeup of enrollments include American Indian (1%), Asian (1%), Black (15%), Hispanic (2%), and White (51%) (nces.ed.gov). The institution's mission statement encourages students to be committed to a Christian way of life that includes blending "personal integrity, sensitivity to the needs of others, and social responsibility" (http://liberty.edu/aboutliberty). This strong focus of personal commitment along with the religious teachings of this institution may have a positive effect

on how this student body will succeed and persist in college as compared to other non-religious institutions of similar size and makeup.

Recommendations for Future Research

To help close the gap in the current literature regarding the ability of standardized tests such as SAT and ACT and HSGPA to predict success in online courses, a study that includes a larger sample size including more subjects spread over multiple institutions of varying size and philosophical ideologies will continue to bridge the gap in the current literature. Although the current study's sample using hierarchical analysis lacked the needed number of participants with ACT scores (n=103) to be generalized based upon standard sample size requirements (Tabachnick & Fidell, 2013), the overall model (n=1008) was within standard sample size requirements allowing the findings of the current study to be applicable to the literature.

Future research should also include expanding the variables used to predict success in an online English course to include socio-economic status, gender, and even age. Addition of such variables have been found to have a strong influence on standardized tests such as the SAT (Zwick & Grief Green, 2008).

Further identification of the predictive nature of standardized tests such as SAT and ACT and HSGPA predict success in other general introductory online courses such as mathematics, history, or introductory major courses.

Future research should also include the influence of school atmosphere on the students' ability to persist in an online program. The religious atmosphere of the current study location encourages students to pursue excellence in their learning (http://liberty.edu/aboutliberty). Instructors provide students with an excellent learning environment by providing teaching that "promote(s) the synthesis of academic knowledge and Christian worldview in order that there might be a maturing of spiritual, intellectual, social and physical value-driven behavior" (http://liberty.edu/aboutliberty). This religious atmosphere outlined in the institutions' mission

statement may have had a strong influence on the model outcome. The addition of religious variables and strength of religious commitment of both the students and the institutions may further add to the current model (Layton et al., 2011; Simoneaux, 2015). Since Tinto's model of student integration (1987, 1993, 2006) indicates that students who connect to the institution academically and socially during the first year have a stronger connection to the institution and are more likely to continue, the addition of social variables that include religion and religious commitment may add to and strengthen Tinto's (1987, 1993, 2006) model of student persistence.

It is recommended that a thorough longitudinal study take place that follows a cohort of freshman online students throughout their four years of college who were successful in freshman English. These students could be examined to identify the ability of success in freshman English influences their persistence to complete their degrees and to identify how successfully these students were able to transfer the critical thinking skills learned in freshman English into other major courses (Blaauw-Hara, 2014; Deitering & Jameson, 2008; van Gelder, 2005)

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APPENDIX A

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

October 27, 2015

Cheryl L. Gregory
IRB Application 2345: SAT Scores, ACT Scores, and High School GPA as Predictors of Success in Online College Freshman English

Dear Cheryl,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Your study does not classify as human subjects research because it will not involve the collection of identifiable, private information.

Please note that this decision only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued non-human subjects research status. You may report these changes by submitting a new application to the IRB and referencing the above IRB Application number.

If you have any questions about this determination or need assistance in identifying whether possible changes to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

APPENDIX B

LIBERTY UNIVERSITY

COURSE SYLLABUS

ENGL 101

COMPOSITION AND RHETORIC

COURSE DESCRIPTION

Through the critical engagement of a variety of texts, including written, oral, and visual, this course prepares students to become careful readers, critical thinkers, and skilled writers. Drawing upon rhetorical theory, it emphasizes the practices of analytical reading, informed reasoning, effective writing, and sound argumentation. The course requires 4,000 words of writing in no fewer than five writing projects.

RATIONALE

Reading and writing are essential for success in college and in life. In English 101, the student will further develop his/her skills in analyzing texts, processing that information in the context of his/her worldview, and articulating his/her conclusions clearly to a particular audience.

I. PREREQUISITE

For information regarding prerequisites for this course, please refer to the Academic Course Catalog.

II. REQUIRED RESOURCE PURCHASE

Click on the following link to view the required resource(s) for the term in which you are registered:

http://bookstore.mbsdirect.net/liberty.htm

III. ADDITIONAL MATERIALS FOR LEARNING

A. Computer with basic audio/video output equipment

B. Internet access (broadband recommended)

C. Microsoft Office

D. A recent, standard college dictionary

IV. MEASURABLE LEARNING OUTCOMES

Upon successful completion of this course, the student will be able to:

A. Understand and practice reading, writing, and rhetoric within the context of a biblical worldview.

B. Apply methods of sound reasoning (induction and deduction) and argumentation in writing.

C. Produce well-structured, grammatically sound essays using various modes of discourse.

D. Integrate sources accurately and effectively.

E. Write with clarity.

F. Recognize standard usage in English grammar, word choice (diction), phraseology, and sentence structure.

G. Apply knowledge of sentence structure to basic sentence editing and revision.

V. CORE COMPETENCY LEARNING OUTCOMES

Upon successful completion of this course, the student will be able to:

A. Produce well-structured, grammatically sound writing in various modes of discourse.

B. Write with clarity.

C. Recognize standard usage in English grammar, word choice (diction), phraseology, and sentence structure.

D. Apply knowledge of sentence structure to basic sentence editing and revision.

E. Integrate sources accurately and effectively.

VI. COURSE REQUIREMENTS AND ASSIGNMENTS

A. Textbook readings and lecture presentations

B. Course Requirements Checklist

After reading the Course Syllabus and Student Expectations, the student will complete the related checklist found in Module/Week 1.

C. Discussion Board Forums (2)

Discussion boards are collaborative learning experiences. Therefore, for each forum assignment, the student will address the instructor's given topic in a 250–300-word thread. Then, the student will post one 250–300-word reply to a classmate's thread.

D. Essays (3)

The student will write 3 essays throughout the course. Essay 1 will be a 1,000- word narrative argument about education. The student will submit a thesis and outline of this essay for instructor feedback. Essay 2 will be a 1,000-word causal analysis argument about the media. The student will submit a thesis and outline of this essay for instructor feedback. Essay 3 will be a 1,200-word Toulmin model argument about the environment. The student will submit a thesis, outline, and draft of this essay for instructor feedback.

E. Quizzes (5)

The student will complete 5 open-book/open-notes quizzes covering the *Prentice Hall Reference Guide* and presentations. Each quiz contains 20 multiple-choice and true/false questions except for Quiz 2, which contains 20 multiple-choice questions. Each quiz must be completed in 1 hour and may be taken an unlimited number of times until the due date. The highest score will be the score that is counted.

F. Tests (3)

The student will complete 3 open-book/open-notes tests, each consisting of 25 multiple-choice questions. Each test must be completed in 1 hour and 30 minutes.

VII. COURSE GRADING AND POLICIES

A. Points

Course Requirements Checklist		10
Discussion Board Forums (2 at 100 pts ea)		200
Essays (2 at 150 pts ea, 1 at 250 pts)		550
Quizzes (5 at 20 pts ea)		100
Tests (3 at 50 pts ea)		150
	Total	1010

B. Scale

A = 900–1010 B = 800–899 C = 700–799 D = 600–699 F = 0–599

C. Late Assignment Policy

If the student is unable to complete an assignment on time, then he or she must contact the instructor immediately by email.

Assignments that are submitted after the due date without prior approval from the instructor will receive the following deductions:

1. Late assignments submitted within one week of the due date will receive a 10% deduction.
2. Assignments submitted more than one week late will receive a 20% deduction.
3. Assignments submitted two weeks late or after the final date of the course will not be accepted.
4. Late Discussion Board threads or replies will not be accepted.

Special circumstances (e.g. death in the family, personal health issues) will be reviewed by the instructor on a case-by-case basis.

D. Disability Assistance

Students with a documented disability may contact Liberty University Online's Office of Disability Academic Support (ODAS) at LUOODAS@liberty.edu to make arrangements for academic accommodations. Further information can be found at www.liberty.edu/disabilitysupport.

LIBERTY UNIVERSITY

COURSE SCHEDULE

ENGL 101

Textbooks: Harris & Kunka, *Prentice Hall Reference Guide* (2015).

Muller & Wiener, *To the Point: Reading and Writing Short Arguments* (2016).

MODULE / WEEK	READING & STUDY	ASSIGNMENTS	POINTS
1	Harris & Kunka: pp. CC 1–11, QC 1–4, 1–42, 497–516 Muller & Wiener: pp. 1–30, 153–157	Course Requirements Checklist Class Introductions DB Forum 1	10 0 100
	Harris & Kunka: pp. 65–71 Muller & Wiener: pp. 54–72, 273–276, 489–	Essay 1 Thesis/Outline	0
3	Harris & Kunka: pp. 99–144, 203–304 Muller & Wiener: pp. 222–226, 247–253 Bible Readings	Essay 1 Test 1	150 50
4	Harris & Kunka: pp. 76–83 Muller & Wiener: pp. 291–310 1 presentation	DB Forum 2 Essay 2 Thesis/Outline	100 0
5	Harris & Kunka: pp. 347–351, 379–390 Muller & Wiener: pp. 499–501	Essay 2	150
	Harris & Kunka: pp. 442–486 Muller & Wiener: pp. 311–340 1 presentation	Quiz 4	20
	Harris & Kunka: pp. 331–346, 351–367, 390–395	Essay 3 Thesis, Outline, and Draft Quiz 5	0
8	1 presentation 1 website	Essay 3	250
TOTAL			**1010**

DB = Discussion Board

NOTE: Each course module/week (except Module/Week 1) begins on Tuesday morning at 12:00 a.m. (ET) and ends on Monday night at 11:59 p.m. (ET). The final module/week ends at 11:59 p.m. (ET) on **Friday**.