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Standardized Testing and Dual Enrollment Students

A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor of Education in Educational Leadership

by

Yolanda C. Ellison

May 2016

Dr. Hal Knight, Chair

Dr. Bethany Flora

Dr. Don Good

Dr. Michael Torrence

Keywords: dual enrollment, standardized testing, gender, race-ethnicity

ABSTRACT

Standardized Testing and Dual Enrollment Students

by

Yolanda C. Ellison

The purpose of this study was to compare final grades of dual enrollment students in English Composition I (ENGL 1010) and College Algebra (MATH 1130) at VSCC. The study focused on whether students admitted to these courses using COMPASS Writing and/or Math scores are as successful as students admitted to these courses using ACT English and/or Math subscores. Additionally, the researcher examined whether there were differences related to gender and race-ethnicity for each course by entry method. Final courses grades were used to determine success. The population consisted of 4,156 dual enrollment students and was broken down into 2 groups: ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students. For this study 5,138 dual enrollment grades were used in calculations. Chi-square tests were used to determine significance in the final grades of both groups of students.

The quantitative findings revealed no significant difference between ACT-admitted students and COMPASS-admitted students when comparing final grades in English Composition. There was a significant difference within the two groups when comparing final grades in College Algebra with ACT-admitted students scoring significantly higher grades than COMPASS-admitted students. Additionally, findings indicated COMPASS-admitted females scored more grades of A than ACT-admitted females in English Composition while ACT-admitted males earned more grades of A than COMPASS-admitted females. The difference was significant in College Algebra with both ACT-admitted females and males being at least twice as likely as COMPASS-

admitted females and males to score grades of A. While there was no significant difference when comparing final grades between the white ACT-admitted students and white COMPASS-admitted students in English, significance did exist for the White students in College Algebra. White ACT-admitted students had significantly higher percentages of grades of A than white COMPASS-admitted students in College Algebra. Lastly, although data could not be analyzed for non-Whites in English Composition or College Algebra, when reviewing the percentages for both courses, ACT-admitted students' A grade percentages were higher.

DEDICATION

First and foremost, I give thanks to the Almighty God from Who all my blessings flow. Without Him this journey would not have been possible.

This work is dedicated to the memories of Willie “Cal” and Clara Ellison, two wonderful grandparents who raised me as one of their own children. You believed in me from day one and provided me with the care, nurturing, unconditional love, and support that every child needs and deserves in order to flourish. Mama and Daddy, I am who I am today because of you. I wish you were here to celebrate this moment with me but I know you are smiling from Heaven knowing that I am now “Dr. Resse-Peachy”. I love and miss you both so much.

To my mom Shelia, your never-ending support was heart-felt with each phone call, visit, and text message. I know that I could always count on you to say “you will figure it out” and I did. I am blessed beyond measure to have someone who encourages me to be the “best” that I can be. Thank you so much for believing in me when I didn’t believe in myself.

To my aunt Gwenette (“My” Nette), you never cease to amaze me in your unwavering support. You believe that I can hang the moon and that makes me never want to disappoint you. From the days of being a little girl you have treated me as “yours”, and I have always felt your love. It is so true that it takes a village to raise a child and you were definitely leading my village.

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CHAPTER 1

INTRODUCTION

Michelle and I were able to go to some of the best schools in the country. We were able to achieve things that our parents and our grandparents could have never imagined, could have never dreamed of. And I want every young person in America to have that same choice...the thing that I am here to talk about—guaranteeing every young person access to a world-class education. Every single one...a quality education shouldn't be something those other kids get, it's something that all kids get. (“Remarks by the President on a World Class Education, 2014, n.p.)

Providing a good education has been at the forefront of the American public education system for years. More importantly, according to President Obama, “a good job requires a good education” (“Remarks by the President on Winning the Future in Education in Boston, Massachusetts,” 2011, n.p.). Public high schools have been challenged to provide more rigorous courses to students. The rigor of these courses is designed to ensure that high school graduates are more academically prepared for a postsecondary educational career (Hughes & Edwards, 2012). One approach to providing more rigor is through advanced learning opportunities. Programs such as Advanced Placement (AP), International Baccalaureate (IB), Middle or Early College, and Dual Enrollment courses provide channels for high school students to meet high school graduation requirements while earning college credits (Karp, Hughes, & Comier, 2012). Community colleges throughout the United States are rapidly partnering with secondary institutions to create a rigorous high school curriculum for students (D'Amico, Morgan, Robertson, & Rivers, 2013). During 2002-2003 there were approximately 813,000 dual enrollment students (Kleiner & Lewis, 2005.). However, 2010-2011 data from the National Center for Education Statistics showed 1.2 million dual enrollment students and 71% of those enrollments were at a community college (Marken, Gray, & Lewis, 2013). According to the

National Center for Education research is currently being conducted to determine the increase in the number of participants in dual enrollment programs. However, this research will not be complete until 2016 (personal communication, July 14, 2015). In 2013-2014, 26,336 students were in dual enrollment programs in Tennessee. Of those students 90% (23,732) were enrolled in community colleges (K. Lovett, Tennessee Board of Regents, personal communication, July 18, 2015).

The popularity of dual enrollment is significant given its ability to allow a diverse population of students to earn college credits (Harnish & Lynch, 2005). Students who have been historically underrepresented, such as students of color, low income, and low-achieving students, typically have not participated in dual enrollment programs (An, 2012a; Barnett & Kim, 2014; Ganzert, 2012). Once viewed as a way for high achieving students to be challenged, the focus of dual enrollment has changed. Many states, more recently, have reframed dual enrollment as a mechanism to increase access to all students, including the underprepared and underserved student (Hughes, Rodriguez, Edwards, & Belfield, 2012). In reframing dual enrollment, low-achieving and racial or ethnic minority students are afforded the opportunity to enroll in dual enrollment courses (Rodriguez, Hughes, & Belfield, 2012). According to Karp, Calcagno, Hughes, Jeong, and Bailey (2007) male students benefitted more from dual enrollment than their female students. One of the most important benefits of dual enrollment is that it is used to prepare the underprepared and underrepresented student for college work, in the hope they will enroll in college afterwards (Hughes et al., 2012).

Dual enrollment growth has continued to rise in Tennessee. Since the Dual Enrollment Grant (DEG) was implemented in 2005, the number of dual enrollment grant recipients has increased significantly. In 2005 there were 5,465 recipients (Tennessee Higher Education

Commission, 2007). In 2013-14 there were 20,594 recipients (Tennessee Higher Education Commission, 2015a). One primary reason this growth can be attributed to is the Dual Enrollment Grant (Tennessee Higher Education Commission, 2015b). According to the Tennessee Student Assistance Corporation (2015) some of the requirements to be eligible for the DEG are “a student must complete the academic requirements of the 10th grade (be classified as an 11th grader), meet admissions requirement for the college or university in which they hope to attend, be a Tennessee resident, earn a cumulative GPA of 2.75 on all postsecondary coursework attempted, and be in compliance with federal drug-free laws and rules regarding receiving financial aid” (Eligibility and Participation Requirements, para. 3).

Although there is a state-outlined policy in Tennessee for dual enrollment, the student eligibility requirements to enroll in a dual enrollment program vary from institution to institution (Karp et al., 2012). According to the Tennessee Board of Regents (TBR, 2015a) dual enrollment students must be in at least the ninth grade in a Tennessee public or private school or in a home school program. The student may be enrolled in a course based on the placement requirements as determined by the institution. The student must be enrolled in a course in the general education curriculum, Tennessee Transfer Pathways leading to a degree, a career and technical course that leads to some type of academic award, or middle college. Lastly, TBR requires the student to provide permission from the secondary institution and if the student is a minor, permission from the parent or guardian must be obtained. Student eligibility requirements can include but are not limited to grade point average (GPA), various placement test scores, course prerequisites, and approval from the parent or guardian and high school (K. K. Lovett, personal communication, September 7, 2014). The PLAN, Scholastic Aptitude Test (SAT), and the American College Test (ACT) are standardized assessments used for course

placement at most Tennessee community colleges (K. K. Lovett, personal communication, September 7, 2014).

Traditionally dual enrollment has been associated with those high school students who had higher GPAs and ACT scores than their counterparts. Research has proven the average high school student can benefit from dual enrollment courses and should be afforded the opportunities that their fellow students have (Hughes et al., 2012; Karp, 2013). At Volunteer State Community College (VSCC) in Tennessee the typical dual enrollment student has a high school GPA of 3.0, PLAN or ACT scores with writing subscore of 18, math subscore of 19, and reading subscore of 19 (Tennessee Board of Regents, 2015b; Volunteer State Community College, 2015). ACT composite scores are not used for placement purposes. As the college sought to include lower-achieving students who did not have the requisite test scores, measures were put in place to allow these students to enroll in dual enrollment courses. If students did not have adequate test subscores, they would be permitted to “challenge” their scores by taking the Computerized-Adaptive Placement Assessment and Support Systems (COMPASS) exam. COMPASS measures students’ levels in Reading, Writing, Math, Writing Essay, and English as a Second language. It places student in the appropriate courses according to the scores earned on the test (American College Testing, 2015). If students achieved passing scores on the COMPASS exam, they are allowed to enroll in the dual enrollment course.

Statement of the Problem

Dual enrollment provides a method for high schools to increase rigor in the classroom. It provides students with an opportunity to earn college credit while also earning credit towards high school graduation. It offers the high achieving student more challenging coursework to

combat the effects of “senioritis” (Ganzert, 2012). Equally important, it provides the avenue to college for lower-achieving students (Hughes, 2010). Numerous researchers (e.g. Bahr, 2011; Bailey, 2009; Bailey, Jeong, & Cho, 2010; Complete College America, 2012) have studied the effectiveness of remedial or developmental course work based on how students do in subsequent college level courses. However, the research has been limited with regards to how well dual enrollment students do in college level courses when their ACT subscores indicate they are not college ready. The use of ACT subscores could serve as a deterrent for lower achieving students (Roach, Vargas, & David, 2015; Taylor, Borden, & Park, 2015). As dual enrollment programs continue to rise, the need to provide early college credit to those less likely to participate increases (Kim, 2012; Roach et al., 2015). Therefore, the purpose of this study is to compare final grades of dual enrollment students in English Composition I (ENGL 1010) and College Algebra (MATH 1130) at VSCC. The study is focused on whether students admitted to these courses using COMPASS scores are as successful as students admitted to these courses using ACT subscores in English, Reading, and Math. Some researchers note there are significant differences in gender as well as race-ethnicity regarding participation in dual enrollment programs (An, 2012a; Ganzert, 2012; Pretlow & Wathington, 2014; Swanson, 2008; Young, Slate, Moore, & Barnes, 2013). Therefore, differences in gender and race-ethnicity for each course will be examined. Participants in this study were from local high schools participating in the dual enrollment program at VSCC.

Research Questions

This quantitative study provides a comparison of final grades of dual enrollment students who were admitted to English Composition I (ENGL 1010) and/or College Algebra (MATH 1140) via the ACT test or the COMPASS test. The following research questions were addressed:

1. Is there a significant difference in final grades in English Composition I (ENGL 1010) for ACT-admitted dual enrollment students compared to COMPASS-admitted students?
2. Is there a significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted students as compared by gender?
3. Is there a significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted students as compared by race-ethnicity?
4. Is there a significant difference in final grades in College Algebra (MATH 1130) for ACT-admitted dual enrollment students compared to COMPASS-admitted students?
5. Is there a significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted students as compared by gender?
6. Is there a significant difference in final grades in College Algebra between ACT-admitted dual enrollment students and COMPASS-admitted students (MATH 1130) as compared by race-ethnicity?

Significance

This study is timely as it offers potentially important insights to the success of dual enrollment students who have lower ACT subscores than those who are traditionally accepted into dual enrollment courses. A comparison of ACT-admitted and COMPASS-admitted students is warranted. Because high school administrators recommend students for dual enrollment courses, the results of this study provide relevant information to administrators regarding recommendations of students for dual enrollment programs who are not considered high achievers or college ready. Lastly, this study may aid lawmakers and policymakers to better understand dual enrollment admissions policies and seek ways to make dual enrollment programs available for all students. The results of this study may provide key information needed to create policies to allow a broad range of students to participate in dual enrollment programs.

Limitations and Delimitations

The data for the study were collected from Fall 2011 through Spring 2015 enrollment records of Volunteer State Community College. It was necessary to rely on the community college's student information system BANNER and the community college's Office of Institutional Effectiveness, Research, Planning, and Assessment (IERPA). The data were limited to dual enrollment students who attended the community college and cannot be generalized to students in other community colleges.

The study was delimited to dual enrollment students enrolled in English Composition I (ENGL 1010) and College Algebra (MATH 1130) at Volunteer State Community College.

Assessments for placement purposes were delimited to the use of the ACT test and the COMPASS test.

Definition of Terms

Terms and their definitions used throughout this study are as follows:

ACT-admitted: Course admission via ACT scores that allow enrollment in a college level course. For the purpose of this study those minimum subscores are Writing -18, Reading-19, and Mathematics-19 (Tennessee Board of Regents, 2015b, <https://policies.tbr.edu/guidelines/learning-support>); ACT composite scores are not used

College ready: Eligibility to enroll in college courses without the need for remedial or developmental courses by possessing ACT-admitted test subscores or COMPASS-admitted test scores

Computer Adaptive Placement and Support System (COMPASS): A test used by colleges and universities to place students in appropriate courses (ACT, 2015).

COMPASS-admitted: Course admission via COMPASS scores that allow enrollment in a college level course. For the purpose of this study those minimum scores include Writing-77, Reading-83, and Mathematics 38 (Tennessee Board of Regents, 2015b, <https://policies.tbr.edu/guidelines/learning-support>)

Dual enrollment: A mechanism in which students enroll in college courses and earn credit for college and high school. These courses can be taught by high school teachers hired by the institution or college faculty (Karp et al., 2012)

Final Grade: Numerical grades reported as 4.0, 3.0, 2.0, 1.0, and 0.0

The numerical grades were converted from the letter grading scale as indicated:

A = 4.0; B = 3.0; C = 2.0; D = 1.0; and F = 0.0.

Overview of Study

In this chapter dual enrollment is introduced as a method to increase rigor in the high school while providing an entryway into college for the underserved and underprepared. Chapter 2 is a review of the literature. The history of dual enrollment is given with a review of previous studies regarding the benefits of participating in dual enrollment. Chapter 3 presents a description of the population, data collection method, research questions, and statistical analysis. Chapter 4 is analysis of the data and findings of the research. Chapter 5 concludes the study with the summary, conclusions, implications for practice, and recommendations for further research.

CHAPTER 2

LITERATURE REVIEW

This chapter provides an overview of the literature pertaining to the current study. The literature review included literature concerning ACT, COMPASS, dual enrollment accessibility, benefits and concerns of dual enrollment, and dual enrollment studies.

Dual enrollment programs (DE) are collaborative efforts between high schools and colleges in which high school students (usually juniors and seniors) are permitted to enroll in college courses while receiving credits in both institutions (Karp et al., 2007). Dual credit, concurrent enrollment, and coenrollment are some of the interchangeable terms used to describe dual enrollment (Allen, 2010). According to Speroni (2012) dual enrollment programs are primarily as “programs that allow high school students to concurrently earn college or vocational credits toward a post-secondary diploma” (p. 1). Kellum (2009) described dual enrollment as “collaborative endeavors that allow high school students to concurrently enroll in postsecondary education programs while still in high school” (p. 3). Howley, Howley, Howley, and Duncan (2013) equated dual enrollment to early college. However, the major difference between dual enrollment and early college is dual enrollment students get credit for high school and college while early college students only get credit for college. Considering the ongoing programs that seek to contribute to seamless accessibility into college, dual enrollment is very popular. However, dual enrollment is not an option for all students in the United States (Klopfenstein & Lively, 2012). Typically, dual enrollment offerings are linked to a 2-or 4-year college, with the community college being in close proximity to the high schools. Dual enrollment provides students not only with collegiate level course material, but they are exposed to collegiality;

preparing them for college beyond the classroom. The expansion of dual enrollment programs to both a greater number of participating high schools and students is being promoted in a way to achieve this effect (Pretlow & Wathington, 2014).

The History of Dual Enrollment

From its inception dual enrollment was systematically available for select groups of high school students. Dual enrollment programs date back as far as the late 1800s (Greenberg, 1988). While the notion of early college high school was not new, it was not an idea that high schools and junior colleges would show interest in until the late 1930s (Kisker, 2006). In 1940 Leonard Koos developed the 6-4-4 plan, which was a model that put grades 7-10 in junior high school and grades 11-14 in junior college (Kisker, 2006). However, Koos's 6-4-4 plan came at a time with communities were trying to get their own junior colleges (Pedersen, 2000). The Advanced Placement (AP) program began in the late 1950s as a way for students to not have to repeat college courses they had taken as a high school course. Students who scored high enough on the exam could be awarded college credit. Nearly a decade later Simon's Rock Early College opened in 1966 as an alternative to the AP program, which was geared for elite students (Stoel, 1988). City-As-School High School was established in 1972 (Greenberg, 1988). Originally structured as an alternative school for at-risk students, its primary goal was to revitalize the students' interest in themselves, their education, and their community. The students would attend classes on a space available basis (Greenberg, 1988). City-As-School High School claims to be the nation's leading external learning or experiential learning model for high school students (City-As-School High School, 2015).

A large increase in dual enrollment programs occurred after the U. S. Department of Education released *A Nation at Risk*, a report that stated America's educational system was failing (Fincher-Ford, 1997). With education reform occurring rapidly, the National Alliance of Concurrent Enrollment Partnerships (NACEP) was created in 1999 to establish policies and guidelines for dual enrollment across the nation (National Alliance of Concurrent Enrollment Partnerships, 2015).

Model Components of Dual Enrollment

In a study commissioned by the Education Commission of the States Zinth (2014) summarized the model policy components of a successful dual enrollment program. These components should be implemented at the system level. They involve access to dual enrollment programs and courses, finance of the program for students and colleges, course quality, and transferability of credit.

Access

Researchers show students participating in dual enrollment programs tend to be Whites and more affluent than nonparticipating students (An, 2012a; Barnett & Kim, 2014; Hughes et al., 2012; Howley et al., 2013). It is critical that all eligible students are allowed to participate in dual enrollment (Hughes et al., 2013). Student eligibility requirements must be based on standard policy, meaning "colleges use the same eligibility requirements for dual credit as are used for all college students" (Taylor et al., 2015, p. 14). Martinez (2014) noted all prospective students and parents should be provided with details concerning dual enrollment programs. Martinez (2014) noted the students with affluent and educated parents are most likely to know

about dual enrollment compared to less-advantaged parents. Therefore, student support should be made available to parents and students before enrollment and throughout the course (Hughes et al., 2012; Karp & Hughes, 2008).

Finance

As dual enrollment programs seek to provide access to low-income students, costs should not be a barrier to enrolling (Karp, 2013; Roach et al., 2015). The costs of tuition should not be the responsibility of parents (Karp, 2013). Colleges are funded or reimbursed from state allocations for participating students (Karp et al., 2012; Kinnick, 2012). The Dual Enrollment Grant, funded by Tennessee’s lottery program, assists students with tuition at institutions. The total awarded amount of the Dual Enrollment grant has increased steadily over the years. In 2005, when the grant was implemented, 5,465 students were awarded \$2,060,356. For 2014-2015, \$12,628,400 was awarded to 22,302 students. The yearly increases are provided in Table 1.

Table 1
Students Receiving Dual Enrollment Grant Awards by Year

YEAR	STUDENTS	DUAL ENROLLMENT GRANT
2005-2006	5,465	\$2,060,356
2006-2007	8,306	\$3,600,922
2007-2008	10,931	\$4,804,909
2008-2009	13,383	\$5,776,906
2009-2010	14,697	\$6,369,217
2010-2011	16,404	\$7,194,005
2011-2012	16,995	\$8,743,539
2012-2013	17,759	\$9,882,137
2013-2014	20,594	\$11,823,314
2014-2015	22,302	\$12,628,400

Course Quality

Dual enrollment courses should have the same content and rigor regardless of who teaches it and where (National Alliance of Concurrent Enrollment Partnerships, 2015). A concern has been noted that when dual enrollment courses are taught at the high school, the quality and content diminishes. To maintain the integrity of dual enrollment programs, quality of dual enrollment courses should be equivalent to the quality of course content in regular college courses (National Alliance of Concurrent Enrollment Partnerships, 2015). Dual enrollment instructors should also meet the same expectations as regular college faculty (Ferguson, Baker, & Burnett, 2015; Taylor et al., 2015). They noted dual enrollment instructors have to be held to the same accountability as regular college faculty. They also stated dual enrollment courses are at “least as rigorous if not more rigorous than general education courses taught to standard students on the community college campus” (Ferguson et al., 2015, p. 89).

Transferability of Course Credit

Many colleges offer a broad range of courses for dual enrollment students to take. Colleges and universities must accept and apply dual credit earned through dual enrollment as standard credit (Taylor et al., 2015). According to Zinth (2014) 22 states require dual enrollment credits to be treated the same as regular college credits.

Standardized Testing

American College Test (ACT)

The American College Test (ACT) was developed in 1959 by E.F. Lindquist (ACT, 2014a). The test was developed for admissions and placement. Unlike the SAT, Lindquist

wanted the test to measure intelligence not achievement (Lindquist, 1958). The ACT, a handwritten test, consists of sections in English, Math, Reading, and Science. There is also an optional writing test. In 2014 over 1.8 million students took the ACT, scoring an average composite score of 21 (American College Test, 2014). However, only 26% of the students met benchmarks in all the areas. The test has a score range of 0 to 36 with specific benchmarks as follows: 18 in Writing, 19 in Math, and 19 in Reading. A college readiness benchmark is defined as “the minimum score needed on an ACT subject-area test to indicate a 50% chance of obtaining a B or higher or a 75% chance of obtaining a C or higher in the corresponding college bearing course (American College Test, 2014, p. 3).

Over 60,000 students took the ACT in 2014, scoring 19.8 composite score on average (American College Test, 2014). Only 19% of those students met all four benchmarks. An examination of Tennessee’s ACT scores from 2014 showed 41% of students scored below the benchmark in Writing for college-level courses, 62% of students scored below benchmark for Math for college-level courses, and 43% of students scored below the benchmark for Reading for college-level courses (American College Test, 2014). In schools within the Tennessee Board of Regents system, when students do not meet the required cut scores for the ACT or if they have never taken the ACT, the COMPASS exam is given as a measure of placement (K. Lovett, personal communication, September 7, 2014).

COMPASS

The Computer Adaptive Assessment and Support System (COMPASS) is a comprehensive placement exam developed by American College Testing to assist postsecondary institutions in placement of student in the appropriate courses (American College Test, 2015).

The COMPASS measures knowledge in reading, mathematics, and writing. Like the ACT, the COMPASS also has a writing essay component, which can be used as stand-alone test or in conjunction with the writing portion of the COMPASS. Unlike the ACT, the results are available immediately after testing to assist in course placement (American College Test, 2015).

COMPASS, implemented in 1992, has been used to place students in courses with the hopes of achieving success. Since then course placement needs have changed and schools are now looking at additional criteria (i.e. high school grade point average) to determine course placement (Belasco, Rosinger, & Hearn, 2015). After receiving feedback from institutions, conducting extensive research, and evaluation of postsecondary trends, it has been determined the COMPASS is no longer as effective in placing students as it was in the past (American College Testing, 2015) This determination led to decision ACT to phase the COMPASS exam out by end of 2016 (American College Testing, 2015).

Dual Enrollment Populations

Dual enrollment has been shown as a mechanism that can offer benefits to different populations of students, including males, minorities, and students who are typically considered low-achieving (Barnett & Kim, 2014; Hughes, 2010; Karp, 2013; Karp et al., 2007; Rodriguez et al., 2012). Although dual enrollment was once only available for the highest achieving students, it is now a viable option for students from various populations to prepare for college. Even though it has been proven that participation in dual enrollment benefits all students, some groups may benefit more than others (Struhl & Vargas, 2012). Kanny (2014) noted that dual enrollment had a more positive affect on men than women. However, Kanny's study showed no

significance in dual enrollment outcomes when comparing low-achieving students to high-achieving students.

Dual enrollment course participation has been studied by many with regards to differences by gender and race-ethnicity (Berger et al., 2013; Ganzert, 2012; Karp et al., 2007). Pascarella (2006) noted “the same intervention or experience might not have the same impact for all students, but rather might differ in the magnitude or even the direction of its impact for students with different characteristics or traits” (p. 512). Numerous researchers have shown the benefit of dual enrollment when related to gender (e.g. Berger et al., 2013; Ganzert, 2012; Karp et al., 2007). While the impact of dual enrollment for both males and females has been noted, it is unclear as to which group benefits most. Karp et al. suggested male students benefit more from participation in dual enrollment than female students with regards to high school completion and college grade point averages. However, other studies indicate females benefit more from dual enrollment participation. For example, Berger et al. (2013) indicated females taking dual enrollment courses within an early college environment were more likely to earn a degree than males. Likewise, Ganzert (2012) noted female dual enrollment students tended to graduate at a higher rate than male dual enrollment students. Comparatively, Swanson (2008) also mentioned a slight advantage for female dual enrollment students with regards to persistence. To the contrary, Struhl and Vargas (2012) stated there were no significant differences between the groups. Overall, when considering the aforementioned studies, it appears that females benefit more from dual enrollment programs than males as indicated by higher graduation rates and higher college grade point averages.

Dual enrollment has been progressively recognized as an academic avenue that can help serve historically underrepresented student groups (Hughes et al., 2012). Despite dual

enrollment being reserved for advanced achievement students in earlier years, some school reformers have come to see dual enrollment as a possible strategy for supporting the academic engagement of a wider range of students (Howley et al., 2013). Particular focus is on students who are traditionally underrepresented such as minorities, low socioeconomic, and English language learners. The growth of dual enrollment programs in the last 10 years may be due to a shift in the type of student eligible to participate. They stated “the tenor of the discourse has shifted from academic excellence to academic equity” (p. 80). Currently a more diverse group of students are participating in dual enrollment. Some researchers have shown more can be done to make dual enrollment a viable option to any student (Harnish & Lynch, 2005; Meyer, 2004). For example, dual enrollment offerings have a technical focus to offer more options to underrepresented students (Edwards, Hughes, & Weisburg, 2011). Barnett and Kim (2014) noted Memphis City Schools were successfully increasing dual enrollment across many high schools while serving large numbers of underserved students. Courses were offered with few or no eligibility requirements, increasing the number of courses that could be taken by less academically prepared students. With several initiatives in place to reach average students, Memphis City Schools increased the number of dual enrollment students by 45%, from 715 to 1,036 (Barnett & Kim, 2014).

Hughes et al. (2012) noted that dual enrollment can be a tool for assisting underprepared and underachieving students to gain career training. In a study that included low-income students from California participants were more likely to graduate from high school, more likely to go to a 4-year school than a 2-year college, less likely to take remedial courses in college and more like to persist in postsecondary education (Hughes et al., 2012). The researchers asserted that in order to reach “disadvantaged students underrepresented in higher education, dual

enrollment must be institutionalized as a valued component of a program or course of study” (p. 30).

Dual enrollment programs have also been used to attract special education students. With the stigma of special education students diminishing, this group of high school students are receiving the opportunities to capitalize on the dual enrollment program. Increasingly, “students with intellectual and developmental disabilities (IDD) between the ages of 18 and 21 are provided the opportunity to receive their final 3 years of public school transition services in postsecondary settings such as two and four year colleges and universities” (Grigal, Dwyre, Emmett, & Emmett, 2012, p. 36).

Since 2004 much attention has been given to students with IDD with higher education aspirations. Because of the Higher Education Opportunities Act of 2008 these students are able to pursue postsecondary education along with their peers. The initiative has gained tremendous support and continues to do so (Grigal et al., 2012). In addition to regular federal aid, 27 new model demonstration projects in 23 states have been funded and a National Coordinating Center aimed at creating opportunities for students with intellectual disability (ID) to attend and be successful in higher education.

Since the early 2000s dual enrollment programs have increasingly expanded allowing a broad range of students to participate. A different model of dual enrollment is the early or middle college high school (E-MCHS). Contrary to the traditional model of dual enrollment where the courses are taught at the high school, E-MCHSs are located on college campuses and provide a collegial opportunity to students who are traditionally underrepresented (Barnett, Maclutsky, & Wagonlander, 2015). In Michigan and New York E-MCHSs have been created to provide access to college to students who are considered low-income and/or first-generation

students (Barnett et al., 2015). In both states early or middle college high schools were created that had a focus on career and technical courses. The researchers noted the primary reason this focus was created was because many students did not meet the testing requirements that traditional dual enrollment programs required. By removing the testing requirements in some of the career and technical courses, students who traditionally would not pursue college get the chance to experience it on the college campus (Barnett et al., 2015).

Benefits of Dual Enrollment

Researchers of dual enrollment programs across the United States have reported significant benefits in participating in the program. Across studies the researchers typically indicate positive relationships between dual enrollment participants and success in college (e.g Allen & Dadger, 2012; An, 2013a; Barnett & Kim, 2014; Karp et al., 2007; Swanson, 2008). Benefits of dual enrollment programs include academic achievement for students, college readiness, and financial gains. For the institution dual enrollment is seen as a method to increase retention and graduation as well as a recruiting tool. Lastly, employers can benefit from dual enrollment because students receive skill sets that can immediately be useful in the workforce (Norwood, 2015).

Dual Enrollment and Academic Achievement

For students dual enrollment provides academic challenge and rigor while providing a more effective use of the senior year. Howley et al. (2013) asserted that dual enrollment reduced the need for remediation in college. They demonstrated career and technical education dual

enrollment programs can provide benefits for students who are under-prepared and are less likely to enroll in college. According Howley et al.:

For students who not necessarily view themselves as continuing on to college and who do not have families showing them the way, dual enrollment opportunities should be presented as expected part of the high school program, along with other activities and support services provided to build college and career readiness and reduce student fear or anxiety. (p. 30)

Karp (2012a) suggested that dual enrollment allows students to be better prepared, therefore retention and graduation are increased. Karp noted dual enrollment programs allowed students to get acclimated to the college environment by learning nonacademic skills. Karp suggested that:

Dual enrollment can be seen as a social intervention in which potential college students learn about norms, interpersonal interactions, and behaviors expected for college success. By trying on the role of a college student, dual enrollees benefit from early exposure and practice, come to feel comfortable in a college environment and ultimately becoming successful once they matriculate. (p. 23)

Dual Enrollment and College Readiness

In today's society, our nation is focused on college readiness. College readiness is defined by ACT (2014) as "the percent of students meeting ACT College Readiness Benchmark Scores in each area" (p. 2). Belfield and Crosta (2012) found that students who test into one developmental course are less likely to graduate from college. According to ACT (2014) only 26% of 2014 students who took the ACT met all four benchmarks for college readiness. During

the same period of time only 19% met all four benchmarks for college readiness in Tennessee. Dual enrollment is poised to assist with college readiness standards. An (2013) surmised that dual enrollment programs better prepare students for college than regular high school. Furthermore, Ganzert (2014) noted significant differences in his study. He found that students who took dual enrollment classes graduated faster than nondual enrollment students. He also found that dual enrollment students had a higher first-year GPA.

Dual Enrollment and Financial Gains

In addition to the academic benefits that dual enrollment programs provide, students and their parents as well the educational institutions involved are afforded financial benefits. The costs associated with a good education continue to rise and may soon be out of reach for students (An, 2013b). Researchers have noted that financial assistance is available through grants, scholarships, or discounted or free tuition (e.g. An, 2013b; Karp 2013). For instance, dual enrollment programs in Florida are free to students, while in Texas and Utah, discounts are available for tuition and fees (An, 2013b). In Tennessee the first two classes are free for student and the third class is offered at a discounted rate via the Dual Enrollment Grant (Tennessee Student Assistance Corporation, 2015).

Dual Enrollment and the Institution

Kinnick (2012) conducted a study at on the impact of dual enrollment on it host institution. Even though states are making gains in creating initiatives for dual enrollment, these programs have been traditionally targeted for students seeking to enrich their education with college level education or those who seek to continue to 2-year schools, i.e., community

colleges. Four-year institutions are less likely to encourage these policies. For some students (e.g., students who earned college credit through dual enrollment but not through examination), participation in dual enrollment exerts a stronger effect on first-year college GPA at mid-selective and very selective institutions (An, 2014b). Kinnick (2012) also suggested the positive impact of dual enrollment may be particularly important for 4-year institutions, which nationally are less likely to offer dual enrollment (and may see it as less aligned with their missions).

While dual enrollment increases graduation rates, it also serves as a recruitment tool for underprepared and underrepresented students (Hughes, 2012). As colleges and universities seek marketing approaches to get students on their campuses, dual enrollment helps facilitate these initiatives (Mehta, Newbold, & O'Rourke, 2011). Not only does dual enrollment help to prepare students, thus leading to better retention and graduation, it also creates a diverse student body (An, 2013b).

Dual Enrollment and the Workforce

Dual enrollment programs can be beneficial to employers also. There is a national trend with employers welcoming students who were in dual enrollment programs. These students gained the education and skills necessary to enter the workforce without 4-year degrees (Norwood, 2015). Policies are consistently being created to facilitate this mode of education. Many states are creating legislature that encourages and supports dual enrollment initiatives as a way of enhancing their workforces. Employers who want their employees to be educated welcome students from the dual enrollment programs (Norwood, 2015). Consequently, “educators are waging war on unemployment and poverty in rural Tennessee through dual enrollment programs” (p. 24). In the Upper Cumberland Region, high school students rely

heavily on the dual enrollment program to prepare them for viable employment. In this particular area of Tennessee partnerships and collaborations between the state, businesses, community, and school administrations support dual enrollment opportunities for its youth. Studies have consistently shown dual enrollment program fare extremely well in smaller, often rural communities when collaboration supports it (e.g. Karp et al., 2007; Zinth, 2014). Dual enrollment programs are believed to lead to a range of positive outcomes including increasing the academic rigor of the high school curriculum; helping low-achieving students meet high academic standards; providing more academic opportunities and electives in cash-strapped, small or rural schools (Karp et al., 2007).

Concerns About Dual Enrollment

Dual enrollment programs are growing substantially in the United States. With the massive increase of students enrolling in the programs comes the insurmountable problem of costs. In many cases students who are eligible are not able to take advantage of the program. Policymakers and advocates are wrestling with how to pay the costs and promote access for all high school students who are eligible (Adams, 2014). States are addressing this problem differently, i.e., providing tax credits for donors, scholarships, corporate involvement, etc. One such example of corporate involvement is the Toyota Wellspring Education Fund (Kieffer, 2014). Toyota offered three new dual-enrollment courses designed to prepare students for in-demand professions to students in Lee, Pontotoc, and Union counties in Mississippi (Kieffer, 2014). The students not only earn 3-hour course credit for college, but the costs are covered by the foundation. Some states, such as Alabama, have begun scholarship funding for dual enrollment programs. The State of Alabama is also offering tax credits for funds donated to the dual enrollment program. A law was passed in March 2014 that changed the maximum number

of tax credits each year to \$5 million and that could provide \$10 million in scholarships for 9,500 students annually (Rawls, 2014). The scholarship is an incentive for low income students and their parents to participate in the dual enrollment program. The revenue is funded by the state along with private donations to help high school students take technology courses simultaneously at a community college in expectation of securing employment at an Alabama industry (Rawls, 2014).

Another concern of dual enrollment programs is the quality and rigor of courses. This concern is a topic of contention amongst colleges (Bahr, 2012). Bahr noted that while 46 states have dual enrollment policies, only 29 have a component that measures the quality of the courses. Krueger (2006) theorized courses taught on the high school campus have less rigor than those taught on the college campus. However, Ferguson et al. (2015) noted that dual enrollment courses were at least as rigorous if not more rigorous as regular college level courses.

Dual Enrollment in Tennessee

Tennessee's dual enrollment program has grown quickly in the past several years. Jackson (2007) noted that there were 3,104 dual enrollment students in 2002 and 5,682 dual enrollment students in 2006. For the 2013-2014 academic year 26,336 students were enrolled in dual enrollment courses (K. Lovett, personal communication, July 25, 2015). Part of this growth can be attributed to the funding formula for Tennessee's colleges and universities. Postsecondary schools are now funded in their performance with different student populations—dual enrollment is one of those populations (Tennessee Higher Education Commission, 2015a). Because dual enrollment is a component of the funding formula, institutions see dual enrollment

as a way to increase state allocations by increasing the number of students enrolled in dual enrollment programs (K. Lovett, personal communication, September 7, 2014).

In the traditional funding model colleges have been awarded state appropriations based on the number of students enrolled. With the performance based funding state appropriations are awarded to schools and universities based on established outcomes or improvement goals that are met or exceeded (Struhl, 2013). Researchers have shown dual enrollment can improve college success (e.g. Allen & Dadger, 2012; Bailey & Karp, 2003; Berger et al., 2013; Karp et al., 2007; Rodriguez et al., 2012; Speroni, 2012). Seemingly, if the reason for establishing performance based funding is correct, meaning institutions will improve outcomes in areas where they are awarded, then dual enrollment will be a mechanism for which institutions can see huge gains in state appropriations (Struhl, 2015). Tennessee awards funding to community colleges based on the number of high school students enrolled in college courses (Tennessee Higher Education Commission, 2014b). The amounts vary based on the weight the college places on dual enrollment as a part of its mission (Tennessee Higher Education Commission, 2014b). Since implementation of performance based funding dual enrollment headcounts have increased substantially. In 2009-2010 there were 10,738 enrollments. That number has grown to 16,027 in 2013-14. Although this growth can not officially be attributed to the funding model, large increases in the number of students enrolled are evident (see Table 2).

Table 2
Tennessee Community Colleges' Dual Enrollment Numbers

	2009-10	2010-11	2011-12	2012-13	2013-14
Chattanooga State	1,003	1,095	1,155	1,002	1,373
Cleveland State	582	626	627	615	945
Columbia State	735	674	791	843	959
Dyersburg State	599	765	803	887	1,025
Jackson State	837	971	815	800	1,324
Motlow State	686	787	854	859	1,061
Nashville State	926	1,092	997	1,119	1,126
Northeast State	487	566	585	723	791
Pellissippi State	1,164	1,245	1,525	1,213	1,577
Roane State	1,023	1,372	1,655	1,632	1,691
Southwest State	421	367	409	407	582
Volunteer State	1,351	1,519	1,566	1,792	1,961
Walters State	924	1,011	1,261	1,407	1,612
Total	10,738	12,090	13,043	13,299	16,027

Dual Enrollment at VSCC

VSCC began its dual enrollment program in 1995 with 118 students enrolled (J. McGuire, VSCC, personal communications, October 27, 2015). Since then the program has experienced significant growth as provided in Figure 1. Since 2009-10 VSCC's dual enrollment program has had one of the largest enrollments among the Tennessee Board of Regents community colleges as displayed in Table 2. While the largest growth occurred between Fall 2005 and Fall 2006, which was coincidentally the same year the Dual Enrollment Grant was implemented, the college has seen several increases in the number of dual enrollment students.

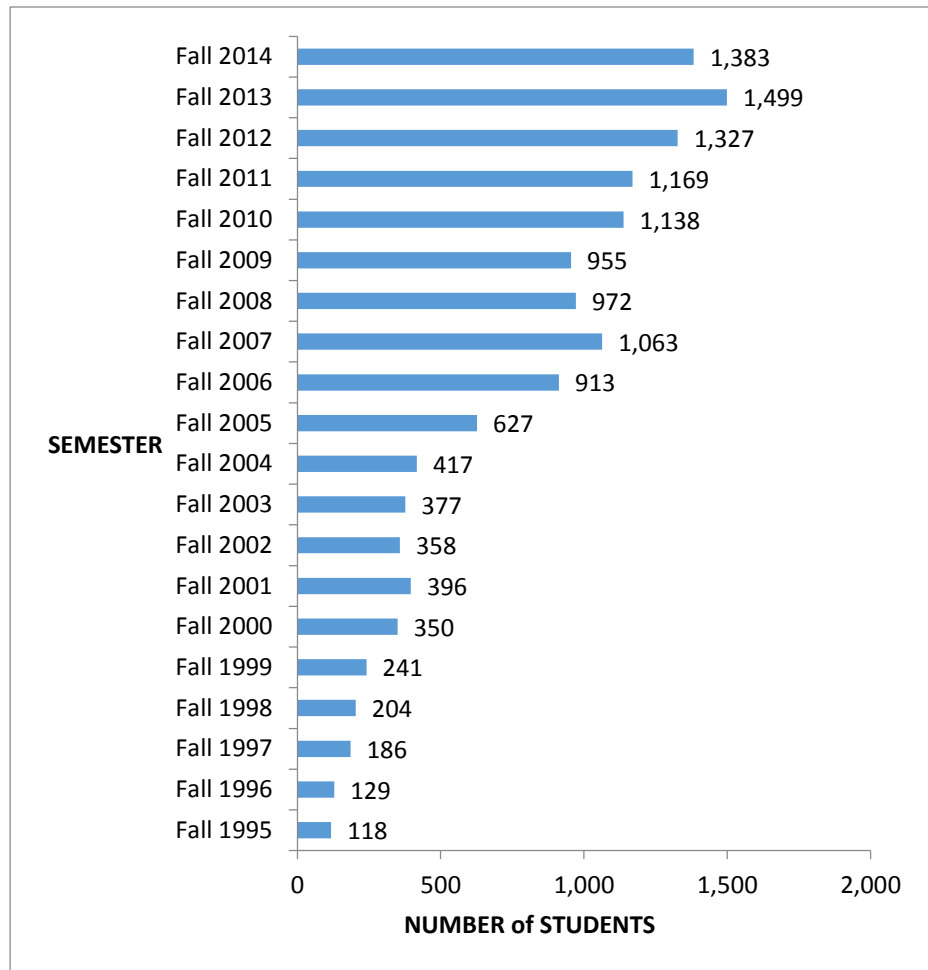


Figure 1: Number of VSCC Dual Enrollment Students

Impact of Dual Enrollment

Karp et al. (2007) examined the academic outcomes of dual enrollment participation for students in two large, well-established programs: one in Florida and one in New York City. In both New York City and Florida data sets from high schools and colleges focusing on outcomes, were used to monitor and manage student characteristics. In the New York City study longitudinal studies were performed enabling the researchers to gain an overall view of the impact of dual enrollment on the students. Karp et al. found the College Now participants were

more like to pursue bachelor's degrees when compared with their peers. The researchers also noted the College Now participants had higher first semester GPAs. The Florida study findings were similar to the New York City (NYC) findings. Dual enrollment students were 4% more likely to earn high school diplomas than their nondual enrollment peers. Dual enrollment students also had higher grade point averages after 3 years in college, accumulating more credits. Karp et al. (2007) also determined males, low socioeconomic status students, and low-achieving students benefitted more than females, high socioeconomic status students, and high-achieving students. Although these studies focused on different samples of students and used different statistical models, both suggested positive outcomes for students who participated in dual enrollment. The researchers suggested research should be conducted to using additional variables. The authors also noted ways to promote dual enrollment to a broader range of students by loosening the eligibility requirements for dual enrollment. In both cases dual enrollment was shown to have positive outcomes. Nonetheless, Karp et al. (2007) also cited negative aspects about the research. One major shortcoming in the NYC study was it was not representative of the entire College Now population. It reflected only demographics of students who were on the career and technical education path, which is a relatively small sample. Also, if the students did not enroll at The City University of New York (CUNY), they could not be tracked for persistence and academic success. An issue with the Florida dataset was, although it was large in size, it included only students who were enrolled in Florida's public colleges and universities. Students who enrolled outside of the state or in private institutions were not included in the postsecondary variables. After reviewing the findings, however, Karp et al. (2007) made several suggestions including expanding dual enrollment to include less restrictive

eligibility requirements, expanding outreach to underrepresented populations, and expanding dual enrollment into include career and technical students.

CUNY has one of the United States most successful dual enrollment programs: College Now. College Now has a long-standing history of effectiveness according to Allen and Dadger (2012). They reported that dual enrollment did indeed enhance students' academic experience as indicated by higher GPAs than those who entered by traditional methods. The researchers also determined that students who participate in dual enrollment programs tend to take more courses after they graduate from high school. The researchers further indicated dual enrollment programs, such as CUNY's, were instrumental in retention and quicker graduation dates. As with most studies, there are limitations.

Karp (2012a) studied one cohort of first-time community college students in Virginia. She found nearly "25% of students who enroll in a first-level college-credit English or math course do not pass" (p. 22). She established a theoretical framework in order to better perceive the reality of a student's dual enrollment experience. Because the students were role playing as if they were actually in college, academic data as well as socialization skills were examined. Dual enrollment might support postsecondary success because, after learning about and practicing the role, students did not need to spend their initial months in college acclimating to the college classroom. They already knew what was expected of them and had experienced differences between high school and college first hand (Karp, 2012a). The primary focus of the study was to provide evidence to determine if college readiness consists of more than being academically prepared. Success for the dual enrollment student is also dependent upon factors such as socialization. Karp (2012a) sought to understand any new ways of behavior, social interaction, and attitudes toward others and the program. She contended that the dual enrollment

student was better prepared for entering college than those who did not take such classes. Dual enrollment participation helps students understand the rigors of college while in high school and participation can be influential on subsequent enrollment in college (Karp, 2012a).

The Community College Research Center (CCRC) at Columbia University conducted a study of dual enrollment in Tennessee (Karp, 2012b). According to CCRC Tennessee had many projects underway that were designed to bridge the gap between high school and college and dual enrollment was a primary project. Karp surmised there were several areas in which Tennessee could improve its dual enrollment program, including: 1) state-wide eligibility requirements with multi-tiered eligibility standards; 2) limiting state-funded dual enrollment course taking while expanding overall access; 3) cost-free dual enrollment courses for students; 4) finding ways to hold institutions harmless financially for participation in dual enrollment, and 5) highly structured dual enrollment policies

Chapter Summary

The existing research regarding dual enrollment illustrates the scale upon which alternative pathways have become a viable mechanism for higher education. Postsecondary dual enrollment programs all over the country have created collaborative archetypes focused on creating educational options for students that lend themselves to a more accessible and equitable approach. Research consistently confirms the benefits that come with the dual enrollment programs. Students, who may include nontraditional and otherwise, have been afforded the opportunity to take college credits in high school while at the same time those credits count toward college completion as well. Not only is this a productive nontraditional avenue for college entrance, but also it has proven to have other benefits. At one time students who would

normally had to forego college, such as minorities, low-income, and socioeconomically disadvantaged students, can now elect to take full advantage of dual enrollment programs.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this study was to compare final grades of dual enrollment students in English Composition I (ENGL 1010) and College Algebra (MATH 1130) at VSCC. The study was focused on whether students admitted to these courses using COMPASS Writing and/or Math scores are as successful as students admitted to these courses using ACT English and/or Math subscores. Differences in gender and race-ethnicity for each course were examined. Participants in this study were from local high schools participating in the dual enrollment program at VSCC. This chapter introduces the methodology providing the framework for the study including the research questions with null hypotheses, population, data collection, and data analysis. This study employed a nonexperimental quantitative research methodology that used comparative design to analyze secondary data.

Research Questions

This study provided an evaluation of data from students who enrolled in dual enrollment courses based on their ACT subscores in English, Reading, and/or Math or COMPASS Writing, Reading, and/or Math test scores. The following research questions and corresponding null hypotheses were addressed.

Research Question 1:

Is there a significant difference in final grades in English Composition I (ENGL 1010) for ACT-admitted dual enrollment students compared to COMPASS-admitted dual enrollment students?

H₀₁: There is no significant difference in final grades in English Composition (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students.

Research Question 2:

Is there a significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students as compared by gender?

H₀₂₁: There is no significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for females.

H₀₂₂: There is no significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for males.

Research Question 3:

Is there a significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students as compared by race-ethnicity¹?

¹ Due to the small numbers of students identified as representing race-ethnic categories other than white, the research question was operationalized as a white/nonWhite dichotomy as represented in the null hypotheses.

H₀₃₁: There is no significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for white students.

H₀₃₂: There is no significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for non-White students.

Research Question 4:

Is there a significant difference in final grades in College Algebra (MATH 1130) for ACT-admitted dual enrollment students compared to COMPASS-admitted dual enrollment students?

H₀₄: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students.

Research Question 5:

Is there a significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students as compared by gender?

H₀₅₁: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for females.

H₀₅₂: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for males.

Research Question 6:

Is there a significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students as compared by race-ethnicity (see Footnote 1)?

H₀₆₁: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students (MATH 1130) for white students.

H₀₆₂: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students (MATH 1130) for non-White students.

Population

The population consisted of all dual enrollment students enrolled in English Composition I (ENGL 1010) and College Algebra (MATH 1130) at a VSCC, a 2-year public institution under the Tennessee Board of Regents (TBR) governing body between Fall 2011 and Spring 2015. VSCC's enrollment population is comprised of, on average, 81% Whites and 19% non-Whites; 60% female and 40 % male. Of the total population approximately 18% is attributed to dual enrollment students. Data from 4,156 students were included in this study. The population was

comprised of 62% females (2,577) and 38% males (1,579). Of these students 3,832 (92%) were White and 324 (8%) were non-White. There were 3,223 English Composition I students admitted via the ACT and 151 students admitted via the COMPASS. For College Algebra, 1,576 were admitted via the ACT while 188 were admitted using the COMPASS.

Assessments

The assessments used for this study are ACT test scores, COMPASS test scores, and final course grades. The ACT test, widely used for college admissions, was launched in 1959 (ACT, 2014). Over 1.8 million high school students per year take the ACT test. Fifty-seven percent of the 2014 high school graduates took the ACT test (ACT, 2014). In 2008 ACT conducted a reliability test for the writing portion of the ACT. Therefore, the ACT is a reasonably reliable instrument. The alternate forms reliability was .67 and the standard error message was 1.01. In terms of validity, a study was conducted to determine the validity of the ACT in writing. It was determined the overall English score is a more valid score to use than the subscores in English (ACT, 2015b). Medhanie, Dupuis, LeBeau, Harwell, and Post (2012) determined the ACT math test was a reliable test. The researchers surmised the test covered subjects in which students could have success in remedial and nonremedial math courses.

The COMPASS test, a computer-adaptive placement assessment and support system, is used to place students in the appropriate reading, math, and writing courses. According to ACT (2015a) over 1.7 million students use COMPASS at more than 1,000 postsecondary institutions. Hughes and Clayton (2011) determined that COMPASS was a valid predictor of grades in college level Math. COMPASS was weaker in validity in Reading and Writing and for predicting who would earn a grade of C or better.

Data Collection

The data used in this study are existing data collected from the college's student information system BANNER. Student data reports gathered information such as demographics, test(s) taken, courses enrolled, and final grades in those courses. The Office of Institutional Effectiveness, Research, Planning, and Assessment (IERPA) extracted the data from the reports in a manner to keep students' names and social security numbers confidential. The students are assigned a unique identification number. The researcher was given permission to access student data by the Office of IERPA (see Appendix A). IRB approval was given by the ETSU Internal Review Board (see Appendix B).

Data Analysis

Data analysis began with descriptive statistics that gave an overview of sample involved in the study. The data were separated first by course and then by test eligibility. Descriptive and inferential statistical methods were used to analyze the research questions. IBM SPSS Version 20 was used for the analysis of data. The dependent variable was the final grades, in terms of grade points, in ENGL Comp I (ENGL 1010) and College Algebra (MATH 1130). The data were analyzed using a series of chi-square tests. The .05 level of significance was the alpha level used for all data analysis.

Chapter Summary

Chapter 3 presents the research question with null hypotheses, population, data collection, and data analysis used in the study. The quantitative study used a series of chi-square

tests to determine if COMPASS-admitted dual enrollment students were more or less successful as ACT-admitted dual enrollment students. The results are presented in Chapter 4.

CHAPTER 4

RESULTS

The purpose of this study was to compare final grades of dual enrollment students in English Composition I (ENGL 1010) and College Algebra (MATH 1130) at VSCC. The study was focused on whether students admitted to these courses using COMPASS Writing and/or Math scores are as successful as students admitted to these courses using ACT English and/or Math subscores. Differences in gender and race-ethnicity for each course were also examined. The population consisted of 4,156 dual enrollment students and was broken down into two groups: ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students. For this study 5,138 dual enrollment grades were used in calculations. The research questions outlined in Chapter 3 were used to guide this study. The breakdown of students by course and eligibility is provided in Table 3.

Table 3
Student Grades by Course and Admissions Test

Admissions Test	ENGL 1010 <i>N</i>	MATH 1140 <i>N</i>
ACT-admitted	3,223	1,576
COMPASS-admitted	151	188
Total	3,374	1,764

Research Question 1

Is there a significant difference in final grades in English Composition I (ENGL 1010) for ACT-admitted dual enrollment students compared to COMPASS-admitted dual enrollment students?

H₀1: There is no significant difference in final grades in English Composition (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students.

A two-way contingency table with the chi square test was used to evaluate whether or not there was a significant difference in the final grades in English Composition between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students. The chi square test was not significant, Pearson $\chi^2 (4, N = 3374) = 3.21, p = .524$, Cramer's $V = .03$. Therefore, the null hypothesis was retained. The final grades of ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students in English Composition (ENGL 1010) are not significantly different. As provided in Table 4, a comparison of the percentages for ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students is similar for each final letter grade. See Figure 2 for a bar graph for English Composition final grades for ACT-admitted students and COMPASS-admitted dual enrollment students.

Table 4

Two-Way Contingency Table for English Students' Final Grades by Admissions Test

Grade	ACT English Admitted		COMPASS English Admitted	
	<i>n</i>	%	<i>n</i>	%
A	1,881	58.4	90	59.6
B	1,037	32.2	52	34.4
C	239	7.4	6	4.0
D	37	1.1	1	0.7
F	29	0.9	2	1.3
Totals	3,223	100.0	151	100.0

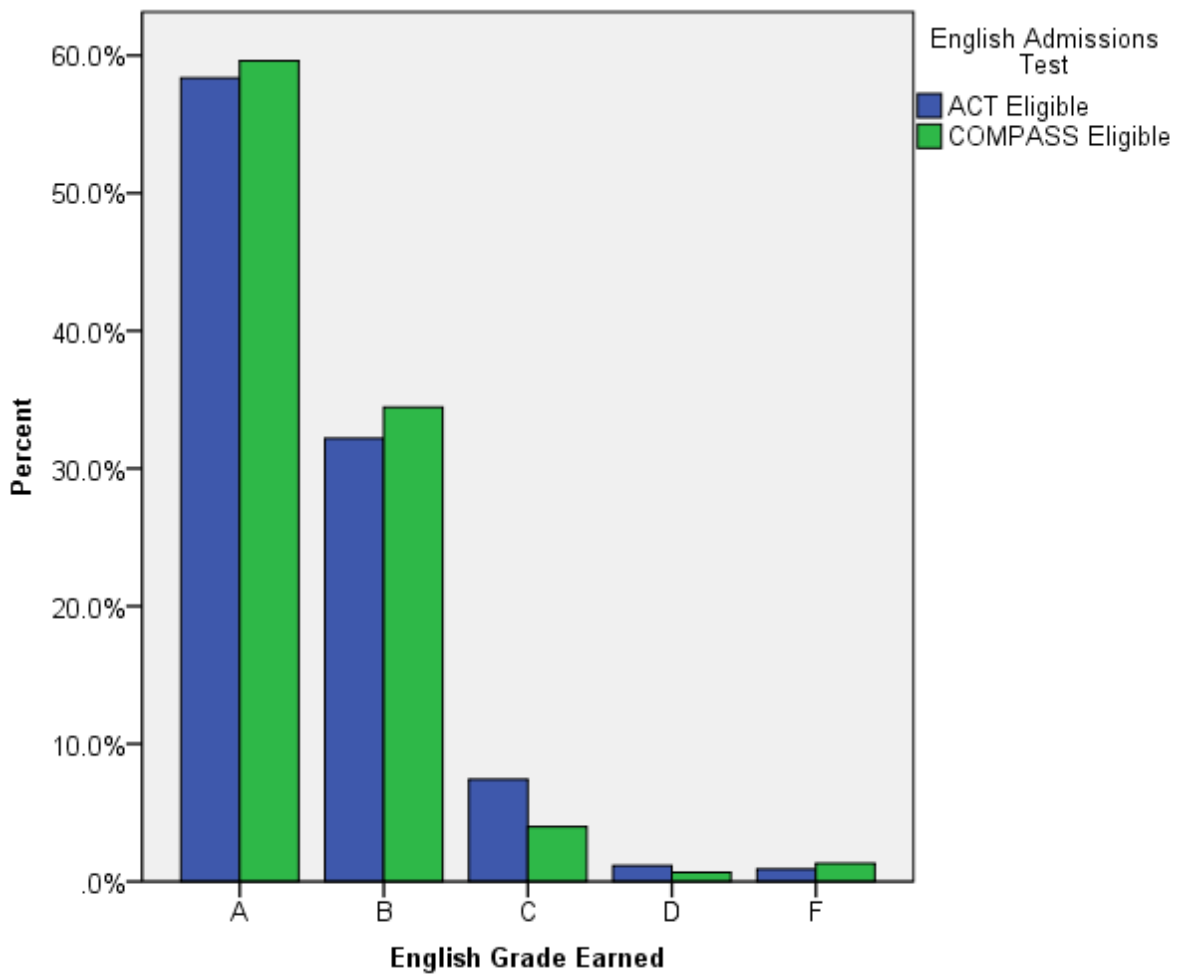


Figure 2: English Students' Final Grades by Admissions Test

Research Question 2

Is there a significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students as compared by gender?

H₀₂₁: There is no significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for females.

The researcher planned to use a two-way contingency table to evaluate whether or not there was a significant difference in the final grades in English Composition between female ACT-admitted dual enrollment students and female COMPASS-admitted dual enrollment students. However, an examination of the assumptions of the chi square test showed one of the two assumptions of chi square was not met: the minimum expected count was less than one (0.63). For this reason the chi square test was not used and the null hypothesis was not tested. As shown in Table 5, there was very little difference between the percentages of female ACT-admitted dual enrollment students and female COMPASS-admitted dual enrollment students who earned grades of C, D, and F. However, a higher percentage of female COMPASS-admitted dual enrollment students earned a final grade of A in English Composition (70.0%) than female ACT-admitted dual enrollment students (62.4%). See Figure 3 for a bar graph for English Composition final grades for female ACT-admitted dual enrollment students and female COMPASS-admitted dual enrollment students.

Table 5

Two-Way Contingency Table for Female Students' English Final Grades by Admission Test

Grade	ACT English Admitted		COMPASS English Admitted	
	<i>n</i>	%	<i>n</i>	%
A	1,226	62.4	70	70.0
B	607	30.9	24	24.0
C	101	5.1	4	4.0
D	18	0.9	1	1.0
F	12	0.6	1	1.0
Totals	1,964	100.0	100	100.0

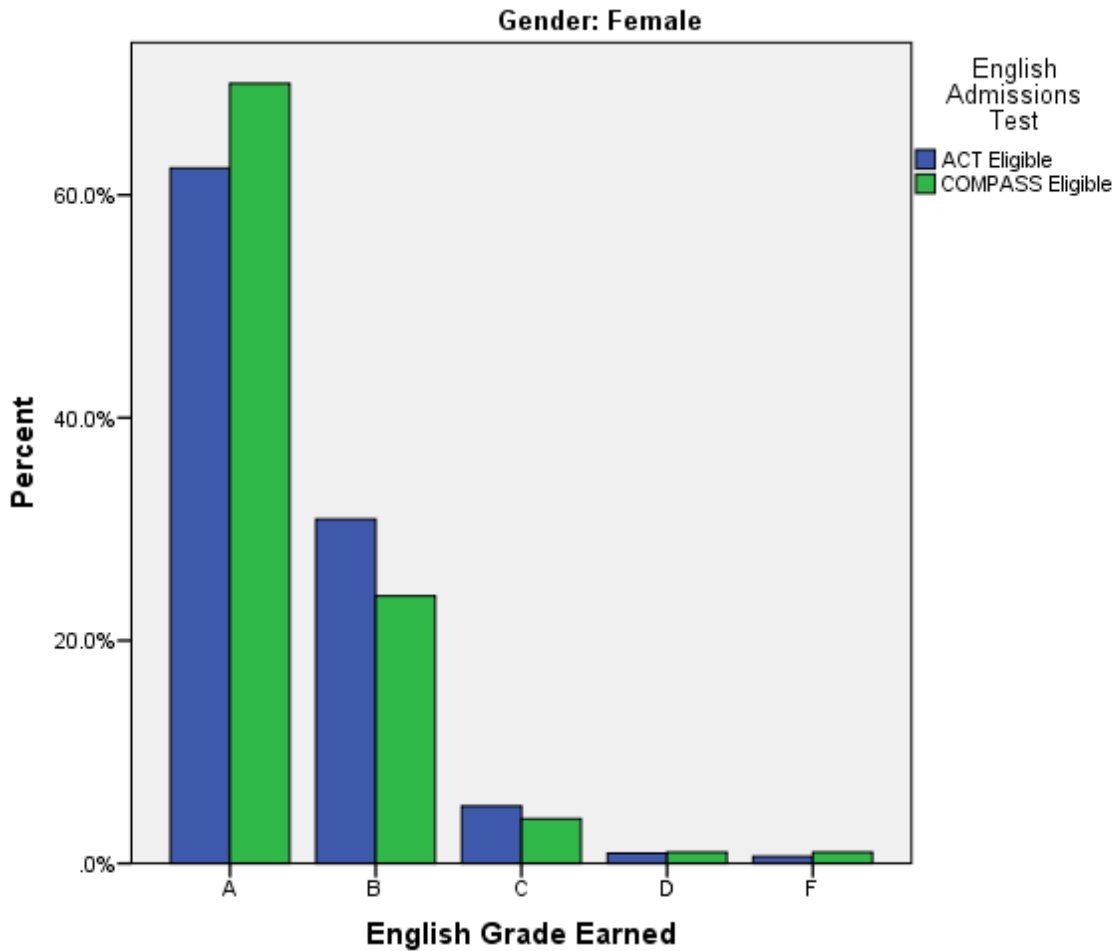


Figure 3: Female Students' English Final Grades by Admissions Test

H₀₂: There is no significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for males.

The researcher planned to use a two-way contingency to evaluate whether or not there was a significant difference in the final grades in English Composition between male ACT-admitted dual enrollment students and male COMPASS-admitted dual enrollment students. However, an examination of the assumptions of the chi square test showed one of the two

assumptions of chi square was not met: the minimum expected count was less than one (0.70). For this reason the chi square test was not used and the null hypothesis was not tested. There was a significant difference between the percentages of male ACT-admitted dual enrollment students and male COMPASS-admitted dual enrollment students who earned grades of A and B (see Table 6). Fifty-two percent of male ACT-admitted dual enrollment students made final grades of A compared to 39% of male COMPASS-admitted dual enrollment students., whereas 55% of male COMPASS-admitted dual enrollment students earn B final grades compared to 34% of ACT-admitted male students. See Figure 4 for a bar graph for English Composition final grades for ACT-admitted dual enrollment male students and COMPASS-admitted dual enrollment male students.

Table 6
Two-Way Contingency Table for Male Students' English Final Grades by Admission Test

Grade	ACT English Admitted		COMPASS English Admitted	
	<i>n</i>	%	<i>n</i>	%
A	655	52.0	20	39.2
B	430	34.2	28	54.9
C	138	11.0	2	3.9
D	19	1.5	0	0.00
F	17	1.4	1	2.0
Totals	1,259	100.0	51	100.0

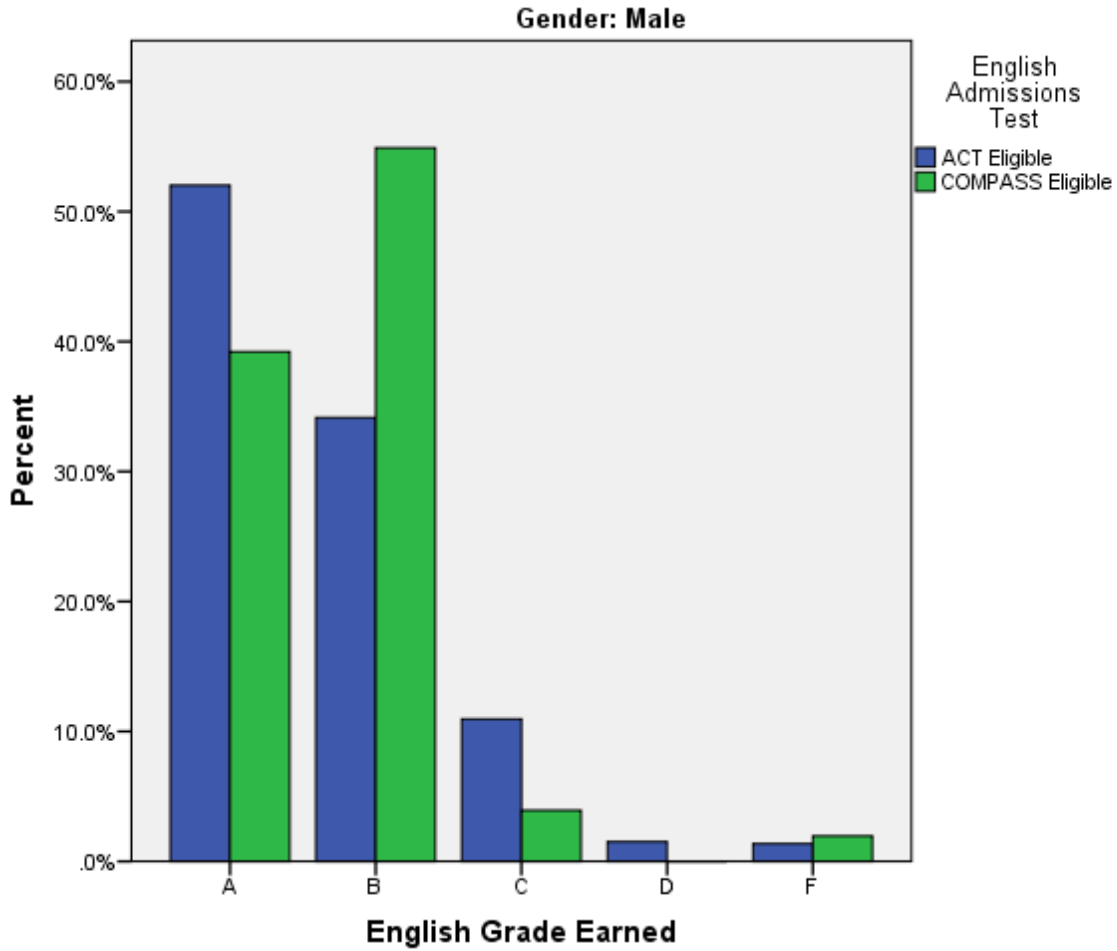


Figure 4: Male Students' English Final Grades by Admissions Test

Research Question 3

Is there a significant difference in final grades in English Composition I between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students as compared by race-ethnicity (see Footnote 1)?

H₀₃₁: There is no significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for white students.

A two-way contingency table with the chi square test was used to evaluate whether or not there was a significant difference in final grades in English Composition between white ACT-admitted dual enrollment students and white COMPASS-admitted dual enrollment students. The chi square test was not significant, Pearson χ^2 (4, $N = 3123$) = 4.74, $p = .315$, Cramer's $V = .04$. Therefore, the null hypothesis was retained. In general ACT-admitted and COMPASS-admitted white students earn the same final grades in English Composition. A comparison of the percentages for white ACT-admitted dual enrollment students and white COMPASS-admitted dual enrollment students is similar for each final letter grade (see Table 7). See Figure 5 for a bar graph for English Composition final grades for White ACT-admitted students and White COMPASS-admitted dual enrollment students.

Table 7
Two-Way Contingency Table for White Students' English Final Grades by Admission Test

Grade	ACT English Admitted		COMPASS English Admitted	
	<i>n</i>	%	<i>n</i>	%
A	1,758	59.0	86	60.6
B	961	32.2	49	34.5
C	211	7.1	4	2.8
D	29	1.0	1	0.7
F	22	.07	2	1.4
Totals	2,981	100.0	142	100.0

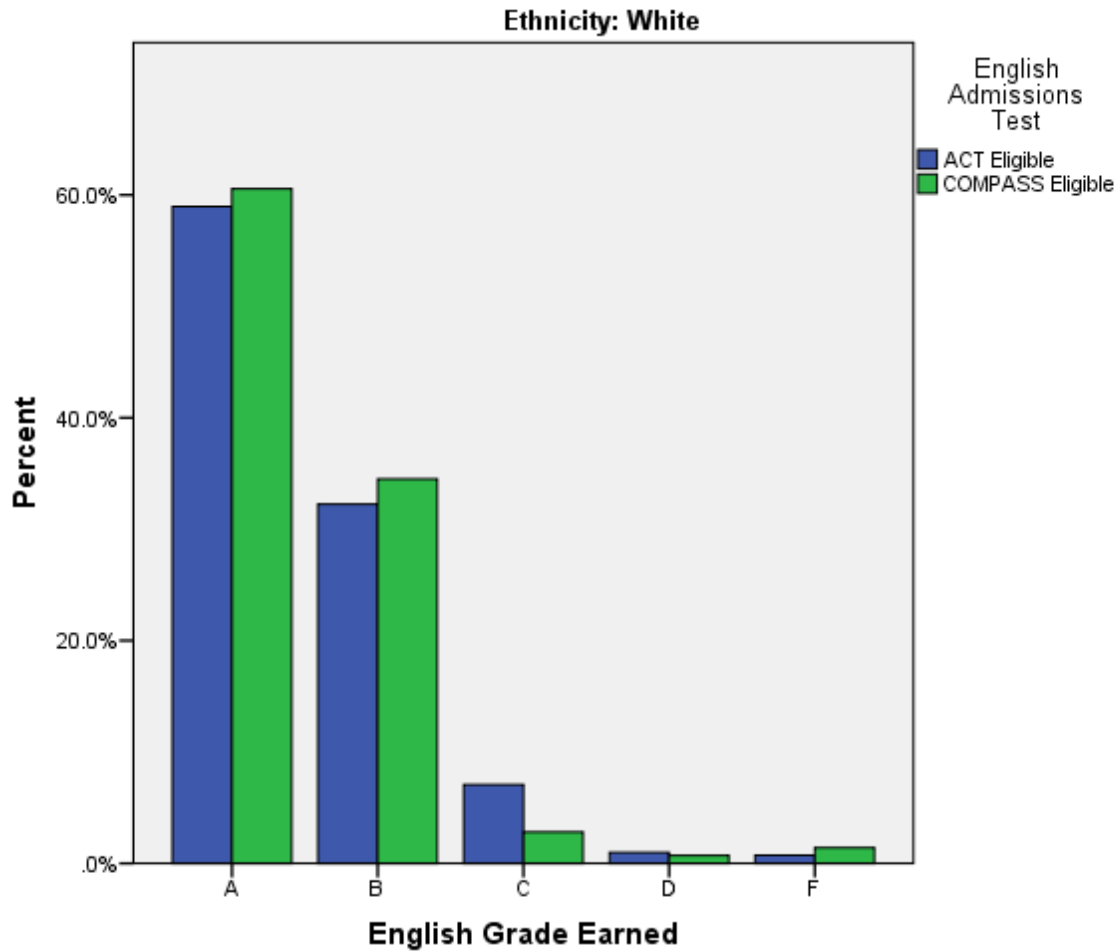


Figure 5: White Students' English Final Grades by Admissions Test

H₀₃₂: There is no significant difference in final grades in English Composition I (ENGL 1010) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for non-White students.

The researcher planned to use a two-way contingency to evaluate whether or not there was a significant difference in final grades in English Composition between non-White ACT-admitted dual enrollment students and non-White COMPASS-admitted dual enrollment students. However, an examination of the assumptions of the chi square test showed neither assumption of

chi square was met. The minimum expected count was less than one (0.25) and more than 20% of the cells have an expected count of less than 5 (50% of the cells have less than 5). For this reason the chi square test was not used and the null hypothesis was not tested. As provided in Table 8, there was very little difference between the percentages of non-White ACT-admitted dual enrollment students and non-White COMPASS-admitted dual enrollment students who earned final grades of D and F. However, a significantly higher percentage of non-White ACT-admitted students (50.8%) earned final grades of A in English Composition compared to non-White COMPASS-admitted students (44.4%). Consequently, a significantly higher percentage of non-White COMPASS earned final grades of C compared to non-White ACT-admitted students. See Figure 6 for a bar graph for English Composition final grades for non-White ACT-admitted dual enrollment students and non-White COMPASS-admitted dual enrollment students.

Table 8
Two-Way Contingency Table for Non-White Students' English Final Grades by Admission Test

Grade	ACT English Admitted		COMPASS English Admitted	
	<i>n</i>	%	<i>n</i>	%
A	123	50.8	4	44.4
B	76	31.4	3	33.3
C	28	11.6	2	22.2
D	8	3.3	0	0.00
F	7	2.9	0	0.0
Totals	242	100.0	9	100.0

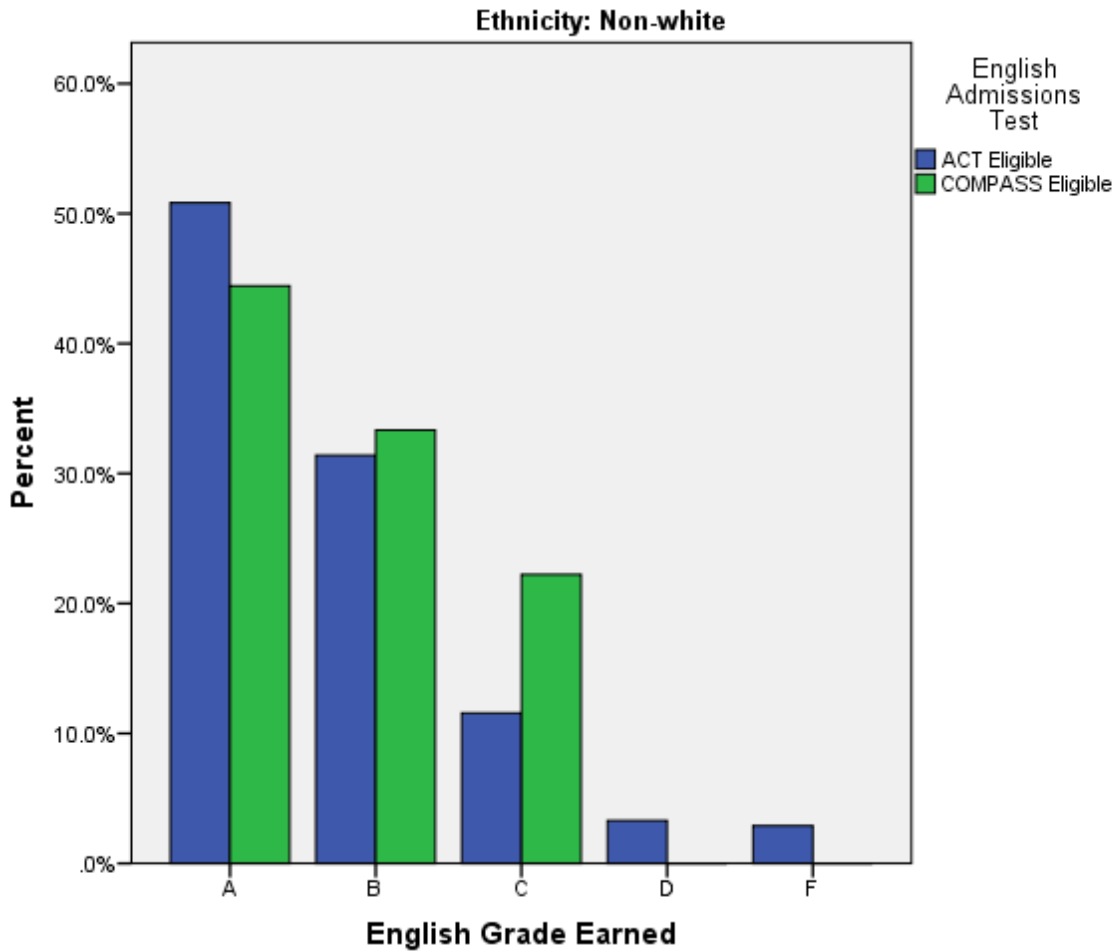


Figure 6: Non-White Students' English Final Grades by Admissions Test

Research Question 4

Is there a significant difference in final grades in College Algebra (MATH 1130) for ACT-admitted dual enrollment students compared to COMPASS-admitted dual enrollment students?

H₀4: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students.

A two-way contingency table with the chi square test was used to evaluate whether or not there was a significant difference in final grades in College Algebra between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students. The chi square test was significant, Pearson $\chi^2(4, N = 1764) = 73.54, p < .001$, Cramer's $V = .20$. Therefore, the null hypothesis was rejected. In general ACT-admitted dual enrollment students earn significantly better grades than COMPASS-admitted dual enrollment students. As provided in Table 9, a comparison of the percentages for ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students indicates that ACT-admitted students tend to have a significantly higher proportion of grades of A and a higher proportion of grades of F than COMPASS-admitted students. In contrast, COMPASS-admitted students tend to make slightly more grades of B, C, and D. See Figure 7 for a bar graph for College Algebra final grades for ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students.

Table 9

Two-Way Contingency Table for Math Students' Final Grades by Admission Test

Grade	ACT Math Admitted		COMPASS Math Admitted	
	<i>n</i>	%	<i>n</i>	%
A	745	47.3	36	19.1
B	479	30.4	75	39.9
C	227	14.4	54	28.7
D	65	4.1	20	10.6
F	60	3.8	3	1.6
Totals	1,576	100.0	188	100.0

Figure 6

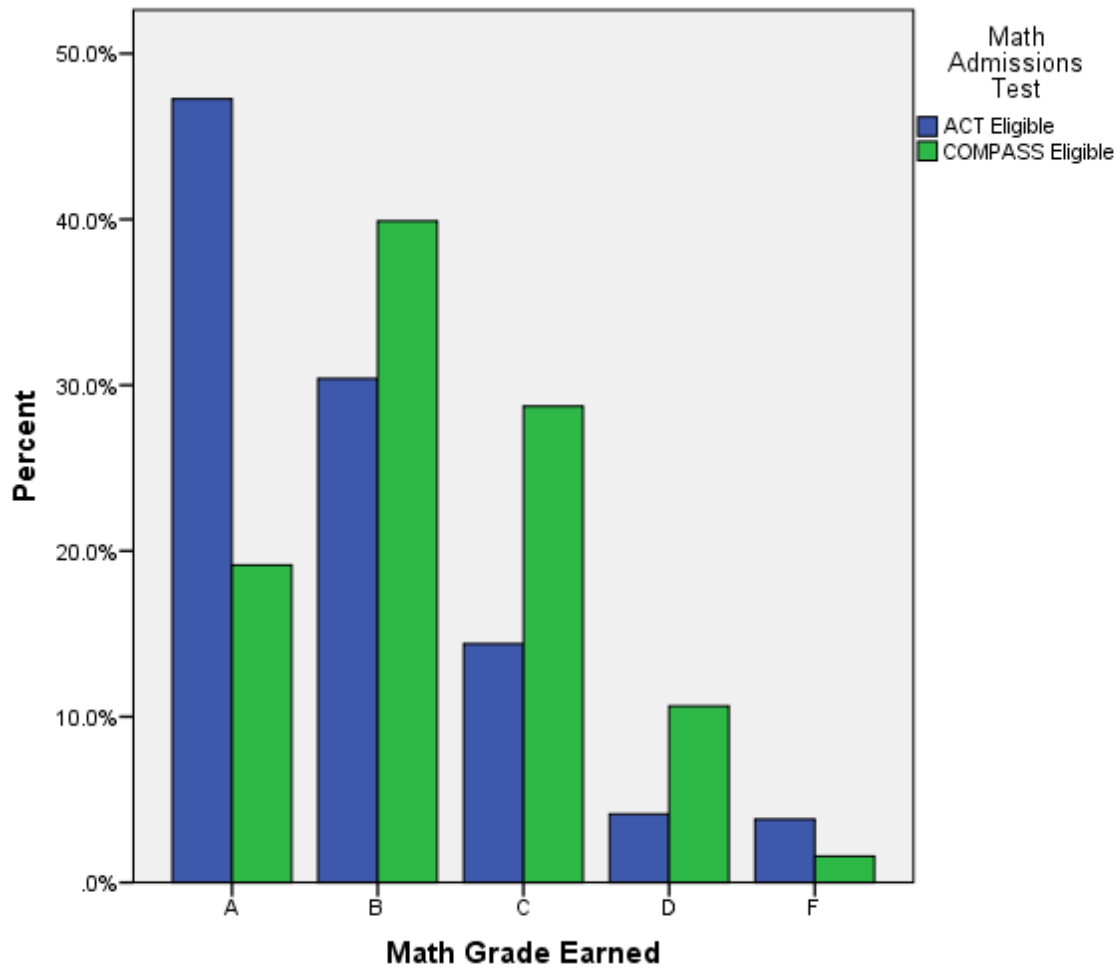


Figure 7: Math Students' Final Grades by Admissions Test

Research Question 5

Is there a significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students as compared by gender?

H₀₅₁: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for females.

A two-way contingency table with the chi square test was used to evaluate whether or not there was a significant difference in final grades in College Algebra between female ACT-admitted dual enrollment students and female COMPASS-admitted dual enrollment students. The chi square test was significant, Pearson $\chi^2(4, N = 1113) = 53.11, p < .001$, Cramer's $V = .22$. Therefore, the null hypothesis was rejected. In general female ACT-admitted dual enrollment students earn better grades than female COMPASS-admitted dual enrollment students. A comparison of the percentages for earning grades of A is significantly higher for female ACT-admitted dual enrollment students compared to female COMPASS-admitted dual enrollment students (see Table 10). In contrast the percentages for female COMPASS-admitted dual enrollment students earning grades of B, C, and D are significantly higher than their ACT counterparts. The percentages are similar regarding grades of F. See Figure 8 for a bar graph for College Algebra final grades for female ACT-admitted dual enrollment students and female COMPASS-admitted dual enrollment students.

Table 10

Two-Way Contingency Table for Female Students' Math Final Grades by Admission Test

Grade	ACT Math Admitted		COMPASS Math Admitted	
	<i>n</i>	%	<i>n</i>	%
A	503	50.8	24	19.5
B	293	29.6	50	40.7
C	128	12.9	36	29.3
D	34	3.4	10	8.1
F	32	3.2	3	2.4
Totals	990	100.0	123	100.0

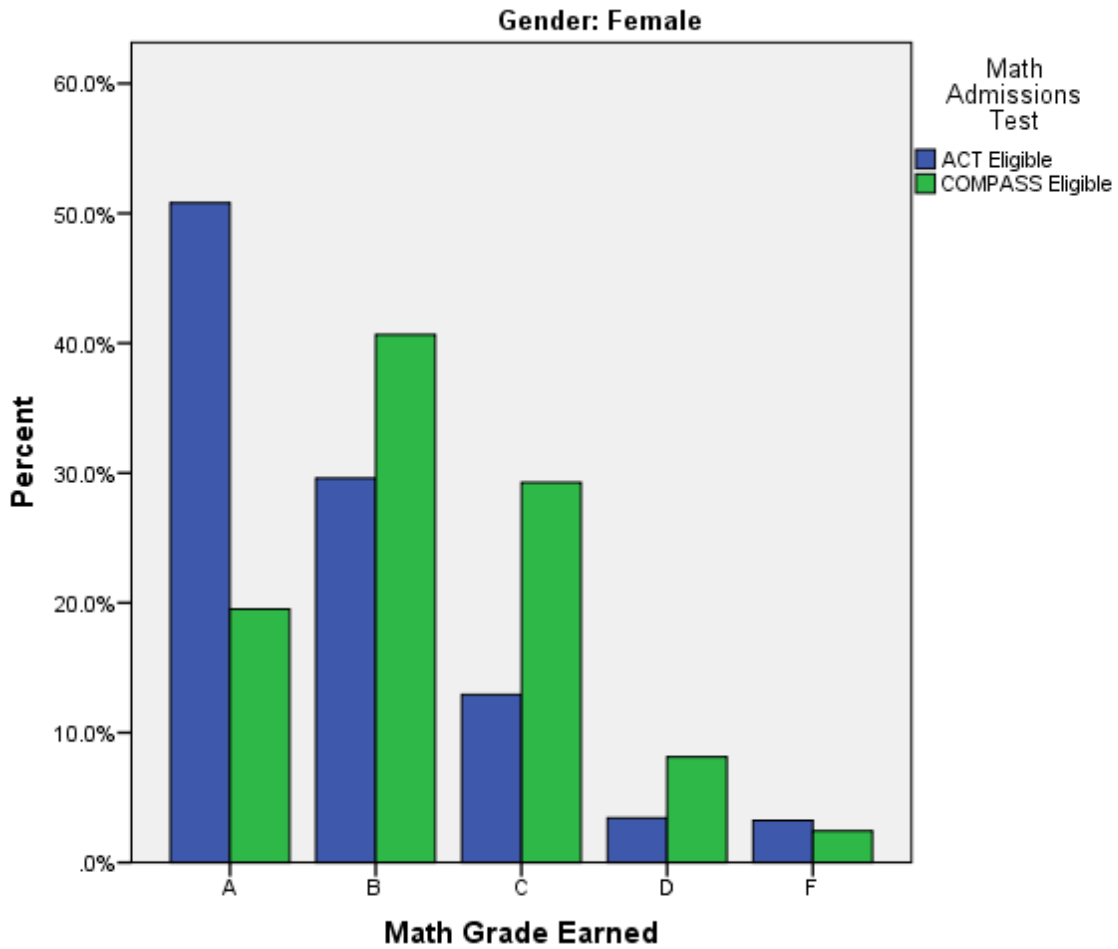


Figure 8: Female Students' Math Final Grades by Admissions Test

H₀₅₂: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students for males.

A two-way contingency table with the chi square test was used to evaluate whether or not there was a significant difference in final grades in College Algebra between male ACT-admitted dual enrollment students and male COMPASS-admitted dual enrollment students. The chi square test was significant, Pearson $\chi^2(4, N = 651) = 25.00, p < .001$, Cramer's $V = .20$. Therefore, the null hypothesis was rejected. In general, male ACT-admitted dual enrollment students earn better grades than male COMPASS-admitted dual enrollment students. As provided in Table 11, a comparison of the percentages for earning grades of A is significantly higher for male ACT-admitted dual enrollment students compared to male COMPASS-admitted dual enrollment students. On the contrary the percentages are significantly higher regarding grades of B, C, and D for male COMPASS-admitted dual enrollment students compared to male ACT-admitted dual enrollment students. Almost 5% of male ACT-admitted dual enrollment students scored grades of F, while there were no male COMPASS-admitted dual enrollment students. See Figure 9 for a bar graph for College Algebra final grades for male ACT-admitted students and male COMPASS-admitted dual enrollment students.

Table 11
Two-Way Contingency Table for Male Students' Math Final Grades by Admission Test

Grade	ACT Math Admitted		COMPASS Math Admitted	
	<i>N</i>	%	<i>n</i>	%
A	242	41.3	12	18.5
B	186	31.7	25	38.5
C	99	16.9	18	27.7
D	31	5.3	10	15.4
F	28	4.8	0	0.0
Totals	586	100.0	65	100.0

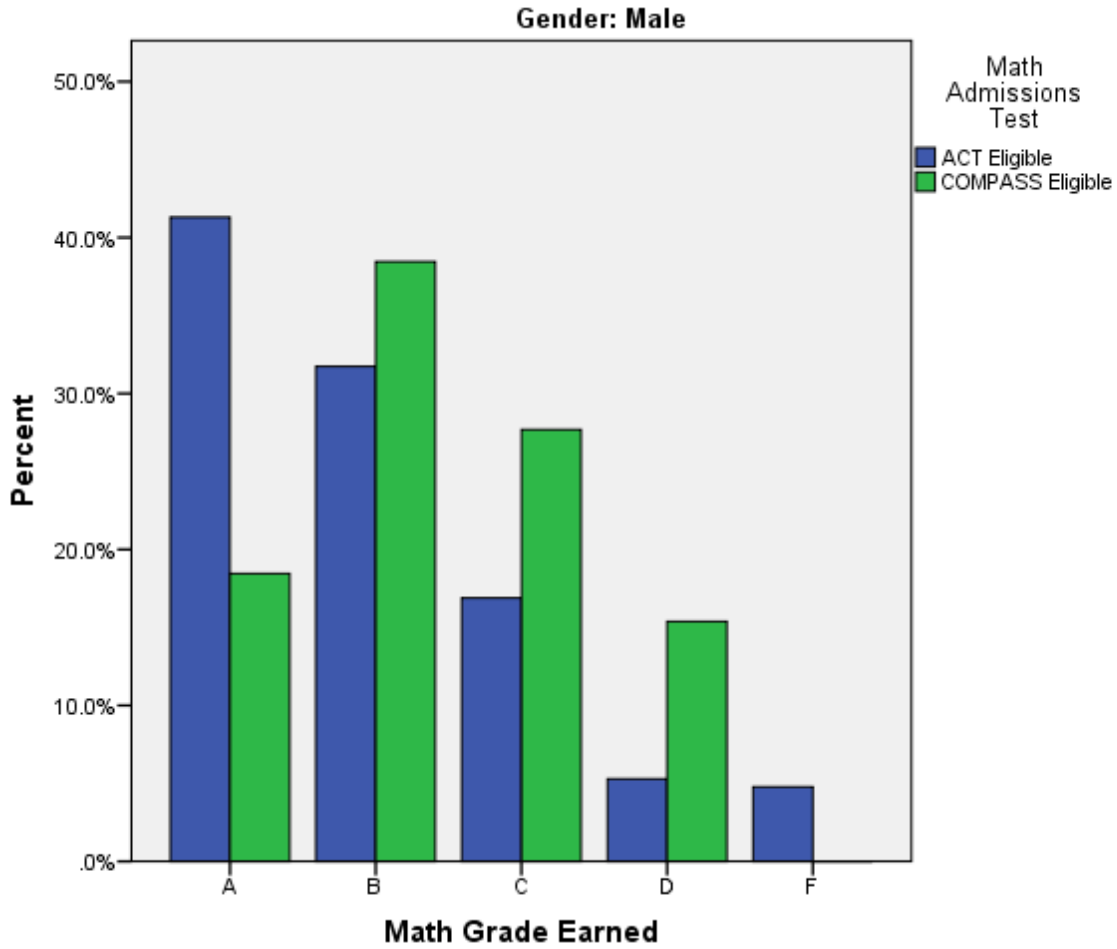


Figure 9: Male Students' Math Final Grades by Admissions Test

Research Question 6

Is there a significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students as compared by race-ethnicity (see Footnote 1)?

H₀₆₁: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students (MATH 1130) for White students.

A two-way contingency table with the chi square test was used to evaluate whether or not there was a significant difference in final grades in College Algebra between White ACT-admitted dual enrollment students and White COMPASS-admitted dual enrollment students. The chi square test was significant, Pearson $\chi^2(4, N = 1634) = 67.01, p < .001$, Cramer's $V = .20$. Therefore, the null hypothesis was rejected. In general, White ACT-admitted dual enrollment students earn better grades than White COMPASS-admitted dual enrollment students. As provided in Table 12, a comparison of the percentages for earning grades of A is significantly higher for White ACT-admitted dual enrollment students compared to White COMPASS-admitted dual enrollment students. However, the percentages are significantly higher regarding grades of B, C, and D for White COMPASS-admitted dual enrollment students compared to White ACT-admitted dual enrollment students. See Figure 10 for a bar graph for College Algebra final grades for White ACT-admitted students and White COMPASS-admitted dual enrollment students.

Table 12
Two-Way Contingency Table for White Students' Math Final Grades by Admission Test

Grade	ACT Math Admitted		COMPASS Math Admitted	
	<i>N</i>	%	<i>n</i>	%
A	688	46.9	34	20.4
B	452	30.8	63	37.7
C	211	14.4	50	29.9
D	58	4.0	2	1.2
F	58	4.0	2	1.2
Totals	1,467	100.0	167	100.0

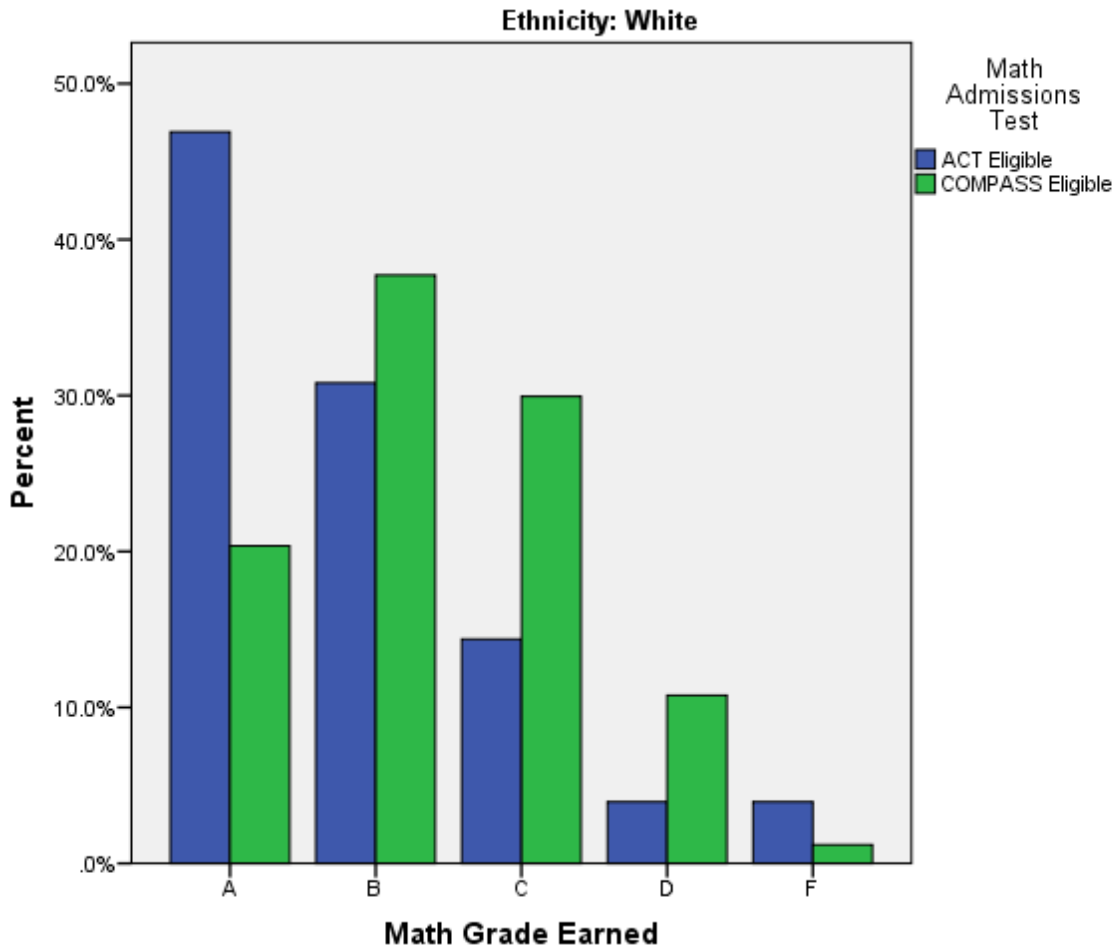


Figure 10: White Students' Math Final Grades by Admission Test

H₀₆₂: There is no significant difference in final grades in College Algebra (MATH 1130) between ACT-admitted dual enrollment students and COMPASS-admitted dual enrollment students (MATH 1130) for non-White students.

The researcher planned to use a two-way contingency to evaluate whether or not there was a significant difference in final grades in College Algebra between non-White ACT-admitted dual enrollment students and non-White COMPASS-admitted dual enrollment students. However, an examination of the assumptions of the chi square test showed neither assumption of

chi square was met. The minimum expected count was less than one (0.48) and more than 20% of the cells have an expected count of less than 5 (40% of the cells have less than 5). For this reason the chi square test was not used and the null hypothesis was not tested. As provided in Table 13, there was very little difference between the percentages of non-White ACT-admitted dual enrollment students and non-White COMPASS-admitted dual enrollment students who earned final grades of D and F. However, a higher percentage of non-White ACT-admitted dual enrollment students (52.3%) earned final grades of A in College Algebra compared to non-White COMPASS-admitted dual enrollment students (9.5%). Consequently, a higher percentage of non-White COMPASS earned final grades of B and C compared to non-White ACT-admitted students. See Figure 10 for a bar graph for College Algebra final grades for non-White ACT-admitted dual enrollment students and non-White COMPASS-admitted dual enrollment students.

Table 13

Two-Way Contingency Table for Non-White Students' Math Final Grades by Admission Test

Grade	ACT Math Admitted		COMPASS Math Admitted	
	<i>N</i>	%	<i>n</i>	%
A	57	52.3	2	9.5
B	27	24.8	12	57.1
C	16	14.7	4	19
D	7	6.4	2	9.5
F	2	1.8	1	4.8
Totals	109	100.0	21	100.0

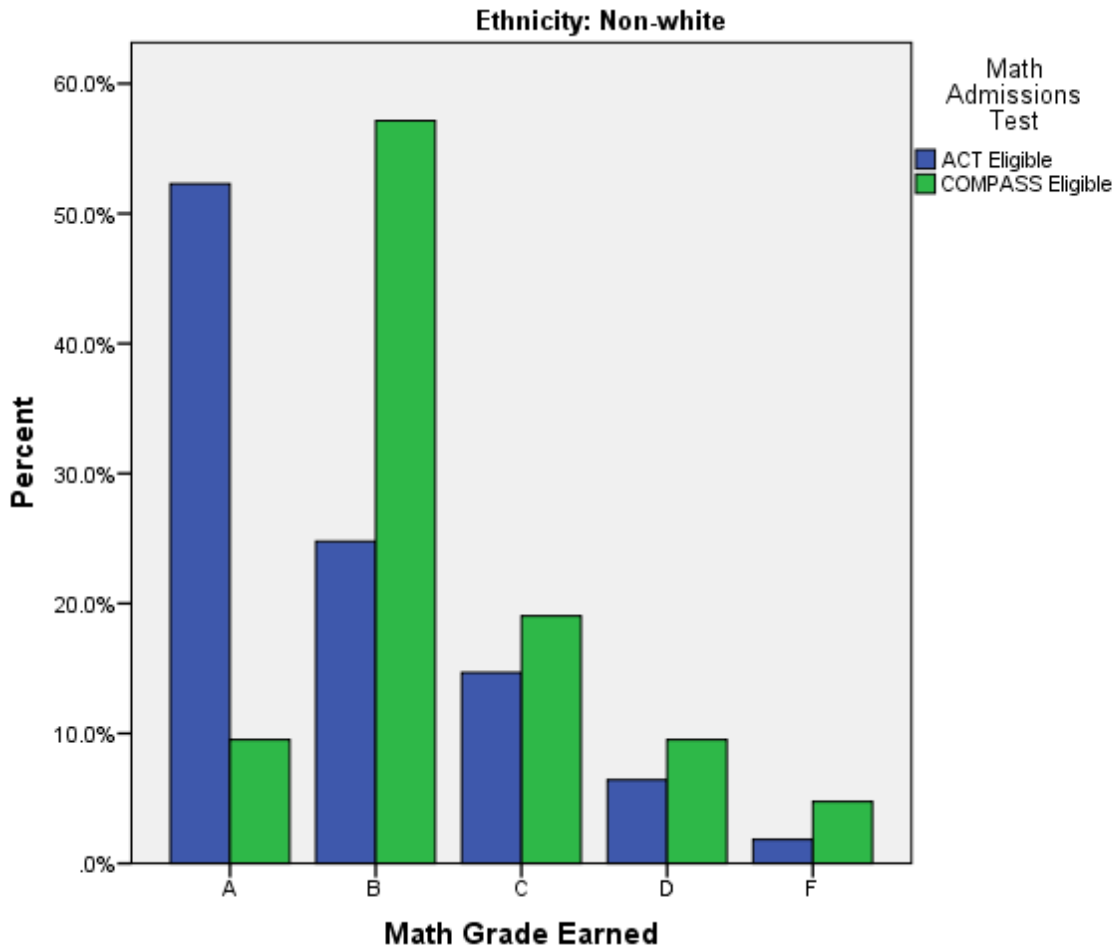


Figure 11: Non-White Students' Math Final Grades by Admissions Test

Chapter Summary

Chapter 4 presents the analyses of data obtained from VSCC's student information system regarding the success of dual enrollment students in English Composition I (ENGL 1010) and College Algebra (MATH 1140) between Fall 2011 and Spring 2015. Six research questions and their corresponding null hypotheses were addressed. A summary of the findings, conclusions, and recommendations for practice and further study are presented in Chapter 5.

CHAPTER 5

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to compare final grades of dual enrollment students in English Composition I (ENGL 1010) and College Algebra (MATH 1130) at VSCC. The study was focused on whether students admitted to these courses using COMPASS Writing and/or Math scores are as successful as students admitted to these courses using ACT English and/or Math subscores. Additionally, the researcher examined whether there were differences related to gender and race-ethnicity (see Footnote 1) for each course by entry method. Final courses grades were used to determine success. Summary, conclusions, and recommendations are detailed in the following sections.

Summary

Many researchers have conducted studies that demonstrate the benefits of dual enrollment programs for various student populations (Barnett & Kim, 2014; Berger, 2013; Ganzert, 2012; Hughes et al., 2012). To access dual enrollment programs, college readiness must be determined. Standardized tests have become the norm as the predictor of college readiness. However, previous literature has raised issues concerning whether standardized tests are good indicators of success. For instance, Soares (2012) theorized standardized tests are not indicative of success, whereas Medhanie et al. (2012) indicated otherwise.

Dual enrollment has become a viable option for students because it has the potential to support a diverse body of students. Although dual enrollment programs were initially considered

an option available mostly for high achieving students, students from various academic backgrounds are now enrolling in the programs. The benefits of dual enrollment participation are prolific, including increased likelihood to college enrollment, better overall grades in college, and shortened time to college graduation (Marken et al., 2013).

Research Question 1 examined final grades for the two groups (ACT-admitted and COMPASS-admitted) in English Composition and College Algebra. While the chi-square test did not produce significant results, it was determined that both groups had similar percentage distributions for grades A, B, C, D, and F with most students earning grades of A.

Research Question 2 sought to determine if there was a difference in the final grades in English Composition between the two groups (ACT-admitted and COMPASS-admitted) when comparing gender. The null hypothesis could not be tested for male students because of a violation of the chi-square. The results revealed that female COMPASS-admitted students earn a slightly higher percentage of A grades than female ACT-admitted students. However, female ACT-admitted students earn a higher percentage of B grades than female COMPASS-admitted students. Unlike females, male ACT-admitted students had a higher percentage of A grades than male COMPASS-admitted students. At the same time, male COMPASS-admitted students earned a higher percentage of B grades than male ACT-admitted students.

Research Question 3 examined the difference in the final grades in English Composition between the two groups when comparing race-ethnicity (see Footnote 1). Although the null hypothesis could not be tested due to violations of the chi square, it was determined White students' final grades in both grades were similar and there was no significant difference. ACT admitted non-White students tended to earn more grades of A than COMPASS-admitted non-White students.

Research Question 4 focused on determining if there was a significant difference overall in the final grades in College Algebra between the two groups. It was determined there was significance in the final grades earned between the two groups. ACT-admitted students scored significantly more grades of A than COMPASS-admitted students and consequently, COMPASS-admitted students earned more grades of B and C than ACT-admitted students. Neither group earned many grades of D and F.

Research Question 5 examined the difference in final grades in College Algebra between both groups when comparing gender. It was determined that it was a significant difference in the final grades earned by female ACT-admitted students compared to COMPASS-admitted students. Female ACT-admitted students earned a higher percentage of A grades when compared to female COMPASS-admitted students. At the same time COMPASS-admitted students earned more grades of B, C and D. When comparing the grades for males, there was a significant difference between male ACT-admitted students and male COMPASS-admitted students. The percentage of A grades was significantly higher for ACT-admitted students compared to COMPASS-admitted students. COMPASS-admitted students had a higher percentage of grades of B, C, and D compared to ACT-admitted students.

Research Question 6 focused on determining if there was a significant difference in the final grades in College Algebra between both groups when comparing race-ethnicity (see Footnote 1). The results were significant. ACT-admitted white students were more than two times as likely to earn a grade of A compared to the COMPASS-admitted white student. Consequently, COMPASS-admitted students earned more grades of B and C. Because the chi-square was violated, the null hypothesis was not tested. When reviewing the final grades, non-White ACT admitted students were more than five times as likely to earn a grade of A compared

to COMPASS-admitted students. Non-White COMPASS-admitted students were more than twice as likely to make grades of B than non-White ACT-admitted student. Lastly, non-White COMPASS-admitted student grades of D and F were slightly higher than ACT-admitted students.

Conclusions

This study's purpose was to compare whether students admitted using COMPASS scores were as successful as students admitted using ACT scores in English Composition (ENGL 1010) and College Algebra (MATH 1130) and to examine if there were differences related to gender and race-ethnicity. The study included 4,156 dual enrollment students who earned 5,138 grades, between Fall 2011 and Spring 2015.

The major findings of this study included a) there was no significant difference between the two groups when comparing final grades in English Composition. For both groups the majority of the grades earned were A, b) overall there was a significant difference within the two groups when comparing final grades in College Algebra. ACT-admitted students were more than twice as likely to earn grades of A than COMPASS-admitted students. By contrast, ACT-admitted students were twice as likely than COMPASS-admitted students to earn grades of F, c) when examining gender in English Composition, COMPASS-admitted females ACT-admitted females scored more grades of A than ACT-admitted females. However, ACT-admitted males earned more grades of A than COMPASS-admitted females, d) the difference was significant in College Algebra with both ACT-admitted females and males being at least twice as likely to score grades of A, and f) there was no significant difference when comparing final grades between the two groups of White students in English, however, significance exist for the White

students in College Algebra with ACT-admitted students being at least twice as likely than COMPASS-admitted students to score grades of A.

Recommendations for Practice

The findings and conclusions of this research led to the following recommendations for practice:

- 1) VSCC will educate students, parents, and high school administrators that dual enrollment is a viable option for students from diverse academic backgrounds. This population was 93% ACT-admitted and 7% COMPASS-admitted. This suggests students that are not considered high achievers are not participating in dual enrollment. However, the results of the study indicate that students who are admitted via the COMPASS can be successful in dual enrollment programs.
- 2) High school administrators and college personnel must seek out minorities for participation in dual enrollment programs to create a more diverse student body. In this study 62% of the study were females compared to 38% males. Because the study population was over 91% white students and other races only attributed 8% of the population, key personnel must ensure that minorities, underrepresented, and underserved students are informed and understand the benefits of dual enrollment. Stansberry (2013) suggested that dual enrollment courses should expand beyond the traditional college credit courses with the intention to encourage minorities to participate. Qualitative research should be conducted on to make a determination of why people of color are not participating.
- 3) VSCC will provide data to high school administrators showing students who take the COMPASS are successful in dual enrollment courses. In this study in English

Composition 98% of ACT-admitted students and COMPASS-admitted students scored final grades of B or better. In College Algebra, 85% of COMPASS-admitted students scored final grades of C or better compared to 92% of ACT-admitted students.

- 4) VSCC will educate students and parents that dual enrollment students can take two dual enrollment classes for free.

Recommendations for Further Research

As much further research is needed to determine how placement tests impact student achievement, I recommend the following:

- 1) An exploration of the factors that deter students from being admitted to dual enrollment programs via COMPASS test scores.
- 2) A qualitative study to determine why students of races/ethnicities other than white are not enrolling.
- 3) A mixed-methods study to explore whether the racial composition of the faculty impact the performance of minority students.
- 4) A comparative study to analyze final grades in other courses between ACT-admitted students and COMPASS-admitted students.
- 5) Because COMPASS is being phased out in 2016, a research project will be need to be conducted to determine if students taking a different placement test are successful.
- 6) Because GPA is an admission criteria, expand the current study to include high school GPA in order to get an overall picture of a student's academic background.

- 7) An analysis is needed to determine the impact of the new grant funding implemented in Fall 2015. Karp (2012b) suggested removing the cost barrier to dual enrollment could increase the number of students participating.
- 8) Although the new funding formula made two dual enrollment classes free, funding was reduced for the third course and eliminated for the fourth class. Therefore, further research will be needed to determine if students are going beyond the second class.
- 9) A comparative analysis on the impact of the Tennessee Promise on dual enrollment programs. This analysis will provide useful information in determining if dual enrollment courses should be without costs to students.

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APPENDICES

APPENDIX A

Exemption Letter from VSCC Institutional Review Board

Ellison, Yolanda

From: McGuire, Jane
Sent: Monday, September 14, 2015 4:47 PM
To: Ellison, Yolanda
Cc: Cantrell, Rebecca
Subject: RE: Just checking in....
Attachments: Dual Enroll Data_Fa11_Sp15.xlsx

Yolanda,

Please find attached an excel file containing the information requested. Upon completion of your study, please submit one copy to the Office of Institutional Effectiveness, Research, Planning and Assessment.

Please remember that the attached information contains test score information and should be guarded as to the use and distribution of the information. While it is not identifiable by person, the integrity of the information should be protected.

In the file, the second sheet contains the translation values for race/ethnicity.

Let me know if we can be of further assistance.

Good luck!!
Jane

Jane McGuire
Vice President, Institutional Effectiveness,
Research, Planning and Assessment
615-230-3204
615-230-4801 Fax

APPENDIX B

Exemption Letter from ETSU Institutional Review Board



EAST TENNESSEE STATE
UNIVERSITY

Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707
Phone: (423) 439-6053 Fax: (423) 439-6060

September 2, 2015

Yolanda Ellison
112 Seven Springs Dr.
Mount Juliet, TN, 37122

Dear Yolanda Ellison,

Thank you for recently submitting information regarding your proposed project "Standardizing Testing and Dual Enrollment Students".

I have reviewed the information, which includes a completed Form 129.

The determination is that this proposed activity as described meets neither the FDA nor the DHHS definition of research involving human subjects. Therefore, it does not fall under the purview of the ETSU IRB.

IRB review and approval by East Tennessee State University is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are human subject research in which the organization is engaged, please submit a new request to the IRB for a determination.

Thank you for your commitment to excellence.

Sincerely,
Stacey L. Williams, Ph.D.
Chair, ETSU IRB



Accredited Since December 2005

VITA

YOLANDA CLARICE ELLISON

Education: Lambuth University, Jackson, Tennessee;
Management Informations System, B.S., 2001

Union University, Jackson, Tennessee;
Business Administration, M.B.A., 2007

East Tennessee State University, Johnson City, Tennessee;
Educational Leadership, Ed.D., 2016

Professional Experience: Admissions Technical Clerk
Jackson State Community College, Jackson, Tennessee
1999-2000

Classification Analyst
Jackson State Community College, Jackson, Tennessee
2000-2001

Admissions Recruiter
Jackson State Community College, Jackson, Tennessee
2001-2006

Coordinator of Student Services
Tennessee Board of Regents, Nashville, Tennessee
2006-2010

Director of Dual Enrollment and Off-Campus Sites
Volunteer State Community College, Gallatin, Tennessee
2011-Present