# DIFFERENCES IN STUDENT SUCCESS AS A FUNCTION OF DUAL CREDIT ENROLLMENT FOR TEXAS COMMUNITY COLLEGE STUDENTS: A MULTIYEAR INVESTIGATION

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A Dissertation

Presented to

The Faculty of the Department of Educational Leadership

Sam Houston State University

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In Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

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by

Dorothy B. Dixon

May, 2017

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## DEDICATION

First, I want to thank my loving Father God, who gave me the strength and persistence to complete this doctoral journey. I am sincerely thankful for the God gifts of connectedness, positivity, passion for students, and action-oriented for student success. These talents are not taken for granted because many people have influenced my life with these gifts and much love and support. I want to dedicate this dissertation to my best friend and life partner, Willie L. Dixon, Jr. (Jay). He has always loved, supported, and encouraged me unconditionally. I also want to dedicate this dissertation to my amazing, supportive, loyal, and intelligent daughters, Dominique and Sydney. Both of these young women will graduate this year with a Bachelor of Science in biology and high school distinguished achievement diploma, respectively. Dominique and Sydney, who both earned dual credit courses while in high school, will graduate with high academic honors. I am very proud and humbled to be called mom by these kind-hearted human beings who are dedicated to serving others in this global community.

Additionally, I dedicate this dissertation to the memory of my parents, the late Arthur Lee Brown, Sr. and Dorothy Walters Brown, who cheered and supported me wholeheartedly throughout my entire life. I know they are smiling down on me from heaven. From their union, nine children were born and taught to work hard, have high ethical standards, be respectful and humble, reach beyond the stars, and always love and support your siblings. John, Wanda, Arthur Jr., Maurice, Brenda, Faye, Derrick, and Roderick, I thank these guys for always encouraging me and spoiling the seventh child. I am blessed with a mother-in-law, father-in-law, and sister-in-law who have indeed been supportive in this educational journey and to my family. Dee and Shawn, I am appreciative of their love and encouragement and for being like blood siblings. Shoutout

to my late brother, Cedric Allen Brown, Sr., who would be extremely proud of me and would brag about his little sister to the world!

Lastly, I dedicate my dissertation to my nieces, nephews, and the many students who I have served in my 20 years in higher education. I am inspired to continue the tireless work of supporting student success in meaningful ways because of the personal impact that I have seen in those who call me successful. I pray that others will continue my family legacy of philanthropy and giving back to one's community.

## ABSTRACT

Dixon, Dorothy B., *Differences in student success as a function of dual credit enrollment for Texas community college students: A multiyear investigation.* Doctor of Education (Educational Leadership), May 2017, Sam Houston State University, Huntsville, Texas.

### Purpose

The purpose of this journal-ready dissertation was to examine dual credit enrollment with respect to student demographic characteristics and to student success of Texas community college students. The first purpose was to describe the demographic characteristics with respect to gender and ethnicity/race of Texas community college students who completed a dual credit course while in high school. A second purpose was to analyze the extent to which differences were present in first semester GPAs by ethnicity/race and gender of Texas community college students who previously completed a dual credit course while in high school. Finally, a third purpose was to ascertain the degree to which differences were present in the second semester GPAs as a function of ethnicity/race and gender of Texas community college students who previously completed a dual credit course while in high school.

### Method

A descriptive research design was used in the first article and a causal-comparative research design was present in the second and third articles in this journal-ready dissertation. Archival data, from a Texas community college district's Institutional Research Division, were analyzed for the 2012-2013, 2013-2014, and the 2014-2015 academic years. Variables that were analyzed were: dual credit enrollment status, gender; ethnicity/race, first semester GPA, and second semester GPA.

**Findings**

With respect to the demographic characteristics of students who had completed a dual credit course while in high school, almost two thirds of the community college students were females. White and Hispanic students constituted the two ethnic/racial groups with the highest percentages of students who had completed a dual credit course while in high school. Of note was the very low percentage of Black students who had completed a dual credit course while in high school. Regarding first semester GPAs and second semester GPAs, with few exceptions, students who had completed a dual credit course while enrolled in high school had statistically significantly higher GPAs than their counterparts who had not completed a dual credit course while enrolled in high school. These results were consistent across all three academic years. Implications for policy and for practice were made, along with recommendations for future research.

KEY WORDS: Dual credit, Texas community college, Demographic characteristics, First semester GPAs, Second semester GPAs, Asian, White, Hispanic, Black, Gender

## ACKNOWLEDGEMENTS

First, I want to thank God for giving me faith, family, and favor throughout this voyage. Many thanks to Dr. Julie P. Combs and Dr. Rebecca Bustamante, my first semester faculty members, who taught me so much about academic writing and higher education leadership in the most engaging manners possible. Their support, guidance, valuable feedback, suggestions, and comprehensive care nurtured my mind and spirit as I started this doctoral journey with insurmountable responsibilities at work and in my personal life. I want to thank my dissertation committee members, Dr. Frederick C. Lunenburg, Dr. George W. Moore, and Dr. Wally Barnes for their guidance and feedback on this manuscript. My sincerest gratitude goes to Dr. John R. Slate, "The Machine" for his coaching, guidance, support, and constant feedback through each and every step of this process. Much gratitude to all faculty members and administrators in the Higher Education Leadership Doctoral Program at SHSU for a stellar doctoral program.

To my husband, Jay: thanks for being my "boyfriend" and while loving and supporting me as my best friend. It was very comforting for have him come into our home office to sit with me while I wrote or while I just stared at the computer a few times. I am grateful to God for our marriage and our greatest assets – our girls.

My daughters who are my heartbeats, Dominique and Sydney, are my greatest cheerleaders. The prayers, love, and countless "trial student success initiatives" that have been poured into your lives produced two amazing young women who I am extremely proud of. Dominique, I will never forget when I had that bad week; I received the most encouraging note and flowers from my child who was a college student in California. Sydney, YOU have probably taken the greatest hits from this program. I will always value the indescribable support a 14-year-old could give her mom and still manage to

complete high school with the highest achievements while also being involved in countless volunteer efforts at your school and in our community. I look forward to call each of you, fellow doctors in the future years.

Although my mom, Dorothy Walters Brown, passed away in the last semester of my dissertation classes, I thank her for the countless encouraging, “Baby, you have it”, “Honey, I’m so proud of you”, and “I’m getting these knees together to walk at your graduation.” You always told all of you children than they could do anything that we wanted to. Momma, I love you. Much gratitude to my siblings, who are my dear friends for life. The calls, the flights, the texts, the prayers, were all valued and appreciated by their little sister, Dorothy.

Lastly, I want to thank my many friends, colleagues, and church members who supported me up close and from afar. My Cohort 31 members, Sheldon, Kim, Danielle, Kelly, Scott, Rene, and Jeff, were also an inspiration and endearing support to me. It was all welcomed and needed when I was at a low or a high to propel me to keep moving forward. I am humbled and grateful for people who have mentored or befriend me.

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# CHAPTER I

## INTRODUCTION

Sixty-five percent of the jobs in the United States will require some level of higher education by 2020 (Carnevale, Jayasundera, & Hanson, 2012). “These realities are important for those in higher education to understand when considering policy and practice aimed at developing the workforce” (D’Amico, Morgan, Katsinas, & Friedel, 2015, p. 191). Gardner, Barefoot, and Farakish (2015) suggested that, in addition to propensity to earn more wages, college helps students become better thinkers, which allows for long-term life skills. Gardner et al. (2015) noted, “college is also important because it prepares citizens for leadership roles. Without a college degree, you would find it difficult to be a leader in your community, company, profession, or military unit” (p. 7). The importance of postsecondary education for career success and for functioning in a global economy cannot be overstated (Barrow, Brock, & Rouse, 2013; National Conference of State Legislatures, 2016). In the last two decades, the need for some postsecondary education has increased substantially. In 2016, participants at the National Conference of State Legislatures emphasized that a high school diploma is no longer enough to be successful in today’s global economy; one must receive some form of postsecondary education. Postsecondary credentials are imperative for gainful employment, better pay, and stronger economies (Bureau of Labor Statistics, 2016). A greater number of American millennials will need postsecondary credentials to provide for themselves economically (Sepanik, 2012).

The percent of workers in the United States who had some postsecondary education increased from 28% to 59% between 1973 and 2000 (Partnership for 21st

Century Skills, 2008). Also during that same timeframe, employees with bachelor's degrees increased from 9% to 20%. According to the Partnership for 21st Century Skills (2008),

> creating an aligned, 21st century public education system that prepares Americans to thrive is the central competitiveness challenge of the next decade. Addressing this challenge requires forceful and forward-thinking leadership from federal, state and local policymakers. (p. 16)

Given the statistics on job and career requirements, a postsecondary degree or training will be required for two-thirds of job openings by 2020 (Carnevale, Smith, & Strohl, 2013). According to Carnevale, Smith, and Strohl (2010), jobs that required only a high school diploma or less will decrease from 72% in 1973 to an anticipated 38% by 2018. By 2018, 56% of the jobs in Texas will require some form of postsecondary education to obtain employment (Carnevale et al., 2010).

**Dual Credit and Student Enrollment**

With respect to improving the rates of high school graduates enrolling in postsecondary settings, college preparatory programs, such as Advanced Placement and dual credit, were implemented. The college preparatory program of interest in this investigation is that of dual credit. High school juniors and seniors use dual credit as an accelerated program that can allow them to enroll in high school and concurrent college courses (Khazem & Khazem, 2012; Texas Higher Education Coordinating Board, 2016). In Texas, students who enroll in dual credit courses through local community colleges may receive college credit

(Texas Education Agency, 2011). For purposes of this investigation, dual credit was defined as:

> a process through which a student may earn high school credit for successfully completing a college course that provides advanced academic instruction beyond, or in greater depth than, the Texas Essential Knowledge and Skills (TEKS) for a corresponding high school credit course. (Texas Education Agency, 2011, p. 1)

Nationally, dual credit enrollment expanded from 800,000 students in 2002-2003 to 1.3 million students in 2010-2011 (Barshay, 2013). In Texas, student enrollment in dual credit courses increased from 71,803 students in the 2007-2008 school year to 94,232 students in the 2009-2010 school year, an increase of 31% (American Institute for Research & Gibson Consulting Group, 2011). In a recent survey that was sent to American Association of Collegiate Registrars and Admissions Officers institutions members and non-members, 78% of the 388 institutions that responded stated that they participated in a dual credit program (Kilgore & Taylor, 2016). Adam Lowe, Executive Director of the National Alliance for Concurrent Enrollment Partnerships, stated,

> Across the country, participation is growing by 7 percent a year—in many states at considerably higher rates," (as cited in Gross, 2016, para. 5). While 20 years ago, these programs were typically reserved for only those students who were academically advanced, now they are increasingly enrolling more low-income and minority students, as well as students who

> are the first in their families to receive a college education. (Gross, 2016, para. 5)

One reason that may explain the popularity of the dual credit program is that dual credit courses may help students prepare for college. Conley (2007) defined college-readiness as "the level of preparation a student needs to enroll and succeed-without remediation-in a credit-bearing general education course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program" (p. 5). Almost 60% of students entering postsecondary institutions were not college-ready (National Center for Public Policy and Higher Education, 2010). With respect to Texas, several researchers (e.g., Barnes & Slate, 2013, 2014; Combs et al., 2010; Harvey, Slate, Moore, Barnes, & Martinez-Garcia, 2013) documented concerns that Texas high school graduates were not college-ready. One suggested option for improving the college-readiness skills of high school graduates was dual credit (Allen & Dadgar, 2012; Crouse & Allen, 2014; Texas Higher Education Coordinating Board, 2016; Young, Slate, Moore, & Barnes, 2014a). In dual credit enrollment, students may complete college level courses while enrolled in high school and receive college level credit. As such, dual credit enrollment may be a viable method to increase the college-readiness skills of high school graduates.

In a study most related to this proposed investigation, Young, Slate, Moore, and Barnes (2013) analyzed data on 164,434 students enrolled in Texas community colleges from the 2005-2006 to the 2011-2012 academic years. Of the Texas community college students, 15% completed dual credit courses while in high school. Of the total sample of community college students, 16% of females and 14% of males enrolled in dual credit

courses while in high school. With respect to the sample of students who completed a dual credit course while in high school, 45% were male and 55% were female (Young, Slate et al., 2013). Concerning the sample of community college students, the percentage of students who completed a dual credit course while in high school was 11% White, 3% Other, 3% Hispanic, 1% Black, and 0.2% of Asian students (Young, Slate et al., 2013). Within each ethnic/racial group, higher percentages of females than males completed a dual credit course. In the 2011-2012 academic year, 15.3% of Hispanic males, 19% of Hispanic females, 7.3% of Black males, and 7.6% of Black females completed dual credit courses. Young, Slate et al. (2013) noted that Black student dual credit enrollment was the lowest of the four ethnic/racial groups (i.e., Asian, White, Hispanic, and Black) of students whose data they analyzed. Also, Black student dual credit enrollment had the lowest growth over the 7 years. Further, Young, Slate et al. (2013) contended, "The lack of Black student enrollment should be a major priority for future research and could be accomplished by research through surveys on the cultural differences that 'prevent' Black students from enrolling in dual credit" (p. 7).

In a separate study, also conducted on Texas community college students, Young, Joyner, and Slate (2013) examined data on 1,785 community college students who completed a dual credit course while in high school. In their sample of students who were enrolled in a dual credit course while in high school, 85% were White, 3% were Black, 0.8% were Asian, and over 10% did not report their ethnicity/race. Readers should note that Young, Joyner et al. (2013) reported that they were not able to access data on Hispanic student participation in dual credit courses. Young, Joyner et al. (2013) reported that the aforementioned percentages, especially for Black students, were

markedly lower than the percentages of Black students in the community colleges' geographic area. With respect to ethnicity/race, White students had a 17% higher enrollment rate than Black students (Young, Slate et al., 2013). In addition, Young, Joyner et al. (2013) contended that an "overrepresentation of White students in comparison to students of color should be a focus of concern" (p. 5). In a follow-up article, Young et al. (2014a) conducted an extensive literature review of dual credit. In their literature review, Young et al. (2014a) reported substantial differences in the ethnic/racial composition of students who had taken dual credit courses while in high school.

**Dual Credit and First Semester GPAs**

A barrier to successful college degree completion is a lack of college-readiness (Abraham, Slate, Saxon, & Barnes, 2014a, 2014b; Arnold, Lu, & Armstrong, 2012; Iloh & Toldson, 2013). Having an aspiration to attend a postsecondary institution is imperative for potential college students; however, college-readiness has tremendous implications for a successful pathway to completion. Students who lack reading, mathematics, and writing skills are less likely to be successful in college, and less likely to obtain a college degree, than are students who are college-ready in these areas. At the national level, "only 38 percent of graduating seniors who took the exam hit the college-prepared benchmark in at least three of the four core subjects tested - reading, English, math and science" (U.S. News & World Report, 2016, para. 2). Due to changes in workforce degree credentials needed, the issue of high school graduates who are not college-ready is alarming (Royster, Gross, & Hochbein, 2015). The lack of college-readiness of students with deficiencies in reading, mathematics, and writing skills can

delay or prevent postsecondary student success (Allen & Dadgar, 2012; Barnes, Slate, & Rojas-LeBouef, 2010; Ganzert, 2014).

Students without a high level of knowledge and skills face many challenges in competing in the global marketplace (James, Lefkowits, & Hoffman, 2016). According to Barrow, Brock, and Rouse (2013),

> U.S. postsecondary institutions serve not only those students with the best academic preparation but also those who were not well served in the nation's elementary and secondary school system and need a second chance. This range is reflected in the differing degrees of "college readiness" among entering postsecondary students and in the increasing proportion of students who are "nontraditional" in that they are older, from less advantaged families, financially independent of their parents, parents themselves, or working while going to school. (p. 3)

With respect to the state of interest in this empirical investigation, Barnes and Slate (2011, 2013) have provided extensive evidence regarding poor college-readiness skills of high school graduates in Texas. Barnes and Slate (2011) documented that only 45% of seniors from Texas high schools were college-ready in reading in the 2006-2007 school year. With respect to college-readiness in mathematics, Barnes and Slate (2011) established that 48% of Texas high school graduates were college-ready.

Regarding a definition of college-readiness, numerous definitions exist. Arnold et al. (2012) stated that college-readiness denotes "a student's capacity to enroll at a postsecondary institution, take credit-baring classes beginning in the first year, earn passing grades in courses, and persist to his or her educational goals" (p. 1). As defined

by the ACT (2007), college-readiness is the level of preparation a student needs to be ready to enroll and succeed without remediation-in a credit-bearing course at a two-year or four-year institution, trade school, or technical school. “We have evidence that college readiness also means workforce readiness” (ACT, 2007, p. 5).

In a discussion of college-readiness, Barnes et al. (2010) stated, “that college-readiness, as it is currently defined and measured, does not represent the set of skills students need to be successful in college” (p. 2). Barnes et al. (2010) argued that what was being defined as college-readiness was actually academic preparedness, which is not the same as actually being ready for college. Barnes et al. (2010) stated that academic preparedness (i.e., academic skills) is only a portion of the needed cognitive and non-cognitive skills. Of note to this investigation is their recommendation that school districts and postsecondary institutions should collaborate to improve college and career readiness skills of high school students. High school teachers, college faculty, staff, and administrators at the P-16 levels must work collaboratively to help students understand what they need to be successful in postsecondary settings (Barnes et al., 2010). According to the Southern Association of Colleges and Schools, educators across the P-20 spectrum must increase the academic rigor of high school curriculum, provide structures for student acceleration and support, and create successful pathways for all students from pre-kindergarten through postsecondary education. Researchers (e.g., Barefoot, 2008; Pascarella & Terenzini, 2005; Tinto, 2007) have suggested that postsecondary expectations of faculty and academic standards should be taught to junior high and high school students early to establish knowledge about going to college and a

persistent mindset to finish. This information can increase college admission and retention, especially for underrepresented students and for students in poverty.

Moore et al. (2010) suggested that the addition of specialized high school programs could increase college-readiness. Several researchers (e.g., Barnes & Slate, 2013, 2014; Chapa, Galvan-De Leon, Mundy, & Solis, 2014, Young et al., 2013a, 2013b) have addressed the importance of college-readiness and the need for college preparatory programs such as dual credit because dual credit programs may increase college-readiness. In the past decade, researchers examined college-readiness programs and underprepared students in college (Arnold et al., 2012). "In recent years, educators and policymakers have become increasingly interested in the potential of dual enrollment to improve educational outcomes for a broader range of students" (Hughes, Rodriquez, Edwards, & Belfield, 2012, p. 3). In 2013, the White House made a statement about former-President Barack Obama's initiatives to make college more affordable, "Dual-enrollment opportunities let high school students earn credits before arriving at college, which can save them money by accelerating their time to degree" (The White House Office of the Press Secretary, 2013, para. 6). In addition to the former-president's support of dual credit, other researchers (e.g., Bailey, Hughes, & Karp, 2002; Karp, 2012) stated that dual credit enrollment provides students with opportunities to transition seamlessly from high school to college.

As evidence of the popularity of dual credit programs in the United States, Gewertz (2016) reported that "About 1.9 million students—11.4% of the secondary school population—were taking some form of dual-enrollment course in 2010-11, the most recent federal data show, up from 1.2 million in 2002-03" (para 6). Empirical

benefits for students who enroll in dual credit courses have been established. Dual credit programs have been credited with allowing high school students opportunities to increase their GPAs (Morrison, 2008; Texas Higher Education Coordinating Board, 2016; Young et al., 2014a; Young, Slate, Moore, & Barnes, 2014b). In addition, dual credit enrollment allows students to earn college credit (Anderson, 2010; Hughes, 2010; Texas Higher Education Coordinating Board, 2016; Zeidenberg & Bailey, 2009) and to gain confidence in making the transition to college (Robinson, 2011; Texas Higher Education Coordinating Board, 2016).

The Texas Higher Education Coordinating Board (2016) defines dual credit as an accelerated program that allows high school juniors and seniors to enroll in college courses and receive concurrent academic credit for the high school course. The particular focus of this article is on the first semester GPAs of college students who completed a dual credit course while in high school. In a recent empirical investigation, An (2012) documented that students who successfully completed dual credit courses while in high school had statistically significantly higher GPAs, 0.23 points higher, in college than did students who had not been enrolled in dual credit courses while in high school. In a study of Texas community college students, Young, Joyner et al. (2013) established that college students who had completed dual credit courses in high school in comparison to their community college peers who had not taken dual credit courses achieved higher GPAs. In their investigation, Young, Joyner et al. (2013) determined that both White and Black students who enrolled in dual credit courses had statistically significantly higher GPAs than did White and Black students who did not enroll in non-dual credit courses. This dual credit investigation by Young, Joyner et al. (2013) is relevant to this study

because Texas community college students who completed dual credit courses while in high school and students who did not complete dual credit courses while in high school constituted their sample.

Other researchers (e.g., Allen & Dadgar, 2012; Fike & Fike, 2012) conducted studies on the relationship of dual credit enrollment with postsecondary GPAs. In two separate investigations, Allen and Dadgar (2012) and Kim (2012) analyzed data from dual credit programs in the nation's largest urban dual credit program at The City University of New York. They documented that the first semester GPAs of college students were higher for students who completed dual credit courses in high school than for college students who had not completed dual credit courses while in high school. Allen and Dadger (2012) established that dual credit enrollment "improves college GPA" during the first semester (p. 17). Fike and Fike (2012), in their study of Hispanic students at a Hispanic-serving Institute, determined that first semester GPAs were higher for students who completed a dual credit course than for those students who did not complete a dual credit course.

Additionally, other researchers (e.g., Hughes, 2010; O'Connor & Justice, 2008) conducted studies on dual credit enrollment. O'Connor and Justice (2008) documented of the presence of higher first semester GPAs and acceleration to college degree completion for students who completed a dual credit course while in high school. Hughes (2010) reported that first semester GPAs as well as: (a) high school diploma completion, (b) college matriculation, and (c) college persistence were positively related to students who completed dual credit courses in high school. Hughes (2010) stated:

> dual enrollment was positively related to students' likelihood of earning a high school diploma, to college enrollment, to persistence in college, and to higher postsecondary grade-point averages. And, while much dual enrollment occurs through community colleges, participating students in our studies who went on to attend college once completing high school were more likely to enroll in a four-year institution, perhaps indicating that their early taste of college gave them the skills and confidence to raise their educational aspirations. (p. 12)

Anderson (2010) evaluated data on community college students, primarily White students, from a mid-sized institution in Wyoming where 71% of the participants were female students who had previously completed at least one dual credit course. Although Anderson (2010) did not examine whether the GPAs were statistically significantly different between students who had enrolled in dual credit from students who had not enrolled in dual credit, 75% of participants had GPAs between 3.00 and 3.99. Only 18% of participants had GPAs that were less than 3.00 (Anderson, 2010).

**Dual Credit and First Semester GPAs**

A lack of college-readiness is a barrier to the completion of a college degree (Abraham et al., 2014a, 2014b; Arnold et al., 2012; Iloh & Toldson, 2013). To help narrow the gap between academic preparedness and postsecondary expectations, college preparatory programs such as dual credit were developed (Kilgore & Taylor, 2016). The Texas Higher Education Coordinating Board (2016) defined dual credit as a process that allows high school juniors and seniors to enroll in and receive high school and college credits simultaneously for completed coursework. Dual credit was documented with

positive outcomes by several researchers (e.g., Allen & Dadgar, 2012; American Institute for Research & Gibson Consulting Group, 2011; Bailey & Karp, 2003; Karp, Calcagno, Hughes, Jeong, & Bailey, 2008). Some noted attributes of dual credit enrollment are: (a) students are more likely to enroll in college (Cowan & Goldhaber, 2014; Pretlow & Wathington, 2013); (b) students exhibit better college persistence rates and time-to-degree completion is reduced (Swanson, 2008; Thacker, 2014; Young, Slate et al., 2013); (c) students are academically and socially more competent for college (O'Connor & Justice, 2008); (d) students achieve a higher first semester GPA in college (Correa & Kouzekanani, 2011; Hughes, 2010; Sherman Valentine, 2010; Young, Joyner et al., 2013; Young et al., 2014b); and (e) students achieve a higher seconder semester GPA in college (Jones, 2014; Young et al., 2014a, 2014b).

In reference to the emphasis on second semester GPAs in this investigation, Young et al. (2014a) established that female and male students who completed dual credit courses while in high school had statistically significantly higher second semester GPAs than their counterparts who had not completed dual credit courses in high school. Similarly, Young et al. (2014b) documented that White, Hispanic, and Black students who completed a dual credit course while in high school had statistically significantly higher second semester GPAs then their peers who had not completed a dual credit course while in high school.

In a recent study, Lee, Slate, Young, Moore, and Barnes (2016) analyzed data on 3,954 students who were enrolled at a regional Texas 4-year university. Of their sample of students who completed a dual credit course while in high school, Lee et al. (2016) reported the presence of statistically significantly higher final GPAs than for students

who had not completed a dual credit course while in high school. In regard to second semester GPAs, Young et al. (2014b) established the presence of statistically significant difference in cumulative GPAs after two semesters between students who had taken dual credit in high school and students who had not taken dual credit in high school. All ethnic/racial groups of students who completed in dual credit courses in high school had higher second semester GPAs than their peers who had not completed a dual credit course while enrolled in high school, with few exceptions.

Jones (2014) analyzed the relationship of dual credit enrollment with first year GPAs of college students. The two groups of students whose data he analyzed by gender and by race/ethnicity were first-year community college students and first-year university students. Community college students who completed a dual credit course while in high school had statistically significantly higher first-year GPAs (2.91) than did community college students who had not completed a dual credit course while in high school (2.65). With respect to the 4-year university students, results were similar. The 4-year university students who completed a dual credit course while in high school had statistically significantly higher first-year GPAs (3.10) than did 4-year university students who had not completed a dual credit course while in high school (2.91).

In an investigation in Texas, Young et al. (2014b) analyzed the relationship of dual credit enrollment to the second semester GPAs of Hispanic, Black, and White community college students. In their study, Young et al. (2014b) analyzed four academic years (i.e., 2005-2006 through 2008-2009) to determine whether trends were present in student performance, and they documented that both male and female community college students who were enrolled in dual credit courses while in high school had statistically

significantly higher second semester GPAs, 0.55 points higher, than the second semester GPAs of male and female community college students who had not enrolled in dual credit courses while in high school during the 2008-2009 academic year. With respect to each ethnic/racial group, White, Black, and Hispanic community college students who completed a dual credit course while in high school had statistically significantly higher second semester GPAs, 0.60, 0.66, and 0.36 points higher, respectively, than did their peers who had not enrolled in a dual credit course while in high school during the 2008-2009 academic year. In another recent study on second semester GPAs, Giani, Alexander, and Reyes (2014) analyzed the persistence of dual credit students from the first to the second year of postsecondary education. Most noteworthy, Giani et al. (2014) established the presence of positive outcomes or higher second semester GPAs after the first year of college due to dual credit courses that were completed in high school.

## Statement of the Problem

Well documented in the research literature (e.g., Belasco & Trivette, 2015; Carnevale & Strohl, 2010; Young et al., 2014a) is that underprepared students in postsecondary education represent a national challenge. In reference to the state of interest in this Texas investigation, Barnes and Slate (2014) established that almost half of all high school graduates were not college-ready in reading or in mathematics. These college-ready percentages were even lower for Black and Hispanic Texas high school graduates. In an effort to improve student college-readiness skills, college preparatory programs, such as dual credit have been developed. In addition, numerous researchers expressed concern (e.g., Gamez-Vargas & Oliva, 2013; Voyer & Voyer, 2014; Young, Slate et al., 2013, 2014a, 2014b) that underrepresented students such as Black and

Hispanic students were not enrolled in dual credit programs in an equitable manner to their percentage of Black and Hispanic student enrollment in high schools.

Important to note in a Texas study conducted by Young et al. (2014a) was that Black students had the lowest level of participation in dual credit courses. With current and future jobs requiring some level of postsecondary education (Bureau of Labor Statistics, 2016; Hickox, 2015; Kotamraju & Blackman, 2011), a lack of college-readiness poses a serious challenge, both for postsecondary institutions and for underprepared students. As such, the demographic characteristics of community college students who have completed a dual credit course continue to warrant examination. With dual credit programs being emphasized in recent years (e.g., Hillman, Tandberg, & Gross, 2014; Lundy-Wagner, 2015; Young et al., 2014a), determining whether underrepresented students are enrolling in higher numbers in dual credit programs is important.

Given former-President Obama's statement that community colleges need to graduate 5 million more students by 2020 (U.S. Department of Education, 2011), college preparatory programs, such as dual credit, should be examined with respect to their efficacy. That is, to what degree are students who complete dual credit courses successful in a postsecondary setting? Moreover, to what extent, if any, is any effect of having completed a dual credit course, such as a higher GPA, present over time? Although these issues of student success in postsecondary settings have been addressed, further research is needed, specifically with reference to student GPAs at community colleges.

## Purpose of the Study

The purpose of this journal-ready dissertation was to examine dual credit enrollment with respect to student demographic characteristics and to student success of Texas community college students. The first purpose was to describe the demographic characteristics with respect to gender and ethnicity/race of Texas community college students who completed a dual credit course while in high school. A second purpose was to analyze the extent to which differences were present in first semester GPAs by ethnicity/race and gender of Texas community college students who previously completed a dual credit course while in high school. Finally, a third purpose was to ascertain the degree to which differences were present in the second semester GPAs as a function of ethnicity/race and gender of Texas community college students who previously completed a dual credit course while in high school. Analyzing three years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data obtained from a Texas community college district permitted the determination of trends in dual credit enrollment and in dual credit student success by student ethnicity/race and gender.

## Significance of the Study

In a competitive workforce market, an enormous need exists to have more students receive postsecondary degrees. Given the increased ethnic/racial diversity in public schools, ethnic/racial diversity should be reflected in postsecondary enrollment as well (Jaquette, Curs, & Posselt, 2016). An important element of this journal-ready dissertation was to determine the degree to which underrepresented Black and Hispanic students had enrolled in dual credit courses while in high school at an equitable rate compared to their White and Asian peers. By analyzing three academic years of data, the extent to which the dual credit enrollment of Black and Hispanic students changed over

time can be determined. A second important element of this journal-ready dissertation was to ascertain the degree to which first semester GPAs differed as a function of student enrollment in dual credit courses while in high school. That is, if students who were enrolled in dual credit courses while in high school had statistically significantly higher first semester GPAs than their peers who had not enrolled in dual credit courses while in high school, empirical benefits could be established for dual credit enrollment as a positive college preparatory program. Finally, the extent to which students have long-term success, such as through second semester GPAs, is not well documented. Similar to studies on first semester GPAs, if students who completed a dual credit course while enrolled in high school have statistically significantly higher second semester GPAs, more empirical evidence would be present, regarding the efficacy of dual credit programs as college preparatory programs. Findings of this study may help school district leaders, postsecondary administrators, faculty, and staff make more informed decisions about dual credit programs.

## Literature Review Search Procedures

For this journal-ready dissertation, the literature regarding student success as a function of dual credit enrollment, gender, and ethnicity/race for Texas community college students was examined. Relevant phrases that were used in the search for literature were: dual credit, dual enrollment, ethnicity, gender, success, postsecondary, first semester GPA, and second semester GPA. All searches were conducted through the EBSCO Host database for academic journals that contained scholarly peer reviewed articles.

A key word search for “postsecondary” generated 25,510 items. Limiting the range of years from 1996 to 2016 and including the phase “GPA”, the search garnered 109 items. When “dual enrollment” and “dual credit” were included in the key word search for articles between 1996 and 2016, 97 and 31 articles were displayed respectively. When the word “GPA” was added to the search, the number of articles was reduced to seven articles and one article, respectively. A key word search for “college-readiness” from 1996 to 2016 yielded 151 results. By including the phases “dual enrollment” and “dual credit” the field narrowed to five and three, respectively.

## Definition of Terms

Terms that are important to the three research studies that were conducted in this journal-ready dissertation are provided for the reader below.

### Asian

Asian is defined as a race of people having ancestors from places such as the Far East, Southeast Asia, or the Indian subcontinent (Texas Higher Education Coordinating Board, 2012, p. 4).

### Black

Black is defined as a race of people having ancestors from Black ethnic groups of Africa (Texas Higher Education Coordinating Board, 2012, p. 8).

### Community College

A community college is a 2-year postsecondary institution that serves the needs of the students in the community. The community college started as a “junior college” and emerged into an institution that serves transferrable, academic pathways or workforce certificates or 2-year, workforce degrees (Beach, 2011, p. 32).

**Dual Credit or Dual Enrollment**

The Texas Higher Education Coordinating Board defines dual credit as a process by which a high school student who is a junior or senior enrolls in a college course and receives simultaneous academic credit for the course from both the college and the high school (Texas Higher Education Coordinating Board, 2016).

**Ethnicity/Race**

Ethnicity/race is defined as "a category used to describe a group to which an individual belongs, identifies with, or belongs in the eyes of the community" (Texas Higher Education Coordinating Board, 2012, p. 50).

**First-semester or First-time-entering student GPA**

A student's GPA after the first semester at an institution of higher education is referred to as the first-semester GPA for the first-time-entering student.

**Hispanic or Latino**

A person of Hispanic ethnicity is an individual who is of Cuban, Mexican, Puerto Rican, South or Central American descent, other Spanish culture or origin, regardless of race (Texas Higher Education Coordinating Board, 2012, p. 38).

**Second-semester GPA**

A student's GPA after the second semester at an institution of higher education is defined as the second-semester GPA.

**Success Rate**

In higher education discussions, success rate or a positive grade outcome is often measured and defined as the percentage of students who received a letter grade of A, B, or C.

### Texas Higher Education Coordinating Board

The Texas Higher Education Coordinating Board was created by the Texas Legislature in 1965 to "provide leadership and coordination for the Texas higher education system to achieve excellence for the college education of Texas students." (Texas Higher Education Coordinating Board, 2016, para. 1)

### White

White is defined as “a race of a person having origins in any of the original peoples of Europe, the Middle East or North Africa” (Texas Higher Education Coordinating Board, 2012, p. 68).

## Delimitations

The delimitations for this journal-ready dissertation include the sample, the research setting, and the timeframe. The dataset examined was from a single community college district in Texas. Data were analyzed for both students who completed a dual credit course while in high school and for students who did not complete a dual credit course while in high school. In this journal-ready dissertation, only three years of data (i.e., 2012-2013, 2013-2014, and 2014-2015) were analyzed. The final delimitation was a focus on ethnicity/race that was limited to the four major ethnic/racial groups of students in Texas: (a) Asian, (b) White, (c) Hispanic, and (d) Black. Other credit-based transition programs, such as International Baccalaureate and Advanced Placement were excluded from consideration in this investigation.

## Limitations

Certain limitations of this study are important to be acknowledged, and the reader should be careful about generalizing any findings**.** Due to the use of archival data, the

first limitation is that only quantitative data were evaluated. In addition, a causal comparative research design, or an after-the-fact study, limited the ability to draw any cause and effect relationships (Johnson & Christensen, 2012). Although the sample size was large, results from the three empirical articles in this journal-ready dissertation may not generalize to students in other community colleges in other states. Finally, data were analyzed for only one community college district and, as such, might have limited generalizability to students in other Texas community colleges.

## Assumptions

For the purpose of this journal-ready dissertation, an assumption was made that the dual credit data, gender, and ethnic/racial data in the Texas community college district data were accurately reported. Furthermore, the student data collected and reported by this Texas community college district were assumed to be accurate and consistent. A final assumption was that the first-semester and second-semester grades were reported correctly in the dataset obtained from this Texas community college district. Any deviations from these assumptions may result in inaccurate results from statistical analyses.

## Organization of the Study

In this journal-ready dissertation, three research investigations were conducted. In the first journal-ready dissertation article, research questions were on the demographic characteristics of community college students who completed a dual credit course while in high school. In the second journal-ready dissertation article, research questions were on the extent to which differences were present in the first semester GPAs of community college students who completed a dual credit course while in high school. In the third

journal-ready dissertation article, research questions involved the degree to which differences existed in the second semester GPAs of community college students who completed a dual credit course while in high school. For all three investigations, three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data from a Texas community college district were analyzed. Statistical analyses for all three studies involved comparisons of the four major ethnic/racial groups of students in Texas (i.e., Asian, White, Hispanic, and Black).

Five chapters comprise this journal-ready dissertation. Chapter I includes the background of the study, statement of the problem, purpose of the study, significance of the study, definition of terms, delimitations, limitations, assumptions, and outline of the proposed journal-ready dissertation. In Chapter II, the first journal-ready dissertation investigation involving the demographic characteristics of students who completed a dual credit course while in high school is discussed. In Chapter III, the second journal-ready research investigation on the first-semester GPAs of students who had completed a dual credit course while enrolled in high school compared to students who had not completed a dual credit course while enrolled in high school is presented. In Chapter IV, the third journal-ready research investigation on the second-semester GPAs by dual credit enrollment status is examined. Finally, in Chapter V, the results of this journal-ready dissertation were summarized and correlated with the existing research literature on dual credit program participation. In addition, implications for policy and for practice along with recommendations for future research were discussed.

# CHAPTER II

## WHO'S ENROLLED IN DUAL CREDIT COURSES? A MULTIYEAR ANALYSIS OF TEXAS COMMUNITY COLLEGE STUDENTS

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This dissertation follows the style and format of *Research in the Schools (RITS)*.

## Abstract

In this research study, the demographic characteristics (i.e., gender, ethnicity/race) of students who completed a dual credit course while in high school and then enrolled in a community college in Texas were determined for the 2012-2013 through the 2014-2015 academic years. In all three academic years, almost two thirds of the community college students who had completed a dual credit course in high school were females. With respect to ethnicity/race, White students constituted the highest percentage, with Black students having the lowest percentage of students who completed a dual credit course while in high school. Implications and recommendations for future research were discussed.


**Keywords:** Dual credit, Texas community college, Demographic characteristics, Asian, White, Hispanic, Black, Gender

# WHO'S ENROLLED IN DUAL CREDIT COURSES? A MULTIYEAR ANALYSIS OF TEXAS COMMUNITY COLLEGE STUDENTS

Sixty-five percent of the jobs in the United States will require some level of higher education by 2020 (Carnevale, Jayasundera, & Hanson, 2012). "These realities are important for those in higher education to understand when considering policy and practice aimed at developing the workforce" (D'Amico, Morgan, Katsinas, & Friedel, 2015, p. 191). Gardner, Barefoot, and Farakish (2015) suggested that, in addition to the propensity to earn more wages, college helps students become better thinkers, which allows for long-term life skills. Gardner et al. (2015) noted, "college is also important because it prepares citizens for leadership roles. Without a college degree, you would find it difficult to be a leader in your community, company, profession, or military unit" (p. 7).

The percent of workers in the United States who had some postsecondary education increased from 28% to 59% between 1973 and 2000 (Partnership for 21st Century Skills, 2008). Also during that same timeframe, employees with bachelor's degrees increased from 9% to 20%. The Partnership for 21st Century Skills (2014) stated,

> [c]reating an aligned, 21st century public education system that prepares Americans to thrive is the central competitiveness challenge of the next decade. Addressing this challenge requires forceful and forward-thinking leadership from federal, state and local policymakers. (p. 16)

With respect to improving the rates of high school graduates enrolling in postsecondary settings, college preparatory programs such as Advanced

Placement and dual credit have been implemented. The college preparatory program of interest in this investigation is that of dual credit. High school juniors and seniors use dual credit as an accelerated program that allows them to enroll, obtain grades, and earn credits for high school and concurrent college courses while still a high school student (Khazem & Khazem, 2012; Texas Higher Education Coordinating Board, 2016). In Texas, students who enroll in dual credit courses through local community colleges may receive college credit (Texas Education Agency, 2011). For purposes of this investigation, dual credit was defined as

> a process through which a student may earn high school credit for successfully completing a college course that provides advanced academic instruction beyond, or in greater depth than, the Texas Essential Knowledge and Skills (TEKS) for a corresponding high school credit course. (Texas Education Agency, 2011, p. 1)

Nationally, dual credit enrollment has expanded from 800,000 students in 2002-2003 to 1.3 million students in 2010-2011 (Barshay, 2013). In Texas, student enrollment in dual credit courses increased from 71,803 students in the 2007-2008 school year to 94,232 students in the 2009-2010 school year, an increase of 31% (American Institute for Research & Gibson Consulting Group, 2011). In a recent survey that was sent to American Association of Collegiate Registrars and Admissions Officers institutions members and non-members, 388 institutions responded that 78% of them offered dual credit (Kilgore & Taylor,

2016). Adam Lowe, Executive Director of the National Alliance for Concurrent Enrollment Partnerships, stated,

> Across the country, participation is growing by 7 percent a year—in many states at considerably higher rates," (as cited in Gross, 2016, para. 5). While 20 years ago these programs were typically reserved for only those students who were academically advanced, now they are increasingly enrolling more low-income and minority students, as well as students who are the first in their families to receive a college education. (Gross, 2016, para. 5)

One reason that may explain the popularity of dual credit programs is that dual credit courses may help students prepare for college. Almost 60% of students entering postsecondary institutions are not college-ready (National Center for Public Policy and Higher Education, 2010). With respect to the state of interest in this investigation, Texas, several researchers (e.g., Barnes & Slate, 2013, 2014; Combs et al., 2010; Harvey, Slate, Moore, Barnes, & Martinez-Garcia, 2013) have documented concerns that Texas high school graduates are not college-ready. Conley (2007) defined college-readiness as "the level of preparation a student needs to enroll and succeed-without remediation-in a credit-bearing general education course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program" (p. 5). One suggested option for improving the college-readiness skills of high school graduates is dual credit (Allen & Dadgar, 2012; Crouse & Allen, 2014; Texas Higher Education Coordinating Board, 2016; Young, Slate, Moore, & Barnes,

2014b). In dual credit enrollment, students may take a college level course while enrolled in high school and receive college level credit. As such, dual credit enrollment may be a viable method to increase the college-readiness skills of high school graduates.

In a study most related to this proposed investigation, Young, Slate, Moore, and Barnes (2013) analyzed data on 164,434 students enrolled in Texas community colleges from the 2005-2006 to the 2011-2012 academic years. Of the Texas community college students, 15% completed dual credit courses while in high school. Of their total sample, 16% of females and 14% of males were enrolled in dual credit courses while in high school. With respect to only their sample of students who had completed a dual credit course while in high school, 45% were male and 55% were female. Concerning their sample of community college students, the percentage of students who had completed a dual credit course while in high school were 11% White, 3% Other, 3% Hispanic, 1% Black, and 0.2% of Asian students (Young, Slate et al., 2013). Within each ethnic/racial group, higher percentages of females than males completed a dual credit course. In the 2011-2012 academic year, 15.3% of Hispanic males, 19% of Hispanic females, 7.3% of Black males, and 7.6% of Black females completed a dual credit course. Young, Slate et al. (2013) noted that Black student dual credit enrollment was the lowest of the four ethnic/racial groups (i.e., Asian, White, Hispanic, Black) of students whose data they analyzed. Also, Black student enrollment had the lowest growth rate over the 7-year period. Further, Young, Slate et al. (2013) contended, “The lack of Black student enrollment should be a major priority for future research and could be accomplished by

research through surveys on the cultural differences that 'prevent' Black students from enrolling in dual credit." (p. 7)

In a separate study, also conducted on Texas community college students, Young, Joyner, and Slate (2013) examined data on 1,785 community college students who had completed a dual credit course while in high school. In their sample of students who had enrolled in a dual credit course while in high school, 85% were White, 3% were Black, 0.8% were Asian, and over 10% did not report their ethnicity/race. Readers should note that Young, Joyner et al. (2013) reported that they were not able to access data on Hispanic student participation in dual credit courses. Young, Joyner et al. (2013) reported that the aforementioned percentages, especially for Black students, were markedly lower than the percentages of Black students in the community colleges' geographic area. With respect to ethnicity/race, White students had a 17% higher enrollment rate than Black students (Young, Slate et al., 2013). Young, Joyner et al. (2013) contended that an "overrepresentation of White students in comparison to students of color should be a focus of concern" (p. 5). In a follow-up article, Young et al. (2014a) conducted an extensive literature review of dual credit. In their literature review, Young et al. (2014a) reported substantial differences in the ethnic/racial composition of students who had taken dual credit courses while in high school.

As contended by several researchers (e.g., Cates & Schaefle, 2011; Combs et al., 2010; Conger, Long, & Iatarola, 2009), underrepresented students need to be encouraged to enroll in dual credit courses. Mangan (2014) determined that Black and Hispanic students have increased their enrollments in dual credit in recent years. However, Lee and Slate (2014) argued that minority students with academic challenges should not be

influenced to enroll into dual credit or Advanced Placement courses, unless they are provided with the academic support and resources they may need to be successful. As evidence that Black and Hispanic students may not be prepared for the rigors of college preparatory courses, Moore et al. (2010) established that 50% of White students and 80% of Black and Hispanic students were not college ready.

**Statement of the Problem**

Concerns have been expressed by numerous researchers (e.g., Gamez-Vargas & Oliva, 2013; Voyer & Voyer, 2014; Young, Joyner et al., 2013; Young et al., 2014a, 2014b) that underrepresented students such as Black and Hispanic students were not enrolled in dual credit programs in an equitable manner to their percentage of student enrollment in high schools. Important to note, Black students had the lowest level of participation in the dual credit program during the years analyzed by Young et al. (2014b). With current and future jobs requiring some level of postsecondary education (Bureau of Labor Statistics, 2016; Hickox, 2015; Kotamraju & Blackman, 2011), a lack of college-readiness poses a serious challenge, both for postsecondary institutions and for underprepared students. As such, the demographic characteristics of community college students who completed a dual credit course continue to warrant examination. With dual credit programs being emphasized in recent years (e.g., Hillman, Tandberg, & Gross, 2014; Lundy-Wagner, 2015; Young et al., 2014a), determining whether underrepresented students are enrolling in higher numbers in dual credit programs is an important consideration for all postsecondary institutions, especially community colleges.

## Purpose of the Study

The purpose of this study was to determine the demographic characteristics of students who completed a dual credit course while in high school and then enrolled in a community college in Texas. The gender and ethnic/racial characteristics of these students were determined for three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015). This multiyear analysis permitted a determination of any trends, if present, by gender and by ethnicity/race in dual credit enrollment.

## Significance of the Study

The significance of the study was to determine the degree to which community college male and female students enrolled in dual credit courses while in high school in a comparable manner to their percentage of student enrollment. Knowing the demographic characteristics of students who completed dual credit courses while in high school may be of value to higher education leaders and policymakers, as well as to K-12 educational leaders. Another important element of this article involved ascertaining the degree to which underrepresented Black and Hispanic students enrolled in dual credit courses while in high school at an equitable rate compared to their White and Asian peers. Information obtained from analyzing three years of data may be helpful in determining the degree to which inequities in dual credit enrollment by student gender and by ethnicity/race are present.

## Research Questions

The following research questions were addressed in this investigation: (a) Of community college students who completed a dual credit course while in high school, what percentage was male and what percentage was female?; (b) What is the ethnic/racial

diversity of community college students who completed a dual credit course while in high school?; (c) What trend is present in the percentages of male and female community college students who completed a dual credit course while in high school from the 2012-2013 through the 2013-2014 academic years?; and, (d) What trend is present in the ethnic/racial composition of community college students who completed a dual credit course while in high school from the 2012-2013 through the 2013-2014 academic years? The first two research questions were repeated for the 2012-2013, 2013-2014, and 2014-2015 academic years, whereas the last two research questions reflected all three academic years. As such, this empirical study was comprised of eight research questions.

## Method

### Research Design

For this article, the research design present was a descriptive study in which the characteristics of a sample were described (Johnson & Christensen, 2012). The archival data that were analyzed herein constituted three years of student data from a Texas community college district. As such, descriptive statistics including frequencies and averages were calculated by student gender and by student ethnicity/race for each of the three academic years of data. These descriptive statistics were examined to provide a description for each academic year, as well as across the three academic years, of student enrollment in dual credit courses while in high school and subsequent enrollment in a Texas community college. Readers should note; however, that results from a descriptive research design do not permit any researchers to make cause-and-effect decisions; nor do descriptive research results determine any relationships. Rather, results from a descriptive research design provide information regarding, in this case, the demographic

characteristics of community college students who completed a dual credit course while in high school.

**Participants and Instrumentation**

Archival data were obtained for the 2012-2013, 2013-2014, and the 2014-2015 academic years from a community college district in Texas. Data were requested for the three aforementioned academic years from the Institutional Research Division at this community college district in Texas. Data that were specifically requested were student gender, ethnicity/race, and dual credit enrollment status. Following the request, data were provided in the form of three excel files, one for each academic year.

## Results

With respect to the first and third research questions, descriptive statistics were calculated for the percentages of male and female students who were enrolled in the community college district from which data were obtained. The highest percentage of community college students who had completed a dual credit course while in high school was females, ranging from 65% in the 2012-2013 academic year to 64% in the 2014-2015 academic year. Readers are directed to Table 2.1 for a summary of the results for the percentages of male and female students who completed a dual credit course while enrolled in high school.

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Insert Table 2.1 about here

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Concerning the second and fourth research questions, descriptive statistics were calculated for the ethnic/racial diversity of students who were enrolled in the community

college district from which data were obtained. The highest percentages of community college students who had completed a dual credit course while in high school were White and Hispanic students, whereas the lowest percentage (5%) was for Black students in the three academic years. The percentages of White students ranged from 37% in the 2012-2013 academic year to 33% in the 2014-2015 academic year. Similarly, the percentages of Hispanic students ranged from 36% in the 2012-2013 academic year to 42% in the 2014-2015 academic year. Table 2.2 contains the frequencies and the percentages by student ethnicity/race for the 2012-2013, 2013-2014, and 2014-2015 academic years. The percentages of community college students who completed a dual credit course while in high school by their ethnicity/race in the 2012-2013, 2013-2014, and 2014-20 15 academic years are shown in Figure 2.1.

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Insert Table 2.2 and Figure 2.1 about here

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Because data were available for gender within ethnicity/race, a decision was made to calculate the frequencies and percentages for each of the four major ethnic/racial groups separately for male and for female students. In the 2012-2013 and the 2013-2014 academic years, White males had the highest percentage of students (i.e., 50%) who completed a dual credit course while in high school. In the 2014-2015 academic year, Hispanic males comprised the largest ethnic/racial group (i.e., 42%) of community college students who completed a dual credit course while in high school. In the 2014-2015 academic year, the percentage of Hispanic males who completed a dual credit course while in high school was 14% higher than for White males (28%). Black males

consistently had the lowest percentages (5%) of students who completed a dual credit course while in high school across the three academic years. Revealed in Table 2.3 is a summary of the results for the ethnic/racial percentages of male students who completed a dual credit course while in high school.

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Insert Table 2.3 about here

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With respect to the enrollment of female students by their ethnicity/race in dual credit enrollment, descriptive statistics were calculated for each of the three academic years of data. Hispanic females comprised highest percentage of community college females (i.e., 43%) who completed a dual credit course while in high school. In the 2013-2014 academic year, Hispanic and White females had similar percentages (i.e., 40%) who had completed a dual credit course while in high school. Similar to Black males, Black females consistently had the lowest percentages (i.e., 5-6%) of students who completed a dual credit course while in high school over the three academic years of data. Table 2.4 contains a summary of the results for the ethnic/racial percentages of female students who completed a dual credit course while in high school in the 2012-2013, 2013-2014, and 2014-2015 academic years.

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Insert Table 2.4 about here

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## Discussion

Examined in this investigation were the demographic characteristics of students who completed a dual credit course while in high school and then enrolled in a Texas community college. Three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data were obtained from the Institutional Research Office of a large Texas community college district. In this multiyear analysis, females in all three academic years constituted almost two thirds of the community college students in this study who completed a dual credit course while enrolled in high school. With respect to student ethnicity/race, White and Hispanic community college students comprised the two largest ethnic/racial groups in all three academic years who completed a dual credit course while in high school. The percentage of White students who had completed a dual credit course in high school decreased over the three academic years from 37% to 33%, although an increase was observed during the timeframe as well. In the last academic year, Hispanic students constituted the ethnic/racial group that had the highest percentage of students who completed a dual credit course while in high school. Similar to all ethnic/racial groups, other than Black student dual credit enrollment, Asian students who had completed dual credit grew from 6% to 9% over the three academic years.

In all three academic years, Black community college students comprised the ethnic/racial group that had the lowest percentage of students who completed a dual credit course while enrolled in high school. The percentage of Black community college students who had completed a dual credit course while in high school was consistently at 5% during each of the three academic years. Thus, the only group of students who did

not have increased enrollment in dual credit courses while enrolled in high school were Black students.

An analysis of gender within ethnic/racial groups revealed that Hispanic females and White females had the highest percentage of enrollment in dual credit courses. The percentage of White female enrollment in dual credit courses was consistently at 36% over the three academic years. The percentage of Hispanic female enrollment in dual credit courses increased from 40% to 43% over the three academic years. Consistent with Black males, Black females comprised the lowest percentage of students who completed a dual credit course while in high school in all three academic years.

To determine the degree to which the demographic characteristics of students who completed a dual credit course while in high school were similar to the demographic characteristics of students who were enrolled in this community college district, data were obtained from the community college district regarding the demographic characteristics of all students who were enrolled. Table 2.5 contains the percentages by gender of the students who were enrolled in this community college district. Female students comprised about 60% of the student enrollment in this community college district. As such, given that approximately two-thirds of the students who completed dual credit courses while in high school were female, a slight discrepancy was evident with respect to female enrollment in dual credit courses and female enrollment in this community college district. Also present was a lower percentage of male students who completed a dual credit course while in high school in comparison to the percentage of male students who were enrolled in this community college district.

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Insert Table 2.5 about here

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Delineated in Table 2.6 are the percentages by ethnicity/race of the students who were enrolled in this particular community college district in the 2012-2013, 2013-2014, and 2014-2015 academic years. White students had the highest percentage of student enrollment, followed by Hispanic students, with Asian students constituting the ethnic/racial group with the lowest percentage, about 6-7%. In comparing these enrollment percentages with the percentages of students who completed a dual credit course while in high school, clear discrepancies were present with respect to Black students. The percentage of Black students who were enrolled in this community college district was about 19%; however, the percentage of Black students who had completed a dual credit course while in high school was about 5%. This difference reflects a strong disparity and a need to increase Black student enrollment in dual credit courses. Readers are directed to Figure 2.3 for a visual depiction of these differences. Asian students had a higher percentage, about 10%, who completed a dual credit course while in high school than their percentage of the student enrollment, about 7%, in this particular community college district. The ethnic/racial percentages of students who were enrolled in this community college district for the 2012-2013, 2013-2014, and 2014-2015 academic years are depicted in Figure 2.2.

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Insert Table 2.6 and Figures 2.2 and 2.3 about here

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## Implications for Policy and Practice

Based upon the results of this multiyear investigation, several implications are present for policy and for practice. First, community college leaders are encouraged to compare the demographic characteristics of their students who completed in dual credit courses while in high school to the demographic characteristics of their student enrollment. Should discrepancies and/or inequities be present, then community college leaders are encouraged to engage in collaborative efforts with K-12 leaders to increase the ethnic/racial diversity of their students who are enrolled in dual credit courses. Second, efforts to ascertain the effects of dual credit enrollment on community college student success should be conducted. Having empirical evidence on the efficacy or non-efficacy of dual credit enrollment on community college student success could be used to encourage more high school students to enroll in dual credit courses.

## Recommendations for Future Research

Based upon the results of this multiyear investigation, several recommendations for future research are warranted. First, the demographic characteristics of community college students who completed a dual credit course in high school could be determined for more years than were analyzed in this investigation. Furthermore, researchers are encouraged to examine student characteristics at all Texas community colleges. The extent to which the results of this study based upon only one community college district generalize to other Texas community colleges is not known. Third, researchers are encouraged to extend this study to other states to ascertain the degree to which results delineated herein are generalizable to community college students in other states. Fourth, because results in this investigation were only on community college students,

researchers are encouraged to replicate this investigation at 4-year universities. Are community college and 4-year university student demographic characteristics similar for students who complete a dual credit course while enrolled in high school? In addition to quantitative investigations, qualitative studies could be conducted to understand why students of different ethnic/racial groups are/are not enrolling in dual credit courses in high school at the same rate. Furthermore, qualitative studies could be conducted to ascertain the reasons why students enroll or do not enroll in dual credit courses while in high school. Finally, the efficacy of dual credit courses on student academic success, both short-term (i.e., first semester GPA) and long-term (i.e., second-semester GPA), could be determined.

## Conclusion

In this multiyear analysis, the demographic characteristics (i.e., gender, ethnicity/race) of students who completed a dual credit course while in high school and then enrolled in a community college district in Texas were examined for the 2012-2013 through the 2014-2015 academic years. In all three academic years, almost two thirds of the students who completed a dual credit course in high school were females. With respect to ethnicity/race, White students constituted the highest percentage for two of the three years evaluated in this investigation, with Black students having the lowest percentage of students who completed a dual credit course while in high school. Comparisons of the demographic characteristics of these students who completed a dual credit course while in high school with the demographic characteristics of students at this particular community college district revealed discrepancies. As such, efforts to increase the ethnic/racial diversity of students who complete dual credit courses are warranted.

## References

Allen, D., & Dadgar, M. (2012). Does dual enrollment increase students' success in college? Evidence from a quasi-experimental analysis of dual enrollment in New York City. *New Directions for Higher Education, 2012*(158), 11-20. doi:10.1002/he.20010

American Institutes for Research & Gibson Consulting Group. (2011). *Research study of Texas dual credit programs and courses.* Austin, TX: Texas Education Agency. Retrieved from http://www.tea.state.tx.us/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=2147499085&libID=2147499082

Barnes, W., & Slate, J. R. (2013). College-readiness is not one-size-fits-all. *Current Issues in Education, 16*(1), 1-11. Retrieved from http://cie.asu.edu/ojs/index.php/cieatasu/article/view/1070

Barnes, W., & Slate, J. R. (2014). College-readiness rates in Texas: A statewide, multiyear study of ethnic differences. *Education and Urban Society, 46*(1), 59-87. doi:10.1177/0013124511423775

Barshay, J. (2013). Taking college courses in high school, new dual enrollment data. [*Web log comment*]. Retrieved from http://educationbythenumbers.org/content/taking-college-courses-in-high-school-new-dual-enrollment-data_33/

Bureau of Labor Statistics. (2016). *Employment projections*. Retrieved from http://www.bls.gov/emp/ep_chart_001.htm

Carnevale, A. P., Jayasundera, T., & Hanson, A. R. (2012). *Career and technical education: Five ways that pay along the way to the B.A.* Washington, DC: Center on Education and the Workforce, Georgetown University & Civic Enterprises. Retrieved from http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/CTE.FiveWays.FullReport.pdf

Cates, J. T., & Schaefle, S. E. (2011). The relationship between a college preparation program and at-risk students' college readiness. *Journal of Latinos and Education, 10,* 320-334. doi:10.1080/15348431.2011.605683

Combs, J. P., Slate, J. R., Moore, G. W., Bustamante, R., Onwuegbuzie, A. J., & Edmonson, S. L. (2010). Gender differences in college preparedness: A statewide study. *Urban Review, 42*(5), 441-457. doi:10.1007/s11256-009-0138-x

Conger, D., Long, M. C., & Iatarola, P. (2009). Explaining race, poverty, and gender disparities in advanced course-taking. *Journal of Policy Analysis and Management, 28*(4), 555-576. doi:10/1002/pam.20455

Conley, D. T. (2007). *Redefining college readiness*. Retrieved from Educational Policy Improvement Center Website: https://www.epiconline.org/files/pdf/RedefiningCollegeReadiness.pdf

Crouse, J. D., & Allen, J. (2014). College course grades for dual enrollment students. *Community College Journal of Research and Practice, 38*(6), 494-511. doi:10.1080/10668926.2011.567168

D'Amico, M. M., Morgan, G. B., Katsinas, S. G., & Friedel, J. N. (2015). State director views on community college workforce development. *Career & Technical Education Research, 39*(3), 191-211. doi:https://doi.org.10.5328/cter39.3.191

Gamez-Vargas, J., & Oliva, M. (2013). Adult guidance for college: Rethinking educational practice to foster socially-just college success for all. *Journal of College Admission, 221,* 60-68.

Gardner, J. N., Barefoot, B. O., & Farakish, N. (2015). *Your college experience: Strategies for success.* (Two-year college ed.) Boston, MA: Bedford/St. Martin's.

Gross, N. (2016). *Two places at once: The growth of dual enrollment.* Retrieved from http://www.ewa.org/blog-higher-ed-beat/two-places-once-growth-dual-enrollment

Harvey, D. W., Slate, J. R., Moore, G. W., Barnes, W., & Martinez-Garcia, C. (2013). College readiness gaps: A review of the literature. *Journal of Education Research, 7*(3), 181-204.

Hickox, S. A. (2015). The job-relatedness and business necessity of the "New and Improved" high school diploma. *Berkeley Journal of Employment & Labor Law, 36*(1), 43-121.

Hillman, N., Tandberg, D., & Gross, J. (2014). Market-based higher education: Does Colorado's Voucher Model improve higher education access and efficiency? *Research in Higher Education, 55*(6), 601-625. doi:10.1007/s11162-013-9326-3

Johnson, B., & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mixed approaches* (4th ed.). Thousand Oaks, CA: Sage.

Khazem, J., & Khazem, H. (2012). Dual enrollment: The way forward. *International Journal of Education Research, 7*(2), 135-150.

Kilgore, W., & Taylor, A. (2016). *Dual enrollment in the context of strategic enrollment management: An insight into practice at U.S. institutions.* Washington, DC: American Association of Collegiate Registrars and Admissions Officers.

Kotamraju, P., & Blackman, O. (2011) Meeting the 2020 American Graduation Initiative (AGI) goal of increasing postsecondary graduation rates and completions: A macro perspective of community college student educational attainment, *Community College Journal of Research and Practice*, *35*(3), 202-219. doi:10.1080/10668926.2010.526045

Lee, K. M., & Slate, J. R. (2014). Differences in advanced achievement outcomes for Texas students as a function of economic disadvantage. *Journal of Education Research, 8*(3), 138-149.

Lundy-Wagner, V. C. (2015). Coming out of the shadows: Rethinking the education policy agenda for diversity and HBCUs. *New Directions for Higher Education, 2015*(170), 91-101. doi.10.1002/he.20134

Mangan, K. (2014, February). Is faster always better? *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/article/Is-Faster-Always-Better-/144781/

Moore, G., Slate, J. R., Edmonson, S. L., Combs, J. P., Bustamante, R., & Onwuegbuzie, A. J. (2010). High school students and their lack of preparedness for college: A statewide study. *Education and Urban Society*, *42*(7), 817-838. doi:10.1177/0013124510379619

Partnership for 21st Century Skills. (2008). *21st century skills, education & competitiveness.* Retrieved from

http://www.p21.org/storage/documents/21st_century_skills_education_and_competitiveness_guide.pdf

Texas Education Agency. (2011). *Dual credit frequently asked questions.* Retrieved from https://www.texarkanacollege.edu/helpdesk/files/2014/06/Dual-Credit-FAQ.pdf

Texas Higher Education Coordinating Board. (2016). *Dual credit–Frequently asked questions*. Retrieved from http://www.thecb.state.tx.us/index.cfm?objectid=E9397599-AFE9-CC3F-B6F9BF619AAEDA2E

Voyer, D., & Voyer, S. D. (2014). Gender differences in scholastic achievement: A meta-analysis. *Psychological Bulletin, 140*(4), 1174-1204. doi:10.1037/a0036620

Young, R. D., Jr., Joyner, S. A., & Slate, J. R. (2013). Grade point average differences between dual and nondual credit college students [Electronic version]. *Urban Studies Research, 2013*, 1-6. doi:10.1155/2013/638417

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2013). Dual credit enrollment: A multiyear study of gender and ethnic differences. *Urban Studies Research*, 2013,1-7. doi:10.1155/2013/269685

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014a). Dual credit and non-dual credit college students: Differences in GPAs after the second semester. *Journal of Education and Human Development, 3*(2), 203-230.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014b). Dual credit programs: A conceptual analysis of the literature. *Journal of Education Research, 8*(1-2), 79-106.

Table 2.1

*Descriptive Statistics for the Percentages of Male and Female Community College Students Who Had Completed a Dual Credit Course While in High School in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year | %age and *n* Male | %age and *n* Female |
|---|---|---|
| 2012-2013 | 35.1% (*n* = 205) | 64.9% (*n* = 379) |
| 2013-2014 | 35.5% (*n* = 164) | 64.5% (*n* = 298) |
| 2014-2015 | 36.2% (*n* = 204) | 63.8% (*n* = 360) |

Table 2.2

*Frequencies and Percentages of Community College Students by Their Ethnicity/Race Who Had Completed a Dual Credit Course While in High School in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year | %age and *n* Asian | %age and *n* White | %age and *n* Hispanic | %age and *n* Black |
|---|---|---|---|---|
| 2012-2013 | 8.0% (*n* = 47) | 36.6% (*n* = 214) | 36.0% (*n* = 210) | 4.6% (*n* = 27) |
| 2013-2014 | 7.8% (*n* = 36) | 43.5% (*n* = 201) | 36.1% (*n* = 167) | 5.4% (*n* = 25) |
| 2014-2015 | 11.7% (*n* = 66) | 32.8% (*n* = 185) | 42.4% (*n* = 239) | 5.3% (*n* = 30) |

Table 2.3

*Descriptive Statistics for the Percentages of Male Community College Students by Their Ethnicity/Race Who Had Completed a Dual Credit Course While in High School in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year | %age and *n* Asian | %age and *n* White | %age and *n* Hispanic | %age and *n* Black |
|---|---|---|---|---|
| 2012-2013 | 11.7% (*n* = 24) | 38.0% (*n* = 78) | 28.3% (*n* = 58) | 3.9% (*n* = 8) |
| 2013-2014 | 6.1% (*n* = 10) | 50.0% (*n* = 82) | 29.3% (*n* = 48) | 6.1% (*n* = 10) |
| 2014-2015 | 16.2% (*n* = 33) | 27.5% (*n* = 56) | 41.7% (*n* = 85) | 4.4% (*n* = 9) |

Table 2.4

*Descriptive Statistics for the Percentages of Female Community College Students by Their Ethnicity/Race Who Had Completed a Dual Credit Course While in High School in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year | %age and *n* Asian | %age and *n* White | %age and *n* Hispanic | %age and *n* Black |
|---|---|---|---|---|
| 2012-2013 | 6.1% (*n* = 23) | 35.9% (*n* = 136) | 40.1% (*n* = 152) | 5.0% (*n* = 19) |
| 2013-2014 | 8.7% (*n* = 26) | 39.9% (*n* = 119) | 39.9% (*n* = 119) | 5.0% (*n* = 15) |
| 2014-2015 | 9.2% (*n* = 33) | 35.8% (*n* = 129) | 42.8% (*n* = 154) | 5.8% (*n* = 21) |

Table 2.5

*Percentages of Student Enrollment by Gender at the Texas Community College District for the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year | Male %age | Female %age |
|---|---|---|
| 2012-2013 | 38 | 62 |
| 2013-2014 | 39 | 61 |
| 2014-2015 | 39 | 60 |

*Note.* The percentages for this table were retrieved from the website of this Texas community college district and were only present as whole numbers.

Table 2.6

*Percentages of Student Enrollment by Ethnicity/Race at the Texas Community College District in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year | Asian %age | White %age | Hispanic %age | Black %age |
|---|---|---|---|---|
| 2012-2013 | 6 | 37 | 30 | 19 |
| 2013-2014 | 6 | 36 | 32 | 18 |
| 2014-2015 | 7 | 34 | 34 | 19 |

*Note.* The percentages for this table were retrieved from website of this Texas community college district and were only present as whole numbers.

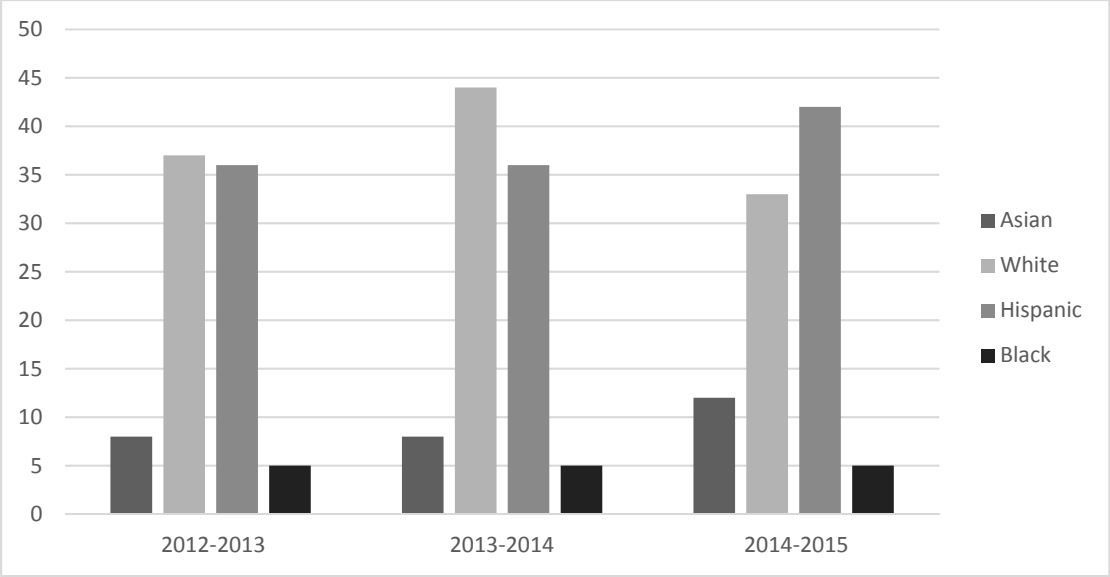


*Figure 2.1*. Dual credit enrollment percentage of Texas community college district for four major ethnic/racial groups in the 2012-2013, 2013-2014, and 2014-20 15 academic years.

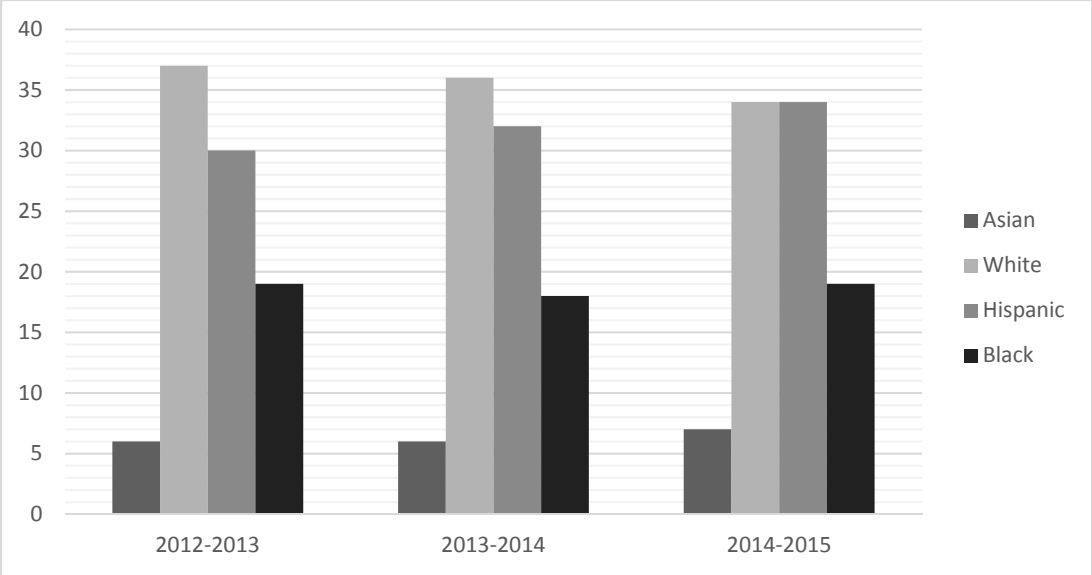


*Figure 2.2*. Total enrollment percentage of Texas community college district for four major ethnic/racial groups in the 2012-2013, 2013-2014, and 2014-2015 academic years.

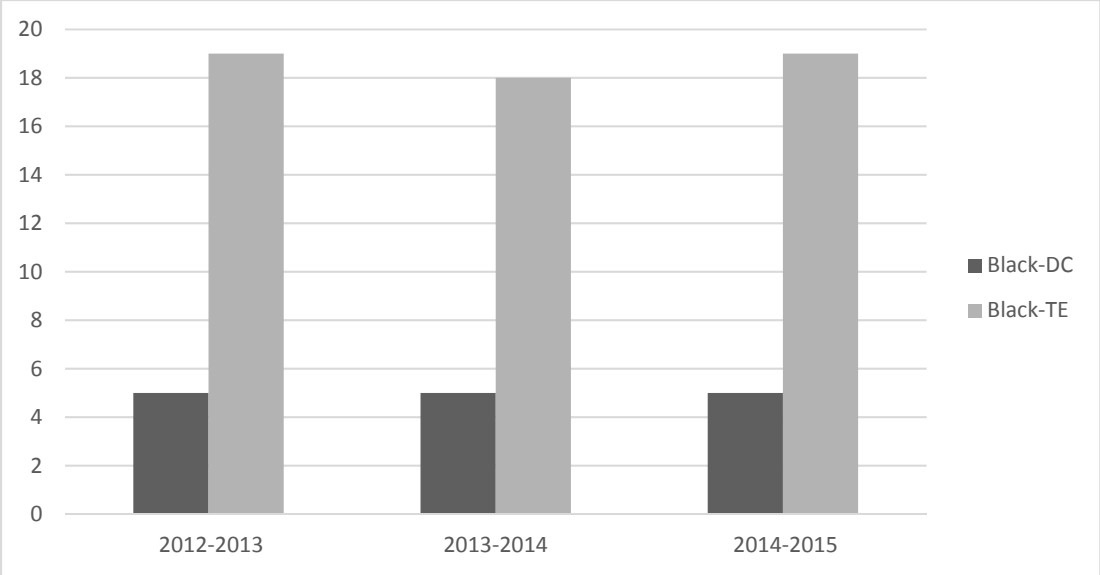


Figure *2.3*. Total and dual enrollment percentages of Texas community college district for the Black students for the 2012-2013, 2013-2014, and 2014-2015 academic years.

# CHAPTER III

## DIFFERENCES IN FIRST SEMESTER GPAS BY DUAL CREDIT ENROLLMENT STATUS FOR TEXAS COMMUNITY COLLEGE STUDENTS: A MULTIYEAR INVESTIGATION

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This dissertation follows the style and format of *Research in the Schools (RITS)*.

## Abstract

In this study, the degree to which differences were present in first semester GPAs by dual credit enrollment status for Texas community college students were examined for the 2012-2013 through the 2014-2015 academic years. Inferential statistical analyses revealed the presence of statistically significant differences in first semester GPAs for all students, separately by gender, and then by ethnicity/race (i.e., Asian, White, Hispanic, and Black). In all instances, students who completed a dual credit course while enrolled in high school earned statistically significantly higher average first semester GPAs in community college than did students who did not complete a dual credit course while enrolled in high school. Implications and recommendations for future research were discussed.


**Keywords:** Dual credit, Texas community college, First semester GPAs, Asian, White, Hispanic, Black, Gender

# DIFFERENCES IN FIRST SEMESTER GPAS BY DUAL CREDIT ENROLLMENT STATUS FOR TEXAS COMMUNITY COLLEGE STUDENTS: A MULTIYEAR INVESTIGATION

The importance of postsecondary education for career success and for functioning in a global economy cannot be overstated (Barrow, Brock, & Rouse, 2013; National Conference of State Legislatures, 2016). In the last two decades, the need for some postsecondary education has increased substantially. As noted by the National Conference of State Legislatures (2016), "A high school diploma is no longer sufficient in the 21st century. In order to be successful in today's global economy a person must receive some form of postsecondary education" (para. 1). Postsecondary credentials are imperative for gainful employment, better pay, and stronger economies (Bureau of Labor Statistics website, 2016). "It is now widely recognized that more young Americans than ever before will need postsecondary credentials in order to achieve economic self-sufficiency, which, in turn is needed to maintain and strengthen our collective prosperity" (Sepanik, 2012, p. 1).

Given the statistics on job and career requirements, a postsecondary degree or training will be required for two-thirds of job openings by 2020 (Carnevale, Smith, & Strohl, 2013). According to Carnevale, Smith, and Strohl (2010), jobs that required only a high school diploma or less decreased from 72% in 1973 to an anticipated 38% by 2018. With reference to the state of interest for this investigation, by 2018, 56% of the jobs in Texas will require some form of postsecondary education to obtain employment (Carnevale et al., 2010).

A barrier to successful college degree completion is a lack of college-readiness (Abraham, Slate, Saxon, & Barnes, 2014a, 2014b; Arnold, Lu, & Armstrong, 2012; Iloh & Toldson, 2013). Aspiring to attend a postsecondary institution is imperative for potential college students; however, college-readiness has tremendous implications for a successful pathway to completion. Students who lack reading, mathematics, and/or writing skills are less likely to be successful in college and less likely to obtain a college degree than are students who are college-ready in these areas. At the national level, "only 38 percent of graduating seniors who took the exam hit the college-prepared benchmark in at least three of the four core subjects tested - reading, English, math and science" (U.S. News & World Report, 2016, para. 2). Due to changes in workforce degree credentials needed, the issue of high school graduates who are not college-ready is alarming (Royster, Gross, & Hochbein, 2015). The lack of college-readiness of students with deficiencies in reading, mathematics, and writing can delay or prevent postsecondary student success (Allen & Dadgar, 2012; Barnes, Slate, & Rojas-LeBouef, 2010; Ganzert, 2014).

Students without a high level of knowledge and skills face many challenges in competing in the global marketplace (James, Lefkowits, & Hoffman, 2016). Barrow, Brock, and Rouse (2013) stated,

> U.S. postsecondary institutions serve not only those students with the best academic preparation but also those who were not well served in the nation's elementary and secondary school system and need a second chance. This range is reflected in the differing degrees of "college readiness" among entering postsecondary students and in the increasing

> proportion of students who are "nontraditional" in that they are older, from less advantaged families, financially independent of their parents, parents themselves, or working while going to school. (p. 3)

Barnes and Slate (2013, 2014) provided extensive evidence regarding poor college-readiness skills of high school graduates in Texas. According to Barnes and Slate (2014), only 45% of seniors who graduated from Texas high schools were college-ready in reading in the 2006-2007 school year. With respect to college-readiness in mathematics, Barnes and Slate (2014) further established that less than one-half of Texas high school graduates, 48%, were college-ready.

Regarding a definition of college-readiness, numerous definitions exist. Arnold et al. (2012) stated that college-readiness denotes "a student's capacity to enroll at a postsecondary institution, take credit-baring classes beginning in the first year, earn passing grades in courses, and persist to his or her educational goals" (p. 1). As defined by the ACT (2007), college-readiness is the level of preparation a student needs to be ready to enroll and succeed without remediation-in a credit-bearing course at a two-year or four-year institution, trade school, or technical school. "We have evidence that college readiness also means workforce readiness" (ACT, 2007, p. 5).

In a discussion of college-readiness, Barnes et al. (2010) contended, "that college-readiness, as it is currently defined and measured, does not represent the set of skills students need to be successful in college" (p. 2). Barnes et al. (2010) argued that what was being defined as college-readiness was actually academic preparedness, which is not the same as actually being ready for college. Barnes et al. (2010) stated that academic preparedness (i.e., academic skills) is only a portion of the needed cognitive and non-

cognitive skills. Of note to this investigation is their recommendation that school districts and postsecondary institutions should collaborate to improve college and career readiness skills of high school students. High school teachers, college faculty, staff, and administrators at the P-16 levels must work collaboratively to help students understand what they need to be successful in postsecondary settings (Barnes et al., 2010). According to the Southern Association of Colleges and Schools, educators across the P-20 spectrum must increase the academic rigor of high school curriculum, provide structures for student acceleration and support, and create successful pathways for all students from pre-kindergarten through postsecondary education. Researchers (e.g., Barefoot, 2008; Pascarella & Terenzini, 2005; Tinto, 2007) suggested that postsecondary expectations of faculty and academic standards should be taught to junior high and high school students early to establish knowledge about going to college and a persistent mindset to finish. This knowledge and a college-going mindset can increase college admission, retention, and graduation rates, especially for underrepresented students and of students in poverty.

Moore et al. (2010) suggested that the addition of specialized high school programs could increase college-readiness. Several researchers (e.g., Barnes & Slate, 2013, 2014; Chapa, Galvan-De Leon, Mundy, & Solis, 2014; Young, Slate, Moore, & Barnes, 2014a, 2014b) addressed the importance of college-readiness and the need for college preparatory programs such as dual credit because dual credit programs may increase college-readiness. In the past decade, several research investigations were conducted regarding college-readiness programs and the under-preparedness of students enrolled in college (Arnold, Lu, & Armstrong, 2012). “In recent years, educators and

policymakers have become increasingly interested in the potential of dual enrollment to improve educational outcomes for a broader range of students" (Hughes et al., 2012, p. 3). As an indication of how dual credit was viewed at the federal level, in 2013, the White House issued a statement about former-President Barack Obama's initiatives to make college more affordable. The former-president stated, "Dual-enrollment opportunities let high school students earn credits before arriving at college, which can save them money by accelerating their time to degree" (The White House Office of the Press Secretary, 2013, para. 6). In addition to the former-president's support of dual credit, other researchers (e.g., Bailey, Hughes, & Karp, 2002; Karp, 2012; Young et al., 2014a, 2014b) asserted that dual credit enrollment provides students opportunities to transition seamlessly from high school to college.

As evidence of the popularity of dual credit programs in the United States, Gewertz (2016) reported that "about 1.9 million students—11.4 percent of the secondary school population—were taking some form of dual-enrollment course in 2010-11, the most recent federal data show, up from 1.2 million in 2002-03" (para 6). Empirical benefits for students who enroll in dual credit courses have been established. Dual credit programs have been credited with allowing high school students opportunities to increase their GPAs (Morrison, 2008; Texas Higher Education Coordinating Board, 2016, Young et al., 2014a). In addition, dual credit allows students to earn college credit (Anderson, 2010; Hughes, 2010; Texas Higher Education Coordinating Board, 2016; Zeidenberg & Bailey, 2009) and to gain confidence in making the transition to college (Robinson, 2011; Texas Higher Education Coordinating Board, 2016).

The Texas Higher Education Coordinating Board (2016) defined dual credit as an accelerated program that allows high school juniors and seniors to enroll in college courses and receive concurrent academic credit for the high school course simultaneously. The focus of this article was on the first semester GPAs of college students who completed a dual credit course while in high school. In a recent empirical investigation, An (2012) documented that students who successfully completed dual credit courses while in high school had statistically significantly higher GPAs, 0.23 points higher, in college than did students who did not enroll in dual credit courses while in high school. In a study of Texas community college students, Young, Joyner, and Slate (2013) established that students who completed dual credit courses in high school achieved higher GPAs than did their community college peers who did not enroll in dual credit courses. In their investigation, Young et al. (2013) determined that both White and Black students who completed dual credit courses in high school had statistically significantly higher GPAs in college than did White and Black students who did not enroll in dual credit courses in high school. This dual credit investigation by Young et al. (2013) is relevant to this study because Texas community college students who completed dual credit courses while in high school and students who did not complete dual credit courses while in high school constituted their sample.

Other researchers (e.g., Allen & Dadgar, 2012; Fike & Fike, 2012) conducted studies on the relationship of dual credit enrollment with postsecondary GPAs. In two separate investigations, Allen and Dadgar (2012) and Kim (2012) analyzed data from dual credit programs in the nation's largest urban dual credit program at The City University of New York. They documented that the first semester GPAs of college

students were higher for students who completed dual credit courses in high school than for college students who did not complete dual credit courses while in high school. Allen and Dadger (2012) established that dual credit enrollment "improves college GPA" during the first semester (p. 17). In their study of Hispanic students at a Hispanic-serving Institute, Fike and Fike (2012) determined that first semester GPAs were higher for students who completed a dual credit course in high school than for those students who did not complete a dual credit course.

Additionally, other researchers (e.g., Hughes, 2010; O'Connor & Justice, 2008) conducted studies on dual credit enrollment. O'Connor and Justice (2008) documented the presence of higher first semester GPAs and acceleration to college degree completion for students who completed a dual credit course while in high school. Hughes (2010) reported that first semester GPAs as well as: (a) high school diploma completion, (b) college matriculation, and (c) college persistence were positively related to students who completed dual credit courses in high school. Hughes (2010) stated,

> dual enrollment was positively related to students' likelihood of earning a high school diploma, to college enrollment, to persistence in college, and to higher postsecondary grade-point averages. And, while much dual enrollment occurs through community colleges, participating students in our studies who went on to attend college once completing high school were more likely to enroll in a four-year institution, perhaps indicating that their early taste of college gave them the skills and confidence to raise their educational aspirations. (p. 12)

Anderson (2010) evaluated data on community college students, primarily White students, from a mid-sized institution in Wyoming where 71% of the participants were female students who had previously completed at least one dual credit course. Although Anderson (2010) did not examine whether the GPAs were statistically significantly different between students who completed dual credit while in high school from students who did not complete a dual credit course, 75% of participants had GPAs between 3.00 and 3.99. Only 18% of participants had GPAs that were less than 3.00 (Anderson, 2010).

**Statement of the Problem**

Underprepared students in postsecondary education represent a serious challenge. As discussed previously, many students who graduate from high school are not prepared for the rigor of college courses. In response to poor college-readiness skills, college preparatory programs such as dual credit have been developed. Given former-President Obama's statement that community colleges need to graduate 5 million more students by 2020 (U.S. Department of Education, 2011), college preparatory programs, such as dual credit should be examined with respect to their efficacy. That is, to what degree are students who complete a dual credit course successful in a postsecondary setting? Although this issue of student success in postsecondary settings has been addressed in previous studies, further research is needed, specifically with reference to student GPAs at community colleges.

**Purpose of the Study**

The purpose of this research investigation was to determine the degree to which differences were present in first semester GPAs by dual credit course completion status for Texas community college students. Three academic years (i.e., 2012-2013, 2013-

2014, and 2014-2015) of data from a Texas community college district were analyzed to determine whether students who completed a dual credit course while in high school had a higher first semester GPA than their peers who did not complete a dual credit course while in high school. Statistical analyses were conducted by student gender and by student ethnicity/race (i.e., Asian, White, Hispanic, and Black). Through analyzing three years of data, the extent to which trends were present in the first semester GPAs of students by their dual credit course completion status was determined.

**Significance of the Study**

The significance of the study involved determining the degree to which students' first semester GPAs benefitted from completing dual credit courses while in high school. Should community college students who completed a dual credit course while in high school have higher first semester GPAs than their peers who did not complete a dual credit course? If the answer to the previous question is yes, educational leaders and policymakers may want to consider expanding dual credit programs to ensure that more students in high school are provided with the opportunity to enroll in dual credit courses. Through analyzing first semester GPAs by student gender and ethnicity/race, the degree to which dual credit course completion had similar results for all students was ascertained. If differences are present in first semester GPAs by student gender and ethnicity/race, changes may be warranted in dual credit programs. Finally, by analyzing data across a 3-year period, policymakers and educational leaders are provided with information to assist them in making informed decisions about the efficacy of dual credit.

### Research Questions

The research questions addressed in this study were: (a) What is the difference in first semester GPAs by dual credit enrollment status for community college students?; (b) What is the difference in first semester GPAs by dual credit enrollment status for community college students by gender?; (c) What is the difference in first semester GPAs by dual credit enrollment status for community college students by ethnicity/race (i.e., Asian, White, Hispanic, and Black)?; (d) What trend is present in first semester GPAs by dual credit enrollment status for the 2012-2013 through the 2014-2015 academic years?; (d) What trend is present in first semester GPAs by dual credit enrollment status for male and for female students in the 2012-2013 through the 2014-2015 academic years?; and, (d) What trend is present in first semester GPAs by dual credit enrollment status for Asian, White, Hispanic, and Black students in the 2012-2013 through the 2014-2015 academic years? The first three research questions were repeated for the 2012-2013, 2013-2014, and 2014-2015 academic years, whereas the last three research questions reflected all three academic years. As such, a total of 12 research questions comprised this empirical study.

## Method

### Research Design

For this research article, a nonexperimental causal comparative design was present (Johnson & Christensen, 2012). Characteristics of a causal comparative research design are reliant on archival data and the lack of any manipulation of the independent variable (Johnson & Christensen, 2012). The causal comparative research design is appropriate for this investigation because of the use of three years of archival data. As

such, the independent variable of dual credit enrollment had already occurred. Moreover, the community college students whose data were analyzed in this article had already completed several semesters. Accordingly, neither the independent variable (i.e., dual credit enrollment) nor the dependent variable (i.e., first semester GPA) could be manipulated in this investigation due to the use of archival data.

**Participants and Instrumentation**

Archival data were obtained for the 2012-2013, 2013-2014, and the 2014-2015 academic years from a community college district in Texas. These data were requested from the Institutional Research Division at this community college district for the past three academic years for use in an Advanced Statistics course. Data requested were student ethnicity/race, gender, dual credit enrollment status, and first semester GPAs. Following the request, data provided were in the form of three excel files, one for each academic year. Although these data have previously been obtained, they have not been analyzed with respect to the research questions of interest in this investigation.

## Results

Prior to conducting inferential statistics to determine whether differences were present in the first semester GPAs of Texas community college students who had previously completed a dual credit course while enrolled in high school, checks were conducted to determine the extent to which these data were normally distributed (Onwuegbuzie & Daniel, 2002). Because the first semester GPAs of students enrolled in dual credit courses data were normally distributed, parametric independent samples *t*-tests were used to answer the research questions. Statistical results will now be presented in order of each research question by academic year.

With respect to the first research question involving first semester GPAs for all students, the parametric independent samples *t*-test for the 2012-2013 academic year revealed a statistically significant difference in first semester GPAs, $t(750.76) = -10.43$, $p < .001$, by dual credit enrollment status. This difference represented a small effect size (Cohen's *d*) of 0.39 (Cohen, 1988). Students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.41 points higher, than students who had not completed a dual credit course while in high school.

The parametric independent samples *t*-test for the 2013-2014 academic year revealed a statistically significant difference in first semester GPAs, $t(594.95) = -13.95$, $p < .001$, by dual credit enrollment status. This difference represented a moderate effect size (Cohen's *d*) of 0.59 (Cohen, 1988). Students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.62 points higher, than students who had not completed a dual credit course while in high school.

With respect to the 2014-2015 academic year, a statistically significant difference was yielded in first semester GPAs, $t(683.41) = -8.76$, $p < .001$, by dual credit enrollment status. This difference represented a small effect size (Cohen's *d*) of 0.35 (Cohen, 1988). Students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.36 points higher, than students who had not completed a dual credit course while in high school. Table 3.1 contains the descriptive statistics for the analyses for the three academic years.

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Insert Table 3.1 about here

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Concerning the second research question involving first semester GPAs by gender, results for male students will be presented first, followed by the results for female students. The parametric independent samples *t*-test for the 2012-2013 academic year revealed a statistically significant difference in first semester GPAs, $t(246.20) = -5.91$, $p < .001$, by dual credit enrollment status for male students. This difference represented a small effect size (Cohen's *d*) of 0.38 (Cohen, 1988). Male students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.40 points higher, than male students who had not completed a dual credit course while in high school.

Concerning the 2013-2014 academic year, a statistically significant difference was revealed in first semester GPAs, $t(185.30) = -7.23$, $p < .001$, by dual credit enrollment status for male students. This difference represented a moderate effect size (Cohen's *d*) of 0.54 (Cohen, 1988). Male students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.59 points higher, than male students who had not completed a dual credit course while in high school.

Regarding the 2014-2015 academic year, a statistically significant difference was yielded in first semester GPAs, $t(234.87) = -4.38$, $p < .001$, by dual credit enrollment status for male students. This difference represented a small effect size (Cohen's *d*) of 0.29 (Cohen, 1988). Male students who had completed a dual credit course while in high

school had a statistically significantly higher average first semester GPA, 0.34 points higher, than male students who had not completed a dual credit course while in high school. Revealed in Table 3.2 are the descriptive statistics for the analyses for the three academic years.

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Insert Table 3.2 about here

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With respect to the second research question involving first semester GPAs for female students, the parametric independent samples *t*-test for the 2012-2013 academic year revealed a statistically significant difference in first semester GPAs, $t(512.25) = -8.06$, $p < .001$, by dual credit enrollment status. This difference represented a small effect size (Cohen's *d*) of 0.38 (Cohen, 1988). Female students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.38 points higher, than female students who had not completed a dual credit course while in high school.

Regarding the 2013-2014 academic year, a statistically significant difference was revealed in first semester GPAs, $t(391.73) = -11.67$, $p < .001$, by dual credit enrollment status for female students. This difference represented a moderate effect size (Cohen's *d*) of 0.59 (Cohen, 1988). Female students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.60 points higher, than female students who had not completed a dual credit course while in high school.

Concerning the 2014-2015 academic year, a statistically significant difference was yielded in first semester GPAs, $t(453.67) = -7.22$, $p < .001$, by dual credit enrollment status for female students. This difference represented a small effect size (Cohen's *d*) of 0.36 (Cohen, 1988). Female students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.35 points higher, than female students who had not completed a dual credit course while in high school. Presented in Table 3.3 are the descriptive statistics for the analyses for the three academic years.

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Insert Table 3.3 about here

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With respect to the third research question involving first semester GPAs by ethnicity/race, results for Asian students will be presented first, followed by the results for White students, then Hispanic students, and then Black students. The parametric independent samples *t*-test for the 2012-2013 academic year did not reveal a statistically significant difference in first semester GPAs, $t(56.37) = -0.71$, $p = .48$, by dual credit enrollment status for Asian students. Asian students who had completed a dual credit course while in high school had a similar first semester GPA, within 0.11 points, to Asian students who had not completed a dual credit course while in high school.

Regarding the 2013-2014 academic year, a statistically significant difference was revealed in first semester GPAs, $t(59.58) = -6.81$, $p < .001$, by dual credit enrollment status for Asian students. This difference represented a near-large effect size (Cohen's *d*) of 0.79 (Cohen, 1988). Asian students who had completed a dual credit course while in

high school had a statistically significantly higher average first semester GPA, 0.63 points higher, than Asian students who had not completed a dual credit course while in high school.

Concerning the 2014-2015 academic year, a statistically significant difference was yielded in first semester GPAs, $t(83.69) = -2.13$, $p = .04$, by dual credit enrollment status for Asian students. This difference represented a small effect size (Cohen's *d*) of 0.27 (Cohen, 1988). Asian students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.25 points higher, than Asian students who had not completed a dual credit course while in high school. Readers are directed to Table 3.4 for the descriptive statistics for the analyses for the three academic years for Asian students.

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Insert Table 3.4 about here

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For the third research question involving first semester GPAs for White students, the parametric independent samples *t*-test for the 2012-2013 academic year revealed a statistically significant difference in first semester GPAs, $t(274.64) = -3.87$, $p < .001$, by dual credit enrollment status. This difference represented a small effect size (Cohen's *d*) of 0.25 (Cohen, 1988). White students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.24 points higher, than White students who had not completed a dual credit course while in high school.

With respect to the 2013-2014 academic year, a statistically significant difference was revealed in first semester GPAs, $t(242.04) = -4.93$, $p < .001$, by dual credit enrollment status for White students. This difference represented a small effect size (Cohen's *d*) of 0.35 (Cohen, 1988). White students who had completed a dual credit course while in high school had a statistically higher average first semester GPA, 0.37 points higher, than White students who had not completed a dual credit course while in high school.

Regarding the 2014-2015 academic year, a statistically significant difference was yielded in first semester GPAs, $t(226.31) = -4.08$, $p < .001$, by dual credit enrollment status for White students. This difference represented a small effect size (Cohen's *d*) of 0.28 (Cohen, 1988). White students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.27 points higher, than White students who had not completed a dual credit course while in high school. Table 3.5 contains the descriptive statistics for the analyses for the three academic years for White students.

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Insert Table 3.5 about here

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For the third research question involving first semester GPAs for Hispanic students, the parametric independent samples *t*-test for the 2012-2013 academic year revealed a statistically significant difference in first semester GPAs, $t(274.67) = -9.03$, $p < .001$, by dual credit enrollment status. This difference represented a moderate effect size (Cohen's *d*) of 0.54 (Cohen, 1988). Hispanic students who had completed a dual

credit course while in high school had a statistically significantly higher average first semester GPA, 0.52 points higher, than Hispanic students who had not completed a dual credit course while in high school.

Concerning the 2013-2014 academic year, a statistically significant difference was revealed in first semester GPAs, $t(200.65) = -9.26$, $p < .001$, by dual credit enrollment status for Hispanic students. This difference represented a moderate effect size (Cohen's *d*) of 0.63 (Cohen, 1988). Hispanic students who had completed a dual credit course while in high school had a statistically higher average first semester GPA, 0.65 points higher, than Hispanic students who had not completed a dual credit course while in high school.

With respect to the 2014-2015 academic year, a statistically significant difference was yielded in first semester GPAs, $t(288.23) = -5.58$, $p < .001$, by dual credit enrollment status for Hispanic students. This difference represented a small effect size (Cohen's *d*) of 0.35 (Cohen, 1988). Hispanic students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.34 points higher, than Hispanic students who had not completed a dual credit course while in high school. Delineated in Table 3.6 are the descriptive statistics for the analyses for the three academic years for Hispanic students.

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Insert Table 3.6 about here

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For the third research question involving first semester GPAs for Black students, the parametric independent samples *t*-test for the 2012-2013 academic year revealed a

statistically significant difference in first semester GPAs, $t(28.25) = -2.34$, $p = .03$, by dual credit enrollment status. This difference represented a small effect size (Cohen's *d*) of 0.41 (Cohen, 1988). Black students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.48 points higher, than Black students who had not completed a dual credit course while in high school.

Concerning the 2013-2014 academic year, a statistically significant difference was revealed in first semester GPAs, $t(27.77) = -6.50$, $p < .001$, by dual credit enrollment status. This difference represented a large effect size (Cohen's *d*) of 0.95 (Cohen, 1988). Black students who had completed a dual credit course while in high school had a statistically higher average first semester GPA, 1.01 points higher, than Black students who had not completed a dual credit course while in high school.

Regarding the 2014-2015 academic year, a statistically significant difference was yielded in first semester GPAs, $t(31.39) = -2.39$, $p = .02$, by dual credit enrollment status for Black students. This difference represented a small effect size (Cohen's *d*) of 0.40 (Cohen, 1988). Black students who had completed a dual credit course while in high school had a statistically significantly higher average first semester GPA, 0.47 points higher, than Black students who had not completed a dual credit course while in high school. Readers are directed to Table 3.7 for the descriptive statistics for the analyses for the three academic years.

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Insert Table 3.7 about here

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## Discussion

Addressed in this investigation was the extent to which differences might be present in the first semester GPAs by dual credit enrollment status for male and female students and for Asian, White, Hispanic, and Black Texas community college students. Three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data from a Texas community college district were analyzed. Statistically significant differences were present in all three academic years of data that were analyzed. The average first semester GPAs for Texas community college male and female students and for Asian, White, Hispanic, and Black students were higher for students who had completed a dual credit course while in high school than for their peers who had not completed a dual credit course while in high school.

The average first semester GPA of students who completed a dual credit course while in high school was 0.47 points higher than the first semester GPA of students who had not completed a dual credit course. With respect to gender, the average first semester GPAs of community college male and female students who had completed a dual credit course while enrolled in high school were 0.43 and 0.47 points higher, respectively, than their peers who had not completed a dual credit course while in high school. Regarding community college student ethnicity/race, the average first semester GPAs of Asian, White, Hispanic, and Black students who had completed a dual credit course while in high school were 0.33, 0.30, 0.50, and 0.67 points higher than their ethnic/racial peers, respectively, who had not completed a dual credit course while in high school. Of note was the finding that Black students who had completed a dual credit course while in high school had the highest average difference in their first semester GPAs than Black

students who had not completed a dual credit course. Tables 3.8 and 3.9 contains the average first semester GPAs for these groups of students.

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Insert Tables 3.8 and 3.9 about here

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**Implications for Policy and Practice**

In this multiyear investigation's results, several implications are present for policy and for practice. First, community college leaders are encouraged to compare the demographic characteristics of their students who had completed dual credit while in high school to the demographic characteristics of the enrollment at the college. In regard to ethnicity/race, Asian, White, Hispanic, and Black community college students who had completed a dual credit course while enrolled in high school had higher first semester GPAs than their ethnic/racial peers who had not completed a dual credit course while enrolled in high school. As such, educational leaders in both K-12 and postsecondary settings should encourage high school students to enroll in dual credit courses because completion of such courses is related to academic success in community colleges. Educational leaders in both settings, however, should ensure that high school students who enroll in dual credit courses are provided with the appropriate support that they may need to be successful.

**Recommendations for Future Research**

Based upon the results of this multiyear investigation, several recommendations for future research are warranted. First, an increased number of years of data on community college students who had completed a dual credit course in high school

should be examined. The degree to which results from this analysis of three years of data are generalizable to other years is not known. Second, researchers are encouraged to determine the extent to which second-semester GPAs or longer term GPAs for students who had completed a dual credit course while in high school are different from those students who had not completed a dual credit course. Such analyses would be beneficial in ascertaining the long-term efficacy of dual credit enrollment. Third, this study should be extended to other states to determine the degree to which results delineated herein are generalizable to students in other states. Fourth, researchers are encouraged to extend this study to 4-year postsecondary institutions because data on only community colleges were analyzed herein. Fifth, the demographic characteristics of students enrolled in postsecondary institutions should be compared to the demographic characteristics of students who are enrolled in postsecondary institutions and who completed a dual credit course while enrolled in high school. To what extent is equity present in the ethnic/racial percentages? Finally, researchers could conduct qualitative studies to understand why different ethnic/racial groups are/are not enrolling in dual credit courses in high school at the same rate.

## Conclusion

In this multiyear analysis, the degree to which differences were present in first semester GPAs by dual credit enrollment status for Texas community college students was investigated for the 2012-2013 through the 2014-2015 academic years. Inferential statistical analyses revealed the presence of statistically significant differences in first semester GPAs for all students, separately by gender, and then by ethnicity/race. In all instances, students who had completed a dual credit course while enrolled in high school

had statistically significantly higher first semester GPAs in community college than did students who had not completed a dual credit course while enrolled in high school. With respect to ethnicity/race, Black students had the highest average first semester difference for students who had completed a dual credit course while enrolled in high school. Efforts to increase the ethnic/racial diversity of students who complete dual credit courses are warranted, especially for Black students.

## References

Abraham, R. A., Slate, J. R., Saxon, D. P., & Barnes, W. (2014a). Math readiness of Texas community college developmental education students: A multiyear statewide analysis. *Community College Enterprise, 20*(2), 25-44.

ACT. (2007). *Rigor at risk: Reaffirming quality in high school core curriculum.* Iowa City, IA: Author.

Allen, D., & Dadgar, M. (2012). Does dual enrollment increase students' success in college? Evidence from a quasi-experimental analysis of dual enrollment in New York City. *New Directions for Higher Education, 2012*(158), 11-20. doi:10.1002/he.20010

An, B. (2012). The influence of dual enrollment on academic performance and college readiness: Differences by socioeconomic status. *Research in Higher Education, 54*, 407-432. doi:10.1007/s11162-012-9278-z

Anderson, J. J. (2010). *An investigation of student perceptions of dual enrollment at a mid-sized western community college* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses. (3488917)

Arnold, K. D., Lu, E. C., & Armstrong, K. J. (2012). The case for a comprehensive model of college readiness. *ASHE Higher Education Report, 38*(5), 1-10. doi:10.1002/aeche.20005

Bailey, T. R., Hughes, K. L., & Karp, M. (2002). *What role can dual enrollment programs play in easing the transition between high school and postsecondary education?* Washington, DC: Preparing for America's Future: The High School Symposium. Retrieved from ERIC database. (ED465090)

Barefoot, B. O. (2008). College transitions: The other side of the story. *New Directions for Higher Education, 144,* 89-92. doi:10.1002/he.329

Barnes, W., & Slate, J. R. (2011). Ethnic differences in college-readiness rates: A multi-year, statewide study. *Education and Urban Society, 20*(10), 1-29. doi:10.1177/0013124511423775

Barnes, W., & Slate, J. R. (2013). College-readiness is not one-size-fits-all. *Current Issues in Education, 16*(1), 1-11. Retrieved from http://cie.asu.edu/ojs/index.php/cieatasu/article/view/1070

Barnes, W., & Slate, J. R. (2014). College-readiness rates in Texas: A statewide, multiyear study of ethnic differences. *Education and Urban Society, 46*(1), 59-87. doi:10.1177/0013124511423775

Barnes, W., Slate, J. R., & Rojas-LeBouef, A. (2010). College-readiness and academic preparedness: The same concepts? *Current Issues in Education, 13*(4). Retrieved from http://cie.asu.edu/

Barrow, L., Brock, T., & Rouse, C. E. (2013). Postsecondary education in the United States: Introducing the issue. *The Future of Children, 23*, 3-16.

Bureau of Labor Statistics website. (2016). *Employment projections*. Retrieved from http://www.bls.gov/emp/ep_chart_001.htm

Carnevale, A. P., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018.* Washington, DC: Georgetown University Center on the Workforce. Retrieved from: https://cew.georgetown.edu/wp-content/uploads/2014/12/fullreport.pdf

Carnevale, A. P., Smith, N., & Strohl, J. (2013). *Recovery: Job growth and education requirements through 2020.* Georgetown Public Policy Institute: Center on Education and the Workforce. 1-14. Retrieved from https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.FR_.Web_.pdf

Chapa, M., Galvan-De Leon, V., Solis, J., & Mundy, M. (2014). College readiness. *Research in Higher Education Journal*, *25*, 1-5.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Fike, D. S., & Fike, R. (2012). The consequences of delayed enrollment in developmental mathematics. *Journal of Developmental Education, 35*(3), 2-10.

Ganzert, B. (2014). Dual enrollment credit and college readiness. *Community College Journal of Research and Practice, 38*, 783-793. doi:10.1080/10668926.2012.719483

Gewertz, C. (2016) Are dual-enrollment programs overpromising? *Education Week, 26*.

Hughes, K., Rodriguez, O., Edwards, L., & Belfield, C. (2012). *Broadening the benefits of dual enrollment: Reaching underachieving and underrepresented students with career-focused program.* San Francisco, CA: Community College Research Center.

Hughes, K. L. (2010). Dual enrollment: Postsecondary/secondary partnerships to prepare students. *Journal of College Science Teaching*, *39*(6), 12-13.

Iloh, C., & Toldson, I. A. (2013). Black students in 21st century higher education: A closer look at for-profit and community colleges (Editor's Commentary). *The Journal of Negro Education, 82,* 205-212.

James, D., Lefkowits, L., & Hoffman, R. (2016). Dual enrollment: A pathway to college and career readiness. *Learning Environment*. Retrieved from http://www.advanc-ed.org/source/dual-enrollment-pathway-college-and-career-readiness

Johnson, B., & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mixed approaches* (4th ed.). Thousand Oaks, CA: Sage.

Karp, M. M. (2012). "I don't know, I've never been to college!" Dual enrollment as a college readiness Strategy. *New Directions for Higher Education, 158,* 21-28.

Kim, J. (2012). Data-informed practices in an urban dual enrollment program. *New Directions for Higher Education, 2012*(158), 49-57.

Moore, G. W., Slate, J. R., Edmonson, S., Combs, J. P., Bustamante, R., & Onwuegbuzie, A. J. (2010). High school students and their lack of preparedness for college: A statewide study. *Education and Urban Society, 42,* 817-838. doi:10.1177/0013124510379619

Morrison, M. C. (2008). *The benefits of acceleration: Graduation advantages.* Mason City, IA: North Iowa Area Community College. (ED505283)

National Conference of State Legislatures. (2016). *Post-secondary education*. Retrieved from http://www.ncsl.org/research/education/post-secondary-education-overview.aspx

O'Connor, K. B., & Justice, M. C. (2008). Evaluating dual credit enrollment at selected rural northeast Texas high school. *Southeastern Teacher Education Journal, 1,* 27-34.

Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools, 9,* 73-90.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students, Vol.2: A third decade of research.* San Francisco, CA: Jossey-Bass.

Robinson, R. L. (2011). *Dual enrollment: Breaking the mold for college readiness and persistence in an urban charter school* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses. (3497893)

Royster, P., Gross, J., & Hochbein, C. (2015). Timing is everything: Getting students back on track to college readiness in high school. *The High School Journal*, *98*(3), 208-225. doi:10.1353/hsj.2015.0005

Sepanik, S. (2012). *Getting ready for success: Bridging the gap between high school and college in Tacoma, Washington.* MDRC (Prepared for the 2012 National Center for Postsecondary Research Conference). Retrieved from http://www.mdrc.org/project/getting-ready-success-pilot-program#overview

Texas Higher Education Coordinating Board. (2016). *Dual credit – Frequently asked questions*. Retrieved from http://www.thecb.state.tx.us/index.cfm?objectid=E9397599-AFE9-CC3F-B6F9BF619AAEDA2E

Tinto, V. (2007). Research and practice of student retention: What's next? *Journal of College Student Retention, 8,* 1-19.

U. S. Department of Education. (2011). *Meeting President Obama's 2020 College Completion Goal*. Washington, DC: U. S. Government Printing Office. Retrieved from https://www.ed.gov/news/speeches/meeting-president-obamas-2020-college-completion-goal

U. S. News & World Report. (2016). *ACT scores show many grads not ready for college-level work.*, Retrieved from http://www.usnews.com/news/politics/articles/2016-08-24/bigger-numbers-of-high-school-grads-taking-act-college-test

Young, R. D., Jr., Joyner, S. A., & Slate, J. R. (2013). Grade point average differences between dual and nondual credit college students [Electronic version]. *Urban Studies Research, 2013*, 1-6. doi:10.1155/2013/638417

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2013). A critical analysis of the dual credit program. *Progress in Education, 30* (pp. 39-68). Hauppauge, NY: Nova Main Publishers.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014a). Dual credit programs: A conceptual analysis of the literature. *Journal of Education Research, 8*(1-2), 79-106.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014b). Dual credit and non-dual credit college students: differences in GPAs after the second semester. *Journal of Education and Human Development, 3*(2), 203-230.

Zeidenberg, M., & Bailey, T. (2009, June). *Human resource development and career and technical education in American community colleges*. Paper presented at the Asia-Pacific Economic Cooperation (APEC) Human Resources Development Group Meeting, Chicago, IL. Retrieved from ERIC database. (ED509712)

Table 3.1

*Descriptive Statistics for the First Semester GPAs of Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 7,396 | 2.50 | 1.16 |
| Enrolled | 584 | 2.91 | 0.89 |
| 2013-2014 | | | |
| Not Enrolled | 7,383 | 2.46 | 1.19 |
| Enrolled | 462 | 3.08 | 0.91 |
| 2014-2015 | | | |
| Not Enrolled | 7,904 | 2.63 | 1.10 |
| Enrolled | 564 | 2.99 | 0.92 |

Table 3.2

*Descriptive Statistics for the First Semester GPAs of Male Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 3,266 | 2.39 | 1.16 |
| Enrolled | 205 | 2.79 | 0.93 |
| 2013-2014 | | | |
| Not Enrolled | 3,361 | 2.46 | 1.19 |
| Enrolled | 164 | 2.95 | 1.02 |
| 2014-2015 | | | |
| Not Enrolled | 3,571 | 2.52 | 1.12 |
| Enrolled | 204 | 2.83 | 0.98 |

Table 3.3

*Descriptive Statistics for the First Semester GPAs of Female Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 4,130 | 2.59 | 1.15 |
| Enrolled | 379 | 2.98 | 0.86 |
| 2013-2014 | | | |
| Not Enrolled | 4,022 | 2.55 | 1.18 |
| Enrolled | 298 | 3.15 | 0.83 |
| 2014-2015 | | | |
| Not Enrolled | 4,332 | 2.73 | 1.08 |
| Enrolled | 360 | 3.08 | 0.88 |

Table 3.4

*Descriptive Statistics for the First Semester GPAs of Asian Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 504 | 2.91 | 1.06 |
| Enrolled | 47 | 3.02 | 0.99 |
| 2013-2014 | | | |
| Not Enrolled | 513 | 2.92 | 1.01 |
| Enrolled | 36 | 3.55 | 0.48 |
| 2014-2015 | | | |
| Not Enrolled | 543 | 3.02 | 0.95 |
| Enrolled | 66 | 3.27 | 0.90 |

Table 3.5

*Descriptive Statistics for the First Semester GPAs of White Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 2,475 | 2.66 | 1.08 |
| Enrolled | 214 | 2.90 | 0.86 |
| 2013-2014 | | | |
| Not Enrolled | 2,360 | 2.66 | 1.09 |
| Enrolled | 201 | 3.03 | 1.01 |
| 2014-2015 | | | |
| Not Enrolled | 2,543 | 2.76 | 1.05 |
| Enrolled | 185 | 3.03 | 0.86 |

Table 3.6

*Descriptive Statistics for the First Semester GPAs of Hispanic Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 2,948 | 2.48 | 1.13 |
| Enrolled | 210 | 3.00 | 0.78 |
| 2013-2014 | | | |
| Not Enrolled | 3,068 | 2.42 | 1.17 |
| Enrolled | 167 | 3.07 | 0.86 |
| 2014-2015 | | | |
| Not Enrolled | 3,285 | 2.63 | 1.04 |
| Enrolled | 239 | 2.97 | 0.89 |

Table 3.7

*Descriptive Statistics for the First Semester GPAs of Black Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 982 | 1.97 | 1.29 |
| Enrolled | 27 | 2.45 | 1.04 |
| 2013-2014 | | | |
| Not Enrolled | 992 | 1.86 | 1.29 |
| Enrolled | 25 | 2.87 | 0.75 |
| 2014-2015 | | | |
| Not Enrolled | 1,063 | 2.14 | 1.27 |
| Enrolled | 30 | 2.61 | 1.06 |

Table 3.8

*Results for the First Semester GPAs of All Students and by Gender of Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Group and Academic Year | Significantly Significant | Effect Size | Higher GPAs |
|---|---|---|---|
| All Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |
| Male Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |
| Female Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |

Table 3.9

*Results for the First Semester GPAs by Ethnicity/Race of Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Group and Academic Year | Significantly Significant | Effect Size | Higher GPAs |
|---|---|---|---|
| Asian Students | | | |
| 2012-2013 | No | N/A | Dual Credit |
| 2013-2014 | Yes | Near-large | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |
| White Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Small | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |
| Hispanic Students | | | |
| 2012-2013 | Yes | Moderate | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |
| Black Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Large | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |

# CHAPTER IV

## DIFFERENCES IN SECOND SEMESTER GPAS BY DUAL CREDIT ENROLLMENT STATUS FOR TEXAS COMMUNITY COLLEGE STUDENTS: A MULTIYEAR INVESTIGATION

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This dissertation follows the style and format of *Research in the Schools (RITS)*.

## Abstract

In this research study, the degree to which differences were present in second semester GPAs by dual credit enrollment status for Texas community college students was analyzed for the 2012-2013, 2013-2014, and 2014-2015 academic years. Statistically significant differences were present in second semester GPAs as a function of dual credit enrollment status for Texas community college students, male students, female students, Asian students, White students, Hispanic students, and Black students in Texas community colleges in all three academic years. Texas community college students who had completed a dual credit course while enrolled in high school had statistically significantly higher average second semester GPAs than their peers who had not completed a dual credit course while enrolled in high school. Implications and recommendations for future research were discussed.


**Keywords:** Dual credit, Texas community college, Second semester GPAs, Asian, White, Hispanic, Black, Gender

# DIFFERENCES IN SECOND SEMESTER GPAS BY DUAL CREDIT ENROLLMENT STATUS FOR TEXAS COMMUNITY COLLEGE STUDENTS: A MULTIYEAR INVESTIGATION

Complex knowledge and skills are needed for a better educated workforce (American Institutes for Research, 2013). Carnevale, Smith, and Strohl (2010) estimated that two-thirds of the new jobs generated in the United States by 2018 would require some postsecondary skills. Due to economic and cultural limitations, many high school students do not have opportunities to acquire a postsecondary degree (Cilesiz & Drotos, 2016). "Increasing the number of Americans with the education, skills, and training needed for the economy is a multilayered strategy" (American Institutes for Research, 2013, p. 1).

To meet the United States' workforce demands, an additional 23 million college graduates are needed by 2025 (The Lumina Foundation, 2012). According to Arnold, Lu, and Armstrong (2012),

> the college-ready student possesses a set of content knowledge; academic strategies, skills, and dispositions; and psychosocial skills such as motivation and tolerance for complexity. College readiness also comprises higher education expectations and aspirations; knowledge about college and financial aid; and the skills and practical know-how to negotiate the complicated tasks of choosing, applying, selecting, and financing college. (p. 94)

For several decades, graduation rates have been constant (National Center for Education Statistics, 2011). Aud, KewalRamani, and Frolich (2011) revealed that only

57% of 4-year college students graduate within six years, and only 27% of students enrolling at 2-year institutions complete a certificate or associate's degree within the normal time required to graduate. The Educational Testing Service documented that students over the age of 15 did not demonstrate reading and mathematics competencies sufficient for postsecondary education or preparedness for global workforce (Kirsch, Braun, Yamamoto, & Sum, 2007). "Large numbers of students continue to graduate from high school without the academic and practical knowledge they need to succeed in higher education" (Arnold et al., 2012, p. 91).

A lack of college-readiness is a barrier to the completion of a college degree (Abraham, Slate, Saxon, & Barnes, 2014a, 2014b; Arnold et al., 2012; Iloh & Toldson, 2013). To help narrow the gap between academic preparedness and postsecondary expectations, college preparatory programs such as dual credit have been developed (Kilgore & Taylor, 2016). The Texas Higher Education Coordinating Board (2016) defined dual credit as a process that allows high school juniors and seniors to enroll in and receive high school and college credits simultaneously for completed coursework. Dual credit has been documented with positive outcomes by several researchers (e.g., Allen & Dadgar, 2012; American Institute for Research & Gibson Consulting Group, 2011; Bailey & Karp, 2003; Karp, Calcagno, Hughes, Jeong, & Bailey, 2008). Some researchers noted the beneficial attributes of dual credit are: (a) students are more likely to enroll in college (Cowan & Goldhaber, 2014; Pretlow & Wathington, 2013); (b) college students have better persistence and time-to-degree completion is reduced (Swanson, 2008; Thacker, 2014; Young, Slate, Moore, & Barnes, 2013); (c) students are academically and socially more competent for college (O'Connor & Justice, 2008); (d)

students achieve higher first semester GPAs in college (Correa & Kouzekanani, 2011; Hughes, 2010; Sherman Valentine, 2010; Young, Joyner, & Slate, 2013; Young, Slate, Moore, & Barnes, 2014b); and (e) students achieve a higher seconder semester GPA in college (Jones, 2014; Young, Slate, Moore, & Barnes, 2014a, 2014b).

In reference to the emphasis on second semester GPAs in this investigation, Young et al. (2014a) established that female and male students who completed dual credit courses while in high school had statistically significantly higher second semester GPAs than their counterparts who did not complete dual credit courses in high school. Similarly, Young et al. (2014) documented that White, Hispanic, and Black students who completed a dual credit course while in high school had statistically significantly higher second semester GPAs then their peers who did not complete a dual credit course while in high school.

In a recent study, Lee, Slate, Young, Moore, and Barnes (2016) analyzed data on 3,954 students who were enrolled at a regional Texas 4-year university. Of their sample of students who had completed a dual credit course while in high school, Lee et al. (2016) reported the presence of statistically significantly higher final GPAs than for students who did not complete a dual credit course while in high school. In regard to second semester GPAs, Young et al. (2014b) established the presence of statistically significant differences in cumulative GPAs after two semesters between students who completed dual credit courses in high school and students who did not complete dual credit courses in high school. All ethnic/racial groups of students who completed dual credit courses in high school had higher second semester GPAs than their peers who did not complete a dual credit course while enrolled in high school, with few exceptions.

Jones (2014) analyzed the relationship of dual credit enrollment with the first year GPAs of college students. The two groups of students whose data he analyzed were first-year community college students and first-year university students by gender and by race/ethnicity. According to Jones (2014), community college students who completed a dual credit course while in high school had statistically significantly higher first-year GPAs (2.91) than did community college students who had not completed a dual credit course while in high school (2.65). With respect to the 4-year university students, results were similar. Jones (2014) also revealed that 4-year university students who completed a dual credit course while in high school had statistically significantly higher first-year GPAs (3.10) than did 4-year university students who had not completed a dual credit course while in high school (2.91).

In an investigation in Texas, Young et al. (2014c) analyzed the relationship of dual credit enrollment to the second semester GPAs of Hispanic, Black, and White community college students. In their study, Young et al. (2014c) examined four academic years (i.e., 2005-2006 through 2008-2009) to determine whether trends were present in student performance. Further, Young et al. (2014c) documented that both male and female community college students who completed dual credit courses while in high school had statistically significantly higher second semester GPAs, 0.55 points higher, than the second semester GPAs of male and female community college students who did not complete dual credit courses while in high school during the 2008-2009 academic year. With respect to each ethnic/racial group, White, Black, and Hispanic community college students who completed a dual credit course while in high school had statistically significantly higher second semester GPAs, 0.60, 0.66, and 0.36 points higher,

respectively, than did their peers who did not complete a dual credit course while in high school during the 2008-2009 academic year. In another study on second semester GPAs, Giani, Alexander, and Reyes (2014) analyzed the persistence of students who completed dual credit courses in high school from the first to the second year of postsecondary education. Most noteworthy, Giani et al. (2014) established the presence of positive outcomes or higher second semester GPAs after the first year of college due to dual credit courses completed in high school.

**Statement of the Problem**

Correa and Kouzekanani (2011) determined that dual credit could be a viable option of assisting students with college culture, high school transitions, and self-assurance as they matriculate into postsecondary institutions. Young et al. (2014a) documented the presence of statistically significant higher GPAs for students who completed a dual credit course while in high school in comparison to students who had not completed a dual credit course. Findings from the American Institutes for Research and the Gibson Consulting Group (2011) were that students in Texas had a passing rate of 99.9% in their dual credit courses. This high a passing rate should permit most of these students to obtain college credit for the dual credit courses they completed while in high school. Although the numbers of students who enroll in dual credit courses have increased in the past decade (An, 2013, 2015; Giani et al., 2014), a dearth of research studies exist with respect to the long-term efficacy of dual credit course completion. That is, do students who complete a dual credit course while in high school have higher second-semester GPAs than students who did not complete a dual credit course while in

high school? Such studies are needed to ensure that policymakers and educational leaders can evaluate the effectiveness of dual credit as a college preparatory program.

**Purpose of the Study**

The purpose of this research investigation was to determine the degree to which differences might be present in second semester GPAs by dual credit enrollment status for Texas community college students. Three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data from a Texas community college district were analyzed to determine whether students who completed a dual credit course while in high school had a higher second semester GPA than their peers who did not complete a dual credit course while in high school. Statistical analyses were conducted by student gender and by student ethnicity/race (i.e., Asian, White, Hispanic, and Black). Through analyzing three years of data, the extent to which trends were present in the second semester GPAs of community college students who completed dual credit courses while in high school was determined.

**Significance of the Study**

Numerous researchers (e.g., Barnett & Stamm, 2010; Young et al., 2013, 2014a, 2014b) provided evidence that community college students who completed dual-credit courses in high school were more likely to enter, be successful in their first year, and continue on to the second year of college than their peers who had completed a dual credit course while in high school. Studies such as Barnett and Stamm (2010) are limited and, accordingly, the extent to which their results are generalizable regarding the benefits of dual credit programs is not known. Accordingly, the significance of this study was to determine the extent to which the second semester GPAs of community college students

differ by whether or not they completed dual credit courses while in high school. If the second semester GPAs of students who completed dual credit courses while in high school is higher than the second semester GPAs of community college students who did not complete dual credit courses while in high school, educational leaders in both the K-12 and postsecondary settings may need to consider expanding dual credit programs to permit more high school students the opportunity to enroll in dual credit courses. By analyzing second semester GPAs by student gender and ethnicity/race across a 3-year time period, the degree to which dual credit enrollment has similar results for all students by their gender and ethnicity/race can be evaluated. Should differences be present in second semester GPAs by student gender and ethnicity/race, changes might be warranted in dual credit programs. Finally, by analyzing data across a 3-year time period, policymakers and educational leaders will be provided with information regarding trends that might be present. As such, this information may assist them in making informed decisions about the efficacy of dual credit.

**Research Questions**

The following research questions were addressed in this empirical multiyear analysis: (a) What is the difference in second semester GPAs by dual credit enrollment status for community college students?; (b) What is the difference in second semester GPAs by dual credit enrollment status for community college students by gender?; (c) What is the difference in second semester GPAs by dual credit enrollment status for community college students by ethnicity/race (i.e., Asian, White, Hispanic, and Black)?; (d) What trend is present in second semester GPAs by dual credit enrollment status for the 2012-2013 through the 2014-2015 academic years?; (d) What trend is present in

second semester GPAs by dual credit enrollment status for male and for female students in the 2012-2013 through the 2014-2015 academic years?; and, (d) What trend is present in second semester GPAs by dual credit enrollment status for Asian, White, Hispanic, and Black students in the 2012-2013 through the 2014-2015 academic years? The first three research questions were repeated for the 2012-2013, 2013-2014, and 2014-2015 academic years, whereas the last three research questions reflect all three academic years. As such, a total of 12 research questions comprise this empirical study.

## Method

### Research Design

A nonexperimental, causal comparative design was used in this research article (Johnson & Christensen, 2012). The dependence on archival data and the lack of any manipulation of the independent variable are characteristics of a causal comparative research design (Johnson & Christensen, 2012). In this empirical, multiyear analysis, the community college students whose data were analyzed herein had already completed or not completed a dual credit course while in high school. As such, the independent variable of dual credit enrollment had already occurred. With respect to the dependent variable of second semester GPAs, the community college students whose data were analyzed in this article had already more than two semesters at the community colleges in this community college district. Previously stated in this paragraph, neither the independent variable nor the dependent variable could be manipulated, given that they had already occurred. Because of the use of archival data, the causal comparative research design is appropriate for this investigation.

**Participants and Instrumentation**

Archival data were obtained for the 2012-2013, 2013-2014, and the 2014-2015 academic years from a community college district in Texas. Data were requested from the Institutional Research Division at this community college district for the past three academic years. Data that were specifically requested were student ethnicity/race, gender, dual credit enrollment status, and their second semester GPAs. Following the request, data were provided in the form of three excel files, one for each academic year. These three academic years of data were requested for use in an Advanced Statistics course at Sam Houston State University. To date, the data that would answer the research questions described previously have not been analyzed.

## Results

The underlying assumptions of the inferential statistical procedure that was used to answer the research questions in this investigation were checked prior to conducting them to determine the extent to which data were normally distributed (Onwuegbuzie & Daniel, 2002). Because the second semester GPAs of students enrolled in dual credit courses data were normally distributed, parametric independent samples *t*-tests were used to answer the research questions. Statistical results will now be presented in order of each research question for each academic year.

Concerning the first research question involving second semester GPAs for all students, the parametric independent samples *t*-test for the 2012-2013 academic year revealed a statistically significant difference in second semester GPAs, $t(723.70) = -11.44$, $p < .001$, by dual credit enrollment status. This difference represented a small effect size (Cohen's *d*) of 0.45 (Cohen, 1988). Students who had completed a dual credit

course while in high school had a statistically significantly higher average second semester GPA, 0.54 points higher, than students who had not completed a dual credit course while in high school.

The parametric independent samples *t*-test for the 2013-2014 academic year revealed a statistically significant difference in second semester GPAs, $t(541.95) = -13.08$, $p < .001$, by dual credit enrollment status. This difference represented a moderate effect size (Cohen's *d*) of 0.58 (Cohen, 1988). Students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.72 points higher, than students who had not completed a dual credit course while in high school.

With respect to the 2014-2015 academic year, a statistically significant difference was yielded in second semester GPAs, $t(689.70) = -13.15$, $p < .001$, by dual credit enrollment status. This difference represented a moderate effect size (Cohen's *d*) of 0.52 (Cohen, 1988). Students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.64 points higher, than students who had not completed a dual credit course while in high school. Table 4.1 contains the descriptive statistics for the analyses for the three academic years.

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Insert Table 4.1 about here

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Concerning the second research question involving second semester GPAs by gender, results for male students will be discussed first, followed by the results for female students. The parametric independent samples *t*-test for the 2012-2013 academic year

revealed a statistically significant difference in second semester GPAs, $t(243.79) = -7.38$, $p < .001$, by dual credit enrollment status for male students. This difference represented a small effect size (Cohen's *d*) of 0.48 (Cohen, 1988). Male students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.58 points higher, than male students who had not completed a dual credit course while in high school.

With respect to the 2013-2014 academic year, a statistically significant difference was revealed in second semester GPAs, $t(182.57) = -7.11$, $p < .001$, by dual credit enrollment status for male students. This difference represented a moderate effect size (Cohen's *d*) of 0.54 (Cohen, 1988). Male students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.69 points higher, than male students who had not completed a dual credit course while in high school.

Regarding the 2014-2015 academic year, a statistically significant difference was yielded in second semester GPAs, $t(236.62) = -6.85$, $p < .001$, by dual credit enrollment status for male students. This difference represented a small effect size (Cohen's *d*) of 0.46 (Cohen, 1988). Male students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.57 points higher, than male students who had not completed a dual credit course while in high school. Revealed in Table 4.2 are the descriptive statistics for the analyses for the three academic years.

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Insert Table 4.2 about here

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With respect to the second research question involving second semester GPAs for female students, a statistically significant difference was yielded in second semester GPAs, $t(482.20) = -8.37$, $p < .001$, by dual credit enrollment status. This difference represented a small effect size (Cohen's *d*) of 0.42 (Cohen, 1988). Female students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.50 points higher, than female students who had not completed a dual credit course while in high school.

For the 2013-2014 academic year, a statistically significant difference was revealed in second semester GPAs, $t(364.26) = -10.77$, $p < .001$, by dual credit enrollment status for female students. This difference represented a moderate effect size (Cohen's *d*) of 0.59 (Cohen, 1988). Female students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.73 points higher, than female students who had not completed a dual credit course while in high school.

Concerning the 2014-2015 academic year, a statistically significant difference was yielded in second semester GPAs, $t(459.09) = -11.04$, $p < .001$, by dual credit enrollment status for female students. This difference represented a moderate effect size (Cohen's *d*) of 0.54 (Cohen, 1988). Female students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.66 points higher, than female students who had not completed a dual

credit course while in high school. Table 4.3 contains the descriptive statistics for the analyses for the three academic years.

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Insert Table 4.3 about here

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Concerning the third research question involving second semester GPAs by ethnicity/race, results for Asian students will be discussed first, followed by the results for White students, then Hispanic students, then Black students. The parametric independent samples *t*-test for the 2012-2013 academic year revealed a statistically significant difference in second semester GPAs, $t(77.81) = -3.92$, $p < .001$, by dual credit enrollment status for Asian students. This difference represented a small effect size (Cohen's *d*) of 0.45 (Cohen, 1988). Asian students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.45 points higher, than Asian students who had not completed a dual credit course while in high school.

Regarding the 2013-2014 academic year, a statistically significant difference was revealed in second semester GPAs, $t(45.08) = -3.74$, $p = .001$, by dual credit enrollment status for Asian students. This difference represented a moderate effect size (Cohen's *d*) of 0.55 (Cohen, 1988). Asian students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.56 points higher, than Asian students who had not completed a dual credit course while in high school.

With respect to the 2014-2015 academic year, a statistically significant difference was yielded in second semester GPAs, $t(108.91) = -5.39$, $p < .001$, by dual credit enrollment status for Asian students. This difference represented a moderate effect size (Cohen's *d*) of 0.57 (Cohen, 1988). Asian students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.58 points higher, than Asian students who had not completed a dual credit course while in high school. Readers are directed to Table 4.4 for the descriptive statistics for the analyses for the three academic years.

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Insert Table 4.4 about here

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Regarding the third research question involving second semester GPAs for White students, a statistically significant difference was yielded in second semester GPAs, $t(266.98) = -4.74$, $p < .001$, by dual credit enrollment status. This difference represented a small effect size (Cohen's *d*) of 0.31 (Cohen, 1988). White students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.37 points higher, than White students who had not completed a dual credit course while in high school.

Concerning the 2013-2014 academic year, a statistically significant difference was revealed in second semester GPAs, $t(242.46) = -6.14$, $p < .001$, by dual credit enrollment status for White students. This difference represented a small effect size (Cohen's *d*) of 0.43 (Cohen, 1988). White students who had completed a dual credit course while in high school had a statistically higher average second semester GPA, 0.55

points higher, than White students who had not completed a dual credit course while in high school.

With respect to the 2014-2015 academic year, a statistically significant difference was yielded in second semester GPAs, $t(227.25) = -4.36$, $p < .001$, by dual credit enrollment status for White students. This difference represented a small effect size (Cohen's *d*) of 0.30 (Cohen, 1988). White students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.36 points higher, than White students who had not completed a dual credit course while in high school. Table 4.5 contains the descriptive statistics for the analyses for the three academic years.

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Insert Table 4.5 about here

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Regarding the third research question involving second semester GPAs for Hispanic students, a statistically significant difference was yielded in second semester GPAs, $t(248.88) = -8.39$, $p < .001$, by dual credit enrollment status. This difference represented a moderate effect size (Cohen's *d*) of 0.57 (Cohen, 1988). Hispanic students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.67 points higher, than Hispanic students who had not completed a dual credit course while in high school.

Concerning the 2013-2014 academic year, a statistically significant difference was revealed in second semester GPAs, $t(189.31) = -7.08$, $p < .001$, by dual credit enrollment status for Hispanic students. This difference represented a moderate effect

size (Cohen's *d*) of 0.53 (Cohen, 1988). Hispanic students who had completed a dual credit course while in high school had a statistically higher average second semester GPA, 0.64 points higher, than Hispanic students who had not completed a dual credit course while in high school.

With respect to the 2014-2015 academic year, a statistically significant difference was yielded in second semester GPAs, $t(284.74) = -8.58$, $p < .001$, by dual credit enrollment status for Hispanic students. This difference represented a moderate effect size (Cohen's *d*) of 0.54 (Cohen, 1988). Hispanic students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.67 points higher, than Hispanic students who had not completed a dual credit course while in high school. Delineated in Table 4.6 are the descriptive statistics for the analyses for the three academic years.

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Insert Table 4.6 about here

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For the third research question involving second semester GPAs for Black students, a statistically significant difference was yielded in second semester GPAs, $t(28.14) = -3.28$, $p = .003$, by dual credit enrollment status. This difference represented a moderate effect size (Cohen's *d*) of 0.58 (Cohen, 1988). Black students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.70 points higher, than Black students who had not completed a dual credit course while in high school.

Concerning the 2013-2014 academic year, a statistically significant difference was revealed in second semester GPAs, $t(25.49) = -4.86$, $p < .001$, by dual credit enrollment status. This difference represented a large effect size (Cohen's *d*) of 0.94 (Cohen, 1988). Black students who had completed a dual credit course while in high school had a statistically higher average second semester GPA, 1.01 points higher, than Black students who had not completed a dual credit course while in high school.

Regarding the 2014-2015 academic year, a statistically significant difference was yielded in second semester GPAs, $t(31.84) = -4.48$, $p < .001$, by dual credit enrollment status for Black students. This difference represented a moderate effect size (Cohen's *d*) of 0.72 (Cohen, 1988). Black students who had completed a dual credit course while in high school had a statistically significantly higher average second semester GPA, 0.87 points higher, than Black students who had not completed a dual credit course while in high school. In regard to ethnicity/race, Asian, White, Hispanic, and Black community college students who had completed a dual credit course while enrolled in high school had higher second semester GPAs than their ethnic/racial peers who had not completed a dual credit course while enrolled in high school. Readers are directed to Table 4.7 for the descriptive statistics for the analyses for the three academic years.

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Insert Table 4.7 about here

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## Discussion

Explored in this investigation was the extent to which differences might be present in the second semester GPAs by dual credit enrollment status for male and female

students and for Asian, White, Hispanic, and Black Texas community college students. Three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data from a Texas community college district were analyzed. Statistically significant differences were present in all three academic years of data that were analyzed. The average second semester GPAs for Texas community college male and female students and for Asian, White, Hispanic, and Black students were higher for students who had been enrolled in a dual credit course while in high school than for their peers who had not been enrolled in a dual credit course while in high school.

The average second semester GPA of students who completed a dual credit course while in high school was 0.60 points higher than the second semester GPA of students who had not completed a dual credit course. With respect to gender, the average first semester GPAs of community college male and female students who had completed a dual credit course while enrolled in high school were both 0.63 points higher than their peers who had not completed dual credit courses while in high school. Regarding community college student ethnicity/race, the average second semester GPAs of Asian, White, Hispanic, and Black students who had completed a dual credit course while in high school were 0.57, 0.47, 0.67, and 0.80 points higher than their ethnic/racial peers, respectively, who had not completed a dual credit course while in high school. Of specific interest was the finding that Black students who had completed a dual credit course while in high school had the highest average difference in their second semester GPAs than Black students who had not completed a dual credit course. Delineated in Tables 4.8 and 4.9 are the average second semester GPAs for these groups of students.

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Insert Tables 4.8 and 4.9 about here

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**Implications for Policy and Practice**

Based upon the results of this multiyear investigation, several implications are present for policy and for practice. First, community college leaders are encouraged to compare the demographic characteristics of their students who had completed a dual credit course while in high school to the demographic characteristics of the enrollment at the college. The degree to which similarities are present would be reflective of equity in student enrollment in dual credit courses. Educational leaders in both K-12 and postsecondary settings should encourage high school students to enroll in dual credit courses because completion of such courses is related to persistence and academic success in community colleges. Postsecondary and K-12 leaders should engage in collaborative conversations to warrant success and appropriate support for the high school students who enroll in dual credit courses.

**Recommendations for Future Research**

Based upon the results of this multiyear investigation, several recommendations for future research are warranted. First, the number of years of data on community college students who had completed a dual credit course in high school should be expanded. The degree to which results from this analysis of three years of data are generalizable to other years is not known. Second, researchers are encouraged to determine the extent to which longer term GPAs (e.g., graduating GPA) than second-semester GPAs for students who had completed a dual credit course while in high school are different from those students who had not completed a dual credit course. Such

analyses would be beneficial in ascertaining the long-term efficacy of dual credit enrollment. Third, this study should be extended to other states to determine the degree to which results delineated herein are generalizable to students in other states. Fourth, researchers are encouraged to extend this study to 4-year postsecondary institutions because data on only community colleges were analyzed in this study. Fifth, the demographic characteristics of students enrolled in postsecondary institutions should be compared to the demographic characteristics of students who are enrolled in postsecondary institutions and who completed a dual credit course while enrolled in high school. To what extent is equity present in the ethnic/racial percentages? Sixth, researchers could conduct a study to determine the extent to which differences might exist for the first semester GPAs of students who had completed a dual credit course while in high school. Finally, researchers could conduct qualitative studies to understand why different ethnic/racial groups are/are not enrolling in dual credit courses in high school at the same rate.

## Conclusion

In this multiyear analysis, the degree to which differences were present in second semester GPAs by dual credit enrollment status for Texas community college students were investigated for the 2012-2013 through the 2014-2015 academic years. Revealed were statistically significant differences in second semester GPAs for all students, separately by gender, and then by ethnicity/race. In all instances, students who had completed a dual credit course while enrolled in high school had statistically significantly higher average second semester GPAs in community college than did students who had not completed a dual credit course while enrolled in high school. With respect to

ethnicity/race, Black students had the highest average second semester difference for students who had completed a dual credit course while enrolled in high school. Efforts to increase the ethnic/racial diversity of students who complete dual credit courses are warranted, especially for Black students.

## References

Abraham, R. A., Slate, J. R., Saxon, D. P., & Barnes, W. (2014a). Math readiness of Texas community college developmental education students: A multiyear statewide analysis. *Community College Enterprise, 20*(2), 25-44.

Abraham, R. A., Slate, J. R., Saxon, D. P., & Barnes, W. (2014b). College-readiness in math: A conceptual analysis of the literature. *Research & Teaching in Developmental Education, 30*(2), 4-34.

Allen, D., & Dadgar, M. (2012). Does dual enrollment increase students' success in college? Evidence from a quasi-experimental analysis of dual enrollment in New York City. *New Directions for Higher Education, 2012*(158), 11-19. doi:10.1002/he20010

American Institutes for Research. (2013). *How career and technical education can help students be college and career ready: A primer.* 1-16. Washington, DC: College & Career Readiness & Success Center. Retrieved from http://www.aypf.org/wp-content/uploads/2013/04/CCRS-CTE-Primer-2013.pdf

American Institutes for Research & Gibson Consulting Group. (2011). *Research study of Texas dual credit programs and courses.* Austin, TX: Texas Education Agency. Retrieved from http://www.tea.state.tx.us/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=2147499085&libID=2147499082

An, B. P. (2013). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation & Policy Analysis, 35*, 57-75. doi:10.3102/0162373712461933

An, B. P. (2015). The role of academic motivation and engagement on the relationship between dual enrollment and academic performance. *Journal of Higher Education, 86,* 98-126.

Arnold, K. D., Lu, E. C., & Armstrong, K. J. (2012). The case for a comprehensive model of college readiness. *ASHE Higher Education Report, 38*(5), 1-10. doi:10.1002/aeche.20005

Aud, S., KewalRamani, A., & Frolich, L. (2011). *America's youth: Transitions into adulthood (NCES 2012–026).* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Bailey, T. R., & Karp, M. M. (2003). *Promoting college access and success: A review of credit-based transition programs*. Washington, DC: U.S. Department of Education. Retrieved from ERIC database. (ED482497)

Barnett, E., & Stamm, L. (2010). *Dual enrollment: A strategy of educational advancement of all students.* Washington, DC: Blackboard. Retrieved from Blackboard: http://www.blackboard.com/CMSPages/GetFile.aspx?guid=0a8a4922-1e84-44bc-ab79-15cd406541a8

Carnevale, A. P., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018.* Washington, DC: Georgetown University Center on the Workforce. Retrieved from https://cew.georgetown.edu/wp-content/uploads/2014/12/fullreport.pdf

Cilesiz, S., & Drotos, S. M. (2016). High-poverty urban high school students' plans for higher education. *Urban Education, 51,* 3-31. doi:10.1177/0042085914543115

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Correa, F., & Kouzekanani, K. (2011, April). *Impact of participation in dual enrollment on persistence and academic achievement at a community college.* Paper presented at the annual convention of the American Educational Research Association, New Orleans, LA.

Cowan, J., & Goldhaber, D. (2014). *How much of a running start do dual enrollment programs provide students?* Center for Education Data & Research. WP 2014-7. Seattle, WA: University of Washington.

Giani, M., Alexander, C., & Reyes, P. (2014). Exploring variation in the impact of dual-credit coursework on postsecondary outcomes: A quasi-experimental analysis of Texas students. *The High School Journal, 4,* 200-218. doi:10.1353/hsj.2014.0007

Hughes, K. L. (2010). Dual enrollment: Postsecondary/secondary partnerships to prepare students. *Journal of College Science Teaching, 39*(6), 12-13.

Iloh, C., & Toldson, I. A. (2013). Black students in 21st century higher education: A closer look at for-profit and community colleges (Editor's Commentary). *The Journal of Negro Education, 82,* 205-212.

Johnson, B., & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mixed approaches* (4th ed.). Thousand Oaks, CA: Sage.

Jones, S. J. (2014). Student participation in dual enrollment and college success, *Community College Journal of Research and Practice, 38,* 24-37, doi:10.1080/10668926.2010.532449

Karp, M. M., Calcagno, J., Hughes, K. L., Jeong, D., & Bailey, T. (2008). *Dual enrollment students in Florida and New York City: Postsecondary outcomes*. CCRC Brief. Number 37. New York, NY: Community College Research Center, Columbia University. Retrieved from ERIC database. (ED500537)

Kilgore, W., & Taylor, A. (2016). *Dual enrollment in the context of strategic enrollment management: An insight into practice at U.S. institutions.* Washington, DC: American Association of Collegiate Registrars and Admissions Officers.

Kirsch, I., Braun, H., Yamamoto, K., & Sum, A. (2007). America's perfect storm: Three forces changing our nation's future. (Undetermined). *Catalyst (Portland), 36*(1), 3-5.

Lee, K. M., Slate, J. R. Young, R. D., Jr., Moore, G. W., & Barnes, W. (2016). Value-added effect of credit-based transition programs after controlling for preexisting student characteristics. *Progress in Education, Volume 39* (Chapter 5). Hauppauge, NY: Nova Publishers.

Lumina Foundation. (2012). *A stronger nation through higher education: How and why Americans must meet a big goal for college attainment.* Indianapolis, IN: Author.

National Center for Education Statistics. (2011). *Digest of education statistics, 2010.* Washington, DC: Author. Retrieved from https://nces.ed.gov/pubs2011/2011015.pdf

O'Connor, K. B., & Justice, M. C. (2008). Evaluating dual credit enrollment at selected rural northeast Texas high schools. *Southeastern Teacher Education Journal, 1*, 27-34.

Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools, 9*, 73-90.

Pretlow, J., & Wathington, H. D. (2013). Expanding dual enrollment: Increasing postsecondary access for all? *Community College Review, 42*(1), 41-54. doi:10.1177/0091552113509664

Sherman Valentine, A. N. (2010). *Dual enrollment and Advanced Placement programs: A comparison of persistence, student academic achievement, graduation completion and time-to-degree attainment* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses. (3403205)

Swanson, J. (2008, November). *An analysis of the impact of high school dual enrollment course participation on post-secondary academic success, persistence and degree completion.* Paper presented at the meeting of the National Association for Gifted Children, Tampa, FL and the National Alliance of Concurrent Enrollment Partnerships, Kansas City, MO. Retrieved from http://nacep.org/research-and-policy/research-studies

Thacker, K. O. (2014). *Graduation rates: A comparison of college graduation success rates of dual enrollment versus non-dual enrollment students in the community college* (Doctoral dissertation). Retrieved from University of Tennessee, Chattanooga.

Tierney, W., & Venegas, K. (2009). Finding money on the table: Information, financial aid, and access to college. *The Journal of Higher Education, 80*, 363-388.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2013). A critical analysis of the dual credit program. *Progress in Education, 30* (pp. 39-68). Hauppauge, NY: Nova Main Publishers.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014a). Dual credit programs: A conceptual analysis of the literature. *Journal of Education Research, 8*(1/2), 79-106.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014b). Dual credit and non-dual credit college students: Differences in GPAs after the second semester. *Journal of Education and Human Development, 3*(2), 203-230.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014c, April). *Dual credit and non-dual credit college students: Differences in their second semester GPAs.* Poster presented at the American Educational Research Association, Philadelphia, PA.

Table 4.1

*Descriptive Statistics for the Second Semester GPAs of Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 7,396 | 2.18 | 1.31 |
| Enrolled | 584 | 2.72 | 1.09 |
| 2013-2014 | | | |
| Not Enrolled | 7,383 | 2.13 | 1.33 |
| Enrolled | 462 | 2.85 | 1.15 |
| 2014-2015 | | | |
| Not Enrolled | 7,904 | 2.12 | 1.35 |
| Enrolled | 564 | 2.76 | 1.10 |

Table 4.2

*Descriptive Statistics for the Second Semester GPAs of Male Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 3,266 | 2.09 | 1.32 |
| Enrolled | 205 | 2.67 | 1.08 |
| 2013-2014 | | | |
| Not Enrolled | 3,361 | 2.06 | 1.32 |
| Enrolled | 164 | 2.75 | 1.21 |
| 2014-2015 | | | |
| Not Enrolled | 3,571 | 2.03 | 1.35 |
| Enrolled | 204 | 2.60 | 1.14 |

Table 4.3

*Descriptive Statistics for the Second Semester GPAs of Female Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 4,130 | 2.26 | 1.30 |
| Enrolled | 379 | 2.76 | 1.09 |
| 2013-2014 | | | |
| Not Enrolled | 4,022 | 2.18 | 1.34 |
| Enrolled | 298 | 2.91 | 1.11 |
| 2014-2015 | | | |
| Not Enrolled | 4,332 | 2.19 | 1.34 |
| Enrolled | 360 | 2.85 | 1.06 |

Table 4.4

*Descriptive Statistics for the Second Semester GPAs of Asian Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 504 | 2.68 | 1.25 |
| Enrolled | 47 | 3.13 | 0.69 |
| 2013-2014 | | | |
| Not Enrolled | 513 | 2.75 | 1.16 |
| Enrolled | 36 | 3.31 | 0.84 |
| 2014-2015 | | | |
| Not Enrolled | 543 | 2.68 | 1.21 |
| Enrolled | 66 | 3.26 | 0.77 |

Table 4.5

*Descriptive Statistics for the Second Semester GPAs of White Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 2,475 | 2.33 | 1.29 |
| Enrolled | 214 | 2.70 | 1.09 |
| 2013-2014 | | | |
| Not Enrolled | 2,360 | 2.31 | 1.32 |
| Enrolled | 201 | 2.86 | 1.21 |
| 2014-2015 | | | |
| Not Enrolled | 2,543 | 2.34 | 1.31 |
| Enrolled | 185 | 2.70 | 1.06 |

Table 4.6

*Descriptive Statistics for the Second Semester GPAs of Hispanic Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 2,948 | 2.16 | 1.24 |
| Enrolled | 210 | 2.83 | 1.10 |
| 2013-2014 | | | |
| Not Enrolled | 3,068 | 2.10 | 1.28 |
| Enrolled | 167 | 2.74 | 1.14 |
| 2014-2015 | | | |
| Not Enrolled | 3,285 | 2.04 | 1.31 |
| Enrolled | 239 | 2.71 | 1.15 |

Table 4.7

*Descriptive Statistics for the Second Semester GPAs of Black Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Academic Year and Dual Credit Enrollment Status | *n* | *M* | *SD* |
|---|---|---|---|
| 2012-2013 | | | |
| Not Enrolled | 982 | 1.59 | 1.33 |
| Enrolled | 27 | 2.29 | 1.10 |
| 2013-2014 | | | |
| Not Enrolled | 992 | 1.48 | 1.33 |
| Enrolled | 25 | 2.67 | 1.21 |
| 2014-2015 | | | |
| Not Enrolled | 1,063 | 1.54 | 1.35 |
| Enrolled | 30 | 2.41 | 1.04 |

Table 4.8

*Results for the Second Semester GPAs of All Students and by Gender of Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Group and Academic Year | Significantly Significant | Effect Size | Higher GPAs |
|---|---|---|---|
| All Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Moderate | Dual Credit |
| Male Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |
| Female Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Moderate | Dual Credit |

Table 4.9

*Results for the Second Semester GPAs by Ethnicity/Race of Texas Community College Students by Dual Credit Enrollment Status in the 2012-2013, 2013-2014, and 2014-2015 Academic Years*

| Group and Academic Year | Significantly Significant | Effect Size | Higher GPAs |
|---|---|---|---|
| Asian Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Moderate | Dual Credit |
| White Students | | | |
| 2012-2013 | Yes | Small | Dual Credit |
| 2013-2014 | Yes | Small | Dual Credit |
| 2014-2015 | Yes | Small | Dual Credit |
| Hispanic Students | | | |
| 2012-2013 | Yes | Moderate | Dual Credit |
| 2013-2014 | Yes | Moderate | Dual Credit |
| 2014-2015 | Yes | Moderate | Dual Credit |
| Black Students | | | |
| 2012-2013 | Yes | Moderate | Dual Credit |
| 2013-2014 | Yes | Large | Dual Credit |
| 2014-2015 | Yes | Near-Large | Dual Credit |

# CHAPTER V

# DISCUSSION

The purpose of this journal-ready dissertation was to examine dual credit enrollment with respect to student demographic characteristics and to student academic success of Texas community college students. The first purpose was to describe the demographic characteristics with respect to gender and ethnicity/race of Texas community college students who completed a dual credit course while in high school. A second purpose was to analyze the extent to which differences were present in first semester GPAs by ethnicity/race and gender of Texas community college students who previously completed a dual credit course while in high school. Finally, a third purpose was to ascertain the degree to which differences were present in the second semester GPAs as a function of ethnicity/race and gender of Texas community college students who previously completed a dual credit course while in high school.

## Study One Results

Examined in the first investigation were the demographic characteristics of students who completed a dual credit course while in high school and then enrolled in a Texas community college. Three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data were obtained from the Institutional Research Office of a large Texas community college district. In this multiyear analysis, females in all three academic years constituted almost two thirds of the community college students in this study who had completed a dual credit course while enrolled in high school. With respect to student ethnicity/race, White and Hispanic community college students comprised the two largest ethnic/racial groups in all three academic years who had completed a dual credit course

while in high school. The percentage of White students who had completed a dual credit course in high school decreased over the three academic years from 37% to 33%. In the last academic year, Hispanic students constituted the ethnic/racial group that had the highest percentage of students who had completed a dual credit course while in high school. Similar to all ethnic/racial groups, other than Black student dual credit enrollment, Asian students who had completed dual credit grew from 6% to 9% over the three academic years.

In all three academic years, Black community college students comprised the ethnic/racial group that had the lowest percentage of students who had taken a dual credit course while enrolled in high school. The percentage of Black community college students who had completed a dual credit course while in high school was consistently at 5% during each of the three academic years. Thus, the only group of students who did not have increased enrollment in dual credit courses while enrolled in high school were Black students.

An analysis of gender within ethnic/racial groups revealed that Hispanic females and White females had the highest percentage of enrollment in dual credit courses. The percentage of White female enrollment in dual credit courses was consistently at 36% over the three academic years. The percentage of Hispanic female enrollment in dual credit courses increased from 40% to 43% over the three academic years. Consistent with Black males, Black females comprised the lowest percentage of students who had completed a dual credit course while in high school in all three academic years.

To determine the degree to which the demographic characteristics of students who had completed a dual credit course while in high school were similar to the demographic

characteristics of students who were enrolled in this community college district, data were obtained from the community college district regarding the demographic characteristics of all students who were enrolled. Female students comprised about 60% of the student enrollment in this community college district. As such, given that approximately two thirds of the students who had taken dual credit courses while in high school were female, a slight discrepancy was evident with respect to female enrollment in dual credit courses and female enrollment in this community college district. Also present was a lower percentage of male students who had completed a dual credit course while in high school in comparison to the percentage of male students who were enrolled in this particular community college district.

White students had the highest percentage of student enrollment, followed by Hispanic students, with Asian students constituting the ethnic/racial group with the lowest percentage, about 6-7%. In comparing these enrollment percentages with the percentages of students who completed a dual credit course while in high school, clear discrepancies were present with respect to Black students. The percentage of Black students who were enrolled in this community college district was about 19%, however, the percentage of Black students who had completed a dual credit course while in high school was about 5%. This difference reflects a strong disparity and a need to increase Black student enrollment in dual credit courses. Asian students had a higher percentage, about 10%, who completed a dual credit course while in high school than their percentage of the student enrollment, about 7%, in this particular community college district.

**Study Two Results**

Addressed in the second study in this journal-ready dissertation was the extent to which differences were present in the first semester GPAs by dual credit enrollment status for male and female students and for Asian, White, Hispanic, and Black Texas community college students. Three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data from a Texas community college district were analyzed. Statistically significant differences were present in all three academic years of data that were analyzed. The average first semester GPAs for Texas community college male and female students and for Asian, White, Hispanic, and Black students were higher for students who had been enrolled in a dual credit course while in high school than for their peers who had not enrolled in a dual credit course while in high school.

The average first semester GPA of students who completed a dual credit course while in high school was 0.47 points higher than the first semester GPA of students who had not completed a dual credit course. With respect to gender, the average first semester GPAs of community college male and female students who had completed a dual credit course while enrolled in high school were 0.43 and 0.47 points higher, respectively, than their peers who had not completed dual credit courses while in high school. Regarding community college student ethnicity/race, the average first semester GPAs of Asian, White, Hispanic, and Black students who had completed a dual credit course while in high school were 0.33, 0.30, 0.50, and 0.67 points higher than their ethnic/racial peers, respectively, who had not completed a dual credit course while in high school. Of note was the finding that Black students who had completed a dual credit course while in high

school had the highest average difference in their first semester GPAs than Black students who had not completed a dual credit course.

**Study Three Results**

Explored in the third article was the extent to which differences weree present in the second semester GPAs by dual credit enrollment status for male and female students and for Asian, White, Hispanic, and Black Texas community college students. Three academic years (i.e., 2012-2013, 2013-2014, and 2014-2015) of data from a Texas community college district were analyzed. Statistically significant differences were present in all three academic years of data that were analyzed. The average second semester GPAs for Texas community college male and female students and for Asian, White, Hispanic, and Black students were higher for students who had been enrolled in a dual credit course while in high school than for their peers who had not enrolled in a dual credit course while in high school.

The average second semester GPA of students who completed a dual credit course while in high school was 0.60 points higher than the second semester GPA of students who had not completed a dual credit course. With respect to gender, the average first semester GPAs of community college male and female students who had completed a dual credit course while enrolled in high school were both 0.63 points higher than their peers who had not completed dual credit courses while in high school. Regarding community college student ethnicity/race, the average second semester GPAs of Asian, White, Hispanic, and Black students who had completed a dual credit course while in high school were 0.57, 0.47, 0.67, and 0.80 points higher than their ethnic/racial peers, respectively, who had not completed a dual credit course while in high school. Of

specific interest was the finding that Black students who had completed a dual credit course while in high school had the highest average difference in their second semester GPAs than Black students who had not completed a dual credit course.

**Summary of Results**

Across the three empirical statewide investigations conducted in this journal-ready dissertation, statistically significant results were present in almost every statistical analysis. In all three academic years, almost two thirds of the students who had completed a dual credit course in high school were females. With respect to ethnicity/race, White students constituted the highest percentage for two of the three years evaluated in this investigation, with Black students having the lowest percentage of students who had completed a dual credit course while in high school. Statistically significant differences were yielded in first semester and second semester GPAs for all students, separately by gender, and then by ethnicity/race. In all instances, students who had completed a dual credit course while enrolled in high school had statistically significantly higher first semester and second semester GPAs in community college than did students who had not completed a dual credit course while enrolled in high school. With respect to ethnicity/race, Black students had the highest average first semester and second semester differences for students who had completed a dual credit course while enrolled in high school.

**Connections with the Existing Research Literature**

Researchers (e.g., Hillman et al., 2014; Lundy-Wagner, 2015; Young et al., 2014a) have previously analyzed dual credit programs. In agreement with the results of Young et al. (2013a) was the statement that “The lack of Black student enrollment should

be a major priority for future research and could be accomplished by research through surveys on the cultural differences that 'prevent' Black students from enrolling in dual credit" (p. 7). In this multiyear, statewide investigation, Black students had the lowest percentage of students who had completed a dual credit course while in high school. These results were consistent with Young et al. (2013a) wherein the researchers documented an "overrepresentation of White students in comparison to students of color should be a focus of concern" (p. 5). Similarly, Young et al. (2014a) reported substantial differences in the ethnic/racial composition of students who had taken dual credit courses while in high school.

Results of this journal-ready dissertation were in agreement with An (2012) who established that students who successfully completed dual credit courses while in high school had statistically significantly higher GPAs in college than did their peers who had not been enrolled in dual credit courses while in high school. Findings delineated herein were also commensurate with Young et al. (2013) who established that higher GPAs were present for Texas community college students who had completed dual credit courses while enrolled in high school in comparison to their community college peers who had not taken dual credit courses.

In two previous investigations conducted on Texas community college students, Young et al. (2014a) determined that female and male students who completed dual credit courses while in high school had statistically significantly higher second semester GPAs than their counterparts who had not completed dual credit courses in high school. Similarly, Young et al. (2014b) documented that White, Hispanic, and Black students who completed a dual credit course while in high school had statistically significantly

higher second semester GPAs then their peers who had not completed a dual credit course while in high school. As such, findings delineated herein were consistent with Young et al. (2014a, 2014b).

**Implications for Policy and Practice**

As noted previously, inequities were present between the ethnic/racial diversity of students who had taken a dual credit course while enrolled in high school and the ethnic/racial diversity of the community college students in this journal-ready dissertation. As such, community college leaders are encouraged to compare the demographic characteristics of their students who had been enrolled in dual credit while in high school to the demographic characteristics of their student enrollment. Should discrepancies and/or inequities be present, then community college leaders are encouraged to engage in collaborative efforts with K-12 leaders to increase the ethnic/racial diversity of their students who are enrolled in dual credit courses.

Efforts to ascertain the effects of dual credit enrollment on community college student success should be conducted. Having empirical evidence on the efficacy or non-efficacy of dual credit enrollment on community college student success could be used to encourage more high school student involvement in dual credit courses. In regard to ethnicity/race, Asian, White, Hispanic, and Black community college students who had completed a dual credit course while enrolled in high school had higher first semester GPAs than their ethnic/racial peers who had not completed a dual credit course while enrolled in high school. Accordingly, educational leaders in both K-12 and postsecondary settings should encourage high school students to enroll in dual credit courses because completion of such courses is related to academic success in community

colleges. Educational leaders in both settings, however, should ensure that high school students who enroll in dual credit courses are provided with the appropriate support that they may need to be successful.

**Recommendations for Future Research**

Based on the results of the three empirical studies conducted in this journal-ready dissertation, opportunities for future research are present. First, the demographic characteristics of community college students who had completed a dual credit course in high school could be determined for more years than were analyzed in this investigation. Furthermore, researchers are encouraged to examine student characteristics at all Texas community colleges. The extent to which the results of this study based upon only one community college district generalize to other Texas community colleges is not known. Third, researchers are encouraged to extend this study to other states to ascertain the degree to which results delineated herein are generalizable to community college students in other states. Fourth, because results in this investigation were only on community college students, researchers are encouraged to replicate this investigation at 4-year universities. Are community college and 4-year university student demographic characteristics similar for students who complete a dual credit course while enrolled in high school?

In addition to quantitative investigations, qualitative studies could be conducted to understand why students of different ethnic/racial groups are/are not enrolling in dual credit courses in high school at the same rate. Furthermore, qualitative studies could be conducted to ascertain the reasons why students enroll or do not enroll in dual credit courses while in high school. Fifth, the efficacy or dual credit courses on student

academic success, both short-term (i.e., first semester GPA) and long-term (i.e., second semester GPA), needs to be determined. Finally, researchers could conduct qualitative studies to understand why different ethnic/racial groups are/are not enrolling in dual credit courses in high school at the same rate.

**Conclusion**

In the three studies in this journal-ready dissertation, the dual credit enrollment of Black students was not reflective of the proportion of Black students at the community college whose data were analyzed herein. Administrators in K-12 and postsecondary are encouraged to review the overall lack of equal representation across ethnic/racial groups. Because several researchers (e.g., Morrison, 2008; Texas Higher Education Coordinating Board, 2016; Young et al., 2014a, 2014b) have documented the benefits of dual credit courses, all students should be provided with an opportunity to obtain these benefits.. Efforts to increase the ethnic/racial diversity of students who complete dual credit courses are warranted, especially for Black students.

## REFERENCES

Abraham, R. A., Slate, J. R., Saxon, D. P., & Barnes, W. (2014a). Math readiness of Texas community college developmental education students: A multiyear statewide analysis. *Community College Enterprise, 20*(2), 25-44.

Abraham, R. A., Slate, J. R., Saxon, D. P., & Barnes, W. (2014b). College-readiness in math: A conceptual analysis of the literature. *Research & Teaching in Developmental Education, 30*(2), 4-34.

ACT. (2007). *Rigor at risk: Reaffirming quality in high school core curriculum.* Iowa City, IA: Author.

ACT. (2014). *The condition of college & career readiness: National*. Retrieved from http://www.act.org/readiness/2014

Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college.* Washington, DC: U.S. Department of Education.

Allen, D., & Dadgar, M. (2012). Does dual enrollment increase students' success in college? Evidence from a quasi-experimental analysis of dual enrollment in New York City. *New Directions for Higher Education, 2012*(158), 11-20. doi:10.1002/he.20010

American Institutes for Research. (2013). *How career and technical education can help students be college and career ready: A primer,* 1-16. Washington, DC: College & Career Readiness & Success Center. Retrieved from http://www.aypf.org/wp-content/uploads/2013/04/CCRS-CTE-Primer-2013.pdf

American Institutes for Research & Gibson Consulting Group. (2011, March). *Research study of Texas dual credit programs and courses.* Austin, TX: Texas Education

Agency. Retrieved from http://www.tea.state.tx.us/index2.aspx?id=2147495222&menu_id=949

An, B. P. (2012). The influence of dual enrollment on academic performance and college readiness: Differences by socioeconomic status. *Research in Higher Education, 54*(4), 407-432. doi:10.1007/s11162-012-9278-z

An, B. P. (2013). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation & Policy Analysis, 35*(1), 57-75. doi:10.3102/0162373712461933

An, B. P. (2015). The role of academic motivation and engagement on the relationship between dual enrollment and academic performance. *Journal of Higher Education, 86,* 98-126.

An, B. P., & Taylor, J. L. (2015). Are dual enrollment students college ready? Evidence from the Wabash National Study of Liberal Arts Education. *Education Policy Analysis Archives, 23*(58), 1-28. doi:10.14507/epaa.v23.1781

Anderson, J. J. (2010). *An investigation of student perceptions of dual enrollment at a mid-sized western community college* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses. (3488917)

Arnold, K. D., Lu, E. C., & Armstrong, K. J. (2012). The case for a comprehensive model of college readiness. *ASHE Higher Education Report, 38*(5), 1-10. doi:10.1002/aeche.20005

Aud, S., KewalRamani, A., & Frolich, L. (2011). *America's youth: Transitions into adulthood* (NCES 2012–026). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Bailey, T. R., Hughes, K. L., & Karp, M. (2002). *What role can dual enrollment programs play in easing the transition between high school and postsecondary education?* Washington, DC: Preparing for America's Future: The High School Symposium. Retrieved from ERIC database. (ED465090)

Bailey, T. R., & Karp, M. M. (2003). *Promoting college access and success: A review of credit-based transition programs*. Washington, DC: U.S. Department of Education. Retrieved from ERIC database. (ED482497)

Barefoot, B. O. (2008). College transitions: The other side of the story. *New Directions for Higher Education, 2008*(144), 89-92. doi:10.1002/he.329

Barnes, W., & Slate, J. R. (2011). Ethnic differences in college-readiness rates: A multi-year, statewide study. *Education and Urban Society, 20*(10), 1-29. doi:10.1177/0013124511423775

Barnes, W., & Slate, J. R. (2013). College-readiness is not one-size-fits-all. *Current Issues in Education, 16*(1), 1-11. Retrieved from http://cie.asu.edu/ojs/index.php/cieatasu/article/view/1070

Barnes, W., & Slate, J. R. (2014). College-readiness rates in Texas: A statewide, multiyear study of ethnic differences. *Education and Urban Society, 46*(1), 59-87. doi:10.1177/0013124511423775

Barnes, W., Slate, J. R., & Rojas-LeBouef, A. (2010). College-readiness and academic preparedness: The same concepts? *Current Issues in Education, 13*(4). Retrieved from http://cie.asu.edu/

Barnett, E., & Stamm, L. (2010). *Dual enrollment: A strategy of educational advancement of all students.* Washington, DC: Blackboard. Retrieved from

Blackboard: http://www.blackboard.com/CMSPages/GetFile.aspx?guid=0a8a4922-1e84-44bc-ab79-15cd406541a8

Barrow, L., Brock, T., & Rouse, C. E. (2013). Postsecondary education in the United States: Introducing the issue. *The Future of Children, 23*(1), 3-16.

Barshay, J. (2013). Taking college courses in high school, new dual enrollment data. [*Web log comment*]. Retrieved from http://educationbythenumbers.org/content/taking-college-courses-in-high-school-new-dual-enrollment-data_33/

Beach, J. M. (2011). *Gateway to opportunity? A history of the community college in the United States.* Sterling, VA: Stylus Publishing, LLC.

Belasco, A. S., & Trivette, M. J. (2015). Aiming low: Estimating the scope and predictors of postsecondary undermatch. *Journal of Higher Education*, *86*(2), 233-263.

Bureau of Labor Statistics website. (2016). *Employment projections*. Retrieved from http://www.bls.gov/emp/ep_chart_001.htm

Carnevale, A. P., Jayasundera, T., & Hanson, A. R. (2012). *Career and technical education: Five ways that pay along the way to the B.A.* Washington, DC: Center on Education and the Workforce, Georgetown University & Civic Enterprises. Retrieved from http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/CTE.FiveWays.FullReport.pdf

Carnevale, A. P., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018.* Washington, DC: Georgetown University

Center on the Workforce. Retrieved from https://cew.georgetown.edu/wp-content/uploads/2014/12/fullreport.pdf

Carnevale, A. P., Smith, N., & Strohl, J. (2013). *Recovery: Job Growth and Education Requirements Through 2020.* Georgetown Public Policy Institute: Center on Education and the Workforce. 1-14. Retrieved from https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.FR_.Web_.pdf

Carnevale, A. P., & Strohl, J. (2010). How increasing college access is increasing inequality, and what to do about it. In R. Kahlenberg (Ed.), *Rewarding strivers: Helping low-income students succeed in college* (pp. 225-256). New York, NY: Century Foundation.

Cates, J. T., & Schaefle, S. E. (2011). The relationship between a college preparation program and at-risk students' college readiness. *Journal of Latinos and Education, 10*(4), 320-334. doi:10.1080/15348431.2011.605683

Chapa, M., Galvan-De Leon, V., Solis, J., & Mundy, M. (2014). College readiness. *Research in Higher Education Journal*, *25*, 1-5.

Cilesiz, S., & Drotos, S. M. (2016). High-poverty urban high school students' plans for higher education. *Urban Education, 5*, 3-31. doi:10.1177/0042085914543115

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Combs, J. P., Slate, J. R., Moore, G. W., Bustamante, R., Onwuegbuzie, A. J., & Edmonson, S. (2010). Gender differences in college preparedness: A statewide study. *Urban Review, 42*(5), 441-457. doi:10.1007/s11256-009-0138-x

Conger, D., Long, M. C., & Iatarola, P. (2009). Explaining race, poverty, and gender disparities in advanced course-taking. *Journal of Policy Analysis and Management, 28*, 555-576. doi:10/1002/pam.20455

Conley, D. T. (2007). *Redefining college readiness*. Retrieved from Educational Policy Improvement Center website: https://www.epiconline.org/files/pdf/RedefiningCollegeReadiness.pdf

Correa, F., & Kouzekanani, K. (2011, April). *Impact of participation in dual enrollment on persistence and academic achievement at a community college.* Paper presented at the annual convention of the American Educational Research Association, New Orleans, LA.

Cowan, J., & Goldhaber, D. (2014). *How much of a running start do dual enrollment programs provide students?* Center for Education Data & Research. WP 2014-7. Seattle, WA: University of Washington.

Crouse, J. D., & Allen, J. (2014). College course grades for dual enrollment students. *Community College Journal of Research and Practice, 38,* 494-511.

D'Amico, M. M., Morgan, G. B., Katsinas, S. G., & Friedel, J. N. (2015). State director views on community college workforce development. *Career & Technical Education Research, 39,* 191-211.

Fike, D. S., & Fike, R. (2012). The consequences of delayed enrollment in developmental mathematics. *Journal of Developmental Education, 35*(3), 2-10.

Gamez-Vargas, J., & Oliva, M. (2013). Adult guidance for college: Rethinking educational practice to foster socially-just college success for all. *Journal of College Admission, 221,* 60-68.

Ganzert, B. (2014). Dual enrollment credit and college readiness. *Community College Journal of Research and Practice, 38,* 783-793. doi:10.1080/10668926.2012.719483

Gardner, J. N., Barefoot, B. O., & Farakish, N. (2015). *Your college experience: Strategies for success.* (Two-year college ed.) Boston, MA: Bedford/St. Martin's.

Gewertz, C. (2016) Are dual-enrollment programs overpromising? *Education Week, 26.*

Giani, M., Alexander, C., & Reyes, P. (2014). Exploring variation in the impact of dual-credit coursework on postsecondary outcomes: A quasi-experimental analysis of Texas students. *The High School Journal, 4,* 200-218. doi:10.1353/hsj.2014.0007

Gross, N. (2016). *Two places at once: The growth of dual enrollment.* Retrieved from http://www.ewa.org/blog-higher-ed-beat/two-places-once-growth-dual-enrollment

Harvey, D. W., Slate, J. R., Moore, G. W., Barnes, W., & Martinez-Garcia, C. (2013). College readiness gaps: A review of the literature. *Journal of Education Research, 7*(3), 181-204.

Hickox, S. A. (2015). The job-relatedness and business necessity of the "New and Improved" high school diploma. *Berkeley Journal of Employment & Labor Law, 36*(1), 43-121.

Hillman, N., Tandberg, D., & Gross, J. (2014). Market-based higher education: Does Colorado's Voucher Model improve higher education access and efficiency? *Research in Higher Education*, *55*(6), 601-625.

Hughes, K., Rodriguez, O., Edwards, L., & Belfield, C. (2012). *Broadening the benefits of dual enrollment: Reaching underachieving and underrepresented students with career-focused program.* New York, NY: Community College Research Center.

Hughes, K. L. (2010). Dual enrollment: Postsecondary/secondary partnerships to prepare students. *Journal of College Science Teaching, 39*(6), 12-13.

Iloh, C., & Toldson, I. A. (2013). Black students in 21st century higher education: A closer look at for-profit and community colleges (Editor's Commentary). *The Journal of Negro Education, 82,* 205-212.

James, D., Lefkowits, L., & Hoffman, R. (2016). Dual enrollment: A pathway to college and career readiness. *Learning Environment*. Retrieved from http://www.advanc-ed.org/source/dual-enrollment-pathway-college-and-career-readiness

Jaquette, O., Curs, B. R., & Posselt, J. R. (2016). Tuition rich, mission poor: Nonresident enrollment growth and the socioeconomic and racial composition of public research universities. *Journal of Higher Education, 87*(5), 635-673.

Johnson, B., & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mixed approaches* (4th ed.). Thousand Oaks, CA: Sage.

Jones, S. J. (2014). Student participation in dual enrollment and college success, *Community College Journal of Research and Practice*, *38*(1), 24-37, doi:10.1080/10668926.2010.532449

Karp, M. M. (2012). "I don't know, I've never been to college!" Dual enrollment as a college readiness strategy. *New Directions for Higher Education, 158,* 21-28.

Karp, M. M., Calcagno, J., Hughes, K. L., Jeong, D., & Bailey, T. (2008). *Dual enrollment students in Florida and New York City: Postsecondary outcomes*. CCRC Brief. Number 37. New York, NY: Community College Research Center, Columbia University. Retrieved from ERIC database. (ED500537)

Karp, M. M., & Hughes, K. L. (2008). Study: Dual enrollment can benefit a broad range of students. *Techniques: Connecting Education and Careers, 83*(7), 14-17. Retrieved from http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ815413

Khazem, J., & Khazem, H. (2012). Dual enrollment: The way forward. *International Journal of Education Research, 7*(2), 135-150.

Kilgore, W., & Taylor, A. (2016). *Dual enrollment in the context of strategic enrollment management: An insight into practice at U.S. institutions.* Washington, DC: American Association of Collegiate Registrars and Admissions Officers.

Kim, J. (2012). Data-informed practices in an urban dual enrollment program. *New Directions for Higher Education, 2012*(158), 49-57.

Kirsch, I., Braun, H., Yamamoto, K., & Sum, A. (2007). America's perfect storm: Three forces changing our nation's future. *Catalyst (Portland), 36*(1), 3-5.

Klopfenstein, K., & Thomas, M. K. (2009). The link between Advanced Placement experience and early college success. *Southern Economic Journal, 77,* 873-891.

Kotamraju, P., & Blackman, O. (2011) Meeting the 2020 American Graduation Initiative (AGI) goal of increasing postsecondary graduation rates and completions: A macro perspective of community college student educational attainment, *Community College Journal of Research and Practice*, *35*(3), 202-219. doi:10.1080/10668926.2010.526045

Lee, K. M. (2014). *Role of credit-based transition programs on time-to-degree attainment and final GPA of university students in Texas* (Order No. 3582446). Available from Dissertations & Theses. (1662777431)

Lee, K. M., Slate, J. R., Young, R. D., Jr., Moore, G. W., & Barnes, W. (2016). Value-added effect of credit-based transition programs after controlling for preexisting student characteristics. *Progress in Education, Volume 39* (Chapter 5). Hauppauge, NY: Nova Publishers.

Lundy-Wagner, V. C. (2015). Coming out of the shadows: Rethinking the education policy agenda for diversity and HBCUs. *New Directions for Higher Education, 2015*(170), 91-101.

Lumina Foundation. (2012). *A stronger nation through higher education: How and why Americans must meet a big goal for college attainment*. Indianapolis, IN: Author.

Mangan, K. (2014, February). Is faster always better? *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/article/Is-Faster-Always-Better-/144781/

McDonald, D., & Farrell, T. (2012). Out of the mouths of babes: Early college high school students' transformational learning experiences. *Journal of Advanced Academics, 23*(3), 217-248.

Moore, G., Slate, J. R., Edmonson, S., Combs, J. P., Bustamante, R., & Onwuegbuzie, A. J. (2010). High school students and their lack of preparedness for college: A statewide study. *Education and Urban Society, 42*, 817-838. doi:10.1177/0013124510379619

Morrison, M. C. (2008). *The benefits of acceleration: Graduation advantages.* Mason City, IA: North Iowa Area Community College. (ED505283)

National Center for Education Statistics. (2011). *Digest of education statistics, 2010.* Washington, DC: Author. Retrieved from https://nces.ed.gov/pubs2011/2011015.pdf

National Center for Education Statistics. (2014). *Digest for education statistics.* Retrieved from https://nces.ed.gov/programs/digest/d14/tables/dt14_502.30.asp

National Center for Public Policy and Higher Education. (2010). *Beyond the rhetoric: Improving college readiness through coherent state policy.* Retrieved from http://www.highereducation.org/reports/college_readiness/gap.shtml

National Conference of State Legislatures. (2016). *Post-secondary education.* Retrieved from http://www.ncsl.org/research/education/post-secondary-education-overview.aspx

O'Connor, K. B., & Justice, M. C. (2008). Evaluating dual credit enrollment at selected rural northeast Texas high school. *Southeastern Teacher Education Journal, 1,* 27-34.

Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools, 9,* 73-90.

Partnership For 21st Century Skills. (2008). *21st century skills, education & competitiveness.* Retrieved from http://www.p21.org/storage/documents/21st_century_skills_education_and_competitiveness_guide.pdf

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students, Vol.2: A third decade of research.* San Francisco, CA: Jossey-Bass.

Pretlow, J., & Wathington, H. D. (2013). Expanding dual enrollment: Increasing postsecondary access for all? *Community College Review, 42*(1), 41-54. doi:10.1177/0091552113509664

Robinson, R. L. (2011). *Dual enrollment: Breaking the mold for college readiness and persistence in an urban charter school* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses. (3497893)

Royster, P., Gross, J., & Hochbein, C. (2015). Timing is everything: Getting students back on track to college readiness in high school. *The High School Journal*, *98*(3), 208-225. doi:10.1353/hsj.2015.0005

Sepanik, S. (2012). *Getting ready for success: Bridging the gap between high school and college in Tacoma, Washington.* MDRC (Prepared for the 2012 National Center for Postsecondary Research Conference). Retrieved from http://www.mdrc.org/project/getting-ready-success-pilot-program#overview

Sherman Valentine, A. N. (2010). *Dual enrollment and Advanced Placement programs: A comparison of persistence, student academic achievement, graduation completion and time-to-degree attainment* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses. (3403205)

Swanson, J. (2008, November). *An analysis of the impact of high school dual enrollment course participation on post-secondary academic success, persistence and degree completion.* Paper presented at the meeting of the National Association for Gifted Children, Tampa, FL and the National Alliance of Concurrent Enrollment Partnerships, Kansas City, MO. Retrieved from http://nacep.org/research-and-policy/research-studies

Texas Education Agency. (2011). *Dual credit frequently asked questions.* Retrieved from https://www.texarkanacollege.edu/helpdesk/files/2014/06/Dual-Credit-FAQ.pdf

Texas Higher Education Coordinating Board. (2012). *Glossary of terms*. Retrieved from http://www.thecb.state.tx.us/Reports/PDF/1316.PDF

Texas Higher Education Coordinating Board. (2016). *Dual credit–Frequently asked questions*. Retrieved from http://www.thecb.state.tx.us/index.cfm?objectid=E9397599-AFE9-CC3F-B6F9BF619AAEDA2E

Thacker, K. O. (2014). *Graduation rates: A comparison of college graduation success rates of dual enrollment versus non-dual enrollment students in the community college* (Doctoral dissertation). University of Tennessee, Chattanooga, TN.

Tierney, W., & Venegas, K. (2009). Finding money on the table: Information, financial aid, and access to college. *The Journal of Higher Education, 80,* 363-388.

Tinto, V. (2007). Research and practice of student retention: What's next? *Journal of College Student Retention, 8,* 1-19.

U. S. Department of Education. (2011). *Meeting President Obama's 2020 College Completion Goal*. Washington, DC: U. S. Government Printing Office. Retrieved from https://www.ed.gov/news/speeches/meeting-president-obamas-2020-college-completion-goal

U. S. News & World Report. (2016). *ACT scores show many grads not ready for college-level work.* Retrieved from http://www.usnews.com/news/politics/articles/2016-08-24/bigger-numbers-of-high-school-grads-taking-act-college-test

Voyer, D., & Voyer, S. D. (2014). Gender differences in scholastic achievement: A meta-analysis. *Psychological Bulletin, 140,* 1174-1204. doi:10.1037/a0036620

Young, R. D., Jr., Joyner, S. A., & Slate, J. R. (2013). Grade point average differences between dual and nondual credit college students [Electronic version]. *Urban Studies Research, 2013*, 1-6. doi:10.1155/2013/638417

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2013). A critical analysis of the dual credit program. *Progress in Education, 30* (pp. 39-68). Hauppauge, NY: Nova Main Publishers.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014a). Dual credit and non-dual credit college students: Differences in GPAs after the second semester. *Journal of Education and Human Development, 3*(2), 203-230.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014b). Dual credit programs: A conceptual analysis of the literature. *Journal of Education Research, 8*(1-2), 79-106.

Young, R. D., Jr., Slate, J. R., Moore, G. W., & Barnes, W. (2014c, April). *Dual credit and non-dual credit college students: Differences in their second semester GPAs*. Poster presented at the American Educational Research Association, Philadelphia, PA.

Zeidenberg, M., & Bailey, T. (2009, June). *Human resource development and career and technical education in American community colleges*. Paper presented at the Asia-Pacific Economic Cooperation (APEC) Human Resources Development Group Meeting, Chicago, IL. Retrieved from ERIC database (ED509712)

# APPENDIX

**Institutional Review Board**
**Office of Research and Sponsored Programs**
**903 Bowers Blvd, Huntsville, TX 77341-2448**
**Phone: 936.294.4875**
**Fax: 936.294.3622**
**irb@shsu.edu**
**www.shsu.edu/~rgs_www/irb/**

Sam Houston STATE UNIVERSITY
*A Member of The Texas State University System*

| | |
|---|---|
| DATE: | December 9, 2016 |
| TO: | Dorothy Dixon [Faculty Sponsor: Dr. John Slate] |
| FROM: | Sam Houston State University (SHSU) IRB |
| PROJECT TITLE: | *Differences in Student Success as a Function of Dual Credit Enrollment for Texas Community College Students: A Multiyear Investigation [T/D]* |
| PROTOCOL #: | 2016-12-33303 |
| SUBMISSION TYPE: | INITIAL REVIEW |
| ACTION: | DETERMINATION OF EXEMPT STATUS |
| DECISION DATE: | December 9, 2016 |
| REVIEW CATEGORY: | Category 4—research involving existing, publicly available data usually has little, if any, associated risk, particularly if subject identifiers are removed from the data or specimens. |

Thank you for your submission of Initial Review materials for this project. The Sam Houston State University (SHSU) IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

*** What should investigators do when considering changes to an exempt study that could make it nonexempt?**

It is the PI's responsibility to consult with the IRB whenever questions arise about whether planned changes to an exempt study might make that study nonexempt human subjects research. In this case, please make available sufficient information to the IRB so it can make a correct determination.

If you have any questions, please contact the IRB Office at 936-294-4875 or irb@shsu.edu. Please include your project title and protocol number in all correspondence with this committee.

Sincerely,

Donna Desforges
IRB Chair, PHSC

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Sam Houston State University IRB's records

# VITA

## Dorothy B. Dixon

### *Educational History*

Doctorate of Education – Educational Leadership, August 2017
*Sam Houston State University, Huntsville, TX*
Dissertation: Differences in Student Success as a Function of Dual Credit Enrollment for Texas Community College Students: A Multiyear Investigation

Master of Business Administration – Management, May 1994
*Saint Ambrose University, Davenport, IA*

Bachelor of Science – Mathematics, May 1991
*Alabama State University, Montgomery, AL*

### *Teaching Experience*

Adjunct, Student Success Course, Lone Star College-North Harris, Houston, TX, 2015-Present
Adjunct, Developmental Mathematics, Lone Star College-North Harris, Houston, TX, 2006-2009
Faculty, Developmental Mathematics, Valencia College, Orlando, FL, 2005-2006
Adjunct, Developmental Mathematics, Valencia College, Orlando, FL, 1997-2005
Faculty, Developmental Mathematics, Seminole College, Sanford, FL, 1997-1999

### *Professional Experience*

Dean, Lone Star College-North Harris, Houston TX, 2012-2016
Director of Teaching & Learning, LSC-North Harris, Houston TX, 2010-2012
Interim System Project Director, Lone Star College System, Houston TX, 2011-2011
Director, Foundation of Excellence, LSC-North Harris, Houston TX, 2009-2010
Academic Advisor, LSC-North Harris, Houston TX, 2008-2009
Early Intervention Coordinator/Coach, LSC-North Harris, Houston TX, 2007-2008
Tutor Trainer/Supervisor, Lone Star College-North Harris, Houston TX, 2007-2007
Training Director, University of Central Florida, Orlando, FL, 1995-1997
Operations Research Analyst, Rock Island Arsenal, Rock Island, IL, 1989-1995
Math/Science Tutor Coordinator, Tabernacle Baptist Church, Rock Island, IL, 1992-1994

### *Recognitions*

Lone Star College-North Harris, Deans & Chairs Institute, 2016 Graduate
Sam Houston State University Jackson Scholar, 2014-2016
LSCS Employee Doctoral Scholarship, 2014-2017
Lone Star College-North Harris, Campus Ambassador, Employee Giving Campaign, 2015

Lone Star College North Harris New Leadership Program, 2012-2013
Accepted "To and Through Award of Excellence" on behalf on LSCS at National College Access Network's (NCAN) 20th Annual Conference in Orlando, FL, September, 2015
American Association of Community Colleges' Future Leaders Institute Graduate, Las Vegas, NV, June 2015
American Association of Community Colleges' Women Leadership Conference, Las Vegas, NV, June 2015
Nominee for Leadership Texas Class (A Program of Leadership for Women), 2014
National Charity League, Inc., Mother/Daughter Philanthropy Award,

***Scholarly Research Activity***

Dixon, D. B., & Slate, J. R. (2015). Differences in student success on selected dual credit courses as a function of course location. *International Journal of University Teaching and Faculty Development, 5*(3), 1-10.

***Presentations***

Dixon, D. B. (2015, month needed here). *Differences in dual credit grades as a function of location for Texas community college students.* Paper presented at the University Council of Education for Administration Annual Conference, San Diego, CA.

Dixon, D. B., & Fielder, L. (2015). *Partnership for student success*. Presented at annual Texas Association of College & University Student Personnel Administrators (TACUSPA), Corpus Christi, TX.

Dixon, D. B., & Head, S. C. (2014). *A Game Changing Program for African American Students.* President of LSC-North Harris and Dean of Academic Success Initiatives discussed Best Practices of college's First Year Experience and highlight new programs created as a result of reviewing data. Presented at annual conference of National Institute of Student Organizational Development (NISOD), Austin, TX.

Dixon, D., Wang, J., & Tkach, C. (2014). *Designing and Assessing a Multicultural Academic Support (MASS) Program.* Dean of Academic Success Initiatives, Executive Director of Institutional Research, and Director of Institutional Effectiveness. Presented at annual conference of National Institute of Student Organizational Development (NISOD), Austin, TX.

Dixon, D. B. (2012). *Best Practices for Success of Foundations of Excellence at LSC-North Harris.* Presented at the Foundations of Excellence Winter Meeting, San Antonio, TX.

Dixon, D. B. (2011). *Best Practices for Success of Foundations of Excellence at LSC-North Harris.* Presented at the Foundations of Excellence Winter Meeting, Atlanta, GA.

***Professional Affiliations***

American Educational Research Association, 2015-2016
Southwest Educational Research Association 2014-2016
University Council for Educational Administration Association, 2014-2016
Student Affairs Administrators in Higher Education (NASPA), 2015-Present
American Association of Community Colleges (AACC), 2012-Present
National Council on Black American Affairs (NCBAA), 2014-Present