The effect of prior high school dual enrollment course completion and access equity on first generation college attending students

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THE EFFECT OF PRIOR HIGH SCHOOL DUAL ENROLLMENT COURSE COMPLETION AND ACCESS EQUITY ON FIRST GENERATION COLLEGE ATTENDING STUDENTS

By
Douglas E. Stansberry

A DISSERTATION

Presented to the Faculty of
The Graduate College of the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Education
Major: Educational Administration

Under the Supervision of Dr. Jeanne L. Surface

Omaha, Nebraska
August, 2013

Supervisory Committee:
Dr. Neal F. Grandgenett
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Abstract

THE EFFECT OF PRIOR HIGH SCHOOL DUAL ENROLLMENT COURSE COMPLETION AND ACCESS EQUITY ON FIRST GENERATION COLLEGE ATTENDING STUDENTS

Douglas E. Stansberry, M.Ed., Ed.D.

University of Nebraska, 2013

Advisor: Dr. Jeanne L. Surface

Cumulative college grade point average, ratios of college credits earned to college credits attempted and persistence from one year in college to the next are impacted by the presence of dual enrollment credits earned by students while in high school. The groups analyzed in this study were first generation college attending minority and majority students who completed dual enrollment credits while in high school and attended the same university. The groups compared in this study were minority students who completed three to five dual enrollment credits while in high school \( (n = 19) \), majority students who completed three to five dual enrollment credits while in high school \( (n = 30) \), minority students who completed six or more dual enrollment credits while in high school \( (n = 19) \), and majority students who completed six or more dual enrollment credits while in high school \( (n = 28) \). The results indicated that first generation minority students with six or more dual enrollment credits earned performed significantly better than majority students with three to five dual enrollment credits in cumulative end-of-first year grade point average, and end-of-first year ratio of college credits earned to college credits attempted, and were significantly more frequent in matriculating to a second
consecutive year of postsecondary education at the same university. The data analysis suggested no significant differences between any of the four groups in cumulative end-of-second year grade point average, end-of-second-year ratio of college credits earned to college credits attempted, and frequencies between groups in the matriculation to a third consecutive year of postsecondary education at the same university.
ACKNOWLEDGMENTS

Upon his induction into the College Basketball Hall of Fame, former University of Missouri men’s basketball coach Norm Stewart once stated as only he could, in his Missouri drawl that he felt like a turtle sitting on a fencepost…no one was sure how he got there but it reasonable to assume he didn’t get there by himself. Like Stormin’ Norman, I owe many thanks to many people for their help in this accomplishment.

An endeavor like this is not possible without the guidance and advisement of each of the professors and staff of the Educational Leadership and Administration department of the University of Nebraska at Omaha, especially Dr. Jeanne Surface, my dissertation chairperson, who was essential in keeping me focused while at the same time recognizing the autonomy I needed to “do my own thing.”

Special thanks to Kelly Malone, whose direction of the Dual Enrollment program at the University of Nebraska at Omaha provided inspiration for the topic and what it means for the students who have participated. A close-knit core of colleagues, who helped by listening, encouraging, and preaching perseverance made all the difference. Our work with Powerpoints, dry-erase boards, study groups, and occasional laptop video vignettes will never be forgotten.

Of course, thanks to my family who refuse to let me forget humility and who have been with me every step of the way. As always, my sincerest thanks go to Brenda, who shows every day her spirit of unwavering kindness, support, and patience as I pursue a dream, not always knowing where it might lead. I could not have asked for more.
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CHAPTER ONE

Introduction

For Haley, there is the normal trepidation about going to college; new settings, new teachers, and higher academic expectations. Haley takes pride in being the first in her immediate family to go to college. Her parents supported her decision to attend college but often felt at a loss for helping her know what to expect in the application and admission process. For that, Haley relied on her teachers, friends, and school counselors but even their advice seemed vague and disconnected from her experiences. Sometimes they spoke too fast and used terms with which she was unfamiliar. Haley would nod and smile in appreciation of her teachers’ advisement but rarely asked for the clarification she needed for fear of being labeled as “not college material.”

In spite of her angst, there is something that inspires confidence in Haley about her academic future in college. Haley has completed four dual enrollment courses while in high school and as a result has fourteen college credits and a solid grade point average at the college she will be attending before she ever steps foot on the campus. This accounts for a semester’s worth of classes and savings on the high price of college tuition. Because the dual enrollment courses she took in high school met the requirements for rigor of the sponsoring college, she feels a little better about rising to the academic challenges she will face once she is a full-time college student.

Amid increased workforce needs for high school graduates to pursue postsecondary education, access equity for students attending two-year and four-year colleges is a major concern. Too many qualified high school graduates forgo the pursuit of postsecondary education due the perception that a two-year or four-year degree is out
of their reach. Other students see the process of applying, being admitted, and enrolling in college as overly complicated and cumbersome, involving terminology that is unfamiliar and exclusive. For families facing moderate or severe financial constraints college-planning and college-going may seem like unrealistic dreams given escalating costs associated with attending postsecondary education. As always, first generation students continue to have unique needs among their college-going peers in terms of the admissions process, the successful transition to the postsecondary environment, and continued success and persistence through college, often without knowledgeable family guidance to help in times of adversity (Woosley & Shepler, 2011).

The barriers to entering college for first generation students remain considerable. For example, high school students whose parents did not attend or attain some form of post-secondary education are far more likely to forgo their postsecondary options upon graduating from high school despite strong academic ability. Because these students tend not to have a particular knowledge of the college going process, they do not have the inherent advantages that students whose parents did attain some form of postsecondary education may have. First generation students are more likely to live in homes that face financial challenges which may seem like insurmountable barriers when thinking about the options of attaining a college education, potentially putting their families further in debt (Mehta, Newbold, & O’Rourke, 2011). Other barriers may include the need to provide a steady supplementary income for their families-of-origin affecting the perceived ability to attend college. Regardless of how prepared or qualified first generation students are academically, real and perceived barriers to the student may make postsecondary education seem out of reach (Billitteri, 2009).
Even if first generation students manage to be admitted, enroll, and attend an academic semester in a postsecondary school, they are less likely to persist toward a degree than their multi-generational student counterparts. College persistence plays a large role in the success and financial stability of the postsecondary school. Institutions of higher learning need to attract the most highly qualified students; those who have completed a level of rigor in high school that is predictive of their potential success at the postsecondary level (Hoffman, Vargas, & Santos, 2009).

In spite of considerable barriers, enrollment of qualified first generation students in postsecondary schools has been on the increase over the past two decades (Mehta, Newbold, & O’Roarke, 2011). In the mid 1990’s an estimated 34% of students entering four-year postsecondary institutions were first generation students. Additionally, nearly 51% of students entering two-year institutions were first generation students (Choy, 2001). More recent reports of four-year institutions showed that number of first generation students in the 40% to 45% range for many institutions. Two-year postsecondary institutions likewise, have shown an increase in first generation student participation to an estimated 55% (National Center for Educational Statistics, NCES, 2011). In many instances, the increase may not be an indication that the barriers to a postsecondary education have decreased, rather that there are more individuals willing to attend in spite of those barriers. Eventually obstacles to attaining postsecondary education lead to student attrition, where students stop short of persisting to degree completion.

However, a solution to this critical problem may be addressed by academically talented, first generation, students completing dual enrollment coursework for college
credit during their high school years. This coursework, while sanctioned by a sponsoring postsecondary institution may be delivered at the students’ home high school with their high school instructors. Course offerings may include core subjects and high school graduation requirements in English, Social Studies, Math, and Sciences. Some postsecondary institutions also offer dual enrollment opportunities in elective content areas such as Art, International Language, Education, Family and Consumer Science, Information Technology, and Industrial Technology.

Dual enrollment programs are taking the secondary and postsecondary world by storm as a viable option for high school students to get a head start on college. By 2011, nearly 97% of public and private, two-year and four-year postsecondary institutions claimed to implement some form of dual enrollment option for high school students. While the delivery method varies widely from a direct contact, on-campus experience to granting high school instructors adjunct professorial status, to a true distance education or online curriculum delivery method, postsecondary institutions see the need to get on board with dual enrollment as a means to keep pace in an ever-increasingly competitive battle to attract the best and brightest students. Last year, over 1,277,000 high school students in the United States from a range of high school grade levels participated in some form of dual enrollment program (Marken, Grey, & Lewis, 2013).

Students who participate in dual enrollment courses while in high school tend to benefit markedly in their postsecondary persistence, and performance (Allen & Dadger, 2012; Hoffman, 2012; Kim, 2012; Mechur Karp, Bailey, Hughes, & Fermin, 2005; et al.). Participants in dual enrollment while in high school exhibit skills consistent with better college readiness, tend to have higher postsecondary grade point averages, and stay on
track toward postsecondary completion better. As dual enrollment success has become well-documented, the number of dual enrollment collaborations has grown significantly over the past three decades. There are mutual benefits for students and the sponsoring postsecondary institutions which continue to combat falling completion rates for postsecondary students (Mokher & McLendon, 2009). Participating students enroll in college more ready to tackle the rigors associated with higher education and therefore are more likely to persist to completion of a degree, benefiting the postsecondary institution greatly.

**Availability of Dual Enrollment Coursework**

High schools vary widely in their ability to provide dual enrollment opportunities to their students. In larger high schools, more diverse curricula may be in place to offer students elective courses outside of the core requirements. Smaller schools conversely may be limited in offerings based on financial constraints, not enough students to populate classes, and limits in the subjects instructors are qualified to teach. The number of teachers with advanced degrees in their teaching discipline can be a leading factor in whether coursework may be offered as dual enrollment. Generally, school districts with more financial advantages attract and keep instructors with advanced degrees and those considered to be “highly qualified” teachers in their field. Economic circumstances often determine a school’s ability to provide dual enrollment course alignments for those courses taught at the high school site.

High schools differ in the courses they are able to offer as dual enrollment. Traditionally, dual enrollment courses that are taught at the high school site align with courses approved by the College Board, the organization that oversees standards and
practices for Advanced Placement (AP) courses. The pairing of high school and college equivalent content seems to be a natural since AP course content and AP Exams are accepted by most postsecondary institutions as being aligned with college entrance course standards. However, more and more postsecondary schools are including dual enrollment options for high schools to deliver that may not be designated as AP. High school courses in education, religious studies, information sciences, health sciences, and more may have a dual enrollment designation if the sponsoring postsecondary institution deems it can account for a sufficient level of rigor. Some sponsoring postsecondary institutions grant dual enrollment status with their partnering high schools if the high school instructor has an advanced degree in the content area of their instruction. The wider array of course options available makes accessibility of dual enrollment an option to a more diverse population of students (Harnish & Lynch, 2005); a theme encouraged by proponents of dual enrollment.

**Accessibility of Dual Enrollment Coursework**

The most important factor in whether students have access to dual enrollment course options has little to do with the students, but everything to do with the high school’s ability to provide opportunities. As noted previously, school and district economic factors play a significant role in whether schools are able to employ instructors with advanced credentials; those most likely to be accepted by postsecondary institutions as dual enrollment instructors. Disparities in school resources widens the gap between “have’s” and “have-nots” and students who tend to be from disadvantaged communities and households are further disadvantaged by a lack of opportunities offered by the schools they attend.
While courses and qualified teachers may vary from high school to high school, students may encounter differing levels of awareness of the dual enrollment opportunities available to them. Proper counsel and advising during high school is important in order to ensure students know their options when registering for courses during high school (Wang, 2012). First generation students and other underserved student groups are among those most disadvantaged by a lack of information about such offerings. These students may be unaware of the dual enrollment opportunities that may exist in their school. They may also lack knowledge of the potential advantages of taking dual enrollment courses, and have misperceptions about opportunities to defray or cover the cost of dual enrollment. Since first generation students generally may not be able to rely on parental experience for information, educators who are knowledgeable about the existence of these opportunities become a lifeline of information.

First generation students cannot be defined by only one racial, ethnic, cultural or socioeconomic demographic. There may be multiple inhibiting factors, all working in confluence affecting student achievement, likelihood of college going, and access to information. The needs of one first generation student may be very different from another. For example, first generation ethnic minority students may have significantly different barriers to overcome on the path to attaining a postsecondary education than the first generation student who is not a minority, but who comes from a financially disadvantaged family. Many variables are at work at the same time. Information and access to resources is the common thread affecting most first generation students (Chau, 2012). Since information about attaining a college education seldom originates from the family of origin, secondary sources of information, support, guidance, and advising are
that much more critical to ensure that students reach their goals. However, first
generation students are more likely to be less prepared academically, typically take less
rigorous courses while in high school, and have more anxious anticipation of
postsecondary environments (Woosley & Shepler, 2011), which leads to lower self-
efficacy of achieving higher education (Engle, Burmeo, & O’Brien, 2006).

Cost Effectiveness of Dual Enrollment

In a time when the costs of attending college are at an all-time high, dual
enrollment offers a cost-savings incentive to students and their families who are worried
about the ability to pay for college. In the past three decades, the average cost of
postsecondary education has risen at a rate twice that of inflation. University
administrators assert that most of those hikes are matched by increased scholarship grants
or loans, but the recent recession has slashed private endowments and cut into state
spending on higher education (Thomas & Wingert, 2010). Skyrocketing costs of higher
education are impacting underrepresented students more than their traditional college
going counterparts. (McArdle, 2012). Prospective college students may apply for
government guaranteed loans, private loans, grants, and scholarships to bring the up-front
costs down and make college-going a possibility. Some students however see the price
tag of higher education and the thought of spending decades in financial debt as yet
another barrier to entering postsecondary education.

Dual enrollment courses can save students significantly on the cost of earning
college credits. Often, courses are offered at reduced per-credit hour rates. Participating
students avoid many of the fees and costs associated with being a traditional full or part
time student on campus, and for students with low socio economic status or family
hardship, there are circumstances where state funding can defray or cover the cost of the
dual enrollment course(s). Students persisting in college toward a degree can save
significant amounts of time and money by completing pre-requisite or introductory
course requirements through dual enrollment coursework while in high school.

Purpose of the Study

The purpose of this study is to determine the effect of prior high school dual
enrollment course completion and access equity on grade-point average, ratio of credits
earned to credits attempted, and persistence of consecutive years of college enrollment
for first generation college attending minority and majority students completing
coursework at the same metropolitan university.

Research Questions

Overarching Posttest Achievement Research Question #1. Do (a) first
generation college minority students with three to five high school dual enrollment course
credit hours completed and (b) first generation college majority students with three to
five high school dual enrollment course credit hours completed and (c) first generation
college minority students with six or more high school dual enrollment course credit
hours completed and (d) first generation college majority students with six or more high
school dual enrollment course credit hours completed have congruent or different end of
first year cumulative grade point averages?

Overarching Posttest Achievement Research Question #2. Do (a) first
generation college minority students with three to five high school dual enrollment course
credit hours completed and (b) first generation college majority students with three to
five high school dual enrollment course credit hours completed and (c) first generation
college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different posttest ratios of college credit hours earned and attempted after the end of the first year of college attendance?

**Overarching Posttest Achievement Research Question #3.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different end of second year cumulative grade point averages?

**Overarching Posttest Achievement Research Question #4.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different posttest ratios of college credit hours earned and attempted after the end of the second year of college attendance?
Overarching Posttest Achievement Research Question #5. Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment in a second consecutive year in the same postsecondary institution?

Overarching Posttest Achievement Research Question #6. Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment in a third consecutive year in the same postsecondary institution?

Importance of the Study

This study contributes to research, practice, and policy. This study is of significant interest to high school educators, high school students interested in attending college, parents of high school students considering post-secondary education, and university administration and policy makers. By understanding the results of this study,
prospective college going students, parents, high school educators, postsecondary educators, and postsecondary administration and policy makers will have information to help them make decisions regarding participation and implementation of dual enrollment programs.

**Assumptions of the Study**

This study has several strong features. All students included in this research participated in the same University of Nebraska at Omaha (UNO) sponsored dual enrollment program and were a cohort group of first-time freshman class entering in the fall of 2010. Care was taken to exclude students who may have had significantly differing circumstances upon their initial entrance at the University of Nebraska at Omaha in the fall of 2010 such as students transferring credits from other postsecondary institutions and students taking one or more academic semesters off following high school graduation.

The Dual Enrollment program at the University of Nebraska at Omaha has been in existence since the fall of 2003 and has the full support of UNO’s Chancellor, administration, and university faculty. The stability and longevity of the dual enrollment program are key components in helping to ensure that each student participant is treated fairly and consistently under the policies and procedures outlined in the program’s by-laws.

Dual Enrollment courses offered at UNO represent a variety of academic disciplines and multiple student interest areas for high school students. In 2012, there were forty-nine course alignments for Dual Enrollment credit offered at UNO in disciplines ranging from English, Social Studies, Math, Science, International Language,
Education, Family and Consumer Science, Information Technology, and Industrial Technology. The diversity of course options offered reflects that students intending to go on to postsecondary learning come from a wide range of circumstances, ethnic and socioeconomic backgrounds, and interest areas. Although all students share a common characteristic by identifying as first generation students, the sample as a group will approximate the overall university population diversity in terms of ethnicity, gender, financial need, and academic interest areas.

High school students are presented with the option to participate in dual enrollment generally two or three weeks after the class has begun at their high school. As a matter of principle, students are given time to assess whether enrolling in dual enrollment makes sense for their situations. For potential inquiries by prospective students or parents, full contact details of University of Nebraska at Omaha dual enrollment staff is provided. A parent or guardian’s consent is required for students to enroll. Stringent effort is made to ensure that students and parents are informed about cost to participate, guidelines and forms if applying for financial assistance, course grading, policies for adding or dropping a course, and all pertinent deadlines for the semester. Mailings, classroom or group presentations by university dual enrollment coordinator, and website information are all utilized to deliver as much information to prospective dual enrollment participants as possible.

**Delimitations of the Study**

This study will be delimited to first generation college-attending students at the University of Nebraska at Omaha entering as first time freshman in the fall of 2010 who completed high school Dual Enrollment courses facilitated in cooperation with UNO.
The study findings will be limited to students who were enrolled in classes at UNO consecutively through the spring semester of 2012. Summer semester enrollment is not counted toward or against consecutive semester enrollment.

Limitations of the Study

The study sample ($N = 96$) is limited to first generation students at the University of Nebraska at Omaha (UNO) entering as first time freshman in the fall of 2010 who earned Dual Enrollment credit prior to entry into UNO. Students have the option of self-identifying status as first generation students on their University of Nebraska at Omaha application. Ideally, students are informed during the application process that first generation college attending refers to students for whom neither parent attended college. There is a chance students may identify first generation status in error on their applications. Since the choice to identify as first generation is optional, students may also exercise their right to not answer the first generation identification question on the application. Errors in identification, and the possibility of opting out of identification could have an effect on the homogeneity and size of the study population, thereby limiting wider applicability of the study.

Definition of Terms

**Adjunct high school dual enrollment instructor** – A high school teacher who teaches a course that is approved and designated by both the high school and partnering postsecondary institution as a dual enrollment course. Dual enrollment instructors are not considered employees of the postsecondary institution, nor do they receive any payment or stipend. These instructors have access to the online grading system of the postsecondary institution and are responsible for entering the appropriate term grades for
students at the end of each semester. Instructors may also collaborate with faculty members of the postsecondary institution, particularly the department chair of the corresponding course they teach.

**Advanced Placement (AP) Course** - Established in 1955 by the College Board, Advanced Placement courses in which both the instructor and course content are approved by the College Board as meeting the level of rigor of an equivalent college introductory course. Students in AP courses have the opportunity to earn high school credit upon successful completion of the course, and additionally may earn college credit with an acceptable minimum score on the AP exam, which is offered near the end of the academic school year (The College Board, 2012).

**Advanced Placement (AP) Exam** - single subject comprehensive exam authored by the College Board designed to evaluate student content mastery for the associated AP course. Each AP course offers an exam which is optional to students taking the course unless required by school or district policies. In 2012, the cost of each exam for students was $87.00. Students who qualify as having “acute financial need” could take the exam for a reduced cost of $53.00 (The College Board, 2012). Students may indicate their interest in taking AP exams during the month of February. Each AP exam is given during morning and afternoon 4 hour blocks for two weeks in May. AP Exams are scored by a panel of “readers” and scores are available online and hard-copy by the month of July. Scores of the AP Exam range from one to five with five being the highest possible score. Qualifying scores on the AP exam may enable students to be eligible for college credit at the postsecondary institution in which they enroll. Qualifying exam
scores, corresponding college courses, and governing policies differ widely however from place to place.

**Advanced Placement (AP) Instructor:** Instructors of AP courses are high school teachers who meet the qualification standards set by the College Board. The College Board does not mandate particular requirements for instructors of AP courses, but strongly recommends professional development for teachers of AP as a practice. Generally, instructors are full-time high school teachers with advanced training and/or graduate degrees in the content area being taught as an AP designated course. Course audits by College Board are conducted periodically; and therein the content of the course, not the credential of the instructor is scrutinized.

**College Persistence** – students continuing their educational coursework over multiple academic semesters, working to attain a degree, certification, or desired credential upon completion at that institution. College persistence is interrupted or halted by the student by failing to enroll in consecutive semesters before completing their program of study. Low grade point average, financial concerns, personal decisions, and family influence are some of the leading factors for students choosing not to persist with postsecondary education.

**Community College** – A public or private postsecondary institution offering two-year associate degree programs in with emphasis in trade and technical career applications. Community colleges may be a gateway for students who have completed high school or a GED program to earn postsecondary credits toward a degree. Since community colleges are typically less expensive than four-year colleges, students may take advantage of the savings by accumulating prerequisite college coursework at a
community college before ultimately transferring to a four-year college. Transferability of credits between community colleges and four-year colleges varies depending on articulation agreements established between institutions.

**Course Credit** – Credit awarded after the successful completion of a course. The number or amount of credits may vary based on school or institutional policy which may take into account, number of course meeting days, total amount to time the course involves, or course rigor. Credits may be accumulated toward a minimum number of credits required for graduation, certification, or credential offered at the secondary or postsecondary institution.

**CTE (Career and Technical Education)** – A prescribed high school curriculum designed to meet the needs of students who are interested in pursuing a career path in a skilled trade. In most circumstances, core course curriculum is supplemented with content relevant to a particular skilled trade. Additionally, a track of elective courses may be available to students pursuant of a specialized skill.

**Cumulative Grade Point Average** – An average of all semester grade point averages for which a student has been enrolled. Cumulative grade point averages are typically applied to both high school and postsecondary educational settings, but are exclusive to each other. A high school cumulative grade point average does not typically count toward a college cumulative grade point average. Participation in dual enrollment courses however may, depending on the rules of the credit granting postsecondary institution count toward a student’s college GPA.

**Dual Enrollment** – A program typically coordinated at postsecondary institution which gives approval for selected high school courses to be offered at the home high
school for both high school credit and college credit simultaneously. Sometimes called concurrent enrollment courses, these partnerships allow students to receive a grade and credit for the corresponding college level course on a college transcript. The final grade earned in the course serves as the final grade to appear for both high school and college credits.

**Early Entry to College program** – in some circumstances, high school students may receive permission to take a college course prior to completion of the high school diploma. These courses are not typically associated with dual credit since the course credit earned remains solely with the postsecondary institution from which the student took the course. Postsecondary institutions charge tuition for students taking an Early Entry course but that cost is generally less than that of their regular course tuition. Additionally students are not charged the student fees associated with being a full or part time student at the institution.

**First Generation college-attending students** – Students whose parents (both) or legal guardians did not attend education beyond high school or GED (General Equivalency Diploma) program. Students may have older or younger siblings who have or are attending a postsecondary school and still be considered first generation college attending as long as neither parent attended.

**Four-year College** – Four-year college refers to a college or university that offers degree programs requiring four-years of academic study or roughly equivalent compilation of credit hours. These institutions may be public or private and usually offer a multitude of baccalaureate degree programs.
**Intended Academic Major** – Intended academic major refers to the academic discipline a freshman in a postsecondary school indicates as his or her prescribed course of study. Seldom are students required to declare an academic major before the completion of the second year in the postsecondary institution. Since students in their first few semesters may change their minds about their academic intentions, the major course of study they initially choose can only be referred to as “intended.”

**Multigenerational Students** – Unlike first generation students, whose parents did not attend any form of postsecondary education, multigenerational students’ parent or parents did attend and attain some form of postsecondary education beyond high school.

**NACEP (National Alliance of Concurrent Enrollment Partnerships)** – Accrediting body for concurrent enrollment and dual enrollment programs. Founded in 1997, the mission of NACEP is to ensure reliable standardized practice among member institutions in their implementation of dual enrollment programs, to ensure access equity for any student in good standing interested in participating in dual enrollment while in high school, to assist member institutions in procuring federal funding aimed at promoting dual enrollment, and to help support and promote research and evaluation of staff and students to discover best-practices and the most effective modes of program implementation (NACEP, 2012).

**Nebraska ACE (Access College Early) Scholarship** – Created through the Nebraska state legislature in 2006, the ACE scholarship covers the cost of dual enrollment tuition for students with financial need or temporary hardship. Nebraska’s ACE scholarship fund is a combination of state and federal dollars and is limited each
year. Any student with financial need may apply, but students are encouraged to apply early in the event that requested funds exceed available funding.

**Online course** – Courses offered at traditional or non-traditional postsecondary institutions in which the entirety of course instruction, content, and curriculum is delivered via an online source.

**Semester Grade Point Average** – The total sum of points granted for final semester grades divided by the total sum of college credit hours attempted by the student during the same semester.

**Socio-economic status** – The family income level of a student may qualify him or her for a federal assistance program of free or reduced price school lunches while in elementary, middle, and/or secondary school. For the purposes of education students are generally described by socio economic status in terms of students receiving free or reduced priced lunches or not receiving assistance from that program. For high school students, socio-economic status is pertinent when seeking postsecondary school admission, and when applying for need-based scholarship, student loans, and Pell grants to be used in postsecondary education.

**Transfer Credits** – Students may transfer postsecondary credits from one postsecondary institution to another if the receiving institution recognizes the credits as valid from an accredited institution, if the content of the transferred courses matches content of coursework offered by the receiving postsecondary institution, and if there are updated articulation agreements between institutions. Students may be enrolled as a full or part time student at one postsecondary institution and take coursework to be transferred from a different site-based or online education program concurrently.
Transfer credits are often counted separately from coursework obtained within the receiving postsecondary institution and not figured into the student’s grade point average. Transfer credits may or may not however be counted toward the student’s intended major area of study. Generally, rules of transferability are prescribed by receiving institutions.

**Two-year College** – Colleges that offer Associate degree programs, trade or technical career programs. “Two-year college” is often used as an umbrella term to refer to Community Colleges, Junior Colleges, and Trade or Technical Schools. Degree programs at two-year colleges generally require 60 college credit hours to complete.

**Weighted Grade Point Average** – High school courses that are designated as Honors or Advanced Placement may, at the discretion of the high school or school district add an additional grade point added to each students’ final grade. This is often done my schools to account for the increased workload and rigor of the course, thereby rewarding the student with the opportunity to earn a higher grade point average. For example, instead of four points awarded for an “A” as is the case for many standard courses, an Honors or AP course would award five grade points for an “A”. Likewise, 3 points awarded for a grade of “B” in a standard course may have 4 grade points attributed to a “B” in an honors or AP course. This additional grade point generally continues throughout the grading scale, except for a failing grade. When a student fails a course, typically no grade points are awarded, whether the course is a standard course or an honors or AP designated course (Omaha Public Schools, 2012).

**Contribution to Research**

A growing number of studies show that students who participate in dual enrollment programs while in high school show increases in academic success indicators
such as higher cumulative grade point averages in postsecondary education, shorter time spent completing a degree, and higher percentage of degree completion. This study contributes to the body of research by showing the effects of dual enrollment for first generation students at the same university that sponsored their high school dual enrollment coursework. This research compares first generation students within groups as well as comparing success indicators of these students with the overall population of students attending the same metropolitan university.

**Contribution to Practice**

With the recent expansion in dual enrollment collaborations between secondary and postsecondary schools, the results of this study can assist researchers, practitioners, and other stakeholders in furthering the establishment of quality in dual enrollment programs. The literature review and results of this study have the potential to inform all stakeholders of the benefits of adopting a dual enrollment framework that is accessible to a wide scope of academically talented students in high school. The benefits of participation in dual enrollment programs for students is to have better retention rates, higher grade point averages, more credits earned, and higher degree completion rates in postsecondary education.

**Contribution to Policy**

This study allows policymakers at the local level to better understand the impact of dual enrollment participation among first generation college students. With many postsecondary institutions in tight competition for students who are likely to persist toward degree completion, decisions may be made whether a broadened implementation of dual enrollment may help attract students who are likely to persist. Administrators at
the high school level may better assess access equity of dual enrollment courses within their schools.

**Organization of the Study**

Chapter Two explores relevant literature addressing dual enrollment programs, student success indicators, and the unique needs of first generation students. Chapter Three outlines the design of this study through the research design, methodology, independent and dependent variables, and procedures used to gather and analyze the study data. This includes a detailed synthesis of the participants, a comprehensive list of the dependent variables and dependent measures. Chapter Four will report the research results and findings for each research question in relation to the data obtained including data analysis, tables, and descriptive statistics. Chapter Five provides conclusions and a discussion of the research findings and implications for practitioners, administrators, policy-makers, and future researchers.
CHAPTER TWO

Review of Literature

Dual enrollment plays the role of “game-changer” in the transition from secondary to postsecondary schools for many high school graduates intent on going to college. In a climate of change and reform in our schools, high schools must look to provide real-world learning experiences and connections to postsecondary education (Folley, 2007) as never before. Boswell (2001) describes the growth of dual enrollment programs as paramount to students in order to gain an edge in pursuing their interests in higher education. Students earning postsecondary credits, approved by a cooperating postsecondary institution, while attending high school has changed the landscape of college going (Hoffman, Vargas, & Santos, 2009; Bailey, Hughes, & Mechur Karp, 2002). Many high school graduates now have the opportunity to enter college having already earned multiple college credits. These credits are often applied toward required courses, elective courses, and some even may transfer from the cooperating or crediting institution to other postsecondary institutions across the country.

Dual enrollment programs have flourished in their many forms for several decades as institutions pursued alternatives to traditional postsecondary experiences in order to attract diverse students (Heath, 2008). The number and scope of these cooperative agreements between high schools and postsecondary schools quickly expanded due to a mutual advantage offered to students earning college credits while in high school (Mechur Karp, et al., 2002), and colleges who gain an edge in recruiting high ability students (Morrison, 2008). By 2009, over 1.2 million high school students were participating in some form of dual enrollment or concurrent enrollment program (NCES,
2011). Dual enrollment programs differ greatly however in their intention, implementation, and organization (Hoffman, Vargas, & Santos, 2009). Over the past decade, several steps have been taken by institutions and by governing officials to set standards of practice in place.

Hoffman, Vargas, and Santos (2009) elaborate on five principles of a well-designed dual enrollment program. Programs that afford students the opportunity to earn college credit should ideally involve the following characteristics: (1) increase the pool of historically underserved students who display college readiness, (2) provide realistic information to high school students about the knowledge and skills they will need to succeed in postsecondary education, (3) improve motivation through high expectations and the promise of free courses, (4) decrease the cost of postsecondary education by compressing the years of financial support needed, and (5) create a feedback loop between K-12 and postsecondary systems around issues of standards, assessments, curriculum, and transitions from high school to college. These guidelines for standardized practice and implementation of dual enrollment programs are necessary for a conversation about best-practices to begin. It is incumbent for the dual enrollment sponsoring postsecondary institution to regularly monitor and evaluate the program for efficacy with its target audience (Grigal, Dwyer, Emmett, & Emmett, 2012).

State policies, where applicable may have an overarching effect on the way in which Dual Enrollment credits are accepted among each states’ respective institutions of higher learning. Currently, many states have adopted governing practices of Dual Enrollment programs within their respective borders. In 2010, 46 out of 50 states had some form of legislation governing dual enrollment policies and procedures, excluding
only Alaska, Connecticut, Delaware, and Nebraska. (U.S. Department of Education, 2011). State policies governing dual enrollment programs range from regulating grade level appropriateness of dual enrollment participation to allocating state funds, which provides access equity of dual enrollment opportunities to students from low socioeconomic families. Policies also provide program oversight, instructor credential requirements, and standards for transferability of college credits between institutions (Mechur Karp, Bailey, Hughes, & Fermin, 2005; Hoffman, 2012). Seventeen states require public school districts and postsecondary institutions to offer some form of dual enrollment. Twenty-nine states have policies stipulating instructor qualification standards for teaching dual enrollment. Fourteen states require postsecondary institutions to accept dual enrollment credit toward general education requirements or electives, and six states require the school districts to pay for dual enrollment tuition for their students (Nebraska Coordinating Commission for Postsecondary Education, 2011).

The remaining four states also seem to be on paths to adopt legislations pertaining to the standardization of the state’s 12 dual enrollment programs in existence. In Nebraska, for example State Senator Greg Adams noted that standardization of practices by colleges, universities, and the collaborating high schools will, in the long-run help ease the transferability of college credits and level the competitive playing field among participating institutions (Nebraska LB 637 public hearing, March 15, 2011). If passed, Nebraska legislation would stipulate standardized practices such as requiring high school teachers who instruct a course approved for dual enrollment credit to have earned at least a master’s degree and have earned at least eighteen hours of graduate credit in the dual enrollment course content area. For example, dual enrollment English teachers would
need to have at least 18 hours of graduate credit in English; dual enrollment American History teachers need to have at least 18 hours of graduate credit in social sciences, etc. (NE LB 637, 2011).

NACEP, the National Alliance of Concurrent Enrollment Partnerships was established in 1997 as the accrediting body for dual enrollment partnerships. Chiefly, its aim is to ensure that dual enrollment is a viable option of early college access for all students, to help accredited partnerships identify best practices to standardize program implementation, to ensure access equity for any student in good standing interested in pursuing dual enrollment opportunities, and to help programs access federal funding resources. As of April, 2012, eighty-three postsecondary institutions were accredited by NACEP including 49 two-year public colleges, 27 four-year public universities, and seven four-year private universities (NACEP, 2012). Hundreds of dual enrollment programs, however remain unaffiliated with an accrediting organization like NACEP; most deliberately so. Colleges and universities may choose to not be affiliated with an accreditation source if doing so inhibits the autonomy with which institutions may implement partnerships with area high schools. In addition, postsecondary institutions that may wish to attain accreditation with NACEP must wait until the dual or concurrent enrollment program has been in existence for at least six years. The University of Nebraska at Omaha is one such institution that, in spite of having a thriving dual enrollment program since 2003, could only recently become affiliated with NACEP and go through the steps to apply for accreditation (UNO, Dual Enrollment, 2012). These factors may help explain why, out of hundreds of dual enrollment partnerships in existence, there are relatively few accredited programs with a national organization.
Dual Enrollment Impacts Student Success

Several studies show a positive relationship between dual enrollment participation and success in postsecondary environments. The Research Center for Career and Technical Education assessed the effectiveness of dual enrollment as a contributor to students’ achievement in postsecondary education was published by Mechur Karp, Calcagno, Hughes, Jeong, & Bailey (2007). Their research looked at dual enrollment programs in two states, New York and Florida with achievement data of over 300,000 students compared. Their data revealed several positive correlations between the presence of dual enrollment coursework completion in high school with success indicators in postsecondary education, however the authors caution that it was difficult to draw significant conclusions from their data and that more research in this area was needed. Mechur-Karp, et al. (2007) found a slightly positive relationship between the presence of dual enrollment coursework and high school graduation and enrollment in postsecondary education. Findings showed statistically significant connections between dual enrollment classes in high school and the rate of student persistence in college and a higher postsecondary grade point average overall. In addition, the number of college credits earned three years after high school graduation occurred was significantly higher for dual enrollment participants than for the general student population. Males and students from low-income backgrounds were more likely to see the benefits of higher success in postsecondary education with the presence of dual enrollment courses completed during high school.
The authors concluded that dual enrollment was effective as a strategy for encouraging student access and persistence in postsecondary study. They encourage future research to use additional controlling variables, for student background and motivation, while stating they believed there was evidence that dual enrollment can be an effective transition strategy for a range of students. The authors suggested ways to promote dual enrollment to a broader high school audience by reducing of restrictive eligibility requirements for students taking dual enrollment during high school. Additionally they suggested institutional outreach to students from lower income families, providing stipends or other economic incentives for taking courses at reduced tuition rates or cost-free. Dual enrollment, it was stated should be expanded and further integrated with career and technical education pathways and programs as the two seem to have common goals and are beneficial to students (Mechur-Karp, et al., 2007).

Additional studies aimed at discerning whether dual enrollment participation during high school made an appreciable difference in students’ aspirations and intentions for entering college. Smith (2007) surveyed 304 high school dual enrollment students in 5 high schools in the vicinity of Allen County, Kansas. The research intended to ascertain whether participation in dual enrollment had an impact on students’ aspirations for postsecondary education, controlling for variables of parents’ highest level of education attained and students’ personal factors. Smith also wanted to know if the location of the dual enrollment program (based within the high school or college setting) made a difference in students’ postsecondary education aspirations. The theoretical approach behind Smith’s research began primarily from a similar study published in 2002 by Garg, Kauppi, Lewko, and Urajnik (2002) who asserted that high school background
of dual credit enrollment correlates with the formation of educational aspirations for students. Smith found a significant relationship between dual enrollment coursework and increased postsecondary educational aspirations. The study also found a connection between the site of the dual enrollment program and students’ college aspirations. Students who took dual enrollment courses on the college campus site had higher college education aspirations than students who took dual enrollment within their high school.

Similar evidence was found in a New York study of students participating in the College Now program (Allen & Dadger, 2012). Students who took dual enrollment courses during high school moved at a faster pace toward a postsecondary degree. These students also earned overall higher grade point averages while in college. The authors affirmed previous studies that showed that dual enrollment may enhance postsecondary achievement and expedite degree completion for students.

The rapid expansion of dual enrollment opportunities in the last decade may be due, in part to a shift in the type of student targeted to participate (Bailey, Hughes, & Mechur Karp, 2002). Previously, opportunities for dual enrollment credit were limited only to students listed as high achieving or high-ability learners. Students participating in Advanced Placement courses while in high school were predominant participants, as dual course offerings easily aligned with the college level courses offered in AP designated coursework (Klopfenstein & Lively, 2012). Currently, a much broader range of students are participating in dual enrollment as the strategies for implementation by cooperating postsecondary institutions has changed. Research suggests more can be done to attract students from diverse backgrounds to participate in dual enrollment (Meyer, 2004; Harnish & Lynch, 2005). To better understand the impact of dual enrollment on the
postsecondary outcomes of students, participation must include more than those most likely to attain a college education (Mechur Karp, et al, 2007). Additionally, dual enrollment programs that have a career focus offer more college credit options to underrepresented students; students who might otherwise not pursue a college education after high school (Edwards, Hughes, & Weisburg 2011). A career emphasis in dual enrollment courses connects students more closely with skills and trades and are courses generally offered by community colleges and two-year technical or trade schools.

Student success is not merely defined by academic performance. The successful transition from high school to postsecondary school includes a student’s perceived cognitive and cultural inclusion (Mechur Karp, 2012). For students to persist through college, and attain completion of a degree, an essential component for most students is the feeling that they belong in the postsecondary environment and that they have the tools to be successful (Byrd & MacDonald, 2005; Conley, 2010). Dual enrollment participation is unique in helping students develop an understanding of some of the rigors expected in college while in high school. These experiences can be influential on their self-esteem and their ability to perceive success in college. Furthermore, some dual enrollment programs offer students the opportunity to engage in special programs or events at the postsecondary school, which further assimilates a student with the culture and climate of the postsecondary school, also having a positive effect (Mechur Karp, 2012).

Due to the variety of ways in which dual enrollment programs are implemented, where and how students earn credits to apply toward college seems to have relevance in researchers’ minds. It should not be assumed that all dual enrollment programs are equal
in their application, content, standard, and oversight. Dual enrollment programs that are simply high school courses without a purposeful addition to rigor or direct connection with college resources and content may be doing a disservice to the participating students in the long term (Dougan, 2005). Dual enrollment partnerships that connect the secondary and postsecondary schools directly have a greater influence on student achievement in both high school and college (Hoffman, Vargas, & Santos, 2009; Mechur Karp, et al., 2007).

**Dual Enrollment Benefits the Postsecondary Institution**

For the institution sponsoring dual enrollment collaboration with high school(s), there is persistent question of practicality. Do the costs attributed to implementing a dual enrollment program result in substantial benefits to the institution? The bottom line often determines whether a program is maintained, expanded, contracted, or discarded when competing for limited financial resources. A survey of dual enrollment stakeholders in Rhode Island, for example, revealed the trepidation postsecondary school administrators had regarding the efficacy of dual enrollment programs. They asserted that there were benefits to offering the dual enrollment program like boosting diversity on their campus, as well as increasing student persistence rates, but generally they had questions about the methods and rigor of the courses being offered at the high schools (Jobs for the Future, 2006).

Colleges and universities seem to be embracing a marketing approach to compete for prospective students (Mehta, Newbold, & O’Rourke, 2011). It has become commonplace for higher education institutions to develop programs that connect prospective students with the campus environment. Programs, like dual enrollment serve
as recruiting tools for the institution. Dual enrollment participation may increase the likelihood of students’ eventual attendance at the sponsoring postsecondary institution (Bailey, Hughes, & Karp, 2002; Orr, 1998; et al.). In research conducted in Iowa, students were 18% more likely to attend a North Iowa Area Community College if they had participated in an NIACC sponsored acceleration program like dual enrollment. The study also found that within that 18% gain, the vast majority of students were from a first generation demographic (Morrison, 2008).

In addition to recruiting benefits, there may be mutually beneficial financial outcomes for students’ families and the dual enrollment sponsoring postsecondary institution. Colleges and universities that charge tuition for dual enrollment often do so at a reduced rate and no university assesses the additional fees associated with being a traditional full-time student on campus. The University of Nebraska at Omaha in 2012 charged a flat rate of $250 per dual enrollment course regardless of the number of credit hours specified. At UNO, an undergraduate, in-state tuition rate of $196.75 per credit hour, a typical 3 credit hour course costs $590.25 and a five credit hour class costs $983.75. Dual enrollment by comparison, is a hedge against ever-rising tuition costs. Students who qualify with economic hardship in Nebraska may receive an ACE (Access College Early) scholarship from the state which pays for all tuition associated with dual enrollment and will cover multiple courses if taken. Nebraska is not alone in taking steps to help economically disadvantaged students with costs. Several states have enacted legislation that appropriates funding each year to assist students with the cost of dual enrollment opportunities (Mechur Karp, et al., 2005).
While students and their families increasingly seek out opportunities like dual enrollment due to the exponentially rising costs of higher education (Falk & Blaylock, 2010), there are valid questions surrounding the practice and implementation of dual enrollment as a method of preparation for college. Questions arise about whether the level of rigor of dual enrollment courses taught in the high school are equivalent to similar content taught in college (Dougan, 2005). Postsecondary institutions assume a level of responsibility to ensure that the courses they certify as eligible for dual enrollment credit in fact, meet the standards for content coverage and rigor that is expected in a traditional on-campus class. Not doing so places the dual enrollment participating student at-risk of being unprepared to manage the workload demanded in higher education (Hunt & Carroll, 2010).

**First generation Students’ Unique Needs**

First generation students come from a cross section of society. The National Education Longitudinal Study (NELS), 1988-2000, Fourth Follow-up, Postsecondary Transcript Study showed that first generation students crossed all racial and ethnographic types. When compared to students whose parents had “some college” education but not a college degree, first generation students were slightly less likely to be categorized as racially White (first generation = 64.0% compared to students whose parents had some college, but no college degree = 73.6%). Also, first generation students were twice as likely to identify as racially Hispanic (first generation = 16.9% compared with students whose parents had “some college” = 8.3%). In other racial categories, however NELS 88:2000 reported the percentages to be statistically similar (American Indian, Asian/Pacific Islander, and Black). First generation students were twice as likely to
originate from families making less than $25,000 annually (50.3%) compared to students whose parents had “some college” (25.9%) and 7 times as likely as college attending students whose parents had earned a bachelor’s degree (7.4%). Not surprisingly, among students who come from families categorized in the upper income bracket ($75,000 or higher annual family income) only 2.7% of students were first generation compared with 6.3% of students whose parents had “some college” education and 35.5% of students whose parent(s) had earned a bachelor’s degree (NCES, 2001).

For first generation students, college going can be an uphill climb. Having neither parent share in an understanding about the decision making, application, and enrollment processes, is a disadvantage for students embarking on postsecondary planning. In addition, these students have several risk factors associated with non-persistence and non-completion of postsecondary degrees. Stebleton and Soria (2012) compared first generation students with multigenerational students in six large research universities and found significantly more obstacles to success in postsecondary including: competing job and family responsibilities, weaker math skills, and weaker study habits. First generation college going students have unique needs in pedagogy, (Hao, 2011), college readiness out of high school (Byrd & MacDonald, 2005), lack of cultural understanding from their instructors (Richardson & Skinner, 1992), and require strong academic advising during college (Hoyt, 1999).

Hao (2011) stated that first generation students need more compassionate communication from educators than other students. Through compassion, asking questions, assessing and addressing specific student needs, educators can better understand the level of support in pedagogy that first generation students need to be
successful. Good advisement before and during college is also critical (Hoyt, 1999) involving academic counselors and advisors’ understanding of the first generation students’ unique needs. First generation students may lack the understanding of how and with whom to solicit help when there is a question about policy or procedure. Whereas multi-generational students may have prompting from parents or family members concerning where and with whom to appeal for help, first generation students are left to their own devices, putting them more at risk for missing key information regarding basic student life such as selecting a major, applying or renewing financial aid, becoming involved in campus activities, and getting academic assistance when needed (Wang, 2012).

The issue of access equity for first generation students attaining postsecondary education begins long before a student applies to or is enrolled in college. First generation students are more likely to come from families living in low socioeconomic status (Mehta, Newbold & O’Roarke, 2011). The earnings advantage for those who attain postsecondary education is well-documented, with some estimates stating that those with a postsecondary degree earn an average of one million dollars more than those without over of course of their working lives. Until the cycle is broken when a generation attains a postsecondary education, the disadvantage of lower earnings potential is likely to be perpetuated from one generation to another.

Analysis of college success indicators paints a bleak picture for first generation students. Once a first generation student enters college he or she is less likely to earn as many credits during the first year than their multigenerational student counterparts, whose parents’ had some level of postsecondary education (Terenzini, Springer, Yaeger,
Pascarella, & Nora 1996). First generation students work more hours at jobs in addition to their schoolwork (Pascarella, Pierson, Wolniak, Terenzini, 2004; Terenzini, et al., 1996). Consequently, first generation students are more likely to drop out of postsecondary after the first year and have roughly one quarter the likelihood of graduation from a postsecondary institution as the multigenerational student does in a 4-6 year timeframe (Ishitani, 2006).

According to Swanson (2010), participation in dual enrollment in high school can have an influence on students’ perceptions of their abilities to achieve in college. As high school students gain a foothold in completing college level courses and earning college credit in the process, they gain confidence in their abilities to complete future college coursework, thereby inflating their self-esteem for tackling the rigors they may face in the postsecondary environment. For first generation students, self-esteem is a critical component leading to matriculation to college. Since neither parent generally has experience to lend in making the transition to college, first generation students cannot simply borrow from their parents the perspective that they have what it takes to be successful in the postsecondary environment. They need to draw more from within (Terenzini, et al., 1996). By successfully participating in dual enrollment, first generation students achieve a greater amount of self-esteem related to their potential for success in postsecondary.

**Minority Students’ Unique Needs**

First generation students cross racial, ethnic, gender, cultural, and socioeconomic lines, making it more difficult to account for co-variants in challenges to academic success and postsecondary going. The barriers to the same for racial minority subsets
may be more precisely defined. Contributing factors for minority students’ not advancing to postsecondary education are: higher rates of economic disadvantage (Caldas & Bankston, 1997), a lack of academically rigorous courses in high school, lower academic expectations from teachers (Ward, 2006), less prepared teachers and educators associated with failing or struggling schools (Kozol, 1991), college entrance testing bias (Lucas, 2000; Santelices & Wilson, 2010), and peer group influence (U.S. Department of Education [USDOE], 2001).

In spite of institutional efforts to increase minority enrollment in colleges and universities, percentages of minorities in attendance in higher education continues to lag behind majority students. While U.S. census data shows that in the general population those racially self-identified as Black and Hispanic make up 13.1% and 16.7% respectively, both groups each account for approximately 9% of the students attending four-year research universities. Larger percentages are represented in two-year colleges and other postsecondary opportunities (NCES, 2011). Many postsecondary institutions set policies and develop programs specifically to attract and recruit minority students to their schools (Lurn, 2003). While some institutions experience moderate success in raising the numbers of racial minorities to their campuses, there is room for improvement in providing opportunities to underserved populations.

**Student Persistence**

Tinto (1987, 1993) is credited with the seminal theory of student persistence that many university administrators and policy makers still utilize today. With regard to student departure from college, Tinto’s model essentially surmises that students enter postsecondary schools with a set of intentions, personal ambitions, and commitments. As
the students’ progress, academic and social circumstances prescribe continual reevaluation of their goals, subsequently leading to decisions on whether to persist in school or depart, either temporarily to permanently from the postsecondary environment.

The research behind his theory however has been recently questioned for an over-representation of traditional college-going students, thereby leading to the question of applicability when addressing non-traditional college going populations; ethnic minority students, low socioeconomic status students, and first generation students (Stieha, 2010).

Current theories of student persistence take into account wider student diversity, non-traditional college-going students, and first generation students by considering their unique postsecondary cultural experiences in context with the decision making process (Escobedo, 2007).

Student perceptions are a major factor in postsecondary persistence. Academic ability in high school may serve as a general predictor of academic success in postsecondary education, the perceptions of students in how well they socially, emotionally, and academically transition into the postsecondary environment is paramount to students’ desires to persist in postsecondary environments (Tinto, 1993; Kelly, Lavergne, Boone, & Boone, 2012). Student perceptions regarding having social support from peers, availability of academic support resources like tutoring, writing labs, study groups, etc., and when applicable the perception of successfully living on one’s own, away from the family life the student has known and grown up with are essential features of the successful transition in college (Kelly, et al., 2012).

College persistence or the ability of students to continue with their college education over a continuous span of time plays a central role for both student success and
the success of the postsecondary institution itself. It is substantially more cost effective for postsecondary institutions to retain, matriculate, and graduate students than it is to have heavy reliance on recruiting new students to keep student population in line with financial viability. (Berger, Ramirez, & Lyons, 2012). Colleges and universities, which are competing in crowded postsecondary markets, strive to maintain viability by attracting students they deem as those best prepared for academic success, and therefore more likely to persist for multiple semesters and years. For a postsecondary institution to successfully increase student persistence, the entire campus must be on board (Santovec, 2005). Whole-campus efforts, wherein administrators, faculty, department leaders, and support staff of the institution have a role to play in helping students continue their education to completion will likely lead to the desired results.

There are great costs to local, state, and federal entities associated with attrition of first-year students. States bear the heaviest burden as they comprise the majority of spending on higher education (Schneider, 2010). States provide millions of dollars in resources to students directly and to postsecondary institutions as incentives for retention and degree completion. Yet the vast amount of dollars spent are seen as “lost resources” if students do not persist in postsecondary education or complete their degrees. Over a five year period (2004-2008) spending on students who failed to persist to a second year of postsecondary education for all states in the U.S. was estimated at 6.18 billion dollars. Federal spending, primarily on Pell Grants for those same students during the same time frame amounted to 1.5 billion dollars (Schneider, 2010).
CHAPTER THREE

Methodology

The purpose of this study is to determine the effect of prior high school dual enrollment course completion and access equity on grade-point average, credits attempted, credits earned, and persistence of college-going for first generation college attending majority and minority students completing coursework at the same metropolitan university.

Participants

Number of participants. The maximum accrual for this study will be (N = 96) including a naturally formed group of first generation college minority students (n = 19) with three to five prior high school dual enrollment course credit hours completed and a naturally formed group of first generation college majority students (n =30) with three to five prior high school dual enrollment course credit hours completed and a naturally formed group of first generation college minority students (n = 19) with six or more prior high school dual enrollment course credit hours completed and a naturally formed group of first generation college majority students (n =28 ) with six or more prior high school dual enrollment course credit hours completed.

Gender of participants. Of the total number of first generation college minority and majority student participants selected, 39 (40.6%) were males and 57 (59.4%) were females.

Age range of participants. The age range for all study participants was from 18 years to 21 years. All participants completed two academic years at the University of
Nebraska at Omaha. The age range of the study participants is congruent with the universities age range demographics for traditional college age students.

**Racial and ethnic origin of participants.** Of the total number of first generation college student participants selected with three to five prior high school dual enrollment course credit hours completed 24 (35.8%) were minority and 43 (64.2%) were majority. Of the total number of first generation college student participants selected with seven or more prior high school dual enrollment course credit hours completed 17 (38.6%) were minority and 27 (61.4%) were majority.

**Inclusion criteria of participants.** First generation college student participants selected with eight or fewer or nine or more prior high school dual enrollment course credit hours completed with two consecutive academic years of enrollment at the University of Nebraska at Omaha, were included.

**Method of participant identification.** First generation college student participants selected with eight or fewer or nine or more prior high school dual enrollment course credit hours completed at the University of Nebraska at Omaha, before their initial enrollment in the University were identified for participation.

**Description of Procedures**

**Research design.** The posttest, post-posttest four-group comparative efficacy study design is displayed in the following notation.

Group 1 \(X_1 Y_1 O_1 O_2\)

Group 2 \(X_1 Y_2 O_1 O_2\)

Group 3 \(X_1 Y_3 O_1 O_2\)

Group 4 \(X_1 Y_4 O_1 O_2\)
**Group 1 = study participants.** Naturally formed group of first generation college minority students who earned between three and five dual enrollment course credits while in high school. \(n = 19\).

**Group 2 = study participants.** Naturally formed group of first generation college majority students who earned between three and five dual enrollment course credits while in high school \(n = 30\).

**Group 3 = study participants.** Naturally formed group of first generation college minority students who earned six or more dual enrollment course credits while in high school \(n = 19\).

**Group 4 = study participants.** Naturally formed group of first generation college majority students who earned six or more dual enrollment course credits while in high school \(n = 28\).

**X1 = study constant.** All participants were first generation college attending minority and majority students who completed dual enrollment course(s) while attending high school.

**Y\(_1\) = study independent variable, prior high school dual enrollment course completion, condition #1.** First generation college minority students with prior high school dual enrollment course completion through the same metropolitan university with three to five high school dual enrollment course credit hours completed.

**Y\(_2\) = study independent variable, prior high school dual enrollment course completion, condition #2.** First generation college majority students with prior high school dual enrollment course completion through the same metropolitan university with three to five high school dual enrollment course credit hours completed.
Y₃ = study independent variable, prior high school dual enrollment course completion, condition #3. First generation college minority students with prior high school dual enrollment course completion through the same metropolitan university with six or more high school dual enrollment course credit hours completed.

Y₄ = study independent variable, prior high school dual enrollment course completion, condition #4. First generation college majority students with prior high school dual enrollment course completion through the same metropolitan university with six or more high school dual enrollment course credit hours completed.

O₁ = study posttest dependent measures. (1) Achievement as measured by overall end of first year college grade point average. (2) Achievement as measured by first year cumulative college credits earned. (3) Achievement as measured by students’ continuous enrollment from the end of spring semester to enrollment in the following fall semester.

O₂ = study post-posttest dependent measures. (1) Achievement as measured by overall end of second year college grade point average. (2) Achievement as measured by end of second year cumulative college credits earned. (3) Achievement as measured by students’ continuous enrollment from the end of spring semester of the second year to enrollment in the following fall semester.

Implementation of the Independent Variables

The independent variable for this study is first generation college-attending minority and majority students attending the same metropolitan university. All students completed dual enrollment coursework during high school in conjunction with the university to which all students matriculated. All students entered the university as full
time students for the first time in the fall of 2010. All students comprise the four research arms of this study.

**Dependent Measures**

The study’s three dependent variables were (1) Achievement as measured by overall end of first year and end of second year college grade point average. (2) Achievement as measured by a comparison between end of first year and end of second year college credit hours attempted versus college credit hours earned. (3) Achievement as measured by students’ continuous enrollment in a second and third year in the same postsecondary institution.

**Research Questions and Data Analysis**

The following research question will be used to analyze student performance relative to end of first year cumulative grade point averages.

**Overarching Posttest Achievement Research Question #1.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different end of first year cumulative grade point averages?

**Analysis.** Research Question #1 will be analyzed using a single classification Analysis of Variance (ANOVA) to determine the main effect congruence or difference between (a) first generation college minority students with three to five high school dual
enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit in cumulative end of first year grade point average. An $F$ ratio will be calculated and an alpha level of .05 will be utilized to test the null hypothesis. Follow-up post hoc analyses will be conducted to determine the significance of any observed differences. Means and standard deviations will be displayed in tables.

The following research question will be used to analyze student performance relative to the number of course credit hours earned and attempted after the first year in the university.

**Overarching Posttest Achievement Research Question #2.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different posttest ratios of college credit hours earned and attempted after the end of the first year of college attendance?

**Analysis.** Research Question #2 will be analyzed using a single classification Analysis of Variance (ANOVA) to determine the main effect congruence or difference
between (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit in the ratio of college credits hours earned to attempted. An $F$ ratio will be calculated and an alpha level of .05 will be utilized to test the null hypothesis. Follow-up post hoc analyses will be conducted to determine the significance of any observed differences. Means and standard deviations will be displayed in tables.

The following research question will be used to analyze student performance relative to end of the second year grade point average.

**Overarching Posttest Achievement Research Question #3.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different end of second year cumulative grade point averages?

**Analysis.** Research Question #3 will be analyzed using a single classification Analysis of Variance (ANOVA) to determine the main effect congruence or difference between (a) first generation college minority students with three to five high school dual
enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit in cumulative end of second year grade point average. An $F$ ratio will be calculated and an alpha level of .05 will be utilized to test the null hypothesis. Follow-up *post hoc* analyses will be conducted to determine the significance of any observed differences. Means and standard deviations will be displayed in tables.

The following research question will be used to analyze student performance relative to the number of course credit hours earned and attempted after the second year in the university.

**Overarching Posttest Achievement Research Question #4.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different posttest ratios of college credit hours earned and attempted after the end of the second year of college attendance?

**Analysis.** Research Question #4 will be analyzed using a single classification Analysis of Variance (ANOVA) to determine the main effect congruence or difference
between (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed in the ratio of end of second year college credits hours earned to attempted. An $F$ ratio will be calculated and an alpha level of .05 will be utilized to test the null hypothesis. Follow-up post hoc analyses will be conducted to determine the significance of any observed differences. Means and standard deviations will be displayed in tables.

The following research question will be used to analyze college persistence based on continuous enrollment in a second consecutive year at the same postsecondary institution.

**Overarching Posttest Achievement Research Question #5.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment in a second consecutive year in the same postsecondary institution?
**Analysis.** Research Question #5a will be analyzed utilizing a chi-square ($X^2$) test of significance to compare (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment in a second consecutive year in the same postsecondary institution. Frequencies and percentages will be displayed in tables.

The following research question will be used to analyze college persistence based on continuous enrollment in a third consecutive year at the same postsecondary institution.

**Overarching Posttest Achievement Research Question #6.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment in a third consecutive year in the same postsecondary institution?
**Analysis.** Research Question #6 will be analyzed utilizing a chi-square ($\chi^2$) test of significance to compare (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment for a third consecutive year in the same postsecondary institution. Frequencies and percentages will be displayed in tables.

**Data Collection Procedures**

All university student, dual enrollment grade point average, end-of-term grade point average, credits attempted, credits earned, and selected academic major were retrospective, archival, and routinely collected university information. Permission from the appropriate university research personnel was obtained. Four naturally formed groups of first generation college-attending students who completed dual enrollment courses in high school now attending the same metropolitan university are included in this study. Non-coded numbers were used to display de-identified dual enrollment course grade point averages, college course credit hours attempted, college course credit hours earned, and end of first and second collegiate year grade point averages. Non parametric descriptors were used to identify students’ selection of intended academic major. Aggregated group data, descriptive statistics, and parametric statistical analysis were used and reported with means and standard deviations in tables.
**Performance site.** This research was conducted in the university setting through normal educational and assessment practices. The study procedures did not interfere with the normal educational and assessment practices of the university and did not involve coercion or discomfort of any kind. Data was stored on spreadsheets and computer flash drives for statistical analysis in the office of the primary researcher and the dissertation chair. Data and computer files were kept in locked file cabinets. No individual identifiers were attached to the data.

**Institutional Review Board (IRB) for the protection of Human Subjects**

**Approval Category.** The exemption categories for this study were provided under 45CFR.101 (b) categories 1 and 4. The research was conducted using routinely collected archival data. A letter of support from the university was provided for IRB review.
CHAPTER FOUR

Results

This chapter presents an analysis of the data collected to help understand whether or not the presence of prior completed dual enrollment coursework increased first generation students’ postsecondary achievement and likelihood to persist.

Purpose of the Study

The purpose of this study was to determine the effect of prior high school dual enrollment course completion and access equity on grade-point average, credits attempted, credits earned, and persistence of college-going for first generation college attending majority and minority students completing coursework at the same metropolitan university.

Table 1 displays the demographics of the ninety-six subjects included in this study. Gender, ethnicity, and number of dual enrollment credits earned while in high school are listed.

Overarching Posttest Achievement Research Question #1. Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different end of first year cumulative grade point averages?
Analysis. Research Question #1 was analyzed using a single classification Analysis of Variance (ANOVA) to determine the main effect congruence or difference between (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit in cumulative end of first year grade point average. An $F$ ratio will be calculated and an alpha level of .05 was utilized to test the null hypothesis. Follow-up post hoc analyses were conducted to determine the significance of the observed differences. Means and standard deviations are displayed in tables.

As seen in Table 2, the null hypothesis was rejected indicating a significant difference between groups, $F(3,92) = 5.99, p = .001$. The post hoc follow up test indicates that $Y_2 (M = 2.16, SD = 1.21)$ is significantly different from $Y_3 (M = 3.11, SD = 0.51)$ and $Y_4 (M = 3.09, SD = 0.95)$ following completion of their first year of university coursework overall GPA. The post hoc follow-up test indicates that $Y_1$ is not significantly different from $Y_2, Y_3$, and $Y_4$; $Y_3$ is not significantly different from $Y_4$. In an analysis of effect size, $\eta^2 = .11$ indicating that there is medium effect size of the variance of dependent variables.

Overarching Posttest Achievement Research Question #2. Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to
five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different posttest ratio of college credit hours earned and attempted after the first year of college attendance?

**Analysis.** Research Question #2 was analyzed using a single classification Analysis of Variance (ANOVA) to determine the main effect congruence or difference between (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit in the ratio of college credit hours earned and attempted after the first year of college attendance. An $F$ ratio will be calculated and an alpha level of .05 was utilized to test the null hypothesis. Follow-up post hoc analyses were conducted to determine the significance of the observed differences. Means and standard deviations are displayed in tables.

As seen in Table 3, the null hypothesis was rejected indicating a significant difference between groups, $F(3,92) = 3.76, p = .014$. The post hoc follow up test indicates that $Y_2 (M = 0.75, SD = 0.348)$ is significantly different from $Y_3 (M = 0.98, SD = 0.05)$ in the end of first-year ratio of college credits earned to college credits attempted. The post hoc follow up test revealed that $Y_1$ was not significantly different from $Y_2, Y_3,$
and $Y_4$; $Y_2$ was not significantly different from $Y_4$; $Y_3$ was not significantly different from $Y_4$. In an analysis of effect size, $\eta^2 = .16$ indicating that there is a large effect size of the variance between dependent variables.

**Overarching Posttest Achievement Research Question #3.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different end of second year cumulative grade point averages?

**Analysis.** Research Question #3 was analyzed using a single classification Analysis of Variance (ANOVA) to determine the main effect congruence or difference between (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit in cumulative end of second year grade point average. An $F$ ratio was calculated and an alpha level of .05 was utilized to test the null hypothesis. Means and standard deviations are displayed in tables.
As seen in Table 4, the null hypothesis was not rejected indicating no significant difference between groups, $F(3,72) = 1.43$, $p = .241$ in end-of-second-year cumulative grade point averages.

**Overarching Posttest Achievement Research Question #4.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different posttest ratios of college credit hours earned and attempted after the end of the second year of college attendance?

**Analysis.** Research Question #4 was analyzed using a single classification Analysis of Variance (ANOVA) to determine the main effect congruence or difference between (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit in the ratio of end of second year college credits hours earned to attempted. An $F$ ratio was calculated and an alpha level of .05 was utilized to test the null hypothesis.
As seen in Table 5, the null hypothesis was not rejected indicating no significant differences between groups, $F(3,72) = 2.149, p = .102$ in end-of-second-year ratio of college credits earned to college credits attempted.

**Overarching Posttest Achievement Research Question #5.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment in a second consecutive year in the same postsecondary institution?

**Analysis.** Research Question #5 was analyzed utilizing a chi-square ($\chi^2$) test of significance to compare (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment in a second consecutive year in the same postsecondary institution. Frequencies and percentages were displayed in tables.
Table 6 displays the frequencies and percentages of the four groups enrolling in a second consecutive year in the same postsecondary institution. The chi square analysis of frequencies showed a significant difference in enrollment in a second year of college between groups ($\chi^2(3) = 17.7, p < .001$).

**Overarching Posttest Achievement Research Question #6.** Do (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment in a third consecutive year in the same postsecondary institution?

**Analysis.** Research Question #6 was analyzed utilizing a chi-square ($\chi^2$) test of significance to compare (a) first generation college minority students with three to five high school dual enrollment course credit hours completed and (b) first generation college majority students with three to five high school dual enrollment course credit hours completed and (c) first generation college minority students with six or more high school dual enrollment course credit hours completed and (d) first generation college majority students with six or more high school dual enrollment course credit hours completed have congruent or different frequencies of enrollment for a third consecutive year in the same postsecondary institution. Frequencies and percentages were displayed in tables.
Table 7 displays the frequencies and percentages of the four groups enrolling in a third consecutive year in the same postsecondary institution. The chi square analysis of frequencies showed there was no significant difference in enrollment in a third year of college between groups ($\chi^2 (3) = 4.74$, $p = .192$).
Table 1

Demographic data for all study participants.

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</tbody>
</table>

Note: The postsecondary institution included in this study allows students to identify more than one ethnicity of origin. Students identifying as more than one ethnicity have all identified ethnicities listed separated by a slash (/) symbol.

Ethnicity Key: WH = White, HI = Hispanic, BL = Black, AI = American Indian, AS = Asian, HW/PI = Hawaiian/Pacific Islander

Group key: 1 = Minority students with 3 to 5 dual enrollment credits earned, 2 = Majority students with 3 to 5 dual enrollment credits earned, 3 = Minority students with
6 or more dual enrollment credits earned, 4 = Majority students with 6 or more dual enrollment credits earned.
Table 2

Single Classification Analysis of Variance (ANOVA) Determining Differences

Between Overall First Year GPA among subject groups

End of Year One Cumulative GPA

ANOVA: Single Factor

<table>
<thead>
<tr>
<th>Groups</th>
<th>Count</th>
<th>M</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Students w/ 3-5 DE Cr. (Y₁)</td>
<td>19</td>
<td>2.750</td>
<td>0.816</td>
<td>0.187</td>
</tr>
<tr>
<td>Maj. Students w/ 3-5 DE Cr. (Y₂)</td>
<td>30</td>
<td>2.155</td>
<td>1.211</td>
<td>0.221</td>
</tr>
<tr>
<td>Min. Students w/ ≥ 6 DE Cr. (Y₃)</td>
<td>19</td>
<td>3.114</td>
<td>0.512</td>
<td>0.117</td>
</tr>
<tr>
<td>Maj. Students w/ ≥ 6 DE Cr. (Y₄)</td>
<td>28</td>
<td>3.087</td>
<td>0.946</td>
<td>0.179</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>2.734</td>
<td>1.024</td>
<td>0.105</td>
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</table>

ANOVA

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>16.287</td>
<td>3</td>
<td>5.429</td>
<td>5.988</td>
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<tr>
<td>Within Groups</td>
<td>83.405</td>
<td>92</td>
<td>0.907</td>
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<td>Total</td>
<td>99.692</td>
<td>95</td>
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</tbody>
</table>

Note. An F ratio was calculated and an alpha level of .05 was utilized to control for Type 1 errors.
Table 3

*Single Classification Analysis of Variance (ANOVA) Determining Differences Between Ratios of End of First Year College Credits Attempted and Earned among subject groups*

<table>
<thead>
<tr>
<th>End of Year One Cumulative Ratio of College Credits Earned/Attempted</th>
<th>ANOVA: Single Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Groups</strong></td>
<td><strong>Count</strong></td>
</tr>
<tr>
<td>Min. Students w/ 3-5 DE Cr. (Y₁)</td>
<td>19</td>
</tr>
<tr>
<td>Maj. Students w/ 3-5 DE Cr. (Y₂)</td>
<td>30</td>
</tr>
<tr>
<td>Min. Students w/ ≥ 6 DE Cr. (Y₃)</td>
<td>19</td>
</tr>
<tr>
<td>Maj. Students w/ ≥ 6 DE Cr. (Y₄)</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>96</td>
</tr>
</tbody>
</table>

**ANOVA**

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<th><strong>MS</strong></th>
<th><strong>F</strong></th>
<th><strong>p</strong></th>
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</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>0.771</td>
<td>3</td>
<td>0.257</td>
<td>3.758</td>
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<tr>
<td>Within Groups</td>
<td>6.292</td>
<td>92</td>
<td>0.068</td>
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<tr>
<td><strong>Total</strong></td>
<td>7.063</td>
<td>95</td>
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*Note.* An F ratio was calculated and an alpha level of .05 was utilized to control for Type I errors.
Table 4

*Single Classification Analysis of Variance (ANOVA) Determining Differences*

*Between Overall Second Year GPA among subject groups*

<table>
<thead>
<tr>
<th>Groups</th>
<th>Count</th>
<th>M</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Students w/ 3-5 DE Cr. (Y₁)</td>
<td>14</td>
<td>2.972</td>
<td>0.504</td>
<td>.134</td>
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<tr>
<td>Maj./ Students w/ 3-5 DE Cr. (Y₂)</td>
<td>17</td>
<td>2.605</td>
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<td>.321</td>
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<tr>
<td>Min. Students w/ ≥ 6 DE Cr. (Y₃)</td>
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<td>2.886</td>
<td>0.903</td>
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<td>Maj. Students w/ ≥ 6 DE Cr. (Y₄)</td>
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<td>3.190</td>
<td>0.759</td>
<td>.149</td>
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<tr>
<td>Total</td>
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<td>2.943</td>
<td>0.924</td>
<td>.106</td>
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ANOVA

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<th>p</th>
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<td>Between Groups</td>
<td>3.601</td>
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<td>1.200</td>
<td>1.429</td>
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<td>Within Groups</td>
<td>60.493</td>
<td>72</td>
<td>0.840</td>
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<td>Total</td>
<td>64.094</td>
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</table>

*Note.* An F ratio was calculated and an alpha level of .05 was utilized to control for Type I errors.
Table 5

*Single Classification Analysis of Variance (ANOVA) Determining Differences
Between Ratios of End of First Year College Credits Attempted and Earned
among subject groups*

<table>
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<tr>
<th>End of Year One Cumulative Ratio of College Credits Earned/Attempted</th>
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</thead>
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<tr>
<td>ANOVA: Single Factor</td>
</tr>
<tr>
<td>Groups</td>
</tr>
<tr>
<td>Count</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Min. Students w/ 3-5 DE Cr. (Y₁)</td>
</tr>
<tr>
<td>Maj. Students w/ 3-5 DE Cr. (Y₂)</td>
</tr>
<tr>
<td>Min. Students w/ ≥ 6 DE Cr. (Y₃)</td>
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<tr>
<td>Maj. Students w/ ≥ 6 DE Cr. (Y₄)</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

ANOVA

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<th>F</th>
<th>p</th>
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</thead>
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<td>Between Groups</td>
<td>0.074</td>
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<td>0.025</td>
<td>2.149</td>
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<td>Within Groups</td>
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<td>Total</td>
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*Note.* An F ratio was calculated and an alpha level of .05 was utilized to control for Type 1 errors.
Table 6

*Frequency of students enrolling in a second consecutive year at the same postsecondary institution.*

<table>
<thead>
<tr>
<th>Group</th>
<th>Enrolled in 2nd Year</th>
<th>Not enrolled in 2nd Year</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Min. w/ 3-5 DE Cr. (Y₁)</td>
<td>14 (73.7%)</td>
<td>5 (26.3%)</td>
<td>19 (100%)</td>
<td></td>
</tr>
<tr>
<td>Maj. w/ 3-5 DE Cr. (Y₂)</td>
<td>17 (56.7%)</td>
<td>13 (43.3%)</td>
<td>30 (100%)</td>
<td></td>
</tr>
<tr>
<td>Min. w/ ≥ 6 DE Cr. (Y₃)</td>
<td>19 (100%)</td>
<td>0 (0%)</td>
<td>19 (100%)</td>
<td></td>
</tr>
<tr>
<td>Maj. w/ ≥ 6 DE Cr. (Y₄)</td>
<td>26 (92.9%)</td>
<td>2 (7.1%)</td>
<td>28 (100%)</td>
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</tr>
<tr>
<td>Total</td>
<td>76 (79.2%)</td>
<td>20 (20.8%)</td>
<td>96 (100%)</td>
<td>17.7</td>
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Table 7

*Frequency of students enrolling in third consecutive year at the same postsecondary institution.*

<table>
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<th>Group</th>
<th>Enrolled in 3rd Year</th>
<th>Not enrolled in 3rd Year</th>
<th>Total</th>
<th>$X^2$</th>
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</thead>
<tbody>
<tr>
<td>Min. w/ 3-5 DE Cr. (Y₁)</td>
<td>14 (100%)</td>
<td>0 (0%)</td>
<td>14 (100%)</td>
<td></td>
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<tr>
<td>Maj. w/ 3-5 DE Cr. (Y₂)</td>
<td>14 (82.4%)</td>
<td>3 (17.6%)</td>
<td>17 (100%)</td>
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<tr>
<td>Min. w/ ≥ 6 DE Cr. (Y₃)</td>
<td>18 (94.7%)</td>
<td>1 (5.3%)</td>
<td>19 (100%)</td>
<td></td>
</tr>
<tr>
<td>Maj. w/ ≥ 6 DE Cr. (Y₄)</td>
<td>25 (92.9%)</td>
<td>1 (7.1%)</td>
<td>26 (100%)</td>
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</tr>
<tr>
<td>Total</td>
<td>71 (96.2%)</td>
<td>5 (3.8%)</td>
<td>76 (100%)</td>
<td>4.74</td>
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CHAPTER FIVE

Conclusion and Discussion

The purpose of this study was to determine the effect of prior high school dual enrollment course completion and access equity on students’ postsecondary achievement. This study measured the effects of first generation college attending students’ prior completion of dual enrollment courses during high school through the dependent variables of (1) Achievement as measured by end-of-first year postsecondary grade-point average, (2) Achievement as measured by end-of-second year postsecondary grade point average, (3) Achievement as measure by end-of-first year ratio of credits attempted to credits earned, (4) Achievement as measured by end-of-second year ratio of credits earned to credits attempted, (5) Persistence in college as measured by the frequencies of first-year to second-year matriculation, and (6) Persistence in college as measured by the frequency of second to third year matriculation.

Research Question #1 Conclusion

Overall, the posttest results indicated the dependent measure of end-of-first-year grade point averages was statistically significantly different between groups. A post-hoc analysis revealed that minority and majority first generation college students who earned six or more dual enrollment credits during high school had significantly higher grade point averages after their first year in the postsecondary institution than majority first generation college students who earned three to five dual enrollment credits during high school. The results, however also revealed that first generation college minority students who earned three to five dual enrollment credits while in high school did not have significantly different grade point averages than any of the other three groups.
Among the four groups, first generation minority students with six or more dual enrollment credits had the highest grade point average after their first year in college, while first generation majority students with six or more dual enrollment credits had the second highest grade point averages as a group. These results suggest that completing more dual enrollment courses while in high school has a positive impact on postsecondary achievement in terms end of first-year grade point average for both majority and minority first generation college-attending students. Students who have taken and/or had access to take more dual enrollment courses while in high school may have advantages such as more rigorous coursework preparing them for the challenges of higher education.

**Research Question #2 Conclusion**

Overall the posttest comparison of ratios of credits earned to credits attempted between first generation minority students with three to five dual enrollment credits earned, first generation majority students with three to five dual enrollment credits earned, first generation minority students with six or more dual enrollment credits earned, and first generation majority students with six or more dual enrollment credits revealed a statistically significant difference between groups. A post-hoc analysis showed that first generation minority students with six or more dual enrollment credits had significantly higher ratio of college credits earned to college credits attempted than did first generation majority students with three to five dual enrollment credits earned. The measured difference between all other groups was not significant.

The results suggest that first generation minority students with six or more dual enrollment credits passed more of the college courses they took and therefore stayed on
track with college credit accumulation and graduation than did first generation majority students with three to five dual enrollment credits. First generation minority students with six or more dual enrollment credits had the highest ratios of college credits earned to college credits attempted among the four groups and first generation majority students with six or more dual enrollment credits had the second highest mean ratio overall. This supports growing evidence that taking more dual enrollment courses while in high school results in postsecondary success. Not only do students who have taken more dual enrollment courses have more credits when entering college, they also move at a faster pace toward earning a degree or certification.

**Research Question #3 Conclusion**

Overall the post-posttest results comparing end-of-second-year postsecondary grade point averages for first generation minority students with three to five dual enrollment credits earned, first generation majority students with three to five dual enrollment credits earned, first generation minority students with six or more dual enrollment credits earned, and first generation majority students with six or more dual enrollment credits revealed no statistically significant difference between groups’ grade point averages.

Whereas there was a significant difference between groups’ grade point averages after the first year of postsecondary education, the lack of a statistically significant difference in grade point averages after the second year suggests that there is relatively more homogeneity within groups for students returning for a second year. Among this study’s original 96 student cohort group who entered college during the fall of 2010, 76 students returned for a second consecutive year during the fall of 2011. As might be
expected the twenty students who did not return tended to be those with lower grade point averages. The remaining 76 students when split into majority and minority groups with fewer or more dual enrollment credit tended to have more similar grade point averages.

**Research Question #4 Conclusion**

Overall the post-posttest results comparing end of second year ratios of college credits earned to college credits attempted for first generation minority students with three to five dual enrollment credits earned, first generation majority students with three to five dual enrollment credits earned, first generation minority students with six or more dual enrollment credits earned, and first generation majority students with six or more dual enrollment credits revealed no statistically significant difference between the ratios between groups.

Similar to the results from Question 3, the lack of a statistically significant difference between groups’ end-of-second year ratios of credits earned to credits attempted may be rooted in the fact that 20 students did not return for the second year of postsecondary education. These were students who tended to have lower grade point averages and were more likely to fail classes during the first year, thereby having lower overall ratios of college credits earned to college credits attempted. There was little appreciable difference in the 76 students who returned for a second year, even after being divided into minority and majority subgroups with fewer or more dual enrollment credits earned while in high school.
**Research Question #5 Conclusion**

Overall, the posttest results of the comparison of frequencies of enrollment in a second consecutive year for first generation minority students with three to five dual enrollment credits earned, first generation majority students with three to five dual enrollment credits earned, first generation minority students with six or more dual enrollment credits earned, and first generation majority students with six or more dual enrollment credits earned revealed a statistically significant difference between the frequencies of second year enrollment between groups. First generation minority and majority students who had six or more dual enrollment credits enrolled in a second consecutive year more frequently than their peers who had three to five dual enrollment credits.

These results suggest that earning more dual enrollment credits in high school has a positive impact on the likelihood of matriculating beyond the first year postsecondary education experience. Students who have more college credits earned prior to entering college may see themselves as closer overall to their projected goal and are therefore, more likely to persist with their educational plans. The completion of dual enrollment coursework implies that students have had a level of rigor in high school that roughly equates to the level of college. Completing more dual enrollment courses may make it more likely that students understand the rigor involved in postsecondary education.

**Research Question #6 Conclusion**

Overall, the post-posttest results of the comparison of frequencies of enrollment in a third consecutive postsecondary year for first generation minority students with three to five dual enrollment credits earned, first generation majority students with three to five
dual enrollment credits earned, first generation minority students with six or more dual
enrollment credits earned, and first generation majority students with six or more dual
enrollment credit earned revealed no statistically significant difference between groups.
Of the 76 students who returned for a second consecutive year, 71 students also
matriculated to a third consecutive year at the same university.

The results of this post-posttest suggest that the likelihood of persisting from year
two to year three of postsecondary education rises for students regardless of the ethnic
group or number of dual enrollment credits. As seems to be the case with questions #3
and #4, achievement in relation to student persistence is less impacted from year two to
year three of college attendance.

When comparing the persistence data to those of the overall population of this
university, the news is good. Of the 96 first generation college attending students
included in this study, 76 students returned for a second year of postsecondary education
at the same institution (79.2%). Additionally, 71 of the original 96 student cohort group
enrolled for a third consecutive year (73.9%). Data from the four-year institution used in
this study showed 72.9% of all cohort freshman returned for a 2\textsuperscript{nd} year of postsecondary
education. For the same cohort group, 61.7% of students matriculated to a 3\textsuperscript{rd}
consecutive year of study (UNO Institutional Research, 2002). Considering the students
in the study had some of the same barriers that are consistent with first generation
students generally, the percentage of students retained from year one to year two is
impressive. Even more impressive are the percentages of these first generation cohorts
going on for a third year at the same university. It makes a compelling case for
institutions to make investments in dual enrollment programs as a means to keeping the
students it has already recruited and enrolled. It also provides evidence for students who are looking for a surer route toward completing a degree.

Discussion

Implementation, oversight, and the connection between high school and postsecondary institution vary widely among dual enrollment programs. It was incumbent for the purposes of this study to select a dual enrollment program that featured the following qualities: 1) established practices and policies that have been implemented for several years consistently, 2) a connection between participating high schools and the sponsoring university, including university faculty connections to high school instructors and participating students either directly or indirectly, and 3) presence of funding internally or externally from the university that assists students with financial need, helping ensure there are minimal financial barriers to participation. The university dual enrollment program that is featured in this study fit all of these criteria and was an example of a well-defined program aimed at being mutually beneficial to participating students and the university.

The dual enrollment program used in this research began as a pilot program in 2003 at first partnering only with three area high schools. Nine distinct courses were approved along with their high school instructors. At that time, the courses approved were exclusively Advanced Placement designated courses. After a full academic year as a pilot program, the program expanded by adding more school partnerships, developing more course alignments, and attracting more students with financial assistance and special recruiting events. Students and their families saw this as a unique opportunity to save on the soaring cost of higher education by accumulating college credits at a
discounted tuition rate. Now in its eleventh year, this dual enrollment program is firmly in place in 31 high schools, serving approximately 2000 enrollees annually and connecting advanced placement and specialized course content from the high schools to 47 distinct university course titles.

The program has the full support of university administration and faculty and is widely viewed as an effective recruiting component. The program is self-sufficient financially with revenues generated from student tuition fees and state guarantor programs such as Nebraska’s ACE (Access to College Early) Scholarship program, which assists students with financial need to cover the entire cost of dual enrollment course tuition. Resources are allocated to the partnering high schools to assist dual enrollment classes with materials, guest speakers, and field trips which enhance the learning experience for students.

In spite of the many opportunities offered by the university in a rising dual enrollment program, high schools may vary widely in their ability to provide a wide array of courses that meet the university’s standards. There are discrepancies between high schools in the number of instructors employed at each school who are eligible to teach dual enrollment by having advanced degrees in their content areas. Some high schools offered over thirty distinct dual enrollment courses while other schools were able to offer less than six dual enrollment options to its students. School size, number of Advanced Placement course offerings, student selection for college level rigor courses, and fewer teachers with advanced degrees are some of the factors that decide a school’s ability to offer these opportunities. When dual enrollment course offerings are in abundance, students have choices in what extent to participate. In schools that have fewer dual
enrollment choices, access for the student is driven by the school’s ability to provide opportunities.

Much of this study pertaining to fewer or more dual enrollment credits is irrelevant without recognizing the cost savings programs like this offer the students and their families against the high cost of postsecondary education. Dual enrollment courses offered at the university in this study are set at a flat rate regardless of number of credit hours awarded, generally one-third to one-fifth the cost of tuition for the same course taken at the university. Additionally, dual enrollment students are not charged student fees associated with traditional students taking on-campus or on-line courses. As mentioned earlier, dual enrollment participants who have financial need, generally shown by qualifying for free or reduced price lunches in secondary school may qualify to have all of their dual enrollment tuition covered by a state or district funding source. Financial considerations are certainly a part of student motivation to achieve and persist in postsecondary education.

The financial costs associated with students’ failure to persist to a second year in postsecondary education are borne by the public as well and those costs are staggering (Schneider, 2010). Educational institutions, state and federal government sources and private enterprises spend billions of dollars each year to encourage students’ persistence through postsecondary education, sometimes in vain. Those most at risk are first generation students, whose persistence rate overall from first year to second year postsecondary is far less than that of their multigenerational college attending peers, (Ishitani, 2006). The problem of student persistence cannot be left to chance. Students who persist are more likely to maintain a higher grade point average, have a higher
feeling of confidence about ultimately achieving a degree or certification goal, have more
direct and indirect support from family, friends, peers, and community, and feel more
connected with the school they are attending.

Stebleton and Soria’s (2012) research shed light on the many barriers to attaining
postsecondary education for first generation students. They found significantly more
obstacles for first generation student success in postsecondary like competing job and
family responsibilities, generally lower income levels in their family, and overall weaker
skills in some subject areas, particularly in math. It can reasonably be assumed that the
first generation students in this study may have faced some of these same obstacles.
Access to more dual enrollment courses while in high school may have played a
significant role in the overall success achieved by these students in their postsecondary
education. This study found that regardless of barriers associated with first generation
status and barriers associated with racial minority status in postsecondary education,
students who completed more dual enrollment courses in high school had high success
indicators and were more likely to persist than the general population of students
attending the same university.

Ishitani’s (2006) “survival rate” study depicts the rate of student retention for each
consecutive semester at the same postsecondary institution. For each consecutive
semester after the cohort group entered college, Ishitani found that first generation
students consistently had lower survival rates, meaning simply they dropped out of
college and were less likely to attend a different college upon dropping out than students
whose parents completed or had some college education in their background. In this
study, however the converse seems to be true. Both majority and minority students who
completed some dual enrollment coursework while in high school showed a higher propensity to persist in the same postsecondary institution than the mean of population as a whole, which included both first generation students and students whose parents did attend college.

The outcomes of this study more closely resemble those of Mechur Karp, Calcagno, Hughes, Jeong, & Bailey (2007). Their research found several positive correlations between participation in dual enrollment courses during high school with indicators of postsecondary success. Many of the relationships they found had some correlation but lacked statistical significance. They found significance in regard to persistence of students matriculating toward completion of their academic goal whether it was a diploma or certificate. The authors found that dual enrollment could be attributed to increased likelihood to enroll and persist in college. Although the research presented in this study focuses on first generation students, many of these same conclusions apply.

The presence of dual enrollment for the population of students in this study seems to have a positive effect on performance and achievement at the postsecondary level and also has a positive effect on student persistence over time toward fulfilling their academic goals.

**Implications for Policy**

Postsecondary institutions of all varieties grapple with attracting a diverse student body which has the highest potential to succeed and persist toward degree completion. With the claim of over 97% of colleges and universities to have some form of dual enrollment alignment with high school students, it is no longer a question of policy whether to offer the dual enrollment option; it should be a matter of policy to ensure that dual enrollment programs may be accessed by as many high school students as possible.
This study should reveal that traditional college going students and their non-traditional peers such as first generation students are impacted positively when they have more dual enrollment opportunities while in high school. Implementing policies that expand dual enrollment courses beyond those traditionally aligned with college credit like Advanced Placement courses may help first generation students accumulate more credits while in high school, thereby increasing the likelihood of their success and persistence in postsecondary education.

High school administrators face the challenge of raising graduation rates, raising postsecondary-going rates, lowering high school dropout rates, and ensuring that students from diverse backgrounds have an equal opportunity to gain a quality education. Here, policies must be in place that encourages compliance with postsecondary policies for dual enrollment. For example, districts could provide support for teachers wishing to attain advanced degrees. Additionally high school teachers could work with postsecondary faculty in developing curriculum with high levels of expectation and rigor, even in courses not labeled as honors or AP.

The results of this study pertain to the availability and accessibility of dual enrollment opportunities for students. High school administrators must ensure that all students, not just those considered to be AP or honors track students have the opportunity to earn dual enrollment credits while in high school if they choose. District administrators, likewise have an obligation to develop positive working relationships with postsecondary institutions thereby strengthening the trust between institutions and further ensuring that students going from high school to postsecondary education are as prepared to succeed and persist as possible.
Implications for Practice

Individuals who are responsible for developing and implementing dual enrollment programs at the postsecondary level have unique roles. Often they are liaisons between college/university academic departments and high school teachers. Their role is vital in the collaboration between secondary and postsecondary institutions. Using the results of this research, dual enrollment administrators must ensure that prospective and participating students, teachers, parents, and university faculty all have sufficient information regarding the implementation, limits, and applicability of the dual enrollment program. This is especially true for first generation students and their parents, due to the relative lack of pre-existing knowledge about the potential benefits of such an opportunity.

High school instructors, school counselors, and administrators who have a role in dual enrollment should give special attention to first generation students’ and their parents’ need for information. It cannot simply be assumed that first generation students and their families will know the options or opportunities that are available to them in the same way those students whose parents did attend or graduate from college would. The potential for dual enrollment participation begins when students and families select high school courses for their upcoming academic years. Educators should make every effort to inform all students of the dual enrollment options available at their school in order for students and their families to make informed decisions that could impact their future in postsecondary education. To ensure this, high school educators, especially school counselors should make themselves aware of the options available to students. As mentioned earlier dual enrollment programs have become commonplace for most
postsecondary institutions as a way to reach out to prospective students. However high school staff who are not directly involved may have little or no idea about the availability of options to their students. Becoming more familiar with dual enrollment options from local or regional postsecondary institutions is a good start, but also being aware of the applicability and transferability of dual enrollment credits on a national scale is important as well.

**Implications for Further Research**

At its core, this research attempts to focus attention on first generation students and the barriers they encounter in attaining a postsecondary education. Access to dual enrollment opportunities while in high school may enhance the chances first generation students have at achieving their higher education goals. This study does not ignore, however that high schools may inherently have imbalances of opportunities for students in terms of dual enrollment. Further research that explores the vastness of differences in opportunities from one school to its neighbor is needed. Answering questions as to how high schools, even within the same metropolitan school district can have widely differing opportunities for courses that prepare students for postsecondary rigor and the effects of those differences on student success and persistence through college may shed light on these relevant issues.

Time constraints for ethical access to information by the researcher resulted in narrowing of focus to two academic years of postsecondary study. To examine in depth the effects of dual enrollment on first generation student matriculation to graduation, it would be beneficial to track a cohort group for four to six full academic years, thereby comparing their progress toward degree completion with averages from the general
student body. Whereas in this study, results from consecutive year to year persistence may infer student progress toward degree completion, actual data showing the number and percentages of first generation students who completed dual enrollment attaining a degree would be valuable and conclusive information.

Qualitative research could be utilized to give depth to the students’ perspectives. Interviews with first generation students about whether and to what degree having dual enrollment had an influence on their college going decisions, their achievement during college, and their likelihood to persist would be valuable information. That kind of research would not only be an extension of this study, but may be a follow up on Swanson’s (2010) research on the perceptions of students taking dual enrollment upon entering college as well as Terenzini’s, et. al (1996) research on the characteristics and cognitive development of first generation students.

Further investigation into the type of dual enrollment credit being offered and the potential effects for postsecondary success would help educators better understand best-practices for forming dual enrollment programs. As discussed earlier, dual enrollment opportunities generally take three forms, courses taught outside the high school on a postsecondary campus, courses taught at the high school itself utilizing high school teachers as adjunct postsecondary faculty, and courses taught through online learning or some form of distance education. Understanding whether one or more of these options provides students with more optimal conditions for postsecondary success may help high school and postsecondary educators and administrators design and implement a program with students that delivers the most impact.
Ultimately, decisions to begin, expand, or diminish any early-entry program, such as dual enrollment are made based on dollar values. Morrison’s (2008) research showed that students were more likely to attend a university where they had previously participated in a dual enrollment program. Most universities have discovered that offering dual enrollment generally benefits their recruiting efforts to some degree. So too, are decisions of the students and families as prospective dual enrollment participants made as they assess the bottom line. From the student perspective, what is the cost-benefit threshold for attending and persisting at an institution? Especially for first generation students, who are more likely to experience a financial barrier to attaining higher education, qualitative research to assess the motivations of students’ persistence through college is necessary. Does accumulating dual enrollment credits while in high school save students and their families significantly on the cost of postsecondary education and is that perception of savings a driving force in whether students achieve and persist in higher education?

Summary

For Haley, completing twelve college credits while in high school was a major factor in her ability to sustain and persist with her college education. The dual enrollment courses she took may not have counted as courses within her major area of study, but they did count as introductory pre-requisite courses and electives that enabled her to focus on more specific disciplines in her first few semesters in college. Over the span of her first two-years of college, it helped her in knowing that she was accumulating college credits faster and her goal of completing a bachelor’s degree in four-years seems now to be within reach. Haley has no doubts about returning for a third year of college now that
she is over half way toward her goal. She noticed when classmates from her high school would “take a semester off” from continuing with their postsecondary education. For many of them, the semester breaks became two semesters, three in some cases and it leaves Haley wondering if they ever intend to return and if they do, she wonders if it would seem to them like starting all over again.

Dual enrollment course completion during high school is an ingredient in a recipe toward gaining the self-confidence needed to persist in attaining the goal of postsecondary education. First generation college attending students, who are more at risk for not completing a postsecondary degree, must have at their disposal as many opportunities as a high school or postsecondary school can offer in order to show (most importantly to themselves) the ability to achieve and persist in higher education. High schools and postsecondary institutions must ensure that dual enrollment programs exist to provide all students an opportunity to earn college, not only those students who have a higher predisposition to go to college. This study indicates some important benefits to first generation students’ participation in dual enrollment and that the more opportunities they have in completing these credits, the more likely they are to complete their postsecondary education.

For the many options students have in continuing their education beyond high school: two-year and four-year colleges, trade and technical programs, work-study opportunities, online degree options, etc., there are and may always be a number of students who believe they do not possess the skills, abilities and requisite attributes to either attain a basic high school education and/or succeed in a postsecondary environment. If they forgo a postsecondary education, their children will be more likely
to perpetuate the cycle, being less likely to attain a postsecondary education and have less opportunity at upward social mobility in their lives. Access to a “game changer” such as dual enrollment course offerings in a high school can make a world of difference in helping break that cycle for academically talented students.
REFERENCES


