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Associate's Degree Attainment for Dual Enrollment Versus Non-Dual Enrollment Students at a Rural Mississippi Community College

Tonya B. Lawrence

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Associate's degree attainment for dual enrollment versus non-dual enrollment
students at a rural Mississippi community college

By

Tonya B. Lawrence

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Community College Leadership
in the Department of Educational Leadership

Mississippi State, Mississippi

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2017

Associate's degree attainment for dual enrollment versus non-dual enrollment
students at a rural Mississippi community college

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In line with the national trend, Mississippi faces the same challenge that fewer students are completing college degrees. In response to the national call for more degrees, many states have implemented dual enrollment programs to try to decrease the transition anxiety between high school and college, which could possibly lead to more college degrees.

This study will add to the very limited body of quantitative research relating to the relationship between students participating in dual enrollment and college degree completion at rural Mississippi community colleges. With an increased focus on a higher number of college graduates, this study could provide information for rural community colleges in Mississippi in regards to retention of dual enrollment participants through obtaining a degree.

The purpose of this study was to determine whether or not there was a significant difference in the number of students completing an Associate's degree when comparing students who participated in a dual enrollment program to students who did not participate in a dual enrollment program at a rural Mississippi community college. The

sample was comprised of 320 students - 160 students who participated in dual enrollment and a comparative group of 160 students who did not participate in dual enrollment - from across the district of the target community college. Participants included students who were enrolled at the target community college in the fall and spring semesters of 2010 and 2011. A Chi-square test for independence was used for all four research questions to analyze the two categorical variables.

Results of the study indicate that there is a significant relationship between the participation in dual enrollment and the completion of a degree, AA and AAS, at the target community college. Findings indicate that students who participate in the dual enrollment program are much less likely to complete their degree at the target community college. There is a need to further investigate dual enrollment as it pertains to completion of a degree at a rural Mississippi community college.

DEDICATION

I would like to dedicate this dissertation to my family. I want to thank my husband, Will Lawrence, for the love and support he provided through all of the trials and triumphs along the way. To my parents, Stanley and Glenda Brewer, thank you for your support through this doctoral journey. To my daughter, Cameron Grace, thank you for joining our family at the perfect time along this journey.

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I would like to acknowledge my mother, Glenda Brewer, for instilling in me the belief that I can do anything that I set my mind to regardless of the obstacles. I would like to thank my husband, Will Lawrence, for all of the unwavering support. There are no words that could be written here to express my gratitude for my husband for all of the sacrifices he made including the time he lost during the summer I took statistics as he listened to all of the recorded lessons “with me” every time I played/replayed them. Thank you to my friend, Dr. Joye Jones, for embarking on this challenge with me. Lastly, thank you to my committee: Dr. King, Dr. Davis, Dr. Stumpf and Dr. Armstrong, for the patience, knowledge, and commitment of time they have provided through this program. God’s timing is always right!

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CHAPTER I

INTRODUCTION

For many students, college begins before high school ends; therefore, the traditional notions of the first year of college are changing. Degree attainment of U.S. young people relies heavily on the transitional years, Grades 9 through 14, from high school to college. A strategy used to increase high school and postsecondary degree attainment is to provide students an opportunity to do college-level work while enrolled in high school (Hoffman, Vargas, & Santos, 2008). These programs are commonly referred to as “dual enrollment” programs where students are enrolled at both the high school and college (Hofmann, 2012). Typically, the students are college-bound high school juniors or seniors taking core college courses, such as English, math, and science. In most cases, a state articulation agreement exists which guarantees course transfer to a university for courses taken in the dual enrollment program at a community college (Ganzert, 2014). Many researchers agree that the implementation of dual enrollment programs will continue to increase as the need for college-ready students continues to rise (Karp & Hughes, 2008).

Dual enrollment of high school students at community college is the fastest growing movement in higher education in the 21st Century (Marshall & Andrews, 2002). In a survey study conducted by the U.S. Department of Education (2003), the survey authors found that, in 2002-2003, 98% of public 2-year institutions offered some form of

dual enrollment, compared to 77% of public 4-year institutions. The authors estimated that 813,000 high school students took a college-level course during that time (Hofmann, 2012).

Dual enrollment programs can address national concerns of a need to shorten time to Bachelor degree attainment (Andrews, 2004). According to the National Center for Education Statistics, the median time it took 2008 Bachelor's degree recipients to attain their degree was 52 months or 4.5 years (U.S. Department of Education, 2011). Swanson (2008) found that dual enrollment participation increased the likelihood of earning a Bachelor's degree from between 16% to 20% in less than the proposed 4.5 years as compared to non-participants. With the cost of higher education on the rise and shortfalls in funding from the state, a program that can reduce the time to complete a Bachelor's degree which reduces the costs of going to college may have merit (Jones, 2014).

Additionally, Windham (1997) reported on a study of the statewide dual enrollment initiatives performed in 1991-1992 by Florida's Community College Board that found, out of 51,382 dual enrollments in college level courses, only 140 classes had to be retaken, which indicated that dual enrollment provides acceleration for students. Marshall and Andrews (2002) reported on a study at Illinois Valley Community College where 33 students reported an average of 1.18 semesters of traditional college tuition was saved due to taking dual enrollment courses. This meant parents saved between \$5,000 and \$24,000 in tuition and expenses for students completing up to one year of college through a dual enrollment program. Even with the knowledge that dual enrollment programs consistently save time and money, the concern for data supporting overall

academic performance and persistence rates once students attend college full time is still valid (Jones, 2014).

Statement of the Problem

The research problem of this study was is there a significant difference in the number of students attaining Associate degrees, Associate of Arts (AA), and Associate of Applied Science (AAS), when comparing dual enrollment students to non-dual enrollment students, and is there a difference in the number attaining AA versus AAS degrees at a rural Mississippi community college. Mississippi faces the same challenge present across the nation in that fewer students are completing college degrees. In order to strengthen Mississippi's workforce, the opportunity to complete a degree in less time is of utmost importance. According to the American Association of State Colleges and Universities (2002), students concerned about the cost of a college education and the length of time to complete an Associate or Bachelor's degree find dual enrollment programs very attractive. Additionally, an institution may retain a student to degree completion because the student has already completed courses at that institution.

Purpose of the Study

The purpose of this quantitative study was to study the attrition rates of two groups of students at a rural Mississippi community college. The two groups of students included: (1) students who participated in dual enrollment in high school, and (2) students who did not participate in dual enrollment in high school. The study analyzed data to determine if either group attained their Associate's degree more often. The study examined the retention of dually enrolled students through completion of their

Associate's degree, both AA and AAS, and compared those degree attainment rates with students who did not participate in a dual enrollment program prior to beginning their college career. A factor considered was whether or not the dually enrolled student remained at the initial rural Mississippi community college at which they began their college career.

Research Questions

The following research questions were used to guide this study:

1. Is there a significant difference in the number of students attaining an Associate's degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
2. Is there a significant difference in the number of students attaining an AA degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
3. Is there a significant difference in the number of students attaining an AAS degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
4. Is there a significant difference in the number of students attaining a degree when comparing dual enrolled students in an AA degree program to those dual enrolled students in an AAS degree program?

Operational Definitions

The terms listed in this section are provided for clarification and to present a clear understanding of the use of the terms in the study.

1. Associate of Applied Science (AAS) degree is defined as a degree comprised of 60 career/technical credits not intended for university transfer; terminal degree (Target Community College [TCC] Bulletin, 2010).
2. Associate of Art (AA) degree is defined as a degree comprised of 62 academic credits and intended for university transfer (TCC Bulletin, 2010).
3. Associate's degree is defined as "An award that requires completion of an organized program of study of at least 2 but less than 4 years of full-time academic study or more than 60, but less than 120 semester credit hours" (U.S. Network for Education Information, 2008, 1).
4. Degree attainment is defined as the successful completion of either an AA degree or an AAS degree.
5. Dual enrollment describes concurrent enrollment in both high school and college (Hofmann, 2012).
6. Dually enrolled student is defined as a student who is considered a high school student but is also taking college level classes (Hoffman et al., 2008).
7. High school student is defined as any student, traditionally a junior or senior, who is enrolled in a high school (Ganzert, 2014).
8. Non-dually enrolled student is defined as any student enrolled as a college student at the target community college who did not participate in dual enrollment while he/she was a high school student.

9. Retention indicates a student who remained at the target community college after graduating high school and completed his or her Associate's degree, AA or AAS.

Theoretical Framework of the Study

While much of the literature focuses on why students leave college, there is a need to consider why students stay at a college. Most theories focus on dropouts and describe a plethora of things that institutions are doing wrong. Very little research focuses on student success and what institutions are doing correctly, such as implementing programs like dual enrollment, to encourage retention. Some common themes that appear in literature pertaining to why students leave college include academic boredom and uncertainty, transition/adjustment difficulties, limited or unrealistic expectations of what a college course includes, academic under preparedness, incompatibility with the institution, and irrelevancy in the students goals (Noel-Levitz National Center for Enrollment Management, 2008).

While numerous factors can affect the retention of students to degree completion, a theoretical framework that can be applied to this study stems from the work of Tinto (1975) and his Student Integration Model (SIM). In the SIM, the two factors proposed to have the most significance on predicting student retention were academic and social integration. Academic integration relates to the student's academic performance and their level of intellectual development, while social integration consists of the student's quality of relationship with the course instructor and classmates. Tinto (1975) reported that students who achieve higher levels of academic and social integration tend to have stronger goal commitments and institutional commitments which leads to fewer drop

outs. Figure 1, from Draper's (2008) research, illustrates the importance of balance between academic and social integration in regard to goal and institutional commitment.

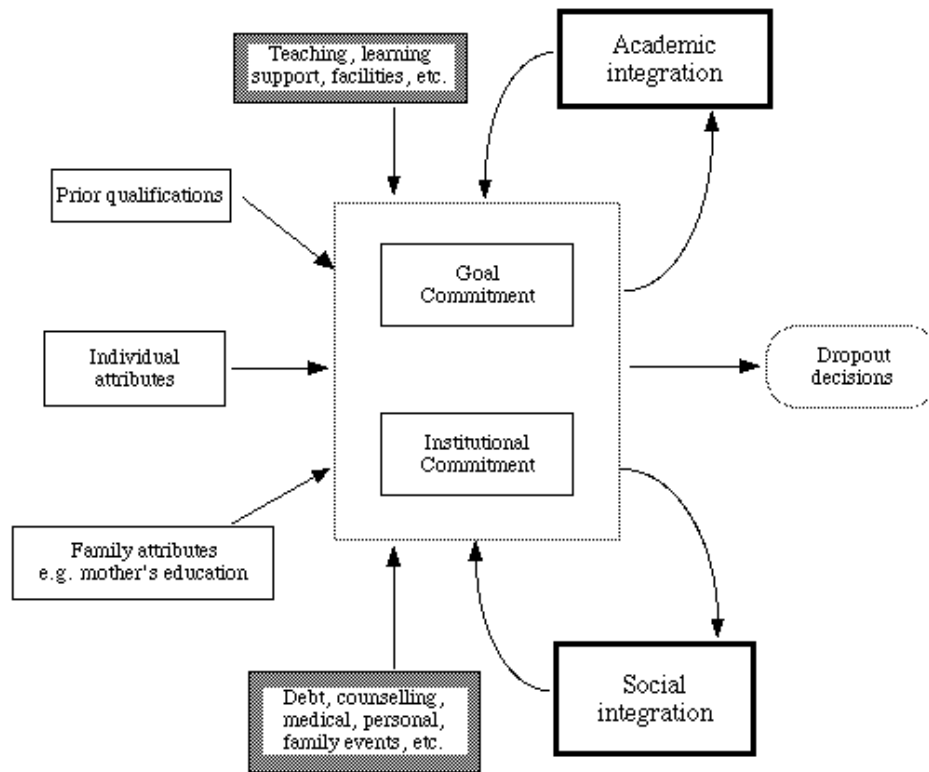


Figure 1. Conceptual framework of Tinto's Student Integration Model.

Along with Tinto's SIM, Tinto's (1988) Theory of Student Departure was expanded to provide insight into a longitudinal process of student persistence in college. In Tinto's Theory of Student Departure, he adds that students move from membership in one group to membership in another group in three major stages: (1) separation, (2) transition, and (3) incorporation. The first stage, separation, refers to moving from being a member in one community to being a member in a different community. In this study, the dual enrollment student moved from one community (high school) to another

(college). The Theory of Student Departure relates to this study because the dually enrolled students included in this study became college students prior to the non-dually enrolled students; thus, lessening the abruptness of the separation stage. Jones (2014) supports this with adding dual enrollment may help students progress through the initial stage, separation, more easily.

Tinto (1988) describes the second stage, transition, as the point where students encounter stress and sense of loss, which may pose serious problems for the individual trying to persist in college. With the early integration into college life provided by dual enrollment, these student may not experience the same stress factors or experience them as significantly as the student who did not participate in dual enrollment. Early academic integration might enable the student to persist in college longer (Tinto, 1988).

Additionally, there is a significant amount of research on dual enrollment conducted by Karp and Hughes of the Teachers College at Columbia University on which to base this study. Karp and Hughes (2008) examined the relationship between dual enrollment participation and subsequent postsecondary outcomes. Karp, Calcagno, Hughes, Jeong, and Bailey (2007), in an analysis of dual enrollment outcomes for Florida and New York, found dually enrolled students who transferred to a university had greater progress toward a degree than those not participating in dual enrollment during high school. This information relates to this study through providing a base of knowledge for comparison for a rural Mississippi community college. Figure 2 illustrates the model in this study which examines the difference in attrition rates for students who participate in a dual enrollment program and students who do not participate in a dual enrollment program at a rural Mississippi community college.

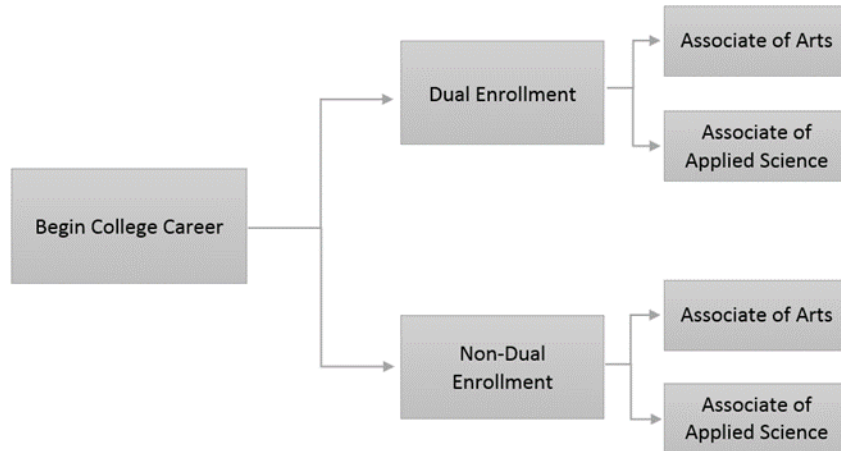


Figure 2. Conceptual framework of study on attrition rates of students who participate in dual enrollment versus students who do not participate in dual enrollment.

Overview of Method

Secondary data were collected on the completion of an Associate’s degree by all students who participated in the dual enrollment program at the target community college during the fall and spring semesters of 2010 and 2011. The study included 320 students - 160 dually enrolled students and 160 non-dually enrolled students. The data used for analysis were obtained using two programs, Banner and Argos, used at the target community college for in-house data reporting.

Non-experimental, quantitative research of existing data was used for this study. There was an assumption that a majority of the students participating in the dual enrollment program (independent variable) would complete their Associate’s degree (dependent variable) at the target community college. A chi-square test for independence was used for analysis of these two categorical variables. With increased focus on degree completion and the direct link between state funding and degree attainment, this study

provides information for administration at rural community colleges about the attainment of an Associate's degree by dually enrolled students. Degree attainment information can be useful when analyzing a dual enrollment program.

The participants in this study included all students who participated in the dual enrollment program during the fall and spring semesters of 2010 and 2011 at the target community college. An equal number of students who did not participate in dual enrollment were used as the comparison group. The fall and spring semesters for 2010 and 2011 were chosen because the time lapse between the initial enrollment of the participants and the time of this study allowed enough time for participants to complete an Associate's degree. This study included all dually enrolled students at the target community college regardless of the number of dual enrollment hours completed.

To collect and organize data pertaining to student participation and Associate's degree completion, two sources were used. The sources included: (1) Banner, an in-house data storing program, and (2) ARGOS, an in-house data collection program used by the target community college. Banner stores all student data which can be condensed into a reporting system, ARGOS, that allows for easy management of large data sets. For ARGOS, parameters are determined and the proper programming code is developed to compile the existing data in Banner into a readable report. Microsoft Excel 2010 was used to sort and store the data used in this study.

The data were analyzed to determine the Associate's degree attainment rates of students who dually enrolled at the target community college while they were in high school compared to the students who did not participate in dual enrollment at the target Mississippi community college. Extraneous factors may have affected the completion of

the Associate's degree by the dually enrolled students. These variables could include, but are not limited to, the number of credits completed while dually enrolled (Adelman, 2006) and the student high school record (Swanson, 2009). Either of these factors could have affected degree completion and the outcomes of this study, but the researcher did not control for either of these factors.

Delimitations

For the purpose of this study, subjects were delimited to a specified community college in the Mississippi community college system. The study included students who participated versus those who did not participate in the dual enrollment program at the target community college during the chosen semesters, fall and spring 2010 and 2011. This means all high school students who participated in dual enrollment at the target community college during the chosen semesters, no matter what eligibility criteria, such as ACT score of 30+, junior/senior status with an overall "B" average, etc., was used to deem them qualified to participate by their respective high school, were considered as a candidate for completion of an Associate's degree.

Subjects were limited to those who participated in dual enrollment as a high school student at the target Mississippi community college. The number of credits the students accumulated while participating in the dual enrollment program was not controlled for in the analysis of the data.

Significance of the Study

Increasingly, the focus is for relationships between high schools and colleges to be strengthened in order for them to work more closely to create more graduates at the

high school and college levels. In order to encourage this relationship, legislation is under constant review. With the challenge to create more degrees, colleges are accepting greater responsibility to provide better local community support. Colleges who offer dual enrollment programs increase their visibility within their communities which could generate a more positive image (Hofmann, 2012).

Legislation has specifically tied funding to degree attainment at the college-level and dual enrollment participation at the high school-level. In a literature review by Kuh, Kinzie, Buckley, Bridges, and Hayek (2006), the findings lead to recommendations for policymakers to include incentives in the state budget to increase the number of students who become college ready in high school and enroll in college.

This study will add to the very limited body of quantitative research relating to the relationship between students participating in dual enrollment and college degree completion at rural Mississippi community colleges. With an increased focus on a higher number of college graduates, this study could provide information for rural community colleges in Mississippi in regards to retention of dual enrollment participants through obtaining a degree.

Chapter Summary

With increased focus on degree completion and the direct link between state funding and completion rates, this study provides information to community college administrators and policymakers about degree completion and participation in dual enrollment programs at rural Mississippi community colleges that can be used to determine whether or not the dual enrollment program requirements, including staffing, college resources and time, budgetary constraints, etc., are cost effective for the college.

The findings may also be useful to lawmakers when considering funding options to strengthen the relationship between K-12 and community colleges.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

With an increased focus on college completion, dual enrollment programs have been described as having the potential to benefit the College Completion Agenda (Adelman, 2006). Dual enrollment supports the college transition agenda by occupying a space in the middle ground between high achievement and college readiness (Hofmann, 2012). Dual enrollment programs provide opportunities for high school students who meet the pre-set requirements to participate in college course work and receive college credit while still being enrolled in high school (Johnson & Brophy, 2006). Interest in dual enrollment programs continues to grow and has grown in popularity among high schools and colleges alike (Karp & Hughes, 2008).

Research indicates that a single authentic college course can help students onto a pathway toward a college degree. Many states and institutions are currently trying to identify the type, subject, location, etc., of the college course that would provide the high school student with the right college experience needed to ensure persistence and degree attainment (Hoffman et al., 2008).

The Growth of Dual Enrollment Programs

Programs that enroll high school students in college courses for college credit are commonly referred to as dual enrollment programs (Hofmann, 2012) and fit into a larger

category commonly referred to as college transition programs (U.S. Department of Education, 2003) and are growing in popularity. In 2005, the U.S. Department of Education published statistics based on a national survey that reported 2,050 institutions nationally offered structured dual enrollment programs (Kleiner & Lewis, 2005). The survey found that in 2002-2003, 98% of 2-year institutions offered some form of dual enrollment and 57% of 4-year (Title IV) institutions offered dual enrollment. At the time of the survey, 813,000 high school students had taken a college level course (Hofmann, 2012). More recently, a study was conducted for enrollment of students taking a course as dual enrollment during the 2010-2011 year. The results show that 99% of 2-year institutions offer some form of dual enrollment while 84% of 4-year (Title IV) institutions offer some form of dual enrollment and 1,217,000 students participated (National Center for Education Statistics, 2013). Currently, every state in America offers some form of dual enrollment and/or dual credit program at the high school level (Mann & Peters, 2011).

Dual enrollment programs vary widely in their structure and targeted students, but at its foundation is college course taking (Hofmann, 2012). Dual enrollment program courses may be taught to high school students in several formats. Students can participate in courses taught on a high school campus or on the college campus with matriculated college students by college professors or high school teachers certified as college adjunct (Hebert, 2001). With such ease of access, it is not surprising that an increasing number of states have proposed providing around 30 college credits to all qualified high school students (Hoffman et al., 2008).

Most of the research on dual enrollment programs focuses on development and growth of the program with very little research being conducted on the academic benefits of dual enrollment participation and course completion once students enter college full time (Jones, 2014). With increased focus on college completion, many high schools and colleges are viewing dual enrollment as an opportunity to offer a fast track option to a college degree for students. Prior to 2000, dual enrollment was considered an avenue to provide students exhibiting high academic achievement an opportunity to earn college credit while attending high school. Since 2000, the concept of dual enrollment has grown to encompass a broader spectrum of students (Howley, Howley, Howley, & Duncan, 2013). What was once viewed as an opportunity to provide an academic challenge to students who excelled in their high school courses is now viewed as a possible answer to the challenge of college degree attainment by students from underrepresented populations (Hoffman et al., 2008).

Being a first generation college student, holding down a job while enrolled in school, low entrance assessment scores and academic ability may be included in the factors that could negatively affect enrollment status in dual enrollment programs and, consequently, college degree completion (Foster, 2010). Taking into consideration the factors mentioned here and the new focus on early college enrollment programs like dual enrollment, colleges will need to prepare for a larger percentage of the student body to be dually enrolled. Dual enrollment programs could serve as a motivator for underprepared students and an advanced placement opportunity for students who are already college bound (Hoffman et al., 2008).

Participation in a dual enrollment program allows high school juniors and seniors to participate in a more academically rigorous curriculum, helps ease transition from high school to college, and overall prepares high school students for academic success in college. A study focusing on first-year college success based on grade point average (GPA) that included 315 dual enrollment students who continued their college education at a large community college or public university in Texas, found that students who participated in dual enrollment had significantly higher cumulative college GPAs and first-year persistence rates when compared to students who did not participate in dual enrollment (Jones, 2014).

Dual Enrollment and College Degree Attainment

More emphasis has been placed on college degree attainment in recent years. Nationally, there has been a call for higher numbers of students to complete a college degree. President Obama and numerous state governors have emphasized the need to increase the number of adults with a postsecondary credential (Obama & Biden, 2008). In response to the calling, some states have responded by developing and implementing programs that decrease the transition anxiety between high school and college, which could possibly lead to more students completing a college degree program. Dual enrollment is one of the programs that many states have implemented to try to increase college degree attainment because high school students who meet specified requirements have an opportunity to take college courses while still attending high school (Johnson & Brophy, 2006).

A large study of more than 300,000 students in Florida and New York's community college system analyzed the effectiveness of dual enrollment programs on

student success reported as college enrollment, first-semester grade point average, and persistence to the second semester. This study revealed that students who took dual enrollment courses were more likely to earn a high school diploma and enroll in college when compared to peers who did not participate in dual enrollment. In addition to enrolling in college, evidence was provided that supported dual enrollment being a useful strategy for encouraging postsecondary success, such as a higher first-semester GPA (Karp et al., 2007). However, Adelman (2006) found that academic intensity and the quality of one's high school curriculum contributed to the attainment of a degree more often than the participation in a dual enrollment program, which utilizes national test scores such as ACT, class rank or GPA.

Dual enrollment is being viewed differently now that the cost of attaining a degree is increasing and the average time to completion is increasing (Scott-Clayton, 2011). Based on a national survey conducted in the fall of 2011 by the U.S. Department of Education of 1,650 public and private, degree-granting postsecondary institutions using the Postsecondary Education Quick Information System, evidence was provided that supports the increased use of dual enrollment programs to shorten the time to degree completion (National Center for Education Statistics, 2013). Note that when studying student persistence to completion of a degree, a standard length of time that was used in this study was defined as graduating within three years with an Associate's degree (Noel-Levitz National Center for Enrollment Management, 2008).

Johnson and Brophy (2006) surveyed 162 high school juniors and seniors who participated in dual enrollment in rural Washington State to determine the reasons for their participation. The survey included items in four areas: academics, financial, social,

and choice. Using a Pearson product-moment correlation, the survey results revealed that financial factors were part of the reason why rural students participated in the dual enrollment program, as was having the opportunity to sample college classes. Dual enrollment programs provided an opportunity for rural students to try out the early transition into college while receiving a tuition break in most cases.

An (2013), using the National Education Longitudinal Study of 1988, conducted a study using a propensity score matching model that examined the benefits of dual enrollment programs in attaining a degree. The study found that high school students who participated in dual enrollment were 7% more likely to attain a Bachelor's degree than those who did not participate. For first-generation dually enrolled students with less educated parents, there was a significantly higher chance of completing a degree when compared to non-dual enrollees of the same socioeconomic status. In a similar study of the impact of dual enrollment on college completion, Ganzert (2014) analyzed a large dataset of 15,527 students from the North Carolina Community College System. Using a causal-comparative research design, Ganzert found that students who participated in dual enrollment graduated at a rate 11.2% higher than students who did not participate in dual enrollment. Based on these studies, the odds of a student attaining an Associate's degree if the student participates in a dual enrollment program is significantly higher than for those who do not participate; therefore, there is a need to further investigate such early college programs and the attainment of a degree at a rural Mississippi community college.

Dual Enrollment and College Success

Despite the importance of pre-college academic preparation for college success, many students enter college underprepared (Berkner & Chavez, 1997). Proponents of dual enrollment consider these programs as a means to prepare students for the rigors of college coursework (Allen, 2010). High school students who participate in dual enrollment programs are given the educational opportunity to explore ideas and go beyond the scripted standards of the high school curriculum (Olszewski-Kubilius, 1998). Students who participate in dual enrollment report that they have a better understanding of the requirements necessary to succeed in college (Marshall & Andrews, 2002) because, unlike other advanced placement opportunities, dual enrollment allows students to take actual college courses with college-level content which leads to a better prepared college student rather than a college-level course intended to be taken by high school students (Karp et al., 2007).

Credit accumulation in the first year of college has been shown to be an important factor in college completion. An estimated 20 credits significantly increases a students' likelihood of attaining a college degree. Students participating in dual enrollment programs are able to reach this 20 credit threshold which helps secure a "nest egg" and gives them momentum toward completion of the degree (Adelman, 2006). Further, Karp et al. (2007) found in their study of dual enrollment students in Florida and New York, which used a regression-adjusted approach to examine the effectiveness of dual enrollment on educational outcomes, that students who participate in dual enrollment programs are more likely to persist in college and attain a college degree when compared to students who do not participate in a dual enrollment program.

While several large scale studies that focused on areas that are considered urban or suburban have been mentioned, the literature and research on dual enrollment programs for rural community colleges is almost non-existent. One such study was conducted by D'Amico, Morgan, Robertson, and Rivers (2013) exploring the relationship between demographics and policy variables in South Carolina technical college dual enrollment programs and first-to-second year persistence of dually enrolled students once entering college. This study may be more typical of a rural community college where educational opportunities for higher education may be more limited and funds for the surrounding high schools may be decreased; therefore, the high school has a limited curriculum (Jones, 2014). The study analyzed outcomes using logistic regression to determine persistence, defined as first-to-second year retention. The findings support the following claims: (1) no differences in persistence existed between counties characterized as distressed compared to counties not characterized as distressed, (2) students who complete career program courses were more likely to persist, and (3) completing dual enrollment courses on a college campus led to enhanced persistence once entering college. Thus, dual enrollment programs might address the need for increased rigor in the high school and better prepare students for the academic demands of postsecondary education (Noel-Levitz National Center for Enrollment Management, 2008).

Currently, research on the impact of a dual enrollment program on a student's successful completion of an Associate's degree in a community college in rural Mississippi is limited. Mississippi faces the same challenges that are present across the nation in that fewer students are completing college degrees (An, 2013). In order to strengthen Mississippi's workforce, the opportunity to complete a college degree is of

utmost importance. Dual enrollment programs may present an option for students to complete a college degree in less time.

Dual Enrollment and Mississippi Community Colleges

The Mississippi community college system is unique because of its autonomous structure. Mississippi has 15 community colleges and each college serves a district that includes surrounding K-12 school district(s) in certain proximities to the main campus of the community college. The 15 community colleges function independently but use a coordinating board, Mississippi Community College Board (MCCB), to report data and findings to for funding, statewide policy, and curricula. With the ability to function autonomously, the colleges also have the ability to work with the K-12 school districts in the manner that best serves each school (Fatherree, 2010).

Mississippi has taken several actions, some at the state level and others on the local school district-level or college-level, to accommodate the mandated requirements for reporting retention and graduation statistics mentioned in a report by Noel-Levitz (2008) that were put in place by policymakers at state and federal levels. One statewide legislative action that was implemented indicates that a portion of the state-appropriated funds will be tied to college degree attainment at the community college level in Mississippi. Each of the 15 community colleges in Mississippi report student enrollment data yearly to the MCCB. The data that are reported are then used to create the Community College Report Card for each community college. Table 1 provides data on the dual enrollment participation for the enrollment terms of 2012-13 and 2014-15. The table includes participation data for the target Mississippi community college in this study as well as the statewide dual enrollment participation (TCC, 2013, 2015).

Table 1

Dual Enrollment Participation for Two Enrollment Periods for the Target Community College Compared to Statewide Participation

Enrollment Term		Dual Enrollment Participation	
		Target Community College	All Community Colleges Offering DE
2012 - 2013	<i>n</i> = 5255	265	4990
2014 - 2015	<i>n</i> = 9326	572	8754
Totals	<i>n</i> = 14581	837	13744

Note: *n* = number of students

In 2013, the Mississippi community college system began using the Community College Report Card that compiles measured parameters for the purpose of transparency and funding. The funding formula for the 15 community colleges expanded to include parameters on degree completion in 2013. With the inclusion of this data point in the Community College Report Card, community colleges now receive additional funding based on the number of students entering the college and completing their degree in a timely manner, which is described as 150% of the actual program length (Mississippi Institutions of Higher Learning, 2014b). Another state-level action was taken in 2012 that involved an adjustment to an existing Senate bill, 37-15-38, that explains the requirements for dual enrollment programs in Mississippi. The amendment made participation in the program available to a larger population of students. The updates to the legislation allowed for more freedom in programming at the local high school-level. Students who are eligible to participate in dual enrollment courses must meet one of the following criteria: 1) have completed 14 core high school Carnegie units or have

junior/senior status, and 2) have a cumulative “B” average in all courses taken in high school, or 3) have a composite ACT score of 30 or higher. In addition to these requirements, each student must have a letter of recommendation from the principal or counselor where he or she attends high school (Mississippi Institutions of Higher Learning, 2014a).

During the regular legislative session for 2012, the Appropriations Committee of the Education Achievement Council submitted an amendment to Senate Bill 2792 pertaining to the Mississippi dual enrollment system. The bill allowed for adjustments to the current dual enrollment system between high schools and colleges. Prior to this amendment, the guidelines included several factors that had to be met in order for a high school student to participate in the dual enrollment program of one of the institutions of higher learning in Mississippi. Because of this amendment, the requirements were broadened to include a larger population of students to participate in dual enrollment if the college agrees to offer the Mississippi Works dual enrollment option. Prior to this amendment, a student had to maintain a 3.0 GPA on a 4.0 scale and have completed 14 core high school units -OR- maintain 3.0 GPA on a 4.0 scale and have a composite score of 30 on the ACT. After the amendment, students who were at-risk or recent high school dropouts could dually enroll in a local community college to obtain high school credit for completing work skills certificates (Mississippi Institutions of Higher Learning, 2014).

In addition to the change in the Mississippi requirements for student participation in dual enrollment in 2012, the legislative body for 2014 approved an amendment and added a component to the funding formula for community colleges. Beginning in 2015, community colleges will receive a portion of their funding based on the number of

graduates produced using predetermined timeliness indicators. With this change, each student entering the community college will be monitored for completion of a degree and the timeliness of degree attainment (Mississippi Institutions of Higher Learning, 2014).

The goal of increasing student opportunities for early degree completion brings challenges, especially at the community college level where funding is already limited. One such challenge is in finding the balance between providing the program that best suits the students' needs while creating the most positive impact on the college. In addition, the call for improved college access for underserved populations to attain a college degree (Allen 2010) emphasized by state and national initiatives such as The Pathways to College Network, will create more need for college policy realignment. With that, community colleges will continue to be important as they have for years and still do enroll 45% of the nation's undergraduates (American Association of Community Colleges, 2016).

While participation in dual enrollment programs has proven advantageous to the student, little is known of the program's impact on the institution (Kinnick, 2012). A few states provide funding programs to offset the cost of dual enrollment programs, but many states do not currently have the funding programs in place, therefore creating a burden on some smaller colleges to provide an adequate experience. Community colleges are striving to create dual enrollment programs that offer the students easy access, academic rigor and a taste of college life, but many of the community colleges do not have the resources to do this to the extent in which it needs to be done (Kinnick, 2012).

The purpose of this study was to study the attrition rates of two groups of students at a rural Mississippi community college. The two groups of students include: (1)

students who participate in dual enrollment in high school, and (2) students who do not participate in dual enrollment in high school. The study analyzed data to determine if either group attained their Associate's degree more often. Based on research, there is expected to be a significant difference in the completion rates of an Associate's degree between the two specified populations because dual enrollment has been proven to be a powerful college completion strategy. Dual enrollment offers an option to both the high school and college that restructures the relationship between secondary and postsecondary institutions (Jones, 2014).

Chapter Summary

The review of literature presented in Chapter II included a discussion of dual enrollment programs across the nation and the specifics of the Mississippi dual enrollment system. Research studies on the effects of dual enrollment programs on the completion of a degree were discussed, and the results of these studies revealed that participation in a dual enrollment program is beneficial to the student. While most of the studies focused on the completion of a Bachelor's degree, the same benefits would be assumed for students completing an AA degree at a rural Mississippi community college.

CHAPTER III

DESIGN AND METHOD

Introduction

The purpose of this study was to study the attrition rates of two groups of students at a rural Mississippi community college. The two groups of students included: (1) students who participated in dual enrollment in high school, and (2) students who did not participate in dual enrollment in high school. The study analyzed data to determine if either group attained their Associate's degree more often. This chapter includes the methods used to conduct the study. This chapter includes the research design, research questions, research site, population and sampling procedure, research materials and instruments, data collection procedures, and data analysis procedures.

Research Design

The research design for this study was a non-experimental, quantitative study that utilized existing data. One independent variable (participation in dual enrollment) and one dependent variable (completion of an Associate's degree) was used in the study. The main purpose of this study was to investigate whether or not the participation in a dual enrollment program at a target community college increased the chances of the attainment of an Associate's degree. An Associate's degree was defined as an AA degree or an AAS degree.

Research Questions

1. Is there a significant difference in the number of students attaining an Associate's degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
2. Is there a significant difference in the number of students attaining an AA degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
3. Is there a significant difference in the number of students attaining an AAS degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
4. Is there a significant difference in the number of students attaining a degree when comparing dual enrolled students in an AA degree program to those dual enrolled students in an AAS degree program?

Research Site

The target community college is located in rural, central Mississippi and has an average yearly enrollment of about 5,500 students. There are two campuses, one center, multiple off-site locations and a large number of dual enrollment courses, both on-campus and off-campus, for students to access so they may participate in the dual enrollment program at this community college.

Population and Sampling Procedure

The study participants were students who participated in the dual enrollment program at the target community college located in rural Mississippi. The target

community college and specific student population was chosen based on the current employment of the researcher and accessibility of the data.

All students who were high school juniors or seniors and participated in the dual enrollment program from the fall and spring semesters of 2010 and 2011 at the target community college were included in the study. This study included students from 20 high schools both public and private throughout the district of the target community college. The sample student population for students participating in dual enrollment included 160 students. Students who participated in the dual enrollment program at the target community college were included in the study regardless of the number of dual enrollment hours completed.

A random sample of students who did not participate in dual enrollment prior to starting their college career was used as the comparison study group. This group consisted of 160 students who were randomly chosen out of 2559 first-time freshman students enrolled at the target community college during the fall and spring of 2010 and 2011. In an Excel spreadsheet, a random number was assigned to each student, and then the group was sorted numerically by the randomly assigned number. The first 160 students on the spreadsheet were chosen to be included in the statistical analysis.

In determining certain parameters for both populations, the last graduation date at the community college that was used was May 2015. This date was chosen because the date allowed for at least the timeframe at the state level for time needed to complete an Associate's degree. Because of the span of time, fall and spring 2010 and 2011, the May 2015 graduation date would allow for ample time for the students in the study who first enrolled in Spring of 2011 to complete their Associate's degree.

Research Materials and Instruments

Several instruments were utilized in this study. For data collection, two sources were used to collect and organize the information acquired in regards to student participation and degree completion. The sources included: (1) Banner, an in-house data storing program, and (2) ARGOS, an in-house data collection program used by the target community college. Banner stores all student data which can be condensed into a reporting system, ARGOS, which allows for easy management of large data sets. For ARGOS, parameters are determined and the proper programming code is developed to compile the existing data in Banner into a readable report. Microsoft Excel 2010 was used to sort and store the data used in this study.

The data collected for this study was based on participation or non-participation in dual enrollment, degree received (yes/no), and type of degree received (AA/AAS). The graduation date for the study was chosen because that date gave the target population more than 150% of the time needed to complete their degree. All students were considered equally regardless of the semester they participated in dual enrollment. The start semesters were chosen based on the need to have ample time for participants to complete their degree, and several semesters were chosen to ensure a large enough population for data analysis.

Data Collection

An initial request for approval to collect and analyze the necessary student data and conduct the stated research was submitted to the Institutional Research specialist at the target community college. Upon receipt of the approval to conduct the research on students from the target community college, a request and application was sent to the

Mississippi State University (MSU) Institutional Research Board (IRB) for approval of the study. Upon receiving MSU's IRB approval, a request for a summary report of data was submitted to the Information Technology (IT) Department at the target community college. An IT technician created an Argos report based on the requested parameters of the researcher. The report compiled the pertinent student information obtained from Banner. The summary report included the student application type (Dual Enrollment or First-time Freshman), graduation date for community college if one was present, and, if applicable, degree type awarded (AA or AAS). In order to maintain confidentiality, students were not identified by name or any other identifying information.

Data were collected for all students who completed at least one course as a dual enrollment student, meaning they were receiving college credit at the target community college while they were enrolled in high school. The data included the spring and fall semesters for 2010 and 2011. Choosing the specified semesters allowed ample time for each student to complete an Associate's degree at the target community college by the time this study was conducted and provided a large enough sample size that external threats were minimalized. The independent variable was participation in dual enrollment. Students in the sample were identified as dual enrollment participants or non-participants.

Data Analysis

The study was conducted using secondary data. Degree attainment was determined for both groups of students in the study which were: (1) those participating in dual enrollment, and (2) those not participating in dual enrollment. The data analysis was primarily comparison. Chi-square tests were used for the analysis of the two categorical

variables in regards to student participation in dual enrollment and the attainment of an Associate's degree, AA and AAS, at the target community college.

The data was analyzed using the IBM Statistical Package for the Social Sciences (SPSS) software program (version 24); Microsoft Office Excel 2010 was used for the storing of obtained study data. The existence or non-existence of a graduation date at the target community college was utilized to determine if students who began their college career at a target community college continued through graduation at that college.

Extraneous factors may have affected the completion of the Associate's degree by the dually enrolled students. These variables could include, but are not limited to, the number of credits completed while dually enrolled (Adelman, 2006) and the student high school record (Swanson, 2009). Either of these factors could have affected degree completion and the outcomes of this study, but given the available information, the researcher was not able to control for either of these factors.

For research question number one, the attainment of an Associate's degree, both AA and AAS, for students who participated in the dual enrollment program was compared to the attainment of an Associate's degree, both AA and AAS, for students who did not participate in dual enrollment. Data were analyzed using a chi-square test for independence statistic to determine if students who participated in dual enrollment attained an Associate's degree, either AA or AAS, as often, if not more often, than a student who did not participate in the dual enrollment program. An alpha level of $p > .05$ was considered significant.

For research question number two, the attainment of an AA degree for students who participated in the dual enrollment program was compared to the attainment of an

AA degree for students who did not participate in dual enrollment. Data were analyzed using a chi-square test for independence statistic to determine if students who participated in dual enrollment attained an AA degree as often, if not more often, than a student who did not participate in the dual enrollment program. An alpha level of $p > .05$ was considered significant.

For research number three, the attainment of an AAS degree for students who participated in the dual enrollment program was compared to the attainment of an AAS degree for students who did not participate in dual enrollment. Data were analyzed using a chi-square test for independence statistic to determine if students who participated in dual enrollment attained an AAS degree as often, if not more often, than a student who did not participate in the dual enrollment program. An alpha level of $p > .05$ was considered significant.

For research question number four, the attainment of an AA degree for students who participated in the dual enrollment program was compared to the attainment of an AAS degree for students who participated in dual enrollment. Data were analyzed using a chi-square test for independence statistic to determine if students who participated in dual enrollment attained an AA degree or AAS degree equally as often. An alpha level of $p > .05$ was considered significant.

Chapter Summary

In this chapter, the methods utilized for collecting student data and analyzing the data for analytical purposes were presented and discussed. The four research questions used to guide the study were identified. The study's data were described. Data collection

procedures were discussed, and the chapter concluded with a discussion of the procedures used to analyze the data.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

The purpose of this quantitative study was to study the attrition rates of two groups of students at a rural Mississippi community college. The two groups of students included: (1) students who participated in dual enrollment in high school, and (2) students who did not participate in dual enrollment in high school. The study analyzed data to determine if either group attained their Associate's degree more often. The study examined the retention of dually enrolled students through completion of their Associate's degree, both AA and AAS, and compared those degree attainment rates with students who did not participate in a dual enrollment program prior to beginning their college career. An (2013) and Swanson (2008) report that dual enrollment has a positive impact on degree attainment.

This chapter begins with an identification of the study participants followed by the four research questions and data pertaining to Associate's degree attainment for students who do and do not participate in the dual enrollment program at the target community college. The statistical analyses used are discussed along with the results produced.

Study Participants

The sample used for this study was comprised of 320 students who were enrolled during the fall and spring of 2010 and 2011 from across the district of the target community college. The 320 students included both populations of students to be studied which were as follows: (1) 160 students who participated in dual enrollment in high school, and (2) 160 students who did not participate in dual enrollment in high school.

Using Microsoft Excel, the original set of data contained 2559 students who did not participate in dual enrollment. To create comparative groups, each participant was assigned a random number using the Excel function for randomization. Once data were randomized, it was sorted by highest to lowest random number. The first 160 participants were used as the random sample from all students enrolled at the respective Mississippi community college during fall and spring semesters of 2010 and 2011. This process created the comparison group of participants who did not participate in dual enrollment.

Research Question One

A chi-square test for independence was conducted for the first research question: Is there a significant difference in the number of students attaining an Associate's degree when comparing dually enrolled students to non-dually enrolled students at a rural Mississippi community college? Table 2 shows the Pearson χ^2 test for independence results and indicates that there is a significant difference between participation in dual enrollment and the attainment of an Associate's degree at the target Mississippi community college, $\chi^2(1, N = 320) = 37.46, p = .000$. Students who did not participate in dual enrollment were more likely to attain their Associate's degree (50.6%), both degrees AA and AAS included, than students who did participate in dual enrollment (18.1%) at

the target Mississippi community college. The Cramer's $V = .34$ effect size is medium for this study which further supports the outcomes.

Table 2

Chi-Square Analysis of Degree Attainment (AA and AAS) for Dual Enrollment vs. Non Dual Enrollment

		Degree Attainment		χ^2	p	Cramer's V
		Yes	No			
Associate's						
Dual Enrollment	$n = 160$	29	131	37.46	.000	.34
Non-dual enrollment	$n = 160$	81	79			
Totals	$n = 320$	110	210			

Note: n = number of students

Research Question Two

A chi-square test for independence was conducted for the second research question: Is there a significant difference in the number of students attaining an AA degree when comparing dually enrolled students to non-dually enrolled students at a rural Mississippi community college? Table 3 shows the Pearson χ^2 test for independence results and indicates that there is a significant difference between participation in dual enrollment and the attainment of an AA degree at the target Mississippi community college, $\chi^2(1, N = 320) = 18.38, p = .000$. Students who did not participate in dual enrollment were more likely to attain their AA degree (37.5%) than students who did participate in dual enrollment (16.3%). Based on the results of the study, dually enrolled students are less likely to complete their AA degree than non-dually enrolled students. The Cramer's $V = .24$ effect size is small for this study which further supports the outcomes.

Table 3

Chi-Square Analysis of AA Degree Attainment for Dual Enrollment vs. Non Dual

Enrollment

Degree Attainment		AA Degree Earned		χ^2	<i>p</i>	Cramer's V
		Yes	No			
Dually Enrolled	<i>n</i> = 160	26	134	18.38	.000	.24
Non-dually enrolled	<i>n</i> = 160	60	100			
Totals	<i>n</i> = 320	86	234			

Note: *n* = number of students

Research Question Three

A chi-square test for independence was conducted for the third research question: Is there a significant difference in the number of students attaining an AAS degree when comparing dually enrolled students to non-dually enrolled students at a rural Mississippi community college? Table 4 shows the Pearson χ^2 test for independence results and indicates that there is a significant difference between participation in dual enrollment and the attainment of a an AAS degree at the target Mississippi community college, $\chi^2(1, N = 320) = 14.59, p = .000$. Students who did not participate in dual enrollment were more likely to attain their AAS degree (13.1%) than students who did participate in dual enrollment (1.9%). The Cramer's V = .21 effect size is small for this study which further supports the outcomes.

Table 4

Chi-Square Analysis of AAS Degree Attainment for Dual Enrollment vs. Non Dual Enrollment

Degree attainment		AAS Degree Earned		χ^2	<i>p</i>	Cramer's V
		Yes	No			
Dually Enrolled	<i>n</i> = 160	3	157	14.59	.000	.21
Non-dually enrolled	<i>n</i> = 160	21	139			
Totals	<i>n</i> = 320	24	296			

Note: *n* = number of students

Research Question Four

A chi-square test for independence was conducted for the fourth research question: Is there a significant difference in the number of students attaining a degree when comparing dually enrolled students completing an AA degree to dually enrolled students completing an AAS degree? Table 5 shows the Pearson χ^2 test for independence results and indicates that there is a significant difference between the completion of an AA degree and an AAS degree by the dually enrolled students at the target Mississippi community college, $\chi^2(1, N = 29) = 36.48, p = .000$. Students who participated in dual enrollment and completed an Associate's degree were more likely to attain an AA degree (89.7%) than an AAS degree (10.3%). The Cramer's V = .79 effect size is large for this study which further supports the outcomes.

Table 5

Chi-Square Analysis of Dually Enrolled Students Completing the AA Degree vs. AAS

Degree

Degree attainment		Dually enrolled students who completed degree		χ^2	<i>p</i>	Cramer's V
		Yes	No			
AA degree	<i>n</i> = 26	26	3	36.48	.000	.79
AAS degree	<i>n</i> = 3	3	26			
Totals	<i>n</i> = 29	29	29			

Note: *n* = number of students

Chapter Summary

The results of the statistical analysis were presented in Chapter IV. Data were displayed and discussed. The four research questions were analyzed and a description of the study participants was provided. After analyzing the data for research question one, the results indicated that students who do not participate in dual enrollment are more likely to attain their Associate's degree at a rate of 50.6%. After analyzing the data for research question two, the results indicated that students who do not participate in dual enrollment are more likely to attain their AA degree at a rate of 37.5%. After analyzing the data for research question three, the results indicated that students who do not participate in dual enrollment are more likely to attain their AAS degree at a rate of 13.1%. After analyzing the data for research question four, the results indicated that students who do participate in dual enrollment are more likely to attain their AA at a rate of 89.7%.

CHAPTER V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter is a summary of the research study examining the attrition rates of two groups of students at a rural Mississippi community college. The two groups of students included: (1) students who participated in dual enrollment in high school, and (2) students who did not participate in dual enrollment in high school. The study examined the retention of dually enrolled students through completion of their Associate's degree, both AA and AAS, and compared those degree attainment rates with students who did not participate in a dual enrollment program prior to beginning their college career. The findings from this study are presented in this chapter along with conclusions drawn from these findings. Included also are the limitations of the study, recommendations for practitioners and policymakers, and recommendations for future research.

The purpose of the study was to study a population of students at a target Mississippi community college to see if there was a significant difference in degree attainment for students who participated in dual enrollment in high school versus the students who did not participate in dual enrollment in high school. The research questions used in this study were as follows:

1. Is there a significant difference in the number of students attaining an Associate's degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
2. Is there a significant difference in the number of students attaining an AA degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
3. Is there a significant difference in the number of students attaining an AAS degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?
4. Is there a significant difference in the number of students attaining a degree when comparing dual enrolled students in an AA degree program to those dual enrolled students in an AAS degree program?

Summary of Findings

Research Question One

The findings for research question one (Is there a significant difference in the number of students attaining an Associate's degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?) indicate a significant difference in the number of students attaining an Associate's degree when comparing dually enrolled students to non-dually enrolled students at a rural Mississippi community college. At the target Mississippi community college, students who did not participate in dual enrollment were more likely to attain their Associate's degree (50.6%), both degrees AA and AAS included, than students who did participate in dual enrollment (18.1%). It can be concluded that participation in the dual enrollment program at this

rural Mississippi community college does not increase the likelihood of the student attaining an Associate's degree from the target community college.

Research Question Two

The findings from research question two (Is there a significant difference in the number of students attaining an AA degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?) indicate a significant difference in the number of students attaining an AA degree when comparing dually enrolled students to non-dually enrolled students at a rural Mississippi community college. At the target Mississippi community college, students who did not participate in dual enrollment were more likely to attain their AA degree (37.5%), than students who did participate in dual enrollment (16.3%). It can be concluded that participation in the dual enrollment program at this rural Mississippi community college does not increase the likelihood of the student attaining an AA degree from the target community college.

Research Question Three

The findings from research question three (Is there a significant difference in the number of students attaining an AAS degree when comparing dual enrolled students to non-dual enrolled students at a rural Mississippi community college?) indicate a significant difference in the number of students attaining an AAS degree when comparing dually enrolled students to non-dually enrolled students at a rural Mississippi community college. At the target Mississippi community college, students who did not participate in dual enrollment were more likely to attain their AAS degree (13.1%), than students who did participate in dual enrollment (1.9%). It can be concluded that participation in the

dual enrollment program at this rural Mississippi community college does not increase the likelihood of the student attaining an AAS degree from the target community college.

Research Question Four

The research findings for research question four (Is there a significant difference in the number of students attaining a degree when comparing dual enrolled students in an AA degree program to those dual enrolled students in an AAS degree program?) indicate a significant difference in the number of students attaining an AA degree versus an AAS degree when comparing dually enrolled students at a rural Mississippi community college. At the target Mississippi community college, students who participated in dual enrollment and completed an Associate's degree were more likely to attain an AA degree (89.7%) than an AAS degree (10.3%). It can be concluded that participation in the dual enrollment program at this rural Mississippi community college leads to the attainment of more AA degrees than AAS degrees from the target community college.

Conclusions

Difficulties arose when trying to compare the results of this study to the large-scale studies like the one conducted by Karp et al. (2007) that included over 300,000 students from New York and Florida, which found dual enrollment increases postsecondary enrollment and success. The large studies did not factor in the college or university in which the student maintained enrollment but looked at degree attainment in general. Success measures were not limited to enrollment in the initial college and/or the college at which they completed their dual enrollment coursework. The large-scale studies looked at subsequent enrollment in college and the enrollment in future semesters

wherever that may be for each student. While the data reported by Karp et al. (2007) is important at the national level, this study focused on retention of the student to completion of an Associate's degree where original enrollment occurred for dual enrollment coursework, which led to a contradiction of outcomes between the studies.

This study also has contradictory outcomes when compared to studies such as the ones conducted by An (2013) and Ganzert (2014), whose results indicated that high school students who participated in dual enrollment were more likely, 7% and 11.2% respectively, to attain a Bachelor's degree than those who did not participate. Based on these studies, one could assume that a student participating in a dual enrollment program at a rural Mississippi community college would attain an Associate's degree more often than students who do not participate in dual enrollment. However, that was not the case in this study.

While a report by the Florida Department of Education (2004) reported that high performing dual enrollment students graduated from community colleges at higher rates than similar students who did not participate, Karp et al. (2007) concluded that dual enrollment students were more likely to earn a high school diploma and transfer to a 4-year institution to enroll in college full time. Perhaps the students who participated in the dual enrollment program at the rural Mississippi community college in this study enroll in universities after graduating high school. Maybe the dual enrollment participants prefer to attend a college away from their home. While the target community college in this study has campuses that are considered rural, the largest commuter campus is located in a suburb which provides other opportunities for higher education after graduating high school to the students who participate in the dual enrollment program.

In regards to the types of degrees, AA and AAS, earned by the students who did participate in the dual enrollment program, there was a significant difference in attaining an AA degree (89.7%) compared to attaining an AAS degree (10.3%). In a study conducted by Karp and Hughes (2008) the findings indicated that there was a positive outcome for Career and Technical Education (CTE) students who participated in dual enrollment, as compared to their CTE classmates who did not participate. While the results were positive for the study conducted on students from Florida and New York, this study at a rural Mississippi community college did not have the same positive outcomes. At the community college in this study, there are currently no CTE courses being offered at high school locations. Therefore, it could be assumed that the students who participate in the dual enrollment program are more concerned about academic courses that will transfer to a university, thus, the low percentages for AAS degree attainment.

Noel-Levitz (2008) stated that dual enrollment programs can address the need for increased rigor in the high school and better prepare students for the academic demands of postsecondary education. If the goal of the target Mississippi community college is to serve the community in which it is located, then offering a dual enrollment program that increases the students' opportunity for early degree completion and allowing for an easier transition from high school to college is a sound decision. If the goal is to increase enrollment, then the dual enrollment program analyzed in this study does not supply data to support that goal. Either way, it is sound practice to know whether or not students who participate in the dual enrollment program remain enrolled at the Mississippi community

college or transfer to another college or university. This information should be considered where policy is concerned.

Limitations of the Study

The limitations of this study include the following:

- The study does not control for any variables other than the semester of enrollment and student type. There could be other variables that could account for outcome differences.
- The study used data from only one community college. Because of the uniqueness of individual community colleges and the high schools within their district that offer dual enrollment programs, caution must be used in generalizing the results of this study to other institutions.
- Because the guidelines to participate in dual enrollment include having a 30+ on the ACT, or Jr/Sr status in high school and an overall “B” average, the “B” average from various high schools could misrepresent level of preparedness of dual enrollment students for college-level courses thus influencing the degree attainment outcomes.
- The number of hours a student completed as a dual enrollment student varied greatly and could influence the outcomes.

Recommendations for Practitioners and Policymakers

Dual enrollment programs may bring challenges to the community colleges in which they are offered. Lieber (2009) states that dual enrollment programs entail costs beyond instruction-related expenses such as textbooks, support services, professional development and planning time for administrators and instructors who design and deliver the program. At the target Mississippi community college, budgetary support has been implemented for areas like the following: (1) teacher stipend, (2) administrative support, (3) decreased tuition, (4) professional development, and (5) implementation costs. These budgetary allowances for the dual enrollment program were added in an attempt to offer a program that maintains high standards. Jones (2014) stated that the community college can provide a curriculum and level of educational opportunities for high schools with a limited curriculum and limited funds. In the end, the goal is to find the balance between providing the program that best suits the students' needs while supporting the mission of the college.

With an increased focus on high schools and colleges working more closely to create increased numbers of graduates at the high school and college levels (Jones, 2014), there is a need to evaluate programs that bridge the two institutions together such as dual enrollment programs. Legislation is constantly being revised in an attempt to strengthen relationships between high schools and colleges. Community college administrators should be equipped with valid data on programs that are mandated by state law in order to adopt sound policies that support the legislation and mission of the college. The allocation of funds to programs that span the two educational systems should be

considered if the goal is increased degree attainment at colleges and increased dual enrollment participation in the high schools.

The results of this study indicated that the relationship between students participating in dual enrollment and college degree completion at the rural Mississippi community college was not significant. The study revealed that students who participated in dual enrollment at the target Mississippi community college were not more likely to graduate with a degree at that institution compared to the students who did not participate in dual enrollment. The implications of this information can be useful to community college practitioners and policymakers in designing and implementing dual enrollment program practices and policies that will accommodate the area high schools but continue to support the initiative of the college to have more college degrees awarded.

Kinnick (2012) reported that dual enrollment could enhance student recruitment, has relative ease of initiation, and is viewed as an aspirational endeavor. Community college practitioners may desire these outcomes as well as the outcomes proposed by the American Association of State Colleges and Universities (2002) which include: (1) dual enrollment programs can attract top high school students who otherwise might not have considered a community college, and (2) an institution may retain a student to degree completion simply because the student has already completed some courses at that institution. However, this study did not fully see those outcomes. While retention of the dual enrollment students to the completion of an Associate's degree was not significant, increased visibility within the service area and a more positive image in the community (Hofmann, 2005) could be an outlying positive affect.

Dual enrollment has many more avenues to explore and will continue to grow. With this growth will come a need to operate more efficiently. In order to promote and support the mission of dual enrollment programs, institutions must rely on partnerships with all involved parties – students, high school staff and administration, parents, college departments, etc. (Kinnick, 2012).

Recommendations for Future Research

After a review of related literature for this study and an analysis of the data, the researcher suggests that future research should focus on the following recommendations:

1. Include data from multiple community colleges with similar dual enrollment programs to increase generalizability of the study.
2. Analyze data based on program of study chosen by the student such as pre-medical versus general college studies.
3. Include a survey to determine the factors that motivate students to participate in dual enrollment programs initially.
4. Survey students upon high school graduation to determine the reasons for transfer and factors that would influence them to continue at the initial institution.
5. Treat each participating high school as a separate entity to see how each group of students from each high school contributes to the attrition rates.
6. Incorporate longitudinal degree data through the Bachelor's degree to see if students transfer to a university immediately after graduating from high school versus continuing at the target community college.

7. Incorporate longitudinal degree data through the Bachelor's degree to see if students who transfer to a university attain their degree more often if they participated in dual enrollment.

Chapter Summary

Chapter V summarized the findings of the research study as detailed in Chapter IV. First, conclusions were presented on the participation in a dual enrollment program at the target Mississippi community college and the retention to an Associate's degree, and the findings were related to other research studies. Secondly, limitations to the study were presented along with recommendations for practitioners and policy makers that may be of use when using the results of this research study for future purposes in regards to dual enrollment programs. Lastly, recommendations for future research that could be conducted were presented.

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APPENDIX A
INSTITUTIONAL REVIEW BOARD APPROVAL EMAIL

From: kmyhand@orc.msstate.edu

Sent: Wednesday, August 05, 2015 11:42 AM

To: Tonya Lawrence

Cc: kmyhand@orc.msstate.edu; kmyhand@orc.msstate.edu; SKing@colled.msstate.edu>

Subject: Study 15-254: Associate's Degree Attainment for Dual Enrollment Versus Non-Dual Enrollment Students at a Rural Mississippi Community College

Protocol Title: Associate's Degree Attainment for Dual Enrollment Versus Non-Dual Enrollment Students at a Rural Mississippi Community College

Protocol Number: 15-254

Principal Investigator: Ms. Tonya Lawrence

Date of Determination: 8/5/2015

Qualifying Exempt Category: 45 CFR 46.101(b)(4)

Dear Ms. Lawrence:

The Human Research Protection Program has determined the above referenced project exempt from IRB review.

Please note the following:

- The approved study will expire on 12/31/16, which was the completion date indicated on your application. If additional time is needed, submit a continuation request. (SOP 01-07 Continuing Review of Approved Applications)
- Any modifications to the project must be reviewed and approved by the HRPP prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project.
- Per university requirement, all research-related records (e.g. application materials, letters of support, signed consent forms, etc.) must be retained and available for audit for a period of at least 3 years after the research has ended.
- It is the responsibility of the investigator to promptly report events that may represent unanticipated problems involving risks to subjects or others.