Comparing Mississippi's Public University Graduation Rates for Community College Completers and Non-Completers

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The University of Southern Mississippi

COMPARING MISSISSIPPI’S PUBLIC UNIVERSITY GRADUATION RATES FOR COMMUNITY COLLEGE COMPLETERS AND NON-COMPLETERS

by

Andrew Clark Dale

Abstract of a Dissertation
Submitted to the Graduate School of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

December 2014
ABSTRACT

COMPARING MISSISSIPPI’S PUBLIC UNIVERSITY GRADUATION RATES FOR COMMUNITY COLLEGE COMPLETERS AND NON-COMPLETERS

by Andrew Clark Dale

December 2014

This study is based on the notion that in Mississippi, a large number of Mississippi community college academic students transfer to 4-year universities in-state, as is the case in Alabama (Sacksteder LaClair, 2010). Mississippi community colleges have had a hard time tracking students who leave the institution without graduating. This study sought to document the most accurate numbers in community college completers and discover how many of Mississippi’s community college students are successful at the university level. Data were collected on former community college students at five of the state’s eight public four-year universities. The study revealed that 82% of Mississippi community college students who transfer to the university achieve a level of success by either earning an Associate’s degree, a Bachelor’s degree or completing at least 30 hours of university coursework.
The University of Southern Mississippi

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by

Andrew Clark Dale

A Dissertation Submitted to the Graduate School of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Approved:

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December 2014
DEDICATION

I dedicate this to my godly, precious wife for allowing me the time to invest in our family with this work. She has labored many hours of single parenting into this study. We have completed this together, working separately toward the goal. She, with many bedtime stories and I, with many articles and books. I pray that the Lord continues to bless our family, and that this investment is a gift from Him, which will allow us to bless others.

To my Parents, who have always suggested that academic work will lead you far in life. Thanks for the encouragement to run the race.

To the faculty and staff at William Carey College, who all encouraged me to study and strive for bigger things. Thanks for making my higher education experience one that opened my mind.
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CHAPTER I

INTRODUCTION

Background

Community colleges across the country are becoming more concerned with the successful outcomes of their students, specifically the attainment of a degree, certificate, or official credential (Mullin, 2010). Much of this concern has to do with funding because funding formulas for public educational institutions are increasingly being tied to student completion. Each level of government plays a role in funding the community college; local, state, and national governments all have a vested interest in the successful outcomes of the community college (Cohen & Brawer, 2003). In much the same way that knowing the quality of the product a company is producing is good business practice for its investors, that same business sense is being applied in education today, specifically within the community college (Mullin, 2011).

The 1999 nationwide graduation rate among community college students was 22.3% (Bailey, Leinbach, & Jenkins, 2005a) according to national data made available by The Student Right-To-Know Act (Student Right-To-Know and Campus Security Act, 1990, sec. 1092). The numbers in a more recent publication are not much higher, at 26.4% (U. S. Department of Education, 2011a). This trend of low graduation rates has educators and politicians concerned. There may be several reasons the national community college graduation rate is found to be low. A first step in recognizing why graduation rates are low is to get consistent accurate data. Currently, there is no nationwide system that tracks community college students toward degree completion at four-year universities, which leads to inconsistency in data collection, terminology, and
accessibility of data. (Sugar, 2009). According to Dr. Parisi (Personal Communication, July 10, 2012), the director of the National Strategic Planning and Analysis Research Center (nSPARC) at Mississippi State University and administrator of the state longitudinal data system (SLDS), all 50 states have at least some type of data collection system that collects information about educational outcomes of students. However, the educational systems and collection systems are so different among states that comparisons are impractical.

Among the states that do keep track of community college students, the data they collect are all subject to local inconsistencies that are not presented in the final report. The 1990 Student Right-To-Know Act 20 U.S.C. § 1092(f) established a nationwide system for collecting pertinent student data. The law requires that all post-secondary institutions report their respective retention and graduation rates to students and the U.S. Department of Education. Unfortunately, the rules governing the collection and submission of data under The Student Right-To-Know Act can distort the results of statistics at the national level (Bailey et al., 2005a). The system has four dominant inconsistencies (Barefoot, 2004) that exist at both the state and national level. First, students who do not complete but transfer to another institution and are successful are not tracked. Second transfer rates of college students may be under-reported, as most community college transfer institutions simply do not know what happens to their students when they leave. In fact, according to Townsend and Wilson (2006) no government agency or institution has formally acknowledged what a good transfer rate should be for a two-year or community college. Third, The Student Right-To-Know Act (SRK) data is based on numbers from first-time freshmen who are enrolled in college on
a full-time basis. One could argue here that a majority of community college students are part-time and their inclusion in data collection would greatly influence graduation rates (Horn, Peter, & Rooney, 2002). Finally, the time allowed to completion is three years for the SRK reported statistic; yet completion times vary among students and degree programs depending on student preparation and student financial stability. Bailey, Lienbach, and Jenkins (2005b) show that allowing a longer time to report the graduation rates dramatically improves the overall statistic.

Townsend (2002) indicates that transfer rate is defined differently by institutions across the country, which use different methods to construct the statistic. The major difficulty in determining transfer rates is agreeing on which students should be included… Researchers vary in their selection of both numerator and denominator of the percentage equation. Regarding the denominator, “some states and colleges compare the number of transfers to total headcount, others to full-time equivalent enrollment, and still others to the number of entering high school students.” (Banks, 1990, pp. 15, 47)

Townsend (2002) goes on to describe how the numerator of the equation can change by defining those who complete “as those who complete an Associate of Arts (A.A.) degree and transfer to a four-year college” (p. 15). This definition of the term transfer does not account for students who have not completed an A.A. degree and have moved to the university.

In Mississippi, the current community college funding formula is based on enrollment, but may soon change to incorporate graduation rates (MGT of America, 2002). It is assumed, but not known, that a large number of Mississippi community
college academic students transfer to four-year universities in state, as is the case in neighboring Alabama (Sacksteder LaClair, 2010). It is assumed that the academic transfer student population is the largest group of community college students at the university. In 2011, 74.1% of all credit hours taught in Mississippi community colleges were academic courses, leaving only 25% of hours to be filled by the technical and workforce arms of the institutions (Mississippi Community College Board, 2011). Based on the notion that the largest population of non-completers from community colleges can be found at the state’s four-year universities, this study will endeavor to identify the most accurate numbers in community college completion and discover how many of Mississippi’s community college students are successful at the university level. Restated, this study aims to identify former community college students at the university who have achieved a measure of success past education at the community college. This information may enable a better understanding of current graduation statistics, specifically the inordinately low graduation rates in the Mississippi community college system.

Today’s college graduates can be categorized into two main categories, those who start at a two-year institution and those who start at a four-year institution (Townsend, 2001). From this categorization Townsend breaks down the actions of students at each level to represent the six modern variations of transfer to include moving to the four-year school without an Associate’s degree; moving with an Associate’s degree; moving to and from the two-year school in a lateral motion; moving dual-enrollment (high school) credits from the two-year institution to the four-year institution; moving coursework
taken at a two-year institution during the summer; and, transferring two-year institutional coursework taken alongside four-year coursework.

Theoretical Foundation

The student retention and dropout theory, developed by Tinto (1975, 1982, 1987, 1988, 1997a, 1997b) is based on both psychological and sociological foundations to support the notions of student success and student completion within the college curriculum. The basic roots of this theory can be found in the suicide theory of Durkheim (1951) and rites of passage theory of Arnold van Gennep (1960). Tinto developed his model after researching the work of Spady (1970), who is credited with originating the student dropout theory.

The student retention and dropout theory links student persistence towards degree completion in which students are required to respond to the campus environment and to maintain enrollment toward the final goal. Tinto’s (1975) theory discusses the different variables that might be associated with college attrition rate, namely, pre-college variables (skill, ability, prior schooling, and family background), university experiences, and personal goals. Tinto suggests the interaction among these variables determine if a student will achieve the goal of student success or will drop out. Pascarella (1985) and Halpin (1990) both tested Tinto’s model and confirmed his assumptions. While Andreu (2002) points out that very little research using this model has included the community college, Bean and Metzner (1985) developed a theoretical model by extending Tinto’s model, and applied it to non-traditional students, a demographic that comprises nearly 50% of community college populations. He discovered that non-traditional students were
more affected by variables external to the institution than by the normal variables in the social culture of the school considered for traditional students.

Completion rates have been used to study the institutional effectiveness of both four-year and two-year institutions (Allen, 2009; Bragg, 2001; Falconetti, 2007; Savona, 2010; Townsend, 2002). The current study will examine the differences between transferring community college non-completers and community college graduates who transfer and graduate from the university using completion rates at the four-year university level. The data created by this study will help the researcher speculate about the outcomes of the underlying community college system by discussing the possible reasons for students moving to the university without completing degree programs at the two-year level.

Statement of the Problem

This research seeks to document if there is an unaccounted body of successful community college students who may be legitimately counted toward the completion rate at Mississippi’s community colleges. If students attend a community college without completing and are subsequently successful at a four-year institution, some of their success may be attributable to the community college. Currently, there is no mandated method or system in place to accurately track students once they leave the Mississippi community college system. Since there is increased pressure from the state and federal governments to produce results at the community college level, two-year institutions have a vested interest in knowledge regarding where their students go after they have graduated with an Associate’s degree or if they transferred to another institution without receiving a community college credential. Knowing if students are successful once they
leave the community college is key to identifying the true success or completion rate of any two-year college in Mississippi. In this case, success will be considered as graduation from the university, or attainment of a significant portion of hours past work earned in the community college.

Research Questions

This research project sought to answer questions about students who attend but do not graduate from a Mississippi community college by:

1. Describing the relative proportions of students who transfer from a community college with an Associate’s degree and students who transfer from a community college without receiving any degree.
2. Testing whether holding an Associate’s degree from a Mississippi community college can predict graduation from a Mississippi four-year university.
3. Determining among the students who transfer from a Mississippi community college to a public four-year university in Mississippi, how many actually complete a degree based on transfer GPA, final GPA, hours earned at the community college, semesters enrolled at university, Pell grant eligibility, ACT score, race, age, and sex.
4. Identifying the percentage of community college students who never completed a two-year degree but were successful at the university by graduating or completing some coursework (successful completion of any higher level coursework would indicate adequate preparation from the community college).
Research Hypotheses

H1. Students who have earned an Associate’s degree from a community college graduate more frequently at a public university than students who transferred from a community college and did not earn an Associate’s degree.

H2. Students who have a higher transfer GPA will have a higher rate of degree attainment at the four-year university.

H3. Students who have more hours earned at the community college will have a higher rate of degree attainment at the four-year university.

H4. There will be no significant relationship between race, age, gender and university graduation among community college transfer students.

The variables used in this study, captured from archival data from selected Mississippi public four-year universities, include earned Associate’s degree, transfer GPA (entering university), final GPA (exiting university), academic hours earned before transfer, academic hours earned after transfer, time to degree (semesters enrolled in university), university degree received, Pell-grant status, gender, race, age, and degree program.

Limitations

Students who attend a Mississippi community college and then transfer to a private four-year university or to an out-of-state institution are not included in the research data, as data was collected only from 5 of the 8 public 4-year universities in Mississippi. The University of Mississippi, Mississippi State University, The University of Southern Mississippi, Delta State University, Mississippi University for Women,
Alcorn State University, Mississippi Valley State University and Jackson State University all collect data in their student information systems differently with regard to community college graduation. The five universities selected for this study, out of the eight public universities in Mississippi, attract and admit the majority of community college transfers from all 15 Mississippi community colleges. This design should affect the validity of the study with regard to the implications reaching all fifteen Mississippi community colleges. For example, a majority of Hinds Community College students transfer to one university and a majority of Mississippi Delta Community College and Coahoma Community College students transfer to a different university (R. Fletes, personal communication, July 10, 2012).

The universities that have been selected for this study will be identified as AA University, BB University, CC University, DD University and EE University. Since there was a discrepancy in data collection procedures among the universities in Mississippi, this study was completed in two phases. Phase one included the institutions who do collect data on community college graduation and phase two included the institutions who do not collect data on community college graduation.

Definition of Terms

*Academic Hours Earned Before Transfer* – The number of coursework hours earned by a community college student at a community college before transferring to a four-year university.

*Academic Hours Earned After Transfer* – The number of coursework hours earned by a former community college student at a four-year university after transferring from a community college.
Community College Graduate – A student that has attended a community college and has earned an Associate’s degree; the most likely candidate to advance to the university and earn a four-year degree (Wellman, 2002).

Community College Non-completer – A student who has completed academic coursework at a community college but did not earn enough hours to graduate with an Associate’s degree from the community college.

Community College Transfer – Any university student who has been previously enrolled at a community college, with no indication of Associate’s degree attainment.

Completion - used in the literature as another term to describe graduation (Kotamraju & Blackman, 2011).

Final GPA – The collective Grade Point Average that a student has earned on all of the academic classes at the university.

Reverse Transfer – When community college students at the university send a transcript of earned coursework back to the community college to complete the Associate’s degree.

Success – as indicated by research and by state and federal leaders as graduation from an institution (Roksa & Calcagno, 2010). This researcher will define success as one of the following; earning an Associate’s degree, earning a Bachelor’s degree, or completing at least 30 hours of university coursework, which is part of the definition of success used by the Texas Association of Community Colleges (2014).

Transfer GPA – The Grade Point Average that a student has earned on all of the academic classes combined before enrollment at a four-year university.
Delimitations

This study is delimited to data from students who have transferred from any one of Mississippi’s fifteen community/junior colleges to 5 of Mississippi’s public 4-year universities and that has been coded for research purposes at the request of the participating institutions; AA State University, BB State University, CC State University, DD State University and EE State University. According to the Mississippi’s Institution of Higher Learning, the majority of transferring students from all of the fifteen community colleges in Mississippi attend one of these five universities (Mississippi Institutions of Higher Learning, 2009).

Justification

Haley Barbour, the former Governor of Mississippi (Complete College America, 2011) and Barack Obama, the President of the United States (Obama, 2009) have each separately emphasized the need to increase the community college completion rate, both in Mississippi and the United States, respectively. The problem with current knowledge of the completion rate is that some students take classes and leave the local community college, thus leaving the institution with no way to track their success (Reyes, 2010; Rice, 2008). Since legislative allocation is increasingly tied to student success, and student success is increasingly tied to public funding, this poses a problem to community colleges in Mississippi, where student success outcomes have not been consistently tracked. Studying the educational outcomes of the individuals, hours of coursework and degree received, and who transferred from a community college to a public four-year university on a statewide level will enable the researcher to track, for success, the group of students who did not complete at the community college, but nonetheless succeeded. Although
the Mississippi State Board for Community and Junior Colleges and Mississippi’s Institutions of Higher Learning Board could be working together in this process, currently, they are not. Dickerson (Dickerson, 2008) suggests a statewide study is needed that includes all four-year universities. Perkins (2010) agrees that more research should be conducted to determine whether and why more community college graduates are not completing four-year degrees. The current body of research does not differentiate between types of transfer students and whether they are graduates, non-completers, or dropouts (Townsend, 2002). Most students transfer to a 4-year university between their second and third year of college. Current data reports only that students transfer, with no indication as to whether a student has earned an Associate’s degree.

Mississippi community colleges may be moving from a funding model based purely on attendance to a formula that involves a student completion rate. The Mississippi Legislature approved a bill in 2011 that would develop a possible formula for future use (Mississippi Education Achievement Council, 2011). When students fail to graduate from a community college yet transfer to a university and complete a degree, their exit will negatively affect the funding allocated to community colleges in the state. Currently, the community colleges in Mississippi have no way to report how their students fare in university-level instruction once the student has finished taking courses at the community college level. According to Raul Fletes (personal communication, July 10, 2012), Assistant Executive Director for Research and Planning at the Mississippi Community College Board, the state’s community colleges are entirely dependent on the will of the universities (public and private) to share student data about success giving the state’s universities the upper hand in the funding and appropriation process with the state
legislature. A push has been made by community college administrators to get non-completer students to ‘reverse’ transfer the classes needed, so the community college can award a degree (Lowrey, 2010). Within the context of this study, reverse transfer means to transfer classes back from the university to the community college, to complete the undergraduate requirements for an Associate’s degree. However, there is no incentive past ceremony for the average student to take the time or make the effort to reverse transfer and receive the Associate’s degree, when their ultimate goal is to earn a Bachelor’s degree or beyond.

The results of this study may provide evidence that community college students who complete an Associate’s degree are more or less likely to earn a Bachelor’s degree. The research outcomes may indicate that students who graduate from a community college are more likely to receive a degree when transferring to a public four-year university in Mississippi than students who transfer without receiving a credential from the community college. This could have large implications in the planning process of a new funding model if a connection can be made between community college success and university completion.

The information garnered from this research could potentially help educators and policy makers make informed decisions about how best to bridge the gap between college entrance and completion. This can be achieved by creating an educational system that encourages successful completion though a funding model that accurately rewards institutions for student success.

Local, state, and national governments are slowly moving toward requiring accountability in the community college system. In order for the questions of this study
to be definitively answered, a system should be in place to track students from the community college to the four-year university, not just in Mississippi but nationally. A system to track student success for the purpose of developing a more efficient education system needs to be created. A recent report published in the Chronicle of Higher Education confirms that schools are collecting appropriate data, but rarely, if ever does this data leave campus (Berrett, 2014).

With current and developing technology, the planning and implementation of such a tool should neither be expensive or time consuming. Regardless of time or treasure involved in the development of any such tool, the time and investment involved would be offset by the outcome benefits realized. If such an instrument existed, the study discussed in these pages would not be needed. Perhaps this study will clearly identify solutions for current problems and will be useful to the community college system in Mississippi.

Assumptions

Community College students represented in the collected data are assumed to be those whose intent was to transfer to the university whether or not they graduated from the community college with an Associate’s of Arts. Assumptions for this study are that all data collected from the universities is correct and were entered without error. These figures have been reported to the Mississippi State Legislature and Governor, and should, therefore, be without error.

The reciprocity agreement between the Mississippi Community College Board and the Institutions of Higher Learning in Mississippi virtually guarantees a student with an Associate’s degree from a Mississippi community college entrance to the university,
however, not necessarily the program they have chosen to study (R. Fletes, personal communication, July 10, 2012). Also, as Handel (2007) points out, community college administrators all realize that the number of students accepted by the universities is out of their hands, a statistic out of their control. It is assumed, therefore, that all students who matriculate and are successful at the university have earned that success and have not been pushed through the system to support graduation numbers at the community college.
CHAPTER II
LITERATURE REVIEW

History

Overview

This study explores the issues related to community college graduates and community college non-completers. While these two populations of students are the central focus of the research, the historical and contextual issues related to matriculation at the two-year college and the subsequent issues involved in transitioning to the four-year institution are explored to help support the research design. A theoretical model for research is presented to help develop new research in this field.

Most community colleges across the country, including Mississippi’s, lack a means to record an accurate success rate, including graduation rates (Schoenecker & Reeves, 2008). Understanding the research behind the development and growth of community colleges will help in understanding current trends among community college students.

Community colleges in America: a brief historical view

The idea of the American community college originated nearly 150 years ago by Henry Tappan, president of the University of Michigan, and W.W. Folwell, president of The University of Minnesota (Eells, 1931) with their ideal purpose being to mimic European universities. A step toward 2 year colleges was given attention when Tappan suggested in his inaugural address that secondary schools should teach the first two years of the college curriculum, as was the case with the German university model. Mr. Folwell also repeated this topic in his inaugural address. Baptist pastor and President of
Baylor University, J.M. Carroll (Baker, Dudziak, & Tyler, 1994), also contributed to community college development, but created his idea from necessity. The economic crisis at the time led Carroll to suggest in a meeting with other Baptist colleges in 1894, that smaller colleges could cut costs by teaching the first two years of their programs. Baylor in turn agreed to accept these students and teach years three and four of the baccalaureate degree. In Texas, the idea became a reality.

The Morrill Act of 1862, signed by President Abraham Lincoln, provided incentive to develop higher education in every state. It was during this time period that community colleges were born. More Americans were seeking post-secondary lessons from higher education institutions than ever before. William Rainey Harper, president of the University of Chicago is credited as being the “father of the American community college” (Baker et al., 1994; Deegan, 1985; Eells, 1931; Fields, 1962; Frye, 1992; Hillway, 1958; Landrith, 1971; Monroe, 1975; Thornton, 1972). He encouraged local colleges to save money by sending third and fourth-year students to the University of Chicago. He helped found the nation’s first junior college, Joliet Junior College in 1901. Also, in seeking to differentiate between upper and lower levels of academic work, he divided the University of Chicago into two distinct divisions, wherein he coined the terms ‘senior college’ and ‘junior college’ (Monroe, 1975). William Rainey Harper collaborated with the Joliet high school superintendent in response to the local need for ‘post graduate’ study. The local school board supported the measure and, after several years, the new courses of study, which were taught at the high school, developed into a separate Joliet Junior College (Monroe, 1975).
In 1907, California was the first state to pass legislation authorizing the establishment of public junior colleges (Landrith, 1971). Although the idea of community colleges was created in academic circles far from California, this state led the way in community college development in the early twentieth century. The California legislature established a law in 1921 that allowed the development of community college districts, which included multiple high school districts. This basic format is still followed today across the country.

There is limited literature on the early development of junior colleges across the country, however, most institutional foundations and the coursework offered related to the specific needs of the local educational economy. There was no national formula for junior college development, as many of the institutions, which now appear similar in mission and curriculum focus, started from very different beginnings. Not all colleges followed the same path of development, some public and private four-year senior colleges became public two-year junior colleges, and some public high schools also became public two-year colleges (Landrith, 1971). The manner in which two-year colleges were spawned from other institutions was a direct result of the demands of the economy and the needs of the local community.

The purpose for community college development in every case was to allow more students the opportunity to receive technical training or preparation for a four-year degree. The community college has always been a multi-purpose institution, enrolling non-traditional students, part-time students, women and minorities, and teaching toward an academic four-year degree or skills for a technical career; demonstrating that the main focus of the community college in America was developed, “of the people, by the people
and for the people” (Diener, 1985 p. 17). A clear indication of this multi-focused definition is the fact that through significant shifts of academic direction among two-year institutions, both Frye (1992) and Cohen and Brawer (2003) have struggled with a single definition of the term ‘two-year college.’

Mississippi community colleges: a brief historical view.

Mississippi’s community college system has a history that developed from the agricultural high school system (Donnan, 1977). The schools have evolved over time with the input of their local communities. Agricultural high schools in Mississippi were initiated by a state law passed in 1908. By the fall of 1910, there were 22 institutions operating at full capacity (Mathews, 1994). The agricultural high schools were, for rural farm-dwelling Mississippians, the only option to receive a high school education. The 1908 legislation authorized the building of boarding facilities, and this was the first piece of statewide legislation that mandated the local county levy a tax used to pay for the construction of the institutions. The law also allowed the county school boards the authority to choose the curriculum taught (Mathews, 1994).

These agricultural high schools were not only learning centers for the farm families of Mississippi, they were also places that local farmers could come and see the newest agricultural technology in action making them widely popular in the rural areas of the state. The agricultural curriculum was largely focused on the farm life: how to drive a tractor, plan and harvest crops, tend cattle and things of that nature. However, the rural citizens wanted their schools to be more like the city schools and lobbied the local school board to add college-prep courses to the curriculum (Mathews 1994).
Even though Congress had established land-grant colleges with federal legislation in 1862, with the goal of extending agricultural knowledge, that plan had a flaw. “The school system in the United States was not yet complete, and relatively few children had any schooling past the primary grades” (Mathews, 1994, p. 2). There were nearly 170 high schools in Mississippi by 1908, but a majority of those were in large cities outside the reach of rural youth.

The ability of rural Mississippians to attend high school, let alone college, was limited by the state’s lack of good roads and the population’s lack of transportation. In order for most rural Mississippi students to receive a high school education, they had to stay in a dorm at the agricultural high school; as their parents could neither afford to transport the students to and from school, let alone afford the vehicle required to do so (Fatherrree, 2010). Over time, however, these domiciliary rural agricultural high schools became endangered by the accessibility of cheap transportation and the invention of the automobile. The Mississippi Legislature passed a series of laws in 1916 that allowed schools to consolidate and required that schools provide transportation for students. By 1916, the local county roads had become assessable enough for ‘wagons’ to reach the rural areas where students were (Mathews, 1994). The newly local consolidated schools began busing students to and from their campuses daily. “Students who only a few years earlier had to live at the school or live within walking distance of schools now had the opportunity to attend larger and better schools at greater distances” (Fatherrree, 2010, p.1). Enrollments dropped in the agricultural high schools as dormitories were no longer a high school necessity and the need for higher education in rural areas filled the enrollment void for those schools (Fatherrree, 2010).
The Smith-Hughes Act played a large role in the development of agricultural high schools toward community colleges. A federal funding source for institutions that met certain qualifications, “one of these was for the school to build a teacherage [sic], faculty housing” (Mathews, 1994 p. 94). There were 61 Smith-Hughes schools in Mississippi by 1920. A by-product of competing for this source of federal funding was that the schools became more community focused. The teachers at the Smith-Hughes schools were not only to teach the students for the institution at which they were employed, they also were required to teach short courses for students in nearby schools, offer courses for male students between the ages of 14 and 21 not enrolled in school, and courses for adults in the community wanting to learn about farm practices (1994).

The State of Mississippi was one of the innovators in the development of community colleges across the country by being the first state to legislate a statewide community college system (Landrith, 1971). In 1922, the Mississippi Legislature authorized a law that allowed the state’s agricultural high schools to include college level courses (Eells, 1931, Landrith, 1971), and in 1928 the establishment of public junior colleges was authorized into law. Of the 51 agricultural high schools in Mississippi at that time, ten were offering ‘post graduate’ studies (Fatherree, 2010; Landrith, 1971). Of the state’s 15 community colleges, only one was not derived first from an agricultural high school (Fatherree, 2010). By 1930, Mississippi was among the top ten states in the country with respect to a developed community college system.

Racial issues in Mississippi’s higher education

This Mississippi community college system would have stayed competitive across the country if it were not for the demographics of the rural population that lived here at
the time and the culture of the ruling class. There was little industry in Mississippi past agriculture at the time these institutions were built meaning that the agricultural high school was the preferred place of instruction by most citizens’ perspective (Mathews 1994). While the end of the U.S. Civil War helped free African American citizens from slavery, it by no means helped incorporate them into society. The 1896 Supreme Court decision in Plessey vs. Ferguson ushered in the ‘separate but equal’ doctrine that was prevalent during the developmental stages of Mississippi’s community colleges. This decision mandated that for every white public educational institution there should also be a separate but equal African American institution. Administrative officers of secondary schools were reluctant to furnish the legally required facilities, and when the money was available, facilities were rarely equal resulting in few African American students being qualified to take college level studies (Rury & Hill, 2012).

The cultural views of the average white man in the early part of the 20th century, just two or three decades after the Civil War, made it difficult if not impossible for an African-American male to participate in any type of education, especially if it involved mixing white and black students (Rury & Hill, 2012). The 1908 law that allowed for each county in Mississippi to create an agricultural high school included language that defined the student body as white youth, excluding the black population. The state’s tax base at the time could barely support one school system, much less the two school systems that the ‘separate but equal’ ideology created (Mathews, 1994).

Robert Goins, a black landowner in Jasper County, refused to pay the tax assessed on his property for the agricultural high school in his county [because his children did not benefit from the school] and filed a suit against the county tax collector,
William J. McFarland, and some of the other county officers. (Mathews, 1994, p. 37)

Goins won his case in court and the 1908 law was struck down. The legislature replaced it with a new law that allowed for the creation of two county high schools, supported by separate tax bases. The ensuing mountain of legal paperwork virtually eliminated the desire for ‘black’ agricultural high schools. Only one county was successful in establishing this type of institution after the new law went into effect by founding Coahoma County Agricultural High School. Given Mississippi’s political structure and racially divisive views held at the turn of the 20th century, it is easy to see how the state stagnated in educational growth when it denied the equal inclusion of African-Americans into the state’s educational system (Werum, 1999).

In 1947, President Truman’s Commission on Higher Education delivered a report that brought about change in the country with regard to the two-year institutions. The main recommendations of the commission’s report included: ending discrimination based on race, which was mostly directed at ‘negro’ students in the south; ending religious discrimination, which focused on Jewish students; eliminating ‘antifeminism;’ and eliminating financial barriers though a national scholarship program (Gilbert, 2013). Two elements of that report, the antidiscrimination based on race and national scholarship program, have had the largest impact on the community college.

Mississippi, and the American South in general, has a storied past with respect to racial discrimination in higher education. However, the community colleges in Mississippi have largely escaped criticism for segregation as they have quietly complied with the mandate beginning in the 1960s. Horace Holmes, who was the president of
Southwest Mississippi Community College from 1972-2004, is quoted as having said the following; “while the universities during that time may have made some headlines where integration was concerned, I don’t recall there being any upheaval among the junior colleges. It was a relatively smooth transition – not a lot of turmoil” (Mississippi Association of Community and Junior Colleges, 2007, p. 5). This transition is not surprising, given that two of Mississippi’s two-year schools, Hinds Community College and Coahoma Community College, were both initially founded to educate African-Americans (Brown, Donahoo, & Bertrand, 2001).

Today the institutions in the Mississippi community college system tend to have diverse student bodies, that are reflective of the diverse populations of their districts (Fatherree, 2010). However, some inequality still exists as Scaggs (2004) discovered in researching all fifteen Mississippi community colleges. The graduation rate of black male students entering college in 1999 was between 10% and 35%, which was slightly lower than the graduation rate of the whole population of 1999 community college freshmen, which was between 15% and 40%.

The national scholarship program mentioned in the Truman Commission report began with the 1964 Higher Education Act legislated by Congress which has taken several forms but eventually evolved to the Pell Grant students receive today (Thelin, 2004). The nationwide Pell Grant program was established to provide funding for individuals who could not afford to attend college. This is the federal government’s answer to socio-economic inequality in higher education.

In Mississippi, 75% of community college students receive a Pell-Grant, with more students participating in the federally funded student loan program (Katsinas,
Davis, Koh, & Grant, 2013). The Truman Commission report also directed the institutions to offer occupational training for the needs of the post-WWII American economy, which today is a major focal point for community colleges under the headings of vocational, or career and technical education (O’Meara, Hall, & Carmichael, 2007).

William Rainey Harper coined the term ‘junior college’ and its reference was directly related to the ‘senior college,’ implying that there was more education to be had after enrollment in the junior college (Landrith, 1971). The name junior college implied for most institutions across the country, the notion that, they were preparatory institutions for students wishing to attend a senior university. Not all of the programs at junior colleges were precursors to the senior college, and as discussion ensued, some schools took on the name “community junior college” with the implied notion that the school offered more courses than just those needed to attend a four-year school (Fields, 1962).

All of Mississippi’s public two-year institutions began as a ‘junior college.’ Most institutions across Mississippi and the nation now bear the name ‘community college’ instead of junior college, with the hopes that the name will help signify that the institution’s mission is to give back to the community. Jones County Junior College is the only remaining Mississippi public two-year institution that retained the name ‘junior college,’ but did so only to save money for the institution on rebranding (T. Tisdale, personal communication, April 18, 2011). The Mississippi Board for Community and Junior Colleges recently changed its name to The Mississippi Community College Board, reflecting the current ideology of community development among institutions. Meridian Community College is the state’s only public two-year institution that did not develop from an agricultural high school. It stemmed from the outgrowth of Meridian High
School, and both the community college and high school operated on the same campus for some time (Fatherree, 2010). The agricultural high school segment of most Mississippi community colleges continued but was eliminated after the mission of the institutions were changed to focus specifically on college-level academic and career-technical programs (Donnan, 1977; MGCCC, 2011).

**Purpose**

*Missions of the two-year college*

The role of higher education in America has shifted from providing education restricted to the socially, financially, and academically privileged to facilitating study by all citizens in order to achieve better jobs (Townsend, 2009). The dominant focus of two-year, or ‘junior’ colleges from their inception was to prepare students for the academic rigors of ‘senior college,’ in other words to act as transfer institutions (Baker et al., 1994; Bragg, 2001; Lorenzo, 1994; Townsend, 2001).

The mission of the American community college is the most important element of its existence. While two-year institutions across the country may differ greatly, the mission is the defining factor of an institution’s reach into the community (Baker et al., 1994). Understanding the beginnings of community colleges across America helps develop the notion that not all schools were created equal. Each institution was developed in response to social and economic issues stemming from an institution’s state, regional businesses, labor markets, and local communities (Levin & Kater, 2012). Most schools tend to focus on areas including student services, career education, developmental education, community education and the academic transfer (McPhail & McPhail, 2006). Since its inception, Mississippi’s community college system, has
remained true to its original mission “to provide a quality, accessible education for the state’s communities at an affordable price” (Fatherree, 2010, p.1).

Career and Technical Mission

Over the years, the role of the two-year, community or junior college has expanded greatly to include not only academic transfers but also a multitude of programs, starting with the career-technical fields. Technical programs not only help train new students with skills for a career, but students can also update skills for job advancement. These programs often gave some students who were not quite qualified for academic study opportunities the ability to become a productive member of society.

While academic development was the chief reason for community college establishment across the country it was not to remain the sole mission of the new institutions. Historically, community colleges have always followed the needs of the local community. “Whatever form the community college takes, its purpose is educational service to the entire community and this purpose requires of it a variety of functions and programs” (Levine, 1978, p. 621). Based on a 1917 piece of federal legislation, The Smith-Hughes Act, designed to fund secondary vocational education, community colleges began to implement vocational programs (Levin & Kater, 2012). Career, occupational, technical or vocational are terms that have been used interchangeably to describe job-related education (Townsend & Wilson, 2006).

This mission of the institution serves a completely different demographic of people than that of the academic mission. Career and technical education at the community college helps develop students’ marketable job-skills, and crafts certificate programs that help make students attractive to potential employers. These include such
areas as construction and manufacturing occupations, health occupations, business, and technology occupations (Hirschy, Bremer, & Castellano, 2011; Lerman, 2010).

*Workforce and Economic Development Mission*

The history of the workforce and economic development mission stemmed from distinct needs in the community such as offering safety courses for oil-field workers or Continuing Education Units (CEU) credits for educators. This mission gained traction among community college and private sector leaders in the 1960s. Working with local industry and business is a central focus of the community college and is indeed one of the factors that determined the name change (Kane & Rouse, 1999; Cohen & Brawer, 2003). The workforce arm of the community college prepares unskilled workers to enter or re-enter the workplace. It also recertifies individuals with job training skills to keep company employees current in the field (Jacobs & Dougherty, 2006). The flexibility of the community college to adapt to local needs and the strength it holds in teaching adults are paramount in this distinctive mission.

This area of the community college serves to develop good relationships between local industry and the local workforce. This is a positive public relations exhibit for most institutions as the corporate entities that community colleges serve are likely to benefit from the educational services the institutions can offer by creating a inexpensively prepared, qualified labor force. As noted by Dougherty and Townsend (2006), the institutions benefit by creating success though certificate programs and helping students gain employment.

The addition of the workforce mission to the community college created an extremely flexible institution by offering a wide range of instruction capabilities resulting
in a diverse clientele being attracted to campus, many of whom might never have otherwise attended a community college. This mission also garnered new revenue during an era when state appropriations began declining (Jacobs & Dougherty, 2006). For example, colleges offer for-credit courses to teachers who need to recertify their license every few years. This same scenario can be applicable to any area of employment if a company decides to out-source any type of training to the community college.

In Mississippi, community colleges are each controlled by separate governing boards. These boards are comprised of individuals who are leaders in the college districts. With this type of leadership, each institution is bound to be flexible to the needs of the local community, industry and workforce.

Open Door Mission

Amid the growth of the American higher education system, as a result of the G.I. Bill, which created a nationwide flood of college enrollees of mostly U.S. armed forces servicemen from World War II, came political and social unrest as women and minorities were not given the same opportunities as all citizens. The landmark decision in Brown vs. Board of Education requiring desegregation among educational institutions and the Civil Rights Movement of the 1960s eventually led to the creation of an open-door admissions policy at community colleges throughout America, in efforts to reduce barriers for lower income or underprivileged students, including minorities (Bragg 2001; Diener, 1985). An open-door admissions policy generally means that an institution is unselective and the process is non-competitive, students must meet a minimum requirement of holding a diploma or GED in most cases (Gilbert, 2013). This open
admissions policy should not be confused with an open door policy, which means that an institution will admit any student capable of paying tuition.

The open-door admissions policy transformed the junior colleges from focusing primarily on transfer students and the curriculum needed to prepare students for ‘senior college,’ to include the career and technical education of students who were poor, disadvantaged, or had no prior experience with higher education and desired jobs in the local community (Dowd, 2003). The liberal arts curricula was bolstered by including career curricula, and relationships with local employers and industry leaders became as important to growth and success as the institution’s relationship with the local four-year university (Baker & et al., 1994; Kasper, 2003).

The open admission actions by community colleges has gradually moved from policy to mission, implying this is the reason that they now exist. Shannon and Smith (2006) suggest that very few of the vast number of low-income and educationally disadvantaged students would be able to attend a four-year university if they did not attend a community college first. This open-door policy is now critical to the continued development of the community college and to local citizens who depend on the availability of affordable tuition (Shannon & Smith, 2006). Levine (1978) best describes the multi-faceted purpose or mission of the community college by describing the institution not only as a center of college education for the local community, but as a school capable of removing barriers to opportunity because of the affordability and ease of access. Levine also describes the community college as a force for adult education, creating new job opportunities for under-educated or career changing individuals.
The American Association for Community Colleges (AACC, 2013) states that “Community Colleges are centers of educational opportunity . . . inclusive institutions that welcome all who desire to learn, regardless of wealth, heritage or previous academic experience” (p. 1). Currently 42% of all undergraduate hours in America are taught at a community college.

This open admissions mission is vital for the millions of first-generation college students, minorities, and students with remedial needs that attend a community college annually. This mission provides a gateway to higher education for many who would not have access at many four-year institutions because of low socio-economic status or low test scores (Shannon & Smith, 2006). Low tuition and fees at the community college allow for the underprivileged to have access to higher education. Remedial education allows the underprepared the chance to advance toward a degree.

Remedial Mission

In community college education, remediation refers to students who take remedial or developmental courses (Bailey, 2009). A number of students attending community colleges across the country are not academically prepared for college level work. Remedial students may be underprepared for collegiate work or they may have been away from the classroom for a number of years. According to Bailey (2009), a majority of students who come to the community college bring sub-par academic skills in at least one subject. Socio-economic status plays a large role in students requiring remedial work (Bailey et al., 2005b). A recent study indicates that nearly 50% of all first-time community college students are less likely to stay in school or earn a degree when compared to four-year university students (McIntosh & Rouse, 2009). Students who
have higher grades in high school and come from homes with higher incomes are more successful and are less likely to need remediation. Many students who do need remedial education are ‘non-traditional’ because they do not fit the traditional age demographic of the average American college student. Usually this means that non-traditional students are outside of the 18-24-year-old age range, may not have completed a high school diploma, may have completed a GED, may have a full-time job, and may have a family to support (Cabrera, Nora, & Castaneda, 1993).

There is a significant effort by community colleges to help the students who are under-privileged or under-prepared, so that they are afforded the same opportunity of transfer as students who do not need remedial coursework. According to Rose (2009), remediation has been a part of higher education since before the establishment of cheerleaders and fight songs. Even though the community college has an open door policy, teaching underprepared students the reading, writing, and math skills the need for college-level work is an absolute must (Perin, 2006). Efforts to promote student success in community colleges include the implementation of learning communities, student success courses, and supplemental instruction (Crisp & Taggart, 2013; Zeidenberg, Jenkins, & Scott, 2012). At many institutions, students can declare a major, but they are not allowed to take coursework that is credited toward a degree until they finish the developmental education that is required based on transcripts and standardized tests. The method of placing students in pre-requisite courses is what Hadden (2000) calls mandatory placement. Research shows community college students “perform and persist better after successful remediation than students who do not complete the remediation” (Hadden, 2000, p. 824).
According to the National Center for Educational Statistics (NCES), public two-year colleges were more likely than any other post-secondary institution to offer remedial coursework (Parsad & Lewis, 2003). Remediation is a viable reason that students are not able to complete coursework in the expected time frame. Nearly 42% of all community college students elect or are required to take at least one developmental course (Levin & Kater, 2012). In order for community colleges to maintain sufficient academic rigor for students to transfer to the four-year university and achieve success by graduating, mandatory placement in remedial classes is appropriate for those students who do not meet course enrollment qualifications (Levin & Calcagno, 2008). However, for those less prepared students whose goals include graduation from a four-year institution after receiving an Associate’s degree, or occupational certificate, remedial education is required to prepare them to be successful with collegiate level material. Traditionally, universities have been reluctant to offer remedial education; however, some do so only to meet the needs of the students, citing enrollment, a major source of funding, as a driving factor (Merisotis & Phipps, 2000).

While this study will not focus on remedial education at the university, it is important to note that remedial education extends the time to graduation for students who arrive at the community college under-prepared. This is very important to consider when calculating a graduation rate statistic. The current formula for graduation rate in the Student Right-To-Know data, allows for 150% in time to completion, feasibly allowing for some remedial work. The time to degree is longer for those students who are required to complete remedial coursework.
Academic Transfer Mission

Clearly the community college has established itself as a center of learning since its inception over 100 years ago. It truly is a reflection of the community, providing education in what local industry requires of its workforce and preparing students to meet their academic and career goals. Although the institution now has multiple missions, the transfer mission of the institution has not been lost among the other attributes of the community college: workforce training, vocational education and remedial education. Transfer students are those students who anticipate graduation with an Associate’s degree and then plan to transfer to a four-year university. These students are engaged in what is traditionally called the academic arm of the community college (NCES, 2001).

The transfer mission of community college is increasingly important for all stakeholders involved in the system. The baccalaureate degree has gradually become the entry point into the contemporary workforce (Wellman, 2002). According to the National Center for Educational Statistics (2011) community colleges nation-wide enroll over 35% of all post-secondary students and 50% of all undergraduates. With nearly half of all college freshmen attending a community college somewhere in America, the instruction and development to prepare students for a four-year degree is more important now than ever.

As previously noted, historians agree that the name ‘junior college’ created the notion that it was preparing students for the ‘senior college’ (Baker et al., 1994; Fields, 1962; Landrith, 1971). That notion still exists even though most institutions have changed their name. A study by the NCES states that a large majority of students, 9 in 10, who enroll in academic classes at the community college intend to transfer to the university
(Hoachlander, Sikora, Horn, & Carroll, 2003). The same study also indicated that of the community college students who intended to receive a Bachelor’s degree, only 1 in 5 earned an Associate’s degree (Hoachlander et al., 2003). The reasons students choose to attend a community college before transferring to a university are many. They include social, economic, educational and personal factors that are beyond an institution’s control. NCES (2011) also found that the average tuition for community colleges across the nation was one-half of that at traditional four-year universities and one-tenth of private four-year institutions.

The academic transfer mission of the community college is the central focus of the current study in that it will seek to measure students whose intent it was to graduate at the community college with an Associate’s degree and then transfer to the university to receive a Bachelor’s degree. If half of all undergraduates in the United States attend a community college, then half of all university graduates should have attended a community college. This is not the case, however, and previous studies indicate the transfer student graduation numbers are not as easy to discern as simple fractions (CCRC 2013). This study will also venture to identify students who did not graduate from the community college but were successful at the university.

Theoretical Framework

The student retention and dropout theory, developed by Tinto (1975, 1982, 1987, 1997a, 1997b) can be based both on psychological and sociological foundations to support the notions of student success and student completion within the college curriculum. The basic roots of this theory can be found in the motivational theories of Keller (1983), the suicide theory of Durkheim (Tinto, 1975) and the rite of passage
framework by Arnold Van Gennep (Tinto, 1987). Tinto developed his theory by continuing the work of Spady (1970), who is credited with establishing the Theory of College Dropout. Developments on Tinto’s work have been completed by Bean (1982), Bean and Metzner (1985), Pascarella (1985), Astin (1999), and Pascarella and Terenzini (2005), which are all germane to the current study.

Keller’s (1983) theory is based on goals, performance toward goals, and the consequences for achieving or failing at those goals. Keller’s theory seems appropriate for application in higher education, while Tinto’s two other supporting theories come from unlikely places. Durkheim’s (1951) Theory of Suicide states that an individual will commit suicide when he/she is not integrated into society. Tinto applied this to the college dropout and it fits remarkably well. The application of the suicide theory in the context of collegiate success states that an individual will drop out of college if he/she is not integrated into campus life. Tinto’s third source Arnold Van Gennep (1960), a Dutch anthropologist, developed his rite of passage theory by studying tribal cultures and discovering the stages of separation, transition and incorporation. Today college is most definitely the modern ‘rite of passage’ for most young adults, including separation from high school, transition to college, and incorporation to the workforce. Combining these theories helps account for the complexities of student life on the modern college campus and all of the variables that influence students outside of the classroom. Spady (1970) thought that the social and academic structure of the higher education system as important foundations to study the dropout process. Tinto’s student retention and dropout theory is a synthesis of these theories that seeks to explain student persistence towards degree completion, which requires students to respond to the campus
environment, navigate the transition from one institution to another and to maintain enrollment towards the final goal, graduation. The campus environment, according to Tinto, includes student perception toward the general atmosphere of the campus, relationships with instructors and classmates. He suggests that academic and social integration on campus for students is not as large an issue for community colleges, as commuting students spend less time on campus as students who live at the four-year institutions.

Tinto’s (1975) theory examines the different variables that might contribute toward the college attrition rate, namely, pre-college variables (skill, ability, prior schooling, family background), university experiences, and personal goals. Tinto suggests the interaction among these variables determines if a student will achieve the goal of student success or will drop out. Pascarella (1985) and Halpin (1990) both tested Tinto’s model and confirmed his assumptions. Bean (1982) developed a theory based on Tinto’s model, but was focused on non-traditional students, a demographic that is nearly 50% of community college populations. Andreu (2002), however, points out that very little research using this model has included the community college.
The Bean and Metzner’s (1985) model, based on Tinto’s work, of non-traditional student attrition, suggests that the drop-out of non-traditional students occurs because of the interaction or lack of interaction; between academic and environmental factors and academic and psychological factors. This is especially important for community college students, as there are more non-traditional students who come to campus and leave without interacting with fellow students or campus life. Some of those factors are part of Alexander Astin’s model on student involvement. Similar to Tinto, Astin (1999) claims that the educational effectiveness of the institution is directly related to the level of student involvement. His definition of involvement not only includes attendance in class, but the amount of physical and mental energy a student commits to the college experience. Astin (1999) also claims that student development is directly related to student involvement. In sum, Astin purported that the more involved students are on campus, the more effective the institution will be at graduating students.
The next development in this framework comes from the synthesis of several theories by Pascarella. His model for assessing student involvement uses five main concepts as the basis for the theory: student background, structural organizational characteristics, institutional environment, interactions with agents of socialization and quality of student effort (Pascarella & Terenzini, 2005). The quality of the students’ work is in direct relation to their ability to be successful. Pascarella’s model is an amalgamation of both Tinto’s and Astin’s theory on student development.

Completion rates are part of the main focus of this study, and the theories discussed here help define the complexities of the variables that influence those rates. This study will seek to determine the effectiveness of the Mississippi community college system by comparing the completion rates of community college students at the university level. Completion rates have been used to study the institutional effectiveness of both four-year and two-year institutions citing Tinto as a reference (Allen, 2009; Bragg, 2001; Falconetti, 2007; Savona, 2010; Townsend, 2002).

Contemporary Issues

*Typical Characteristics of Community College Students*

Today’s college graduates can be separated into two main categories, those who start at a two-year institution and those that start at a four-year institution (Townsend, 2001). From this categorization Townsend breaks down the actions of students at each level to represent the six modern variations of transfer to include moving to the four-year school without an Associate’s degree; moving to the four-year school with a non-transferrable degree; moving to and from the two-year school in a lateral motion; moving dual-enrollment (high school) credits from the two-year institution to the four-year
institution; moving coursework taken at a two-year institution during the summer; and, transferring two-year institutional coursework taken alongside four-year coursework.

Several factors influence a student’s choice of attending a community college over a university. Community colleges offer instruction at relatively low costs, are usually geographically closer, and offer a broad spectrum of attractive courses including developmental courses not offered at the university (Levin & Kater, 2012). Community college students generally differ from university students in that they tend to be older, are more likely to attend college part-time, and commute (Nomi, 2005; Voorhees, 1987). Community college students are also more likely to be female and a member of an ethnic minority (Bryant, 2001). Many first-time community college students are more likely to need remedial education (Levin & Calcagno, 2008).

The transfer student population is mostly comprised of the ‘traditional’ college students who enroll in college immediately after high school and then continue to the university. The career and technical student population differs somewhat from the traditional transfer student population. These students are more likely to be female, African American, older than 24, married, a first-generation college student, financially independent from their parents, and work full-time (Hirschy et al., 2011).

Academic transfer students, career technical students, workforce students, drop-in students, and non-credit seeking students all appear to have slightly different outcomes when looking specifically at data concerning socio-economic status, age, sex, and other identifying factors. These outcomes, whether they are academic in nature or completely unrelated, may be potential barriers to student success.
Barriers

There are many barriers to success that community college students encounter including: the cost of enrollment, socio-economic status, enrollment status (full-time vs. part-time), and family status. Tinto (1987) envisioned in his theory, all of these factors contribute to the decision a student makes toward persistence or failure. Many of the roadblocks to student success are beyond the control of the institution or the instructor (Arnold, 2000).

The chief roadblock, one over which an institution may have some influence, is the cost of enrollment. This topic has been studied from many angles including providing student loans, federal financial aid availability, state appropriation formulas, the cost of tuition, and the cost of instruction. Institutions do provide scholarships for students, but it is unreasonable to think that every student is going to receive a scholarship. Recently the federal government has significantly increased Pell-grant funding for students in the low-socioeconomic status category (U.S. Department of Education, 2011b). However, two-year institutions, while more flexible than four-year institutions with funding, have become more cost conscious of their resources, citing lower state appropriations and higher enrollments as both a blessing and a curse (Watkins, 1998).

The socio-economic status of the student is a factor that has been studied extensively with respect to student success; however, other factors have been identified and may be significantly related to socio-economic status. Chen and Kaufman (1997) identified six factors related to the student’s financial, educational, and family backgrounds that place a student at risk of non-completion: 1) low socio-economic status,
2) a single parent family, 3) a sibling has dropped out of school, 4) two or more changes in school enrollment, 5) C average from 6th to 8th grade, and 6) grade level failure. These factors, along with others, make it increasingly difficult to identify at-risk students while they are still enrolled.

When the barriers to student success are external to the institution, there is little hope a student will receive help if the student’s family does not help. This can be the case with some students who are first-generation college students who do not have the social support needed at home to persist (Arnold, 2000; O’Toole, Stratton, & Wetzel, 2003; Dennis, Phinney, & Chuateco, 2005). Low socio-economic status may be a reason why a student needs to be enrolled part-time in order to work; in which case, both enrolling part-time and working may be new barriers toward success (Dennis et al., 2005). With the low cost of tuition and remedial curriculum support, “community colleges are uniquely positioned to support at-risk students” (Bulger & Watson, 2006, p. 23). When a student has more than one of these characteristics they are more likely to be unsuccessful. It is no secret that low socio-economic status, and first-generation college student issues have plagued minority groups across the country (Carey, 2008). All of the factors seem to be intertwined, a student may not enroll full-time because there is not enough money, meaning part-time education is the only option.

Community colleges across the country have been working on solutions to the enrollment barriers students encounter by creating learning communities, student success centers, study skills courses and supplemental instruction (Crisp & Taggart, 2013). Institutions can help students by providing both extra advising/counseling services (Bracken, 2004) and clear and concise roadmaps for success (Adams, 2012). Community
colleges, however, do not have the power to affect change in a student’s personal life, support system, work schedule, responsibilities or current socio-economic status. Without significant guidance from multiple sources, some students will not succeed.

The State of California provides an example of using the best means available to help students overcome these barriers. To find and help at risk students, its plan calls for the creation and use of standard diagnostic assessments of every incoming freshman and requires students who show a lack of college readiness to participate in a learning community, a student success course, or other sustained intervention (California Community College Student Success Task Force, 2012).

A large majority of the nation’s community colleges have implemented an orientation or student success course, which are aimed at helping students’ transition to college (Crisp & Taggart, 2013). Student success courses that teach time-management, study skills and other skills needed to navigate the collegiate campus help students persist toward their goals. Brock (2010), discusses Kingsborough Community College’s creation of learning communities. The communities were organized into small classes and were instructed by faculty trained to coordinate assignments between classes and meet with students periodically. Statistically significant gains were made with this program and it is being tested in more community colleges across the country (Brock, 2010). Since the 1970s access to higher education has dramatically increased for all of Americans, however, success has not increased at the same rate. Brock (2010) argues that student success has not increased at all, nor will it increase until students are able to break though the remedial barrier.
Brief historical overview of transfer and articulation

The original mission of the two-year collegiate institution in America was to prepare students for a four-year degree. Institutions measured their success based on the statistics of how many students transferred to the four-year institution and the academic performance of those students at the four-year institution (Sylvia, Song, & Waters, 2010). Like most things in education the definition for the word *transfer* used in higher education has evolved from having one concrete definition to having several possible meanings. The traditional definition of the word transfer meant that a student spent two-years in academic pursuit of an Associate’s degree program at a two-year institution with the general goal of moving to the four-year institution (Prager, 1993).

*Articulation* is a formal agreement between higher education institutions that allows students to complete work at more than one institution to complete a degree (O’Meara et al., 2007). These agreements began as informal agreements between institutions, and are relatively young in relation to the age of higher education instruction in the country. In 1971, Texas, Georgia, Illinois and Florida simultaneously adopted measures formally regulating the state college curriculum which led to the articulation agreements that most states have today (Kintzer & Wattenbarger, 1985). Transfer programs, the precursor to today’s articulation agreements, were the basic academic courses offered at community colleges since their inception. These courses, which may not have been part of a specific program or degree plan, were credited to a transferring student’s degree plan at the student’s new university level institution. Basic courses typically included general education courses taught during the first two years of most baccalaureate degrees, for example, biology, English, and history (O’Meara et al., 2007).
The number of community college students transferring to four-year institutions peaked in the 1960s, which accounted for nearly two-thirds of all students enrolled in community colleges (Kintzer & Wattenbarger, 1985). A decrease in the proportion of transfer students has occurred since 1960. This has been attributed in part to the growth of the career-technical programs. The enrollment in these programs surpassed the community college academic programs in the 1970s (O’Meara et al., 2007). The enrollment drop in academic programs was not due to bad articulation agreements nor was it resolved by better agreements. This is much more complicated than a basic supply and demand issue in education. The transferring students are not choosing institutions when they move from the two-year school, they are choosing the programs they want to study (Lang, 2009). Interestingly, the most recent data shows that 74.1% of all credit hours taught in Mississippi community colleges were academic courses, leaving only 25% of hours to be filled by the technical and workforce arms of the institutions (Mississippi Community College Board, 2011).

It was understood when articulation agreements were created that to move from a two-year school to a four-year institution, students would complete the program and receive the Associate’s degree at the two-year institution. However, non-conventional movement between institutions associated with the influx of non-traditional students created problems in tracking students from one institution to the next (Jones, 2007).

Since the baccalaureate degree has become the entry point of the American work force, helping students make the transition to the four-year institution is increasingly important among community colleges (Wellman, 2002). “One way to ensure that
community college transfer students will attain Bachelor’s degrees is to increase the likelihood that all their credits will be accepted” (De la Torre Jr., 2007, p. 7).

Articulation agreements help students in the long run and can be very broad in their requirements or can be program and degree specific to the receiving institution (O’Meara et al., 2007). However, tighter articulation agreements are not the first response when looking for solutions to today’s community college graduation and transfer rates. Raising community college transfer and graduation rates are not the purpose of the agreements, they are just starting points for students to navigate their academic career.

While articulation agreements are part of the overall system that helps students toward completion, changes in the agreements would not benefit students or two-year institutions hoping to increase graduation numbers. In Mississippi, the community colleges have no ability to manipulate this academic mechanism to their own benefit, as the state’s university governing body creates the agreement. The articulation agreement is reviewed annually by a committee of The Mississippi Board of Trustees of State Institutions of Higher Learning with representatives from The Mississippi Community College Board on the committee as non-voting members (Mississippi Community College Board, 2010). The articulation agreement in Mississippi is relatively new, by comparison, having only been officially recognized by both community colleges and the state’s four year universities in 1991 (Mississippi Association of Community and Junior Colleges, 2007).

Anderson, Sun, and Alfonso (2006) determined that transfer rates are nearly the same for states with and without statewide articulation agreements. Lang (2009) also
supports the notion that changes in the articulation agreements, either nationally or statewide, will have little effect on trends in transfer student enrollment.

While not the purpose of this research, it can be noted that many institution are incorporating best practices in increasing retention and graduation rates including: advising counseling, mentoring and orientation programs, learning communities, developmental education and institution-wide reform (Bailey, & Alfonso, 2005). All options for increased student success should be considered from every angle. Increased success at the community college should only lead to increased success at the university level.

*Graduation rate reporting in the American community college*

The Student Right-To-Know Act (Student Right-To-Know and Campus Security Act, 1990, sec. 1092) requires that community colleges, among other higher education institutions, keep track of graduation numbers for publication to current and prospective students. Institutions have questioned the reliability of the figures associated with the Student Right-To-Know (SRK) publications because of the manner in which they are collected and the time frame of completion they represent (Bailey et al., 2005). The Community College Research Center confirms that the publications could be more accurate and that they are currently misleading (Bailey et al., 2005). A major flaw with the SRK data is that is based on first-time full-time students, excluding data on part-time students. As student movement between institutions increases, the data becomes less accurate; using data from a single institution implies that the success rate of the students is lower than it is in actuality.
Part of the argument for community colleges and the likely discrepancy in their SRK graduation rate is that the formula for graduation rate is directly tied to enrollment at the institution. As the staff for The Community College Research Center (Bailey, Calcagno, Jenkins, Leinbach, & Kienzl, 2006) points out, not all students enrolled in a community college are planning to earn a degree. Some students are enrolled in non-degree programs. Some students may be visiting during the summer from their four-year institution, just to get the ‘cheaper’ version of a class they may have to take in the fall (Townsend, 2001). Still other students are enrolled just for personal enlightenment. In most cases, Mississippi community colleges do not track enrollment for intent to transfer. Currently there is no way to gather this statistic accurately.

*Student retention*

Retention among community colleges is a major source of discussion with respect to graduation rates and funding. The retention rates of community colleges from the first year to the second year have been historically low, around 50% (Wild & Ebbers, 2002). Sydow and Sandel (1996) state “An institution committed to student success must be committed to student retention, for often the key to success for many students is mere persistence” (p. 635). As previously discussed, most barriers to college completion are non-academic and have to do with juggling social, personal, work, families and financial issues (Wirth & Padilla, 2008). This is consistent with the theory of student retention and dropout.

A single definition of the word retention is difficult to grasp when analyzing the literature with respect to four-year institutions. The use of the word retention in community college research makes it more difficult to keep to a uniform definition, as
graduation from a university may not be a goal of the community college student. Wild and Ebbers’ (2002) research found that retention could mean on time graduation, program completion, persistence toward degree, continued enrollment, or enrollment in a second semester. While the phrase student retention is not as important in a study of community college students moving to the university, it does share some attributes with the word persistence, which is extensively used in the literature.

The importance of student retention to college administrators is magnified volumes with the introduction of performance-based funding laws. In Mississippi, the state legislature have passed several laws that are moving community colleges toward a funding model which includes actual graduation statistics of the institution receiving funding, thus making student retention a priority.

*Student persistence*

The phrase student persistence is used both in conjunction and interchangeably with student retention in the body of higher education research. Student persistence, however, also refers to a type of study connected to the theoretical models of Tinto (1975). In Tinto’s research, persistence is connected with engagement on campus, social integration, and activity outside class, work, and caring for dependents (Voorhees, 1987). Moore (2006) defines persistence in a very liberal sense by including all individuals who returned to the institution, regardless of hours earned or previous enrollment status. Nakajima, Dembo, & Mossler (2012) state that most of the research on community college persistence is skewed, explaining that it has been conducted on groups with at-risk demographic characteristics rather than with large populations. Factors like race, age and sex, (Allen, 2009; Andreu, 2002; Racchini, 2005) have been identified in the research
as indicators of retention, however, they are variables that institutions have no control over. Community colleges cannot be selective among these variables for students whom they admit due to their open admissions mission and federal anti-discrimination laws. Wells (2008) finds that socio-economic status is a fairly good indicator of persistence among university as well as community college students.

The Integrated Postsecondary Education Data System (IPEDS) is a database maintained by NCES that contains information submitted by every institution in the United States that participates in the federal student aid program. This website is the source and destination for the SRK data mentioned earlier and it is the most comprehensive database of educational information that exists to date (NCES, 2013). This database does maintain persistence and retention statistics on individual institutions in the country.

Student attrition or non-completion

The factors involved in non-completion of community college students on a national level are numerous (Hoyt, 1999). The highly variable administrative structure of community college systems from state to state, funding models, articulation regulations, and institutional-specific requirements do not lend to accurate translation of data when investigating why students dropout (Barefoot, 2004). Evidence for reasons of student non-completion are limited in the literature within studies of specific states, systems, or intuitions.

The barriers previously discussed in the chapter, both internal and external to the institution, play a large role in the decision students make to drop out. Tinto’s (1987) model as shown in Figure 1 is an example of the decision making process that a student
may encounter in the higher education setting. When students make decisions that end in failure or drop-out, they are considered non-completers.

The results from a large study of community college students in which factors were sought that predict the graduation rates of community college students revealed that 48% of the students in the study dropped out before completing a degree or transferring (Porchea, Allen, Robbins, & Phelps, 2010). Townsend (2002) explains that even the dropout statistic could be incorrect because of a new type of enrollment pattern called ‘stop-outs,’ students who quit school for one or more semesters then re-enroll. Discrepancies also exist among reported enrollment numbers of students not just within institutions but within programs as well. McCormick and Carroll (1997) found differences in degree performance and completion when measuring transfer students at a four-year institution with respect to program of study.

Dougherty (1992) explains that a gap exists between community college transfer and four-year university student baccalaureate degree attainment. He claims that only part of the gap is attributable to the different characteristics of the students, including the low socio-economic student groups normally found in a community college. The other portion of the gap is attributable to the institution. Dougherty compared students of equivalent background, ability, and high school attainment at the university level and community college level; the community college students earned nearly 20% less Bachelor’s degrees than native university students.

Conversely, Rios (2010) contradicts that notion with a study finding that a majority of the problems that community college transfer students encounter in the first year of college are not academic, but instead are social, personal, or financial, which is in
line with Tinto’s (1987) theory. These three factors are often outside the control of the institution; however, social involvement inside the student degree programs is also important. Nitecki (2011) explains, “students and faculty members . . . reported that the culture of the program was the factor that kept students involved” (p. 114). Student to peer or student to mentor relationships inside the institution can greatly influence a student’s decision to persist.

Another contributing factor to non-completion is the quality of students’ preparation for college. A recent study (Bound, Lovenheim, & Turner, 2009) found that, at least among men, lack of student preparation is a more logical cause for non-completion than the community college itself. The research conducted by Perkins (2010) found that community college transfer students accumulated more hours toward their degree than did students who started at a four-year university, or what the literature calls native students. A reason for this may be that many students enrolled in community colleges are traditionally required to take remedial coursework before they can begin collegiate level coursework. Hoyt (1999) found that students with a high number of remedial course placements, based on high school transcript, high school GPA, or ACT scores, also had a high rate of attrition.

A study by Noble and Sawyer (2002) supports previous research that ACT combined with high school GPA can be a fairly accurate predictor of success during the first year of college. Some Mississippi community colleges place students into remedial courses based on the score from their high school GPA and/or ACT test score that students took while still in high school.
Finances, specifically socio-economic status, may play a large role in the attrition rate of community college students (Yates, 2004). Savona (2010) discovered that Pell grant awards of $1000 or more have a negative impact on community college student success in both the three and ten-year time frame. In other words, students that received a Pell grant were less likely to graduate than those that did not receive the funding. Many studies indicate that the answer to student attrition is to find the factors that put students at risk and build a system to help students overcome some of these barriers (Barefoot, 2004; Bean & Metzner, 1985; McCormick & Carroll, 1997; Porchea et al., 2010; Spady, 1970; Tinto, 1975). Systems like community learning groups or cohort classes, student success courses, supplemental instruction, and more rigorous advising may have significant positive outcomes on attrition rates and subsequently completion rates (O’Meara et al., 2007).

The topic of student retention is receiving ever increasing press with President Obama’s American Graduation Initiative, designed to increase the graduation rate of community college students in the country by the year 2020 (Mullin, 2010). Kotamraju and Blackman (2011) estimate that in order to meet the President’s goal, the community colleges will have to remove the barriers to completion and focus on student retention strategies.

Obama’s American Graduation Initiative is definitely a challenge. How can community colleges across the country train 5 million additional graduates if 60-70% of the academic students fail to reach the Associate of Arts degree? The challenge is not getting more students to enroll in college; it is getting those enrolled to graduate. Community colleges need to have secure control on the data of students they enroll in
order to more accurately find and remove barriers for unqualified, underperforming or underprivileged students. This study aims to help identify missing variables in data of Mississippi community college enrollment numbers and possibly provide avenues of action based on conclusions garnered from the comparison of data.

Development of transfer

The traditional definition of the ‘reverse’ transfer was that of a student who enrolled at a community college after spending time at a four-year institution (Lowrey 2010). However, this term has recently been used in a different way, in light of two-year institutions seeking to graduate more of its already enrolled students. In some community colleges, ‘reverse transfer’ can be defined as students who start at a two-year institution, leave before completing an Associate’s degree, complete their remaining courses required to earn an A.A. while at the four-year institution, and send the credits back to the two-year institution and receive the Associate’s degree (Oregon University System, 2012). Townsend (2000) writes that this practice is a second chance for students who are, for whatever reason, unsuccessful at the four-year institution.

Transfer rates, like graduation rates, have become increasingly important. The rise of the Student Right-To-Know Act and the use of transfer rates in the funding formulas of some two-year institutions have caused state and federal governments to focus on completion rates as funding mechanisms (Bailey et al., 2005). It is important to note that concerning all the research that exists about college transfer, transfer students, and community college transfer, “no consensus on a definition of who a transfer student is or what calculation is best to use for reporting transfer rates has been adopted by the educational or academic communities” (Sylvia et al., 2010, p. 597). High transfer rates
usually indicate students have had good academic preparation in high school, come from a higher socio-economic bracket, are traditional age (18-24), and have a strong focus on academia at the community college (Wassmer, Moore, & Shulock, 2003).

The definition of the word transfer sits as the central focus of this study. This is an area of academia where one word has come to mean two things. We now need to divide this term into what really happens in higher education today. Students who graduate with an Associate of Arts degree transfer to a four-year university, and students who do not complete an A.A. also transfer to the university, but we cannot continue putting both categories under the same umbrella. The development of performance-based funding measures at the two-year institution requires that both data collection and literature research separate transfer (unearned Associate’s) and transfer (earned Associate’s) into different categories.

*Transfer shock*

As defined by Keeley and House (1993), transfer shock occurs when a student experiences a decline in academic performance the semester after enrolling in a new institution. This interesting effect on students transferring to a four-year institution was noticed by Allen, Robbins, Casillas, and Oh (2008), who “found that academic performance has large effects on likelihood of retention and transfer and college commitment and social connectedness have direct effects on retention” (p. 647). Transfer shock can be reflected in a drop in academic achievement as demonstrated by GPA or class attendance (Ishitani, 2008). Ishitani’s study discovered that there is a direct link between a high semester GPA and an increased rate of persistence though enrollment.
The cause of transfer shock, while occurring only sometimes with students who transfer from another higher education institution (two-year or four-year; public or private), seems to be less academic and more social and personal (Allen et al., 2008; Racchini, 2005). For example, students would be in unfamiliar spaces and may not have the same support group as at their previous institution. Transfer shock also affirms the logic of Tinto (1987) in his theoretical framework of college student retention. His theory basically states that when students are overwhelmed or under engaged socially, they drop out. Stated another way, attendance and engagement are the two best predictors of persistence and retention (Allen, 2009; Dollinger, Matyja, & Huber, 2008). By staying socially involved at school, students are more likely to persist. The research of transfer shock suggests that there is a gap of achievement between native students and former community college students at the four-year university. Even when controlling for socio-economic status, academic preparation and education expectations of community college students; this gap can only be explained by personal and social factors (Cohen & Brawer, 2003).

*Comparing community college students to native four-year institution students*

Comparing community college ‘transfer’ students to the native students at a given institution has been a popular topic among researchers. There are several logical reasons for this type of study, but the most interesting comes from Cosand (1979) who stated, “community colleges were, are, and will be evaluated to a major degree upon the success of their transfer students to the four-year colleges and universities” (p. 6). The most recent trend in this field of study has indicated that there is no or nearly no statistical
difference in community college students and native university student’s success toward graduation.

Lee, Mackie-Lewis, and Marks, (1993) discovered in a study of 1980 high school graduates that there is absolutely no difference in the success of community college transfer students when compared to four-year university native students measuring degree attainment. Amonette (1985) found that there was a significant correlation between community college grades and university grades; namely students who were successful at the community college would be successful at the university. Glass and Harrington (2002) discovered in their study that community college students do as well, if not better than four-year university native students with regard to grade point average during enrollment and at graduation.

The research that has been conducted in community college student success when compared to four-year schools is also regionally and institutionally specific. Giddings (1985) studied the academic differences between Iowa community college students and an Iowa university; no significant difference was found. Campbell (2002) studied the differences in academic performance of transfer students from Alabama’s 21 community colleges and native students at Auburn University. There was no significant difference between the academic performance of the native students and the community college students. Crawford (2003) found that student graduation rates between transfers from a private two-year college, a public two-year college, and native students at Idaho State University were nearly identical. Deitrick (2008) developed a study in Pennsylvania that measured community college students as being more successful than native four-year university students. Falconetti (2009) studied Florida community college students and
their transfer to selected Florida universities. The study found that there was no significant difference between community college transfers and four-year university native students that graduated. Buckle (2010) studied the success of transfer students against four-year native students in Jamaica and found that there was no significant difference between community college students and native students with respect to academic performance. While these findings are significant, it is hard to apply the findings in these studies to any other situation because of all of the regional and institution-specific variables used.

Most of the studies have positive implications for community college students and take into account that many community college students are initially underprepared to attend a four-year institution academically, socially or financially. On the other hand, a few studies did find negative indicators with respect to community college students compared to native university students. Morris (2005) conducted a small study at Morgan State University and found that transfer status made no difference in the overall GPA of community college vs. native students. However, she did find that the native students graduated at a higher rate than the community college transfer students. Dickerson (2008) found in his study of transfer students at Mississippi State University that community college students, based on their transfer GPA scores, were less prepared to graduate than the native four-year students.

For the proper academic development of community college students seeking an Associate’s degree, it is important that their goal is to be successful at the four-year university. One encouraging outcome was identified by Roksa (2009) who found that higher overall enrollment at community colleges generally lends to higher graduation
rates at four-year institutions. However, the logic of increasing the number of students at the two-year level does not guarantee an increase in the likelihood of success at the four-year level. The graduation and completion rates would essentially stay the same unless changes were made to make the transfer process more accessible for students. As an example, Doyle (2006) found that increased academic intensity among students taking at least 12 hours per semester led to a possible 15% increase in the probability of transfer. Said another way, students who finish their first year of college with at least 20 credit hours are more likely to graduate with a Bachelor’s degree.

Studies that emphasize what skills transferring community college students need in order to successfully matriculate and graduate from a four-year institution are helpful. Flaga (2006) interviewed community college transfer students at a four-year institution and found that they were competent citizens of the institution and were well on their way to successful completion of their goals. Hagedorn, Cypers, and Lester (2008) discovered the most successful community college transfers at the four-year institution were those students who followed the prescribed curriculum at the community college.

**Benefits of community college graduation**

Students who graduate from a community college have more opportunities for leadership, social development, individual instruction, and better relationships with instructors than four-year students according to Urso and Sygielski (2007). Selected fields see positive results for individuals with an Associate’s Degree. For example, in the health care, law, science, and computer related fields where students can earn an Associate’s degree and become a registered nurse or, become a stenographer, law clerk, lab technician, or computer specialist (Hemmelwan, 2010). All of these examples have
the potential for immediate employment and high earnings over time. However, most of
the academic Associate’s degrees produced by community college require transfer to the
university.

Graduation from a community college signals a completion of goals for students
in that a milestone has been reached on their educational path (Calcagno, Crosta, Bailey,
& Jenkins, 2007). An Associate’s Degree is also considered to be better than a high
school diploma when seeking employment. The most significant benefit of community
college graduation is the articulation agreements that community colleges have with
universities. These agreements allow a student to take courses at significantly lower
tuition rates and transfer them to the university. According to the Mississippi articulation
agreement, students can ‘transfer’ all courses in a degree plan with a grade above a “C”
from the community college toward the completion of a Bachelor’s degree at a public
four-year institution (Mississippi State Institutions of Higher Learning, 2012). The cost
saving factor alone is a significant reason to attend and graduate from a community
college. The savings in tuition costs for students attending a community college instead
of a university amount to over $13,000.00 for Mississippi residents on average.

Table 1

*Tuition Costs per semester for Higher Education in Mississippi*

<table>
<thead>
<tr>
<th>Institution</th>
<th>Tuition</th>
<th>Room and Board</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Mississippi Community College</td>
<td>$1,006.00</td>
<td>$800.00</td>
<td>$1,806.00</td>
</tr>
<tr>
<td>AA</td>
<td>$3,168.00</td>
<td>$2,000.00</td>
<td>$5,168.00</td>
</tr>
<tr>
<td>BB</td>
<td>$3,000.00</td>
<td>$2,500.00</td>
<td>$5,500.00</td>
</tr>
</tbody>
</table>
Table 1 (continued).

<table>
<thead>
<tr>
<th>Institution</th>
<th>Tuition</th>
<th>Room and Board</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>$3,000.00</td>
<td>$3,000.00</td>
<td>$6,000.00</td>
</tr>
<tr>
<td>DD</td>
<td>$2,860.00</td>
<td>$3,334.00</td>
<td>$6,194.00</td>
</tr>
<tr>
<td>EE</td>
<td>$2,390.00</td>
<td>$4,000.00</td>
<td>$6,903.00</td>
</tr>
</tbody>
</table>

Note: Prices are per semester

Graduation Rates in Mississippi

It is important to know the graduation rates of Mississippi community colleges prior to beginning the study, so comparisons can be made with community college transfer students and (current graduation rates) and community college non-completers (adjusted graduation rates to reflect successful community college students at the university). The 2010 IPEDS database shows that on average 25% of Mississippi community college students graduated within 3 years or 150% of time to degree. The range of graduation rates between community colleges in Mississippi is relatively large with institutions graduating between 15% and 41%. Part of the discrepancies between graduation rates may be attributable to the student population demographics. Complete College America states in its Mississippi report that “Associate’s degree graduation rates are abysmal across the country – for Hispanic and African American Students, they’re tragic” (Complete College America, 2011, p. 7). The report also says that “Almost no one over the age of 25 graduates” (Complete College America, 2011, p. 7). Therefore students who are not in the minority and are recent high school graduates have the
highest probability of graduation. See Appendix A for the most recent graduation rates at all 15 Mississippi community colleges.

Support in the Literature for this Study

Students who graduate from a community college with an Associate’s degree are more likely to receive a baccalaureate degree from a four-year institution than students who do not graduate from a community college (Cohen & Brawer, 2003; Keeley & House, 1993; McCormick & Carroll, 1997). Further, Crawford (2003) indicates that students who earn an Associate’s degree (graduated) from a community college receive their four-year degree faster than fellow students (transfers), who do not have an Associate’s degree. This is a good reason for institutions to push students toward graduation, and for institutions to have solid degree plans.

A study examining the degree attainment between community college transfers and four-year native students discovered that as long as the transfer students have access to academic and social support structure during the transition to the four-year school, community college students are expected to graduate at the same rate as the native students (Melguizo, Kienzl, & Alfonso, 2011). This is supported by other research (Bailey et al., 2005; Glass & Bunn 1998) that notes that community college students could be successful at the four-year institution provided that they were given ample time to complete all degree requirements. However, time is not the deciding factor in graduation according to one study by Miller (2007), who indicates it is less important than a student’s pre-college preparation. Miller (2007) studied transfer students from community colleges to Mississippi State University and found that, when generalizing his
study, transfer students who graduated within four years were those who had higher ACT scores than students who took longer to graduate.

Some studies use the word transfer to indicate those students who have completed two years at the community college, received an Associate’s degree, and are now ready for the next two years of university study (Townsend, 2002). Townsend also explains that the word transfer is defined inconsistently across the literature. Other studies, including Grubb’s (1991) study of the decline of community college transfer rates, measured students who transferred without earning an Associate’s degree from a two-year institution, which is relative to the current study. Both Lee et al. (1993) and Wang (2009) studied community college transfer students persistence at the university with, however, no indication that they looked at Associate’s degree attainment. It is difficult to make accurate assumptions about transfer students when the use of the word transfer is inconsistent and there is no universal definition for the word in current research trends. Differentiation between the definition of transfer and community college graduate is the crux of the current study. By creating distinctly separate categories of this grey area, definitive answers can be obtained to the questions posed in this study.

Handel (2007) states “the number of students ‘lost’ in the transfer process represents both a waste of individual talent and a failure of America’s higher-education establishment” (p. 39). Students that leave the community college are not meeting their own goals or the college’s goals. Roughly nine in ten community college students plan to transfer to a four-year institution to receive a degree and nearly seven in ten attend on a part-time basis (Hoachlander, Sikora, & Horn, 2003). The increase in part-time
attendance may be why Turner (2004) claims an overall trend in higher education that leads to an increased period of time between initial enrollment and degree attainment.

Community colleges across America are not equal. States do not have the same ratio of community colleges to senior colleges. Community colleges are also governed differently according to state law, making nation-wide comparisons among community colleges problematic (Sylvia et al., 2010). As an example, Tennessee recently passed the “Complete College Tennessee Act” changing the funding formula for the state’s community colleges based on student attendance and making funding for the college dependent on student completion (Sugar, 2009). Mississippi is in the preliminary stages of this performance-based funding. This is why tracking completion at two-year and four-year institutions, and reverse transfer from the four-year institution is so important. These national differences are problematic for researchers and one reason why there is little research comparing institutions, both at a state level and a national level: lack of accurate tracking systems, lack of finances by community colleges to track students, difficulty in tracking very mobile students, and student privacy issues (Sylvia et al., 2010).

Performance-based funding is a relatively new idea in the grand scheme of higher education. Washington, South Carolina, Missouri and Illinois have all adopted and abandoned performance-based funding, while Tennessee and Florida have modified and kept their systems (Dougherty, Natow, Hare, Jones, & Vega, 2011). Comparing the performance-based funding in each of those states however is like comparing apples to oranges. The state government (governor and legislature), higher education governing boards, institutional chief executive officers, faculty and students all play a large role in the development and implementation of a funding formula, all of which are completely
different when comparing state to state. Both Florida and Washington have abandoned funding formulas that involved holding back funds or state appropriations that were only relinquished if an institution met a specified goal, a type of negative re-enforcement (Dougherty et al., 2011). Illinois abandoned its funding formula for lack of support when state leadership changed and a budget crisis ensued. Tennessee and Florida are the only two states that have active performance-based funding. Florida’s performance-based funding supports only two-year institutions while Tennessee’s is for both two-year and four-year institutions (Dougherty et al., 2011).

Summary

Mississippi’s community college system is among the oldest in the country with a renowned history in helping millions of people attend college. However, it is far behind in being the most efficient system in regard to governance and data collection. The Mississippi community college system has 15 independent institutions governed by 15 different college boards. The Mississippi Community College Board is effectively a coordinating board for the 15 institutions that helps navigate the state’s bureaucratic system and lobbies the Mississippi State Legislature for appropriations to finance the state’s 15 public two-year institutions (Mississippi Association of Community and Junior Colleges, 2007). While the individual institutions act independently of each other, the presidents of the community colleges do work together and agree on various items of business.

The community colleges in Mississippi do not all use the same database system or measure the same data sets. Currently the community college system does not differentiate between community college graduates and non-completers. The system is
also not set up to follow what happens to students once they finish or quit enrollment at the community college. Mississippi community colleges have a record of transcripts forwarded to other institutions when students leave; however, they do not track student performance/success at transfer senior colleges or universities. (R. Fletes, personal communication, July 10, 2012).

Seventy-five percent of all the credit hours Mississippi community college taught in 2011 were academic courses. With the graduation rate of academic community college students in Mississippi near the 30% mark, similar to the national level, the Mississippi system has an opportunity to increase its graduation rate by identifying the students who do not complete an Associate’s degree and move to the university. As college completion may become tied to community college funding in the near future, it is important to count every student who has been successful. Community colleges must continue to play a major role in Mississippi’s educational system as it is vitally important for the future. The findings in this study may provide opportunity for the 15 Mississippi community colleges to understand how they can best contribute to and benefit from the development of their students.
CHAPTER III

METHODOLOGY

Overview

The focus of this study was to determine if there was a difference in public university graduation rates or academic progress between students who have or have not received an Associate’s after attending a Mississippi community or junior college. Data were collected from a subset of Mississippi public four-year universities only for students who were previously enrolled at a Mississippi community college. The analysis of data was planned in two separate phases: a correlational analysis centered on the Associate’s degree variable, and a second comparative analysis of students who did not graduate but have completed enough hours to have earned an Associate’s degree at the time of transfer to a university. In Mississippi the average credit hours to Associate’s degree is 64 hours.

Research Design

The design of this study is exclusively quantitative and involved collecting data from five main institutions, Mississippi’s public four-year universities that enroll the majority of transfer students from each of the fifteen Mississippi junior and community colleges. These institutions are AA, BB, CC, DD and EE. The study examined archival data to identify indicators that will help estimate a community college completion rate, discover the final academic differences of community college graduates and non-completers, and the estimated average university graduation rate for Mississippi community college transfer students. It may even determine an estimated community college dropout rate based on the number of community college students who did not complete an Associate’s degree and did not continue to the university.
This study was planned in two phases because one of the five universities involved with the study did not collect data from student records of degree attainment at the community college level. Phase one of the study used information from the four universities that did collect data on the degree attainment status of community college transfers. Phase two of the study includes the students missing the Associate’s degree variable and made assumptions about the degree status of the students based on the number of hours earned at the community college level, along with data from the other four universities.

For phase one the dependent variable of the study is transfer degree attainment and the independent variables of the study were as follows: (a) transfer GPA, (b) final GPA, (c) hours earned before transfer, (d) hours earned after transfer, (e) semesters enrolled at university, (f) Bachelor’s degree attainment, (g) gender, (h) race, and (i) age.

For phase two the dependent variable of the study were Associate’s degree assumption based on hours earned at the community college; the independent variables of the study were as follows (a) transfer GPA, (b) final GPA, (c) hours earned before transfer, (d) hours earned after transfer, (e) semesters enrolled at university, (f) Bachelor’s degree attainment, (g) gender, (h) race, and (i) age.

Participants

Data used for this study came directly from Mississippi public four-year universities and represents students who have attended a public Mississippi community college and then transferred to one of the public Mississippi universities in the fall of 2007 through the fall of 2009. By using data from 2009 and earlier, this allows time to completion. These data were collected from the institutional research department at each
of the five selected public universities in Mississippi. In order to avoid the misleading information that might result from an incomplete data set, a total of 22,000 student records were examined from a three-year period. This represents more than half of all of the community college transfers in Mississippi (Mississippi Institutions of Higher Learning, 2009). The reason for the exceptionally large sample size is to get an accurate count of students who leave the community college without graduating. The institutional research officers at each of the selected study universities compiled data for every student enrolled at the university who had first attended a community college. In order to allow an accurate assumption about all fifteen community colleges in Mississippi, a complete sample was important. According to the research rules set forth by the Mississippi Community College Board, the 15 Mississippi community colleges are not involved with this study, however, all of the state’s 15 community colleges send the majority of their transfer students to the universities selected for the study, and, therefore, all 15 should be well represented in the sample (Appendix C).

Research Questions

This research project sought to answers questions about students who attend but do not graduate from a Mississippi community college by:

1. Describing the relative proportions of students who transfer from a community college with an Associate’s degree and students who transfer from a community college without first receiving a degree.

2. Testing whether holding an Associate’s degree from a Mississippi community college can predict graduation from a Mississippi four-year university.
3. Determining among the students who transfer from a Mississippi community college to a public four-year university in Mississippi, how many actually complete a degree based on transfer GPA, final GPA, hours earned at the community college, semesters enrolled at university, Pell grant eligibility, ACT score, race, age, and sex.

4. Identifying the percentage of community college students who never completed a two-year degree but were successful at the university by graduating or completing some coursework (successful completion of any higher level coursework would indicate adequate preparation from the community college).

Research Hypotheses

H1. Students who have earned an Associate’s degree from a community college graduate more frequently at a public university than students who transferred from a community college and did not earn an Associate’s degree.

H2. Students who have a higher transfer GPA will have a higher rate of degree attainment at the four-year university.

H3. Students who have more hours earned at the community college will have a higher rate of degree attainment at the four-year university.

H4. There will be no significant relationship between race, age, gender and university graduation among community college transfer students.

Procedures

This research was approved by the Institutional Review Board at The University of Southern Mississippi (Appendix A). Each of the participating institutions allowed the
use of data based on the USM IRB research approval. Data for this study were collected from the institutional research officers at each of the five selected four-year universities included in the study (Appendix A). The data were collected in a digital format in an Excel spreadsheet. The institutional research officer at the selected universities collected the data from their student records software, removed all protected identifying information, and put the data in an Excel spreadsheet before submitting it for use in the research. This research was conducted in two phases.

Phase one research sought to test all four hypotheses. Based on the data received from the four-year universities that track students who have an Associate’s degree, the participants’ records were separated into two groups: students with an Associate’s degree and students without an Associate’s degree. The first group, students with an Associate’s degree, is included in the current statistics of community college graduates. The second group, students without an Associate’s degree, may be considered by the community college as non-completers, drop-outs, or unsuccessful students, and would therefore contribute to the low community college graduation rate. Comparisons were made between the two groups to find out which group has the higher four-year university graduation rate, what differences may exist between the two groups, and which group is better prepared for the four-year institution based on academic hours earned before transfer and on transfer (community college) GPA. A final comparison was made with data from the community colleges to determine if the community college graduation rate is under-reported.

Phase two involved the creation of a variable using the data from phase one for students who had over 64 hours at the time of their transfer to the university within the 3-
year period for completion. This is the number of hours needed to graduate with an Associate’s degree from all Mississippi community colleges. The variable created in this phase was designed to include students who are community college transfers at one of the universities included in the study that does not collect the data on earned Associate’s degrees from student transcripts. Interpretative assumptions were made about the statewide community college system after analyzing data from phase two.

Analysis

Various statistical approaches, including descriptive and inferential procedures were used to address the research questions. For research questions 1, 2, 3, and 5, simple frequencies and percentages were calculated and compared with a simple cross-tabulation. For research question 4, a multiple regression statistical analysis were used. To understand research hypotheses 1, 2 and 4 descriptive statistics were calculated and analyzed. To understand research hypothesis 3, a multiple regression statistical analysis was conducted. The statistical tests were conducted with the statistical computer software SPSS.
CHAPTER IV
RESULTS
Overview

The purpose of this study was to compare Mississippi community college graduates at Mississippi four-year universities, with other Mississippi community college students who transferred to Mississippi four-year universities without first completing an Associate’s degree. Statistical analysis explaining the comparison of the aforementioned groups and the supporting documentation are the main focus of this chapter.

The data shown in Chapter IV from the statistical tests were conducted using SPSS. The University of Southern Mississippi’s Office of Institutional Research approved the research consisting of the following variables: community college GPA, community college hours earned, Associate’s Degree earned, university enrollment, ACT score, university GPA, university hours earned, university semesters enrolled, and university graduation, gender, race, age, community college name and university name. The data in this study were collected at the university level, and only for students who have previously been enrolled at a Mississippi community college. During the screening of the data, it was determined that only one institution failed to provide data on whether their students arrived at the university holding an Associate’s degree or not. The researcher knew in advance that the institution would not provide the data; therefore, that institution is not represented in the data set for phase one of the research design.

A population of 22,649 former community college students comprised the archival data at five of the eight Mississippi public four-year universities. Of the total sample size 17,741 were within 150% of time to degree from the date of their enrollment at the university. Also, the entire student data contribution from DD University, 1,922
students, was reserved for the second phase of the study because data on whether they earned Associate’s degree was not available for phase one. The total population of phase one of this study includes 15,819 students from all 15 Mississippi community colleges and 4 of Mississippi’s public four-year universities. Each of the categorical and ordinal variables was recoded for statistical use. Descriptive statistics and frequencies were run for each variable to evaluate linearity. The demographic data of the 15,819 participants in this study can be found in Table 1.

Table 2

*Basic Descriptive Statistics*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>6679</td>
<td>42.2</td>
<td>42.2</td>
</tr>
<tr>
<td>Female</td>
<td>9140</td>
<td>57.8</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>1376</td>
<td>8.7</td>
<td>8.7</td>
</tr>
<tr>
<td>African American</td>
<td>3834</td>
<td>24.2</td>
<td>25.5</td>
</tr>
<tr>
<td>Caucasian</td>
<td>10609</td>
<td>67.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Earned Associate Degree</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5326</td>
<td>33.7</td>
<td>33.7</td>
</tr>
<tr>
<td>No</td>
<td>10493</td>
<td>66.3</td>
<td>100</td>
</tr>
</tbody>
</table>
A slight majority of the study population was reported to be female (57.8%).

While the percentages for the population of Caucasian students is consistent with both national and regional averages, Mississippi has the highest resident population of African Americans in the United States and near the lowest resident rates of other minorities, the percentages of which were too low for statistical analysis. Along the category of race/ethnicity, this study included Caucasian Americans, African Americans, Asian Americans, American Indians, Alaskan Natives, Hispanic Americans, Native Hawaiians, not specified and two or more races. The categories of American Indian, Alaskan Native, Asian American, Hispanic American, Native Hawaiian, not specified and two or more races were collapsed into the category “other” as noted in Table 2.

Table 3

*Community College Transfer - University Arrival*

<table>
<thead>
<tr>
<th>Entering Semester</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2009</td>
<td>3677</td>
<td>23.2</td>
<td>23.2</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>1057</td>
<td>6.7</td>
<td>29.9</td>
</tr>
<tr>
<td>Summer 2010</td>
<td>268</td>
<td>1.7</td>
<td>31.6</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>3982</td>
<td>25.2</td>
<td>56.8</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>1142</td>
<td>7.2</td>
<td>64</td>
</tr>
<tr>
<td>Summer 2011</td>
<td>303</td>
<td>1.9</td>
<td>65.9</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>4047</td>
<td>25.6</td>
<td>91.5</td>
</tr>
</tbody>
</table>
Table 3 (continued)

*Community College Transfer - University Arrival*

<table>
<thead>
<tr>
<th>Entering Semester</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2012</td>
<td>1051</td>
<td>6.6</td>
<td>98.2</td>
</tr>
<tr>
<td>Summer 2012</td>
<td>292</td>
<td>1.8</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>15819</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4

*Community College Transfer - University Exit*

<table>
<thead>
<tr>
<th>University Graduation</th>
<th>Frequency</th>
<th>Cumulative Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2010</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Summer 2010</td>
<td>25</td>
<td>26</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>33</td>
<td>59</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>514</td>
<td>573</td>
<td>3.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Summer 2011</td>
<td>181</td>
<td>754</td>
<td>1.1</td>
<td>4.7</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>522</td>
<td>1276</td>
<td>3.3</td>
<td>8</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>1148</td>
<td>2424</td>
<td>7.3</td>
<td>15.3</td>
</tr>
<tr>
<td>Summer 2012</td>
<td>379</td>
<td>2803</td>
<td>2.4</td>
<td>17.7</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>830</td>
<td>3633</td>
<td>5.2</td>
<td>22.9</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>1449</td>
<td>5082</td>
<td>9.2</td>
<td>32.1</td>
</tr>
</tbody>
</table>
The participants in this study range in age from 16 years old to 74 years. Standard national enrollment rates are normally reported on ages 18-24, putting the average age of the participants in this study just higher than the nationally reported statistic. A large majority of the students in this study had not earned an Associate’s degree by the time they arrive at the university (66%). The majority of the participants were enrolled full-time when they began their first semester at the university (87%). Most of the students moved to the university from the community college in the fall semester (73%).

Table 5

*Federal Financial Aid*

<table>
<thead>
<tr>
<th>Pell Eligible</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>8905</td>
<td>56.3</td>
<td>56.3</td>
</tr>
<tr>
<td>No</td>
<td>6914</td>
<td>43.7</td>
<td>100</td>
</tr>
</tbody>
</table>
Nearly half of all the university graduates finished in a spring semester (48%) and just over half were eligible to receive federal financial aid (Pell Grant).

Research Questions

Research Question 1

*Research Question 1* was developed to describe the relative proportions of students who transfer from a community college with an Associate’s degree and students who transfer from a community college without first receiving a degree.

*Bivariate Analysis: cross-tabulation.* ‘Associate degree attained’ and ‘University graduation’ were compared using a crosstab in SPSS to address the first research question. There was a significant relationship of Associate degree attainment and university graduation ($\chi^2 (1, N = 15527) = 12.679, p < .001$).

Table 6

*Crosstabulation of Earned Associate Degree and University Graduation*

<table>
<thead>
<tr>
<th>Graduation from a University</th>
<th>Earned Associate’s Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Yes</td>
<td>2258</td>
</tr>
<tr>
<td></td>
<td>14.4%</td>
</tr>
<tr>
<td>No</td>
<td>3048</td>
</tr>
<tr>
<td></td>
<td>19.3%</td>
</tr>
<tr>
<td>Total</td>
<td>5326</td>
</tr>
</tbody>
</table>
Figure 2. A visual representation of the crosstabulation for research question one. This figure presents two visual suggestions: 1.) more Mississippi community college transfers do not earn an Associate’s degree compared with those who do; 2.) the student population who earned an Associate’s degree and a Bachelor’s degree is nearly half that of students who transferred from the university without an Associate’s degree and went on to earn a Bachelor’s degree.

Research Question 2

Research Question 2: Tested whether holding an Associate’s degree from a Mississippi community college can predict graduation from a Mississippi four-year university. The odds ratio associated with the crosstabulation run for the first research question revealed that a one unit change in the independent variable, Associate’s degree earned, increases the odds of receiving a Bachelor’s degree by a factor of 1.12. To state it another way, Mississippi community college graduates are 12% more likely to graduate from a Mississippi four-year university than community college non-graduates.
Table 7

Risk Estimate

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odds Ratio for Earned Associate Degree</td>
<td>1.120</td>
<td>1.047</td>
<td>1.197</td>
</tr>
<tr>
<td>For cohort Graduation from a university=yes</td>
<td>1.069</td>
<td>1.028</td>
<td>1.111</td>
</tr>
<tr>
<td>For cohort graduation from a university = no</td>
<td>.954</td>
<td>.928</td>
<td>.981</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>15819</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research Question 3

Research Question 3: Sought to determine among the students who transfer from a Mississippi community college to a public four-year university in Mississippi, how many actually complete a degree based on transfer GPA, final GPA, hours earned at the community college, semesters enrolled at university, Pell grant eligibility, ACT score, race, age, and sex.

To address the third research question, a multiple regression was run to determine whether the independent variables influenced the total number of graduates at the university level. In testing the assumption regarding multicollinearity; tolerance was greater than .10, and the variance inflation factor was less than 3, suggesting that multicollinearity was not an issue. The overall model accounted for 40.5% of the variability of community college degree attainment ($R^2 = 0.405$). The overall model was statistically significant ($F (8, 12890) = 1094.947, p< 0.001$) which means that when all
the independent variables were considered together, they did have a statistically significant relationship to community college graduation.

Research Question 4

Research Question 4: was developed to identify students’ credit hours earned as a measure of success at the university. The university credit hours earned variable was recoded into a new variable that grouped students by hours earned at the university before they left. Full-time enrollment at each of the 4-year institutions is considered to be 12 hours per/semester. The average number of hours that students took each semester during this study is between 12 and 15. Students who have completed at least 30 hours or the equivalent of two semesters at the university are considered successful transfers from the community college. In this study, 75.7% of the total study population have completed at least one year of courses at the university.

Table 8

*University Credit Hour Groups*

<table>
<thead>
<tr>
<th>Hours Earned</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Less than 15 hours</td>
<td>2323</td>
<td>14.7</td>
<td>14.7</td>
</tr>
<tr>
<td>At least 15 hours</td>
<td>1947</td>
<td>12.3</td>
<td>12.3</td>
</tr>
<tr>
<td>at least 30 hours</td>
<td>1287</td>
<td>8.1</td>
<td>8.2</td>
</tr>
<tr>
<td>at least 45 hours</td>
<td>1498</td>
<td>9.5</td>
<td>9.5</td>
</tr>
<tr>
<td>at least 60 hours</td>
<td>6480</td>
<td>41</td>
<td>41.1</td>
</tr>
</tbody>
</table>
Table 8 (continued)

University Credit Hour Groups

<table>
<thead>
<tr>
<th>Hours Earned</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>85+ hours earned</td>
<td>2241</td>
<td>14.2</td>
<td>14.2</td>
</tr>
<tr>
<td>Total</td>
<td>15776</td>
<td>99.7</td>
<td>100</td>
</tr>
<tr>
<td>System missing</td>
<td>43</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15819</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

To be specific and identify the exact percentage of community college students who never completed a two-year degree, but were successful at the university by graduation or completing some coursework, a second frequency was run, excluding those students who had earned an Associate’s degree. Table 9 demonstrates that 7,663 community college students did not earn an Associate’s degree but were successful at the university by graduating or completing at least 30 hours of coursework. Of the total study population, that is 48% of all community college students who transferred to the university.
### Table 9

*University Credit Hour Groups*

<table>
<thead>
<tr>
<th>Hours Earned</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Less than 15 hours</td>
<td>1516</td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>At least 15 hours</td>
<td>1285</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>At least 30 hours</td>
<td>855</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>At least 45 hours</td>
<td>995</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>At least 60 hours</td>
<td>4109</td>
<td>26.0</td>
</tr>
<tr>
<td></td>
<td>85+ hours</td>
<td>1704</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>10464</td>
<td>66.2</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>29</td>
<td>.2</td>
</tr>
<tr>
<td></td>
<td>Associate Degree Graduates</td>
<td>5326</td>
<td>33.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15819</td>
<td>100</td>
</tr>
</tbody>
</table>

We know from the analysis of research question 1 that 4,200 students did not obtain an Associate’s degree but did graduate from a four-year university. Of the 7,663 students who have completed more than 30 hours, subtracting those students who earned a university degree leaves 3,443 students or 21% of the study population who did not receive an Associate’s degree or a Bachelor’s degree but nonetheless achieved some level of success by completing at least 30 hours, or the equivalent of one year of college courses.
Research Hypotheses

Hypothesis No. 1: Students who have earned an Associate’s degree from a community college graduate more frequently at a public university than students who transferred from a community college and did not earn an Associate’s degree.

The raw data in this study suggests that students who did not earn an Associate’s degree graduate from a four-year university at a higher rate than students who did earn an Associate’s degree. The sheer number of community college graduates in the study population is much smaller than non-graduates. Thus H1 was not supported. Overall, 33.5% of the study population graduated from a community college, with only 35% of that statistic graduating from the university as well (Table 9). Also, 42.8% of the total study population graduated from a four-year university (Table 10). A higher percentage of students in this study who hold an Associate’s degree did not graduate from a university as compared to those who did.

Table 10

Students who Hold an Associate’s Degree

<table>
<thead>
<tr>
<th>Univ. Enroll. Semester</th>
<th>Graduated from University</th>
<th>Did not Graduate from University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2009</td>
<td>734</td>
<td>479</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>112</td>
<td>158</td>
</tr>
<tr>
<td>Summer 2010</td>
<td>65</td>
<td>38</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>647</td>
<td>624</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>131</td>
<td>208</td>
</tr>
</tbody>
</table>
Table 10 (continued).

<table>
<thead>
<tr>
<th>Univ. Enroll. Semester</th>
<th>Graduated from University</th>
<th>Did not Graduate from University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2011</td>
<td>37</td>
<td>83</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>489</td>
<td>989</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>51</td>
<td>355</td>
</tr>
<tr>
<td>Summer 2012</td>
<td>12</td>
<td>114</td>
</tr>
<tr>
<td>Total</td>
<td>2278</td>
<td>3048</td>
</tr>
<tr>
<td>Percentage</td>
<td>42.80%</td>
<td>57.20%</td>
</tr>
</tbody>
</table>

Also, a higher percentage of students in this study who did not earn an Associate’s degree graduated from a university than those who did.

Table 11

Students who Graduated from a University

<table>
<thead>
<tr>
<th>Univ. Enroll. Semester</th>
<th>CC Graduate</th>
<th>CC Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2009</td>
<td>734</td>
<td>1403</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>112</td>
<td>361</td>
</tr>
<tr>
<td>Summer 2010</td>
<td>65</td>
<td>81</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>647</td>
<td>1278</td>
</tr>
</tbody>
</table>
Table 11 (continued).

<table>
<thead>
<tr>
<th>Univ. Enroll. Semester</th>
<th>CC Graduate</th>
<th>CC Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2011</td>
<td>131</td>
<td>286</td>
</tr>
<tr>
<td>Summer 2011</td>
<td>37</td>
<td>74</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>489</td>
<td>643</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>51</td>
<td>66</td>
</tr>
<tr>
<td>Summer 2012</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>2278</td>
<td>4200</td>
</tr>
<tr>
<td>Percentage</td>
<td>35.20%</td>
<td>64.80%</td>
</tr>
</tbody>
</table>

H2: Students who have a higher transfer GPA will have a higher rate of degree attainment at the four-year university.

To address hypothesis two, a linear regression was run to determine whether the independent variable, community college GPA, influenced the total number of graduates at the university level. The overall model accounted for 7.5% of the variability of university degree attainment ($R^2=0.075$). The overall model was statistically significant ($F(1, 15800) = 1280.691, p<0.001$) which means when the independent variable was considered; community college GPA did have a statistically significant relationship to university graduation.

H3: Students who have more hours earned at the community college will have a higher rate of degree attainment at the four-year university.
A linear regression was run to determine whether the dependent variable, graduation from a university, was influenced by the community college hours earned. The overall model accounted for 1.1% of the variability of university degree attainment ($R^2 = 0.011$). The overall model was statistically significant ($F(1, 15817) = 182.813, p < 0.001$) which means when the independent variable was considered, community college hours earned did have a statistically significant effect on the total number of university graduates.

**Figure 3.** A visual representation of hypothesis three. Both of these graphs look more alike than they look different. It appears community college hours earned does not have a large effect on graduation. However, notice that the normal curve is slightly lower for university non-graduates than for university graduates.


H4: There will be no significant relationship between race, age, gender and university graduation among community college transfer students.

A multiple regression was run to determine whether the dependent variable, graduation from a university, was influenced by race, age or gender. The overall model accounted for 2.4% of the variability of university degree attainment ($R^2 = 0.024$). The overall model was statistically significant ($F (5, 15815) = 129.016, p< 0.001$) which means when the independent variables were considered together, race, age, or gender did have a statistically significant relationship to the total number of university graduates. Tolerance was greater than .10, and the variance inflation factor was less than 10, suggesting that multicollinearity was not an issue.

Table 12

Multicollinearity

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.810</td>
<td>0.21</td>
<td>85.514</td>
</tr>
<tr>
<td>Age</td>
<td>.002</td>
<td>.001</td>
<td>.029</td>
</tr>
<tr>
<td>Gender</td>
<td>-.068</td>
<td>.008</td>
<td>-.068</td>
</tr>
<tr>
<td>Race</td>
<td>-.026</td>
<td>.001</td>
<td>-.142</td>
</tr>
</tbody>
</table>

To determine what about gender was specific a crosstabulation and odds ratio was run in SPSS. A majority of both sexes do not graduate from a university. However, the percentage of males (61.8%) who did not graduate from a university is slightly higher
than for females (57.0%). There is a 23.6% difference for males who do/do not graduate from a university compared to only a 14% difference in university graduation for females. The odds ratio determined that men were 17.9% less likely to graduate from a university than females.

Table 13

*Crosstabulation of Gender and University Graduation*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Graduate from a University</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2552</td>
<td>4127</td>
<td>6679</td>
<td></td>
</tr>
<tr>
<td></td>
<td>38.2%</td>
<td>61.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>3926</td>
<td>5214</td>
<td>9140</td>
<td></td>
</tr>
<tr>
<td></td>
<td>43.0%</td>
<td>57.0%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6478</td>
<td>9341</td>
<td>15819</td>
<td></td>
</tr>
</tbody>
</table>

A Chi-Square test was performed and a relationship was found between gender and graduation from a university, $\chi^2 (1, N = 15,819) = 11.006, p < .001$
Table 14

*Risk Estimate*

<table>
<thead>
<tr>
<th>Risk Estimate</th>
<th>Value</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Odds Ratio for Gender (Male/Female)</td>
<td>.821</td>
<td>.770</td>
</tr>
<tr>
<td>For cohort Graduation from a university= yes</td>
<td>.890</td>
<td>.856</td>
</tr>
<tr>
<td>For cohort graduation from a university = no</td>
<td>1.083</td>
<td>1.055</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>15819</td>
<td></td>
</tr>
</tbody>
</table>

Since the difference in percentage of graduation were similar for whites and other races in the crosstabulation, an odds ratio was run between race and university graduation including only white and African American races in the sample.
Table 15

*Crosstabulation of Race and University Graduation*

<table>
<thead>
<tr>
<th>Race</th>
<th>Graduate from a University</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Total</td>
</tr>
<tr>
<td>Other</td>
<td>571</td>
<td>805</td>
<td>1376</td>
</tr>
<tr>
<td></td>
<td>(41.5%)</td>
<td>(58.5%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>African American</td>
<td>991</td>
<td>2843</td>
<td>3834</td>
</tr>
<tr>
<td></td>
<td>(25.8%)</td>
<td>(74.2%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>White</td>
<td>4916</td>
<td>5693</td>
<td>10609</td>
</tr>
<tr>
<td></td>
<td>(46.3%)</td>
<td>(53.7%)</td>
<td>(100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>6478</td>
<td>9341</td>
<td>15819</td>
</tr>
<tr>
<td></td>
<td>(46.0%)</td>
<td>(59.0%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>

The odds ratio determined that African American community college students were 60% more likely to not graduate from a Mississippi university than white community college students. Said another way, white community college students are 2.47 times more likely to graduate from a Mississippi university than African American community college students.

The data in this study indicate that among students of ‘other’ races, 37% received an Associate’s degree and 41% received a Bachelor’s Degree. For students who classify themselves as White students, 29% received an Associate’s degree and 46% received a Bachelor’s Degree. The most interesting statistic comes from African American students, among which 42% earned an Associate’s degree, which is better than either of the other
categories. However, among African Americans in this study, only 26% received a Bachelor’s degree.

Summary

All of the tests run in SPSS were statistically significant as related to the research questions of this study and multicollinearity was not an issue in any of the analyses. It was discovered that holding an Associate’s degree makes a student 12% more likely to graduate from a university than their classmates who did not graduate from the community college. Also, 12,969 students in this 15,819 study population were successful past the community college by either receiving an Associates degree, a Bachelor’s degree, or by completing at least 30 hours of coursework at the university.

Phase Two

It was determined that the second phase of the research was impossible to pursue with the parameters of the given dataset. Not only would the research isolate data about DD University, it would also assume that DD’s students have the same academic progress as any of the other institutions. Creating a formula to predict which students have graduated based on data from the other institutions would be inconsistent with the scientific evidence in phase one, which uses documented data. Therefore, the second phase of the research design was not completed.

Not completing the second phase of the study limits the data to just 4 Mississippi universities, AA, BB, CC and EE. The data omitted from the study from DD University may have been different from the study population with regard to demographics or educational outcomes. It is not known what effects the inclusion of this additional data may have had on the outcomes of the study.
Additional Findings

This study has data on students who entered the university during three different academic years. Of the 15,819 students included in this study, 5,326 (33%) earned a degree at the community college. This number is consistent with the nationwide graduation rates among colleges and universities with a reporting time of 150%. Of the study population, 10,493 students or 66% of the population, did not earn a degree from the community college or from the university. What is interesting is that this study revealed 3,048 students or 19% of the population graduated from a university without having first received a degree from a community college. This number is significant because these students have been successful at the university, however they are considered non-completers or unsuccessful at the community college level. Also, 3,443 students or 21% of the study population did not receive an Associate’s or a Bachelor’s degree but achieved some level of success by completing at least 30 hours of college courses. This means that 12,949 students in this study, or 82% of Mississippi community college transfers, earned an Associate’s degree, a Bachelor’s degree or completed at least 30 hours of university coursework after having first completing some coursework at a community college.
Figure 4. This is a good cross-section of data that represents time-to-degree. In this data set, the students who entered the university earlier have a higher graduation rate than those who entered later.

It should also be noted that the numbers represented in the statistical analysis are already outdated, as another spring and summer semester have passed since the data was collected giving students two more opportunities to graduate. Based on Figure 5 the better estimates of student completion come with 200% of time to graduation, not 150% time-to-graduation which is the standard currently used by most public and private reporting agencies.
CHAPTER V
SUMMARY

Introduction

The purpose of this study was to document if there is an unaccounted body of successful community college students at Mississippi 4-year public universities who can be counted toward the completion rate at Mississippi’s community colleges; examine the impact of Associate’s degree attainment on university graduation; and determine if there was a significant difference in the success of community college students at the university with respect to hours earned at the university, community college GPA, ACT score, university enrollment status, and demographic information. Chapter V will discuss the findings and limitations of the research conducted, conclusions drawn from the data as it pertains to the research findings, and recommendations for policy, practice, and future research.

The study largely supported the research hypotheses and was able to identify tangible answers to part of the research problem. A successful ‘undocumented’ community college student population exists and community college leaders in Mississippi have within their reach ways to capitalize on the success of their students to create a funding model that defines success in a way that benefits the future community college students in Mississippi.

Conclusions

Research Question 1 and 2

Describe the relative proportions of students who transfer from a community college with an Associate’s degree and students who transfer from a community college
without first receiving a degree. Test whether holding an Associate’s degree from a Mississippi community college can predict graduation from a Mississippi four-year university.

It is interesting to note that there is nearly double the amount of non-Associate degreed university graduates than university graduates who earned an Associate’s degree. Despite this fact, students who hold an Associate’s degree are deemed 12% more likely, based on this research, to receive a Bachelor’s degree than students who attended a community college and do not receive an Associate’s degree. Upon further analysis, it was discovered that of the 4200 students who did not receive an Associate’s but did graduate from the university, nearly 2000 had less than 45 academic hours earned at the community college, a sign that these students were perhaps not interested in graduating from the community college. If Mississippi were to mandate that the universities send the completed transcripts of transfer students back to their respective 2-year institutions, the graduation rate at Mississippi Community Colleges would be much higher with the awarding of reverse transfer Associate’s degrees.

If student intent were a measureable variable that could have been included in this study, the numbers might be significantly different. Also, because there is no knowledge of the number of dual-enrolled students in the current dataset, the likelihood of Associate’s degree student success at the university is probably much higher than the suggested 12% gain.

Research Question 3

Determine among the students who transfer from a Mississippi community college to a public four-year university in Mississippi, how many actually complete a degree
based on transfer GPA, final GPA, hours earned at the community college, semesters enrolled at university, Pell grant eligibility, ACT score, race, age, and sex.

It should be no surprise that community college GPA, final GPA, hours earned at the community college, semesters enrolled at university, Pell Grant eligibility, and ACT score have a significant effect on university graduation. What was unexpected, however, is that gender and race have a significant effect on university graduation and ACT score was not shown to be a significant predictor of university graduation.

In Mississippi, the race distribution is more unequal than in most other states across the country. There are considerably more African American students, and notably fewer students of other minorities in Mississippi’s higher education system than any of the other states. Thus, Mississippi’s racial data, when compared to the national average for university graduation, is automatically distorted. There are more females than males in the current data set, which is consistent with the national numbers of gender in higher education – which also distorts the data with regard to gender.

Also, considering the fact that a majority of college students in the study are of the ‘traditional’ college age, the current study suggests that age does play a significant role in the probability of obtaining a university degree for community college students.

Research Question 4

Identify the percentage of community college students who never completed a two-year degree but were successful at the university by graduating or completing some coursework (successful completion of any higher level coursework would indicate adequate preparation from the community college).
This question really helps create a focus on the ‘missing’ population of students who are an undocumented success with regard to the proposed community college funding model in Mississippi. This study suggests that 21% of all community college transfers will not receive a Bachelor’s degree but will demonstrate success past the community college by completing at least 1 year of coursework at the university. This reflects that 12,949 students in this study, or 82% of Mississippi community college transfers, earned an Associate’s degree, a Bachelor’s degree or completed at least 30 hours of university coursework after having first completed some coursework at a community college. This one statement has huge funding implications for Mississippi’s community colleges. The current statistic for success is based on graduation rates in Mississippi community colleges, which is near 30%. If Bachelor’s degrees are factored in to the equation of community college success, 60% of the students who transfer to the university are successful. If 30 hours earned or a year’s study equivalent were considered success, then 82% of community college students who transfer to the university are successful.

Hypothesis 1

Students who have earned an Associate’s degree from a community college graduate more frequently at a public university than students who transferred from a community college and did not earn an Associate’s degree.

Even though the data suggest that students who do not earn an Associate’s degree graduate from the university in higher numbers, this could be biased by the presence of dual-enrolled high school students who take community college classes while in high school with no intentions of attending a community college to graduate. There is no way
to know in this dataset what percentage of community college students are former dual-enrolled high school students.

Hypothesis 4

*There will be no significant relationship between race, age, gender and university graduation among community college transfer students.*

The simple answer for this analysis being completely unexpected is the nature of the population of Mississippi. The proportion of races in Mississippi’s universities have been approximately the same for the years included in this study; white 58%, African American 37%, and other races 5% (Mississippi Institutions of Higher Learning, 2009). If Mississippi had a population consistent with national averages, the numbers would be different. However, Mississippi’s higher education ethnic diversity is matched by no other state. Therefore, the research is affected by race in determining degree completion at the university among community college transfer students.

Age and gender are both significant predictors of success in the study as well. Gender is playing a role as a predictor now because as history has shown, the gender demographic in higher education has moved from a majority of male students in the mid-twentieth century to a majority of female students in the twenty-first century. Also, age as a predictor might be attributed to the flexibility of the community college schedules, which caters to the non-traditional student more so than the universities and are ‘local’ institutions that provide easy access for individuals working a full-time job. According to the Mississippi Institutions of Higher Learning (2009), 20% of all undergraduate students are over the age of 25. This is a significant group of individuals who do not meet the rigid definition of a ‘traditional college student.’ In the study data, 4,215 students were above
the age of 25, which is 27% of the study population. Of the students who were over the age of 25, 1,590 graduated from the university and 1,142 completed more than 30 hours at the university.

Suggestions for Public Analysis

A new Mississippi community college funding model, which was encouraged by Mississippi’s Legislature and Governor, has yet to be fully developed and implemented (E. Clark, personal communication, July 2, 2014). It is slated to include performance-based measures, meaning that Mississippi community colleges will be funded, in part, by how successful their students are, or are measured to be. Currently the data in this study that suggests that 82% of Mississippi community college transfer students achieve some level of success, is completely unavailable to the institutions that need it most. This is a significant difference in success regarding both the current graduation rate and the current definition of success.

At this time, community colleges can decipher which students transfer to another university by good record keeping policies. However, discovering the completion rate of a specific institution’s former students at their respective transfer universities is a detective’s challenge. At a recent meeting of the Mississippi Association for Institutional Research (MAIR, March 19, 2014), Dr. Lynn Tincher-Ladner, Chief Information and Research Officer at Phi Theta Kappa honor society and former research director at the Mississippi Community College Board gave an in-depth demonstration on how to find where community college students are attending after transferring from community colleges and completion rates of those students. The research she discussed is not data that any community college has direct access to, but is part of the National Student
Clearinghouse, a non-profit organization that currently tracks 90% of students across higher education institutions. Dr. Tincher-Lander demonstrated how community college administrators could and should compile a list of former students; submit it to the clearinghouse, and wait for their response. The clearinghouse sends the college raw data that must be mined in order to discover if students have been successful or not. In the past, not all Mississippi community colleges have used this resource. Still, even though this service exists, it only includes yes or no answers regarding student enrollment and graduation, and it is not easy to use.

Currently there is no data-gathering tool with public access that has data regarding high schools, community colleges, and universities over the course of many years. The only data that exist across these levels of education is what is required by state and federal law for each institution and administrative agency to report. Said another way, Mississippi Community Colleges do not have access to important data on university hours earned and degrees received, and they do not receive raw data that comes directly from the 4-year universities in the state.

There is however, a project in the works at Mississippi State University. A ten million dollar National Center for Education Statistics (NCES) grant, designed to implement a true State Longitudinal Data System (SLDS), was awarded to the National Strategic Planning and Analysis Research Center (nSPARC) at Mississippi State University in 2009 (NCES, 2014). This grant, once completed, will house all pertinent enrollment, demographic, and educational data from kindergarten to post-doctoral work for Mississippi students. It will be a powerful tool for educational administrators to plan
for the future and to answer many questions, some of which are discussed in this document.

This tool, the SLDS, will be made available to statewide educational agencies to help determine the success of their former students and to plan for the success of their current students. Understanding past trends in education is key to helping identify problems that school administrators of every level can correct with policy changes.

One way to clarify the community college completion rate dilemma would be to mandate that transfer students from a community college must have an Associate’s degree; it would benefit the community colleges’ graduation rates and would thus benefit the community colleges’ bottom line with the new funding model. However, it may discourage some students from attending a community college by giving them less freedom to make enrollment choices and encourage them to start at the university straight from high school. It is doubtful that Mississippi universities would agree to such a mandate, as it would likely decrease enrollment at the universities initially by not allowing the ‘missing population’ of students to enroll until they graduated from the community college.

Recommendations for Accountability

If the Mississippi Community College Board or Mississippi Legislature changes the funding model for Mississippi’s 15 community colleges, the use of a true single source longitudinal database is necessary to track successful students who earn degrees and unsuccessful students who move from institution to institution without earning degrees. Not only will this system create a level of accountability among Mississippi
community colleges and universities, it will be an asset to help education leaders of every level in the state understand the cause and effect of a myriad of problems.

If the colleges must be accountable for the failure of students to graduate, then the state must be accountable for the colleges’ inability to share data among post-secondary institutions. Community colleges need to know where their transfer students go, and the levels of success they achieve after transferring.

The data collected in this study were relatively simple for the researcher to secure, as would be the data that the researcher needs to fully understand the big picture of community college graduates versus transfers in Mississippi. However, one pool of data exists at the university level and another pool of data exists at the community college level. The researcher chose to use the data at the university level to complete this study.

These separate datasets, however, are not manageable when used together from an academic research perspective because of the need for maintaining participant (student) anonymity. It would perhaps be an impossible task to research the population used for this study and have data from two institutions for every student.

If Mississippi were to mandate that the universities send the completed transcripts of transfer students back to their respective 2-year institutions, the reported graduation rate at Mississippi Community Colleges would be much higher with the awarding or reverse transfer Associate’s degrees. A follow-up study could be performed with this same data set to estimate new community college completion numbers for the years in this study. However, as mentioned, without a complete matched dataset from the university and community college, getting specific and un-estimated numbers would be difficult.
Recommendations for Future Study

As mentioned in the literature review, studies have not differentiated between transfer students and a community college graduates. Comparative studies in other states and on a national level would be interesting to compare with the results found in this study.

Limitations

The results and implications of this study are limited to students who transferred to one of five selected Mississippi universities after first having attended one of Mississippi’s fifteen community or junior colleges. This is not an all-inclusive data set of all fifteen Mississippi public community colleges’ students at all eight Mississippi public four-year universities.

The data collected for use in this study came directly from five of the eight Mississippi public four-year universities. The data may be treated differently at each institution and there is room for error at the data entry, data handling, and data storage levels at each institution, as different leaders manage each institution. There is a manual published by Mississippi’s Intuitions of Higher Learning Board that directs each institution to handle data the same way. However, as the researcher received the data in various formats, it became clear that the institutions may not be following all of the rules in the IHL document.

The data gathered does not indicate what type of courses students have taken at the university, just that they have logged hours at the university. There is no way to know, in this data set, if a student’s university hours are legitimate hours toward a degree or if they are non-degree prerequisites, remedial coursework, repeat courses or electives.
The same can be said about all community college hours; it is not known if they are remedial, repeat courses, electives, non degree prerequisites, or taken while dual-enrolled in high school. On its website, the Mississippi Community College Board does not report numbers of dual-enrolled students. The lack of data identifying dual enrollment students could significantly alter the results of this study.

Summary

More data is necessary to evaluate the academic progress of the students to help discover why nearly 60% of community college transfer students do not finish a degree from the university. The current study could be fine tuned with the knowledge of which students were once dual-enrolled high school students, which only exists at the community college level for most transfer students.

There is absolutely a missing population of students who are not considered successful at the community college but are being successful at the university. The success of this population should be reflected in the success rate of the community colleges they transferred from when Mississippi’s new community college performance-based funding model is implemented.
APPENDIX A

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive 85147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional-review-board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months.

Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 14022101
PROJECT TITLE: Comparing Mississippi’s Public University Graduation Rates for Community College Completers and Non-Completers
PROJECT TYPE: New Project
RESEARCHER(S): Andrew Dale
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Educational Studies and Research
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 02/24/2014 to 02/23/2015

Lawrence A. Hosman, Ph.D.
Institutional Review Board
February 19, 2014

Andrew Dale
1156 College Drive
Summit, MS 39666

Dear Andrew,

Your request to study archival data of The University of Southern Mississippi students who were once Mississippi community college students will be granted provided you supply USM with a copy of your IRB approval letter.

Sincerely,

Michelle Arrington
Director, Institutional Research
Andrew Dale
1156 College Drive
Summit, MS 39666

Dear Andrew,

Your request to study archival data of Mississippi State University students who were once Mississippi community college students will be granted, provided you supply MSU with a copy of your IRB approval letter.

Sincerely,

Timothy N. Chamblee
Director
DATE: February 18, 2014

MEMORANDUM

TO: Andrew Dale
    1156 College Drive
    Summit, MS 39666

FROM: Dr. Sophia Leggett
      IRB Chair

Re: IRB Approval

The Jackson State University Institutional Review Board (IRB) has received your request for approval to use archival data of Jackson State University students who were once Mississippi community college students. Approval to use such data will be granted upon receipt of official documentation of approval from The University of Southern Mississippi’s IRB. Please contact Jackson State University’s IRB office at irb@jsu.ms.edu for any inquiries regarding this matter.
February 14, 2014

Andrew Dale  
1156 College Drive  
Summit, MS 39666  

Dear Mr. Dale,

We have two options for you, as a student doing research through another institution of higher learning, to get approval for an IRB protocol.

1) The student gets IRB clearance from his/her home institution, and we accept that and give our permission after the student sends us an IRB Form A, with the approval from home institution.
2) Complete an IRB Form A for us, and after our approval, you supply that approval to your home institution.

Either way, you will need to complete a Form A. That form is available on our website.  
http://www.deltastate.edu/academics/faculty-development-research/faculty-research/institutional-review-board/irb-process-and-forms/

Please make sure you include a copy of your NIH approval certificate (or comparable certificate) to conduct human subject research.

Sincerely,

Beverly M. Moon, Ph.D.  
Institutional Review Board, Chair  
DSU IRB Identification Number: IRB00001545
February 14, 2014

Andrew Dale
1156 College Drive
Summit, MS 39666

Dear Andrew:

Your request to study archival data of The University of Mississippi students who were once Mississippi community college students will be granted provided you supply UM with a copy of your IRB approval letter.

Sincerely,

Mary Harrington
Director of Institutional Research and Assessment
## APPENDIX B

**GRADUATION RATES IN MISSISSIPPI COMMUNITY COLLEGES**

<table>
<thead>
<tr>
<th>College</th>
<th>Grad. Rate 150%</th>
<th>Grad. Rate 100%</th>
<th>Completions per 100 students</th>
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<td>Meridian Community College</td>
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# GRADUATION RATES IN MISSISSIPPI COMMUNITY COLLEGES

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APPENDIX C

TOTAL UNDUPlicated HEADCOUNT EnROLLMENT
FIRST-TIME TRANSFER STUDENTS EnROLLED From
PUBLIC COMMUNITY/JUNIOR COLLEGES IN MISSISSIPPI
FALL SESSION 2009

v The table below lists Mississippi’s 15 public community/junior colleges and the number of students who transferred to a four-year public university for the first time.

v The largest number of transfer students attended Mississippi Gulf Coast Community College. Of these 546 students, 426 enrolled at USM and 71 enrolled at MSU.

v 28.3% of all the first-time transfer students were enrolled at USM during the Fall 2010 session.

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The data presented do not include the University of Mississippi Medical Center.
Source: Institutions of Higher Learning Management Information System.
The table below lists Mississippi's 15 public community/junior colleges and the number of students who transferred to a four-year public university for the first time.

The largest number of transfer students attended Mississippi Gulf Coast Community College. Of these 590 students, 459 enrolled at USM and 94 enrolled at MSU.

27.4% of all the first-time transfer students were enrolled at USM during the Fall 2010 session.

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<th>MSU</th>
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The data presented do not include the University of Mississippi Medical Center.

Source: Institutions of Higher Learning Management Information System.
The table below lists Mississippi's 15 public community/junior colleges and the number of students who transferred to a four-year public university for the first time.

The largest number of transfer students attended Hinds Community College. Of these 640 students, 253 enrolled at JSU and 111 enrolled at MSU.

27.9% of all the first-time transfer students were enrolled at USM during the Fall 2011 session.

<table>
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<th>College</th>
<th>ASU</th>
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<th>MSU</th>
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<th>Total</th>
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<tr>
<td><strong>Total</strong></td>
<td>192</td>
<td>364</td>
<td>468</td>
<td>1302</td>
<td>384</td>
<td>125</td>
<td>935</td>
<td>1458</td>
<td>5218</td>
</tr>
</tbody>
</table>

The data presented do not include the University of Mississippi Medical Center.

Source: Institutions of Higher Learning Management Information System.
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