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## The Effect of the Pre-Kindergarten Program on the Reading Achievement Of African American Students

Sebrina R. Palmer

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The effect of the Pre-kindergarten program on the reading achievement of African  
American students

By

Sebrina R. Palmer

A Dissertation  
Submitted to the Faculty of  
Mississippi State University  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy  
in Elementary, Middle, and Secondary Education Administration  
in the Department of Leadership and Foundations

Mississippi State, Mississippi

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The effect of the Pre-kindergarten program on the reading achievement of African  
American students

By

Sebrina R. Palmer

Approved:

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Jianzhong Xu  
(Director of Dissertation)

---

Debra L. Prince  
(Committee Member)

---

D. Kay Brocato  
(Committee Member)

---

James E. Davis  
(Committee Member/Graduate Coordinator)

---

Richard L. Blackburn  
Dean  
College of Education

Name: Sebrina R. Palmer

Date of Degree: May 8, 2015

Institution: Mississippi State University

Major Field: Elementary, Middle, and Secondary Education Administration

Major Professor: Dr. Jianzhong Xu

Title of Study: The effect of the Pre-kindergarten program on the reading achievement of African American students

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Candidate for Degree of Doctor of Philosophy

This study utilized the 2013 language arts data from the Mississippi Curriculum Test II to examine the impact Pre-k has on the reading achievement of low socio-economic African American students. This study was guided by one research question and employed a causal-comparative research design. The research question sought to determine the difference in MCT2 language arts scores of third grade students who participated in a school district's Pre-k program and those who did not attend the district's Pre-k program. The results indicated that there was a significant difference in the language arts scores of students who attended Pre-k and those that did not. The study concludes with implications for practicing educators and recommendations for future research.

## DEDICATION

I dedicate this dissertation to the One who continues to do exceedingly and abundantly above all that I could ever imagine. I dedicate this degree to the One who was able to keep me from falling. I dedicate this degree to the One that reminded me that the race is not given to the swift nor to the strong but to the one that endures to the end. I dedicate this degree to my number One, Lord and Savior Jesus Christ, for keeping me through it all.

This degree is dedicated to my children, Jaylan and Cedric Jr., who have given so much of their “mommy time” to allow me opportunities to focus, write, defend, and complete this phase in my educational journey. I love you unconditionally and pray God’s blessings upon the many dreams and aspirations that you have. I pray that I have been an example of persevering through a task where God is put in the center of the puzzle and everything else seems to fall into place.

I also dedicate this degree to my parents, Walter and Bettye Palmer, for their constant prayers, encouragement, and support; especially during those time when the end seemed so far out of reach. Thank you for pushing me to complete this degree in spite of life’s challenges. You helped me focus my eyes on what was possible with God and for that I am forever grateful to you. Thank you for standing in the parenting gap when Jaylan and Cedric Jr. needed to be picked up from school or taken to school activities, and for the parenting guidance given when I could not be there at that very moment.

I dedicate this journey to my 100 year old grandmother, Mrs. Maggie H. Coleman who is a constant reminder of God's grace. Lastly, I dedicate this degree in memory of my deceased grandparents, Elbert Coleman and Willie and Odell Palmer. You are dearly missed but never forgotten.

## ACKNOWLEDGEMENTS

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## CHAPTER I

### INTRODUCTION

#### **Background of the Study**

Equitable education for all children is the premise upon which public education was founded. Zimmerman (1997) noted that the social segregation of African Americans and Caucasians was ruled constitutional by the 1896 case of Plessy versus Ferguson. This ruling by the U.S. Supreme Court intensified efforts to ensure that African Americans and Caucasians were separate in educational and public social settings. Zimmerman (1997) also noted that 50 years later, the case of Brown versus the Board of Education paved the way for equitable schooling for African American and Caucasian children. The Supreme Court (as cited in Cozzens, 1995) ruled unanimously that “in the field of public education the doctrine of separate but equal has no place” (p. 2). This decision required schools throughout the United States of America to desegregate. Ruling segregation in school as unconstitutional was the beginning of the call for equitable education.

Cozzens (1995) contended that the concept behind desegregating schools was to ensure that African American children received the same educational experiences as their Caucasian counterparts. Desegregating schools was seen as a hopeful method of lessening any racial and gender gaps; however, there continues to be glaring racial and gender disparities relating to the academic performance of African American and

Caucasian students (National Center for Education Statistics, 2009). For example, the National Assessment of Educational Progress (NAEP, 2008) released long-term trend data that indicated that fourth, eighth, and twelfth grade African American students consistently performed lower than their Caucasian peers in the areas of reading, writing, science, and mathematics. Additionally, the results suggested that there has been no significant change in the reading achievement gap that exist between African American and Caucasian students. The results also addressed the significant disparity among African American males and their Caucasian and Hispanic male peers.

According to the Education Week Research Center (2011), the 2001 No Child Left Behind Act emphasized accountability and magnified the importance of analyzing data trends that located achievement gaps among racial and gender groups. This legislation, proposed under President George W. Bush's administration, focused on improving academic performance at the state, district, and school levels by increasing the standards of accountability. The United States Department of Education (USDE) also noted that through the concept of meeting adequate yearly progress (AYP), states were challenged to decrease the achievement gaps that existed between affluent and disadvantaged students. Sub-groups, such as race, gender, socio-economic status, and learning disability were scrutinized to determine if achievement gaps existed. If so, states were required to place sanctions on the schools that did not show an adequate yearly progression for each sub-group.

The National Center for Education Statistics (NCES, 2013) reported NAEP data that addressed each of the AYP sub-groups. According to the NCES, Mississippi's NAEP data, spanning over a period of 42 years, revealed disparities among the

subgroups. For example, the 2013 NAEP results revealed an average fourth grade reading scale score of 222 for Caucasian students as being 25 points higher than the average fourth grade reading scale score of African American students. NAEP's trend data showed that female students in fourth grade consistently outperformed their male counterparts in reading. Not only was disparity reflected in the NAEP race and gender results, it was also reflected in the NAEP socio-economic and students with disability status. Of the 52% of African American students assessed that were eligible for free/reduced school lunch, their NAEP fourth grade reading scale score was 30 points lower than the 44% of Caucasian students assessed that were eligible for free/reduced school lunch. Moreover, the 2013 NAEP results showed that students with disabilities' scale score was 39 points lower than students without a disability. NAEP results yield very few changes in the gender and racial gaps that have occurred over the years in Mississippi.

Achievement gaps at the national level set the stage for states to create assessments that adequately measure their students' academic knowledge and college/career readiness. To appropriately focus on the essential federal regulation of closing the achievement gaps, the Mississippi Department of Education (MDE) increased the rigor and complexity of Mississippi's student assessments by transitioning to the Second Edition of the Mississippi Curriculum Test, also referred to as the MCT2.

Introduced in 2007, the MCT2 was a multiple choice criterion-referenced language arts and mathematics assessment that was administered to students in Grades 3 through 8. The multiple choice science portion of the MCT2 was administered to students in Grades 5 and 8. This assessment measured students' performance utilizing a

scale scoring system. The scale scores for each sub-test allowed individual student performances to be rated as: minimal, basic, proficient, or advanced. These individual score performance categories were used within the state's Student Achievement Model to determine school and school district's performance ratings. During the 2013 administration of the state assessment, the performance ratings were reconfigured to align to an A-F grading system. The 2013 Language Arts results revealed a 20-25 point disparity between the performance of the African American and Caucasian students in Grades 3 thru 8. Additionally, results yield that the performance of male students was lower than the performance of female students. Student performance on the Mississippi state assessment mirrored the results of the 2013 NAEP results.

When considering, race, gender and socio-economic factors, the reading achievement gaps that exists among groups of students is disturbing. More concretely, when looking at these factors in isolation, the reading scores on NAEP and MCT2 clearly show that African Americans are the lowest performing race, males are the lower performing gender, and children living in low socio-economic conditions are lower performing than their peers. When considered collectively, the trend data in NAEP and MCT2 scores identify African American males living in low socio-economic conditions as an at-risk population. The Southern Regional Education Board (SREB, 2008) contended that the purpose of infusing Pre-kindergarten programs was to provide equitable opportunities for at-risk children who were likely to drop out of school, be unemployed, and delinquent; thus building a need to measure the influence and impact of early intervention programs such as Pre-k. Public schools' Pre-k programs emerged as an

early intervention for school readiness and as a mechanism to positively impact students' academic performance.

Two longitudinal studies have assessed the effectiveness of early childhood programs; the High/Scope Perry Preschool Project and the Abecedarian Project. These studies, conducted in Michigan and North Carolina respectively, aimed to determine the impact participation in an early childhood education program would have on student learning. The High/Scope Perry Preschool Project longitudinal study revealed that the participants who attended the preschool program performed better academically than the non-preschool program participants. Their academic success was measured according to their graduation rate, standardized test scores, grade point average, and exceptional education placement (Parks, 2000). The Abecedarian Project was a 15 year longitudinal study that targeted infants of at-risk families. The findings revealed that the children who participated in the early childhood program showed positive results in their long-term IQ and in their academic achievement (Children's Action Alliance, 2005). These studies, discussed further in Chapter 2, measured the programs' success by comparing program participants to non-program participants at various phases throughout their educational tenure. Studies addressing the cognitive outcomes of Pre-k programs have been conducted in states such as Florida, Georgia, Kentucky, Maryland, Michigan, New York, South Carolina, Washington, and District of Columbia. These states have begun the process of measuring their state-funded Pre-k programs' effectiveness; however, Mississippi remains the last state in the SREB region to begin the process of state funding Pre-k programs (SREB, 2008).

### **Statement of the Problem**

Researchers have contended that children who are proficient readers by the end of third grade are more likely to complete high school and have a better opportunity to be successful. NAEP data suggested that African Americans, particularly African American males, are at a higher risk for reading failure than their peers (Craig, Conner, & Washington, 2003). In Mississippi, a statewide assessment known as the MCT2 is administered to students in Grades 3 through 8. This test assesses students' knowledge in the areas of language arts, mathematics, and science. Students' performance scores are rated according to their proficiency level. The state's third grade reading achievement data, when disaggregated by gender and race, supports the need for early intervention programs. As stated, the problem for this study was to determine the effect Pre-k has on the reading achievement of African American students.

### **Purpose of the Study**

National data trends identified African American males as the lowest achieving sub-group when compared to peers (NAEP, 2008). Previous years' state data results released from the Mississippi Department of Education mirrored this national trend. The 2009, 2010, 2011, 2012, and 2013 MCT2 results revealed drastic disparities among race and gender (MDE, 2014). The data indicated a 25 point achievement disparity between Caucasian and African American students. The same data also disclosed an 8-point achievement disparity between females and males. When reviewed closely, the 5-year data trend revealed a widening achievement gap between males and females; whereas, the racial disparity remained constant. (MDE, 2014).

The purpose of this study was to investigate the effectiveness a school district's Title I funded Pre-k program had on the reading achievement of its third grade African American students. Specifically, the study compared the reading performance of third grade African American males and females who qualified (based on the parents' socio-economic status) and participated in a large Mississippi school district's Pre-k program with the performance of African American males and females within the same school district who qualified (based on the parent's socio-economic status) but did not participate in the Pre-k program. While other studies examined cognitive outcomes in their individual states, this study explored the effectiveness of the Pre-k program when utilized as an early intervention program in one Mississippi school district. Specifically, this study sought to determine if an at risk population of African American students were identified early and placed in a Pre-k program would there be a positive impact on student learning.

### **Research Question**

This study examined the following question:

Is there a statistically significant difference in language arts MCT2 scores between third grade African American students that qualified (based on SES) and participated in a Pre-k program and third grade African American students that qualified (based on SES) but did not participate in a Pre-k program?

## Definitions of Terms

The following terms and definitions are provided for the readers' clarity.

- *At-Risk Students*- This term references students who are in danger of discontinuing school prior to graduating.
- *Economically Disadvantaged* – This term refers to students who are eligible to receive free or reduced lunch due to their family's income being at or below the federal poverty level. The eligibility requirements to receive meals at a free or reduced rate are specified in the National School Lunch and Child Nutrition Program.
- *MCT2- Mississippi Curriculum Test 2*- This term refers to Mississippi's state-wide grade level testing program. This test is administered in the spring of the school year to third through eighth grade students. The Mississippi Curriculum Test 2 assesses students' knowledge of skills taught in the appropriate grade in the content areas of Reading, Language, and Mathematics.
- *MSIS- Mississippi Student Information System*. This term refers to the electronic collection and storage system that provides detailed information about teachers, administrators, students, and board members. It is a unique tracking system that was created to assist the state in complying with the Performance Based Accreditation Model established by the 1982 Education Reform Act. This system provides timely and accurate reporting of schedules, attendance, grades, transportation, discipline, and

vocational and exceptional education related services that are needed to meet both state and federal requirements.

- *NAEP – National Assessment of Educational Progress* – This term denotes the national test that assesses what students know and can do in mathematics, reading, science, writing, the arts, civics, economics, geography, and U.S. history. A sampling of students, at Grades 4, 8, and 12, are chosen and administered the NAEP assessment each year. The assessment content is based on the National Assessment Governing Board’s frameworks and uses the latest advances in assessment methodology.
- *Pre-k Student* - This term refers to a student who is four years of age on or before September 1, meets the district’s Pre-k program eligibility requirements, and is enrolled in the Pre-k program.
- *Proficiency Level* - This term is the boundary set or cut score students are expected to exceed, meet, or fall below. Students whose performance measures at the advanced level consistently perform beyond what’s required to be successful at the next grade. Students performing at the proficient level demonstrate a solid academic performance and mastery of the content area knowledge and skills required. Basic performing students demonstrate partial mastery of the content. Minimally performing students do not demonstrate mastery of the content nor the knowledge and skills needed to be successful at the next grade (MDE, 2007).

- *Public Schools* - Schools that utilize public funds to provide educational services to students. Public schools are operated by an education agency.
- *Title I Schools* - Schools that meet the eligibility requirements for participation in Title I of Public Law 107-110, the Elementary and Secondary Education Act of 2002.

### **Conceptual Framework of the Study**

The following figure displays the conceptual layout of this study. A population of African American students who qualified for a school district's pre-k program (based upon their socio-economic status) form the first part of this figure. This cohort of students were divided into four distinct groups: (1) African American male Pre-k program participants; (2) African American male non-Pre-k program participants; (3) African American female Pre-k program participants; and (4) African American female non-Pre-k program participants. This conceptual design allowed the student's reading performance on the MCT2 to be compared at Grade 3 for each of the sub-group of students.

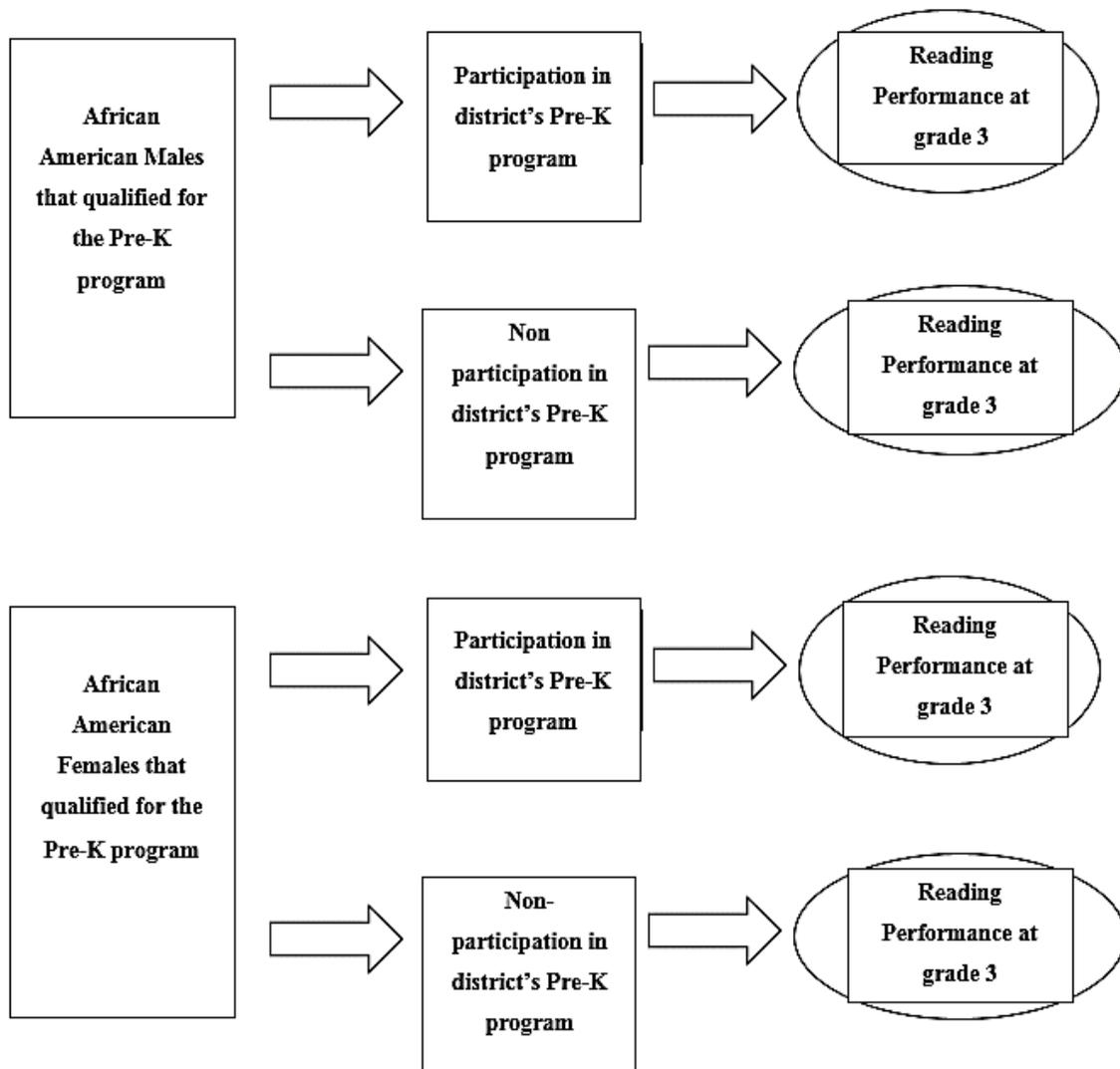


Figure 1. Conceptual Framework.

### Theoretical Framework of the Study

According to the National Institute of Learning, children begin to develop their cognitive and linguistic skills at birth. Adequate and progressive cognitive development is essential to children being proficient readers and writers (Early Childhood Research Quarterly Report, 2010). Both educational theorists and practicing educators recognize the impact a child's environment has on his/her cognitive development; therefore, it is

expected that learning environments are engaging, print-rich and verbally stimulating. Early literacy skills begin to develop within a child's first three years of life; thereby, determining whether a child's academic success will be diminished or amplified as they matriculate through school. The long term effect cognitive development and early literacy has on a child's academic performance was necessary to examine the need for adequate funding for early childhood education programs such as Pre-k.

Cognitive development is defined as the development of intelligence, conscious thought, and one's ability to problem solve (McLeod, 2008). Two well-known theorists, Jean Piaget and Jerome Bruner noted similar and different explanations concerning cognitive development and its effect on the learning success of children (McLeod, 2008).

Piaget's theory detailed four universal stages of cognitive development: sensorimotor, preoperational, concrete operational, and formal operational (McLeod, 2009). According to Piaget's theory, sensorimotor development occurred from birth until the age of two. At this developmental phase, rapid cognitive growth occurred which increased infants awareness of the world around them. The preoperational cognitive phase addressed a child's cognitive growth between the ages of 2 and 7. At this phase children begin to form an understanding of perception and how to form mental pictures of objects. Piaget's third stage of development, concrete operational, occurred between the ages of 7 and 11. The cognitive development that occurred at this age allowed children to demonstrate their understanding of logical and operational procedures by using concrete objects to represent their thought process. The final cognitive stage, formal operational, addressed a child's ability to infer information. It is within this cognitive phase that children demonstrated higher order reasoning skills and abstract thinking.

While Jerome Brunner agreed with Piaget's theory that children are naturally curious and develop cognitively over time, he refuted the idea that the stages of cognitive growth were age specific. Brunner's theory of cognitive development contended that learning was a continuous and ongoing process (McLeod, 2008). His theory argued that one's ability to assimilate new knowledge was not based primarily on age but rather on how knowledge was presented, encoded and stored into memory. Brunner proposed three modes of representation: enactive, iconic and symbolic (McLeod, 2008). Brunner's enactive representation theory involved "encoding action based information into memory". This theory asserted that having an action or movement associated with a thought allowed the individual to encode a memory that would allow them to recall the movement and perform it to retrieve a desired result. The second theory Brunner introduced was iconic representation. This theory emphasized using pictorial or visual images to encode memory. Brunner stated that the use of visual images, such as diagrams and illustrations, were most helpful when they accompanied verbal information. The symbolic mode of representation referred to information that was stored as symbols, codes, or words (McLeod, 2008). Brunner used language as an example of a symbolic mode representation. Brunner's theories were most effective when used sequentially to introduce new learning and ideas; particularly language skills. Studies have shown that strong language skills are necessary for children to become good readers (Snow, 2002).

### **Limitations of the Study**

The high mobility rate of the students within this school district created a challenge when tracking students for data purposes. Additionally, it is important to note

the impact non-stable educational environments have on student learning. Students who are transient may have a more difficult time transitioning from one school to another.

### **Delimitations of the Study**

This study examined one content area on one assessment. The 2013 language arts subtest of the MCT2 was examined to measure the performance of third grade African American students in one large urban school district. This study focused solely on the results of the 2013 administration of the MCT2 results; therefore, this study is not a longitudinal study. Readers should be cautioned when interpreting the results.

### **Significance of the Study**

Jencks and Phillips (1998) noted that the achievement disparities between African American children and Caucasian children continue to widen as students matriculate from Pre-k through twelfth grade. According to NAEP findings, African-American children consistently performed below their Caucasian peers in the areas of science, math, and reading. The 2009 fourth grade NAEP reading assessment revealed that only 12% of African American males performed at or above the proficient level, compared to 38% of Caucasian males (Green, 2010). Green reported that 50% of fourth and eighth grade African American males scored below basic levels on the NAEP assessment. Mississippi's state-wide data mirrors the same racial and gender achievement gaps reported by NAEP. It is important to explore if early intervention, through pre-k programs, can assist in decreasing the present racial and gender gaps; particularly the achievement gap that exists between African American male students and their peers.

Public debate concerning state-funded Pre-k programs has continued to emerge each year. As of 2013, Mississippi became the last SREB state to pass legislation regarding any form of state funding for Pre-k programs. This move by the legislatures was a response to the outpouring of support for schools to begin the process of intervening with students, particularly at-risk students, to ensure that they are adequately prepared for entry into kindergarten. Additionally, strong support emerged regarding the possibility of state funded Pre-k programs. Instead of district's federal dollars being consumed to provide remediation for students that continually fall behind their peers, these funds could be channeled toward other educational expenses that will positively impact student achievement.

The NCES reported that limited studies have been conducted that address the effectiveness of public schools' Pre-k programs. Determining plausible recommendations for effective interventions such as Pre-k is essential to accelerating learning for African-American students. This particular study addressed the impact a large school district's Pre-k program had on the academic achievement of its third grade African American population. The researcher explored the students' performance on the MCT2 language arts sub-test. The study specifically examined the performance of African American students who qualified for and participated in the district's Pre-k program and the performance of African American students who qualified for and did not participate in the program. Determining whether utilizing Pre-k programs, as an early learning intervention method, has an impact on the reading performance of African American students is needed to address the achievement gaps noted in research studies and on state and national assessments. Perhaps the findings of this study will encourage school

district officials to have meaningful conversations with legislators regarding the potential impact of Pre-k programs on literacy success of minority and low socioeconomic students. The findings of this investigation add to previous studies by addressing a gap in the literature on the impact public school's Pre-k programs have on the reading achievement of African American students as they matriculate through school. Knowing the effect Pre-k programs have on the academic achievement of African American students, particularly in this school district, will assist in critical decisions being made regarding use of Title I funds being used to fund such an intervention and the use of proposed state funding opportunities that may be available soon to aid in providing Pre-k programs throughout the state of Mississippi. Additionally, the findings aid in facilitating the data-rich conversation about what components of the Pre-k program could be impacting (both negatively and positively) student learning.

For more than 10 years, studies have been conducted to explore the factors that contribute to the wide racial and gender gaps. Some factors that have been explored include the impact of low social economic status, single parent dwellings, and the educational level of parents. Each of these factors are considered when selecting students to participate in the Title I federally funded Pre-k programs; however, limited exploration has been conducted to examine the effectiveness of pre-k programs throughout the state of Mississippi and few studies have specifically addressed the disparities among African-American students who participated in a large Mississippi school district's early childhood education program and their African American peers who qualified but did not participate in an early childhood education program. The results of this study could be impactful and aid in accelerating the reading achievement of African American students.

## CHAPTER II

### LITERATURE REVIEW

The review of related literature for this study explored the reading achievement gaps that exists among gender and ethnic groups. This study explored the purpose behind creating Pre-k as an early intervention tool to strengthen student's readiness for school. The effect, both short term and long term, are also examined within this chapter to provide a detailed look at the impact Pre-k programs have on student achievement; particularly on African American students that participate in early childhood education programs.

#### **Reading Performance and Achievement**

The 2013 NAEP report revealed that 21% of the fourth grade students in Mississippi performed at the proficient and advanced levels; therefore, ranking Mississippi as the lowest performing state on the fourth grade national reading assessment. NAEP data further indicated that while only 10% of African American students in Mississippi were able to search for specific information, make generalizations about literary and informational text, and connect ideas; 28% of Caucasian students were able to complete these same task (NAEP, 2012). The MCT2 mirrored this achievement gap also. According to the 2013 MCT2 results, African-American students trailed their Caucasian counterparts by an average of 22% in language arts (MCT2, 2013). NAEP

data identified the gender disparity as present but not as wide as the ethnic disparity. Twenty-three percent of fourth grade female students performed at the highest reading performance level while 21% of males performed at the highest performance level (NAEP, 2012). When reviewing trend data published by NAEP, the trend data indicated that females in Grades four, eight, and twelve outperformed their male colleagues in the area of reading. This ongoing disparity has developed a noticeable trend (NCES, 2006). Smith and Wilhelm's gender discussions (as cited in Booth, Elliot, and Bruce, n.d.) identified distinct achievement differences in the reading performance of male and female students. Booth, Elliot, and Bruce (n.d.) linked lower male reading performance to males learning to read at a slower pace than female students. With boys being less eager to read for periods of time, reading is not enjoyable as a hobby, but rather utilized as a method of retrieving work-related information. Bedrosian (2012) explained that males perform better with concrete ideas as demonstrated in math; whereas, female students performed higher on conceptual concepts, such as those found in reading. Sommers (2000) contended that African American males who attend public schools performed lower than any other subgroup. Giribaldi (1992) agreed by reporting that African American students, particularly males were at a higher rate of school failure due to suspension, expulsion, absenteeism, dropout, and low performance on standardized tests. Gurian and Stevens (2004) supported the impact discipline has on male's achievement levels. Their research found that 90% of the disciplinary referrals were for male students. Additionally, Gurian and Stevens (2004) found that males dominated the learning disorder population and were more likely to qualify and be placed in exceptional education services.

## **Purpose of Early Childhood Education Programs**

Grade retention, absenteeism, increasing dropout rates, and low student achievement are outcomes that negatively impact society. To change the trajectory of these negative impacts, early intervention, especially in education could be the medical source needed to change this societal outcome. Kindergarten programs were seen as a way to help more students have access to quality education. Initiated by nationally known philosopher, Friedrich Frobel, kindergarten programs were introduced in Boston, Massachusetts (Andrews & Slate, 2001). The first kindergarten programs in Massachusetts were tuition based; therefore, children from more affluent families were likely to attend. This impact was not the best for less affluent families because these children were not able to participate and receive the same quality education. Often, children from less affluent families were enrolled in day nurseries (Andrews & Slate, 2001).

A few years after implementing kindergarten programs, Massachusetts developed a free non-tuition based kindergarten program for children ages four to six. Three years later Massachusetts opened a second non-tuition based kindergarten program. Massachusetts' kindergarten program success lead the charge to expanding kindergarten programs into thirty other states. The implementation of kindergarten continued to grow in the private sector; however, kindergarten programs in the public educational systems in the United States did not take flight until the turn of the century. Upon implementation, the public educational systems began operating over half of the kindergarten programs in the United States (Andrews & Slate, 2001).

As the importance of kindergarten became the focus, the federal government began seeking ways to support the initiative. Focusing primarily on providing quality preschool education for children from low-income families, President Lyndon B. Johnson's War on Poverty brought forth Pre-k programs for disadvantaged children. The Economic Opportunity Act of 1964 and the Elementary Secondary Act of 1965 were designed to bridge the gap between poverty and prosperity (Andrews & Slate, 2001). The Economic Opportunity Act resulted in Project Head Start programs for four and five year old children from low-income families. According to Reed and Bergemann (as cited by Andrews and Slate, 2001) the Project Head Start programs addressed the mental, physical, and intellectual development of children in poverty.

Early childhood programs have increased tremendously since their inception in the 1800's. The development and continuation of today's Pre-k programs help bridge learning gaps and break poverty cycles (Spodek & Saracho, 1994). Two well-known research studies, High/Scope Perry Preschool Project and the Abecedarian Project, have served as model programs that support the research surrounding the effectiveness of Pre-k programs (Parks, 2000).

The High/Scope Perry Preschool Project is an ongoing longitudinal study. The High/Scope Educational Research Foundation began this study in 1962 with 123 high-risk African American children ages three and four. Born and raised in a poverty stricken community in Ypsilanti, Michigan, each participant had a low socioeconomic status, low IQ score, and were at a high risk of failing school. At the initial phase of the study, the participants were randomly placed into two groups. Group one consisted of 58 participants who would participate in the preschool program. Group two consisted of 65

participants who would not participate in the preschool program. The two groups were alike in IQ, socioeconomic status, age, and gender. The groups were also aligned with no differences between their parents' education level, household density, or father absence. On an annual basis, researchers collected data on the participants. The outcomes of the High/Scope Perry Preschool longitudinal study revealed that the participants who attended the preschool program had better outcomes compared to the participants who did not attend the preschool program. Preschool program participants performed better academically. Their academic success was measured by their graduation rate, standardized test scores, grade point average, and exceptional education placement (Parks, 2000).

The Abecedarian Project is a 15-year longitudinal study that targeted infants of at-risk families. Study participants were solicited and referred through clinics, local hospitals, and the state's social service department. The participant selection process entailed home visits, interviews, a psychological evaluation, and a socio-demographic screening. The participant selection yielded predominately African American families (98%) mostly headed by single female parents (83%). Many were low-income families with low levels of parent education. The parent's average age was 20. The Abecedarian Project placed 57 of the participants in a high quality full-day daycare; the remaining participants did not attend the day care. The findings revealed that the children who attended the high quality full-day daycare showed positive results in their long-term IQ and their academic achievement (Children's Action Alliance, 2005). Additionally, the students who participated in the early childhood program were less likely to need special education services or to repeat a grade. This study revealed that there are long term

benefits of having participated in an early childhood program. The long term effect of the study is referenced by the higher percentage of students that graduated from high school and attended a four year college (SREB, 2010).

### **Effect of Early Childhood Education on Student Achievement**

The National Center for Education Statistics launched a national survey ten years ago to respond to concerns addressing the lack of current data that existed regarding the impact of Pre-k programs in public elementary schools. The findings, published in March 2003, determined that there were approximately 19,900 public schools with Pre-k programs. Over the years, state funded Pre-k initiatives have surfaced with the intent to increase the number of Pre-k programs to aid in enhancing a child's school readiness level. During the 2004-2005 school year, the National Institute for Early Education Research (NIEER) reported that 38 states offered monetary support to Pre-k programs (Barnett, Hustedt, Robin, & Schulman, 2005). In 2010, five southern states had successfully enlisted the support of lawmakers to support state-funded Pre-k programs. Those states were Arkansas, Tennessee, Louisiana, Georgia, and South Carolina. The SEF noted Mississippi as the only southern state to not have a state supported Pre-k program; thus making the risk even greater that Mississippi students would likely continue to lag behind their peers. According to SEF, more than 29% of Mississippi's four-year-old children attended Head Start programs primarily due to Head Start being federally funded (SEF, 2010a). Seven percent participated in private pre-school programs while 53% attended some form of early childhood program. The remaining 11% were less likely to be participating in any form of early childhood program (SEF, 2010). Mississippi has the same need for Pre-k programs as its surrounding states. In

2008, the retention rate of Mississippi's kindergarten and first grade students was alarming. One out of every 14 students had to repeat kindergarten and/or first grade (SEF, 2010). These statistics are mirrored by the low academic performance of students and the increase in the state's drop-out rate. Research, such as the Abecedarian study, supports the positive effects of Pre-k such as reducing the number of student retentions and the likelihood that students will attend a four year college (Spodek & Saracho, 1994).

On the contrary, there are studies that dispel the theories that early childhood programs have a lasting effect on student performance. The study conducted by the Westinghouse Learning Corporation (Ohio University, 1969) found that there was a performance difference between head start participants and non-head start participants when they entered kindergarten; however, the study concluded that by the end of the third grade, the two groups performance had no significant difference; thus determining that the effect of the program faded away.

A recent study (Nail, 2008) conducted in Texas examined the relationship between state funded Pre-k programs and students' academic achievement. Conducted in a central Texas school district, the study compared the students' initial Pre-k scores to the students' third grade state assessment results. The study (Nail, 2008) examined the performance of students who qualified and participated in the state's Pre-k program to students who qualified but did not attend the state funded Pre-k program. The findings of the study (Nail, 2008) revealed that there was no significant difference in state assessment scores for students that participated in the state's Pre-k program and students' who did not participate in the Pre-k program (Nail, 2008). Long-term effects of the

program are essential to the return of investments that legislatures and investors of early childhood education will want to make certain is occurring.

In 2001, eight states lacked state-funded Pre-k programs: Idaho, Montana, South Dakota, Utah, Montana, Indiana, Wyoming, and Mississippi. As of 2010, Mississippi was the only Southern state without a state supported Pre-k program; however, Mississippi's need for Pre-k programs is evident in its own data (SREB, 2008). In 2008, data revealed that 32% of Mississippians who dropped out of school lived in poverty and the unemployment rate for dropouts was three times higher than for those individuals who earned a college degree. Former Mississippi Governor William Winter (SEF, 2010a) stated that "real education progress is not possible in Mississippi without doing something significant about Pre-k programs (p. 3).

With recent NAEP scores articulating the glaring gender and racial disparities that exist among African American students and their peers, it is interesting to note that research studies that examined the effectiveness of Pre-k programs agreed that there is a short term effect, but disagree on the long-term effectiveness of the program. Although there may be successful performance gained when students participate in early childhood programs, there is also the possibility that the program's effectiveness may fade over time. These two contrasting thoughts lead this researcher to conduct an inquiry into the relationship of Pre-k participation and reading achievement of third grade African American students in a large urban school district in Mississippi. Determining whether there is a relationship between Pre-k programs and the reading achievement of African American students is needed to close the existing performance gap at third grade.

## CHAPTER III

### METHODOLOGY

This chapter presents the research methodology used in the research. The chapter is presented in the following sections: research design and methodology, research question, participants, research site, reliability and validity of the instrument, data collection, and data analysis.

#### **Research Design and Methodology**

A causal-comparative research design method was used for this study. Causal comparative research explores reasons for an existing difference in a group of individuals (Gay & Airasian, 2003). The dependent variable for this research study was reading achievement and the independent variables included gender and Pre-k participation.

For this quantitative study, the researcher created comparison groups that were similar in socioeconomic status (i.e. free/reduced lunch) and ethnicity (i.e. African American students). The variables that primarily distinguished the four groups from each other were the students' participation in the school district's Pre-k program and the students' gender. The information needed to place students into groups was extracted from the district's 2008-2009 and 2009-2010 MSIS. Existing data were needed for this study; therefore, the researcher requested permission from the school district's Superintendent to conduct the study. Upon approval, the researcher was provided

existing data from the school district's Office of Research and Accountability. The data provided to the researcher included the students' lunch status, gender, race, Pre-k participation status, students' language arts performance level and language arts scale score. Once collected, data were sorted according to the following groups: (a) African-American male students who qualified and participated in the school district's Pre-k program; (b) African-American male students who qualified but did not participate in the school district's Pre-k program; (c) African-American female students who qualified and participated in the school district's Pre-k program; and (d) African-American females who qualified but did not participate in the school district's Pre-k program.

### **Research Question**

Is there a statistically significant difference in language arts MCT2 scores between third grade African American students that qualified (based on SES) and participated in a Pre-k program and third grade African American students that qualified (based on SES) but did not participate in a Pre-k program?

### **Participants**

The participants in this study were enrolled in the same large school district and participated in the administration of the third grade MCT2 in May of 2013. During the 2008-2009 school year, 25 of the 38 elementary schools in the district provided Pre-k classes. Several schools offered two Pre-k classes while smaller populated schools offered one Pre-k class. During the aforementioned school year, each school housed 20-40 students within their Pre-k program resulting in the school district's 423 Pre-k enrollment.

The study participants either entered the school district during the 2008-2009 school year as Pre-k students or entered the school district during the 2009-2010 school year as first time kindergarteners. Of the 1991 research participants, approximately 49% of the students were male and 51% of the students were female. All of the students were economically disadvantaged and received free or reduced lunch. When disaggregated into categories based upon gender and Pre-k participation status, data revealed that 251 third grade male students had participated in the Pre-k program while 721 males had not participated in the Pre-k program. Additionally, data disclosed that 172 females students had participated in the Pre-k program; whereas, 847 females had not participated in the Pre-k program.

### **Research Site**

Participants in this study attended a large school district that served approximately 30,000 students. During the 2012-2013 school year 97% of the district's student population was African American; whereas, Caucasian, Hispanic, Asian, and Native Americans comprised the remaining 3% of students educated in the school district. Seventy-eight percent of students received free or reduced meals. Of the 25 elementary schools in the district that provide the Pre-k program, 10 of the 25 (or 40%) received an A, B, or C rating which equates to a successful, high performing, or star performance accountability rating. Fifteen (or 60%) of the elementary schools received a D or F rating correlating to a low performing or failing accountability rating (MDE, 2013).

## **Reliability and Validity of the Instrument**

The researcher utilized archived MCT2 achievement data to address the research question related to this study. Each spring, the MCT2 is administered to students in Grades 3 through 8. This test, in accordance with Mississippi Code of 1972, title 37, chapter 16, is designed to measure students' progress in the areas of language arts and mathematics and is used to help determine the educational and instructional needs of Mississippi's school districts, schools, and students. The 2013 MCT2 assessed the content standards that teachers were required to teach based upon the Mississippi Curriculum Frameworks for language arts. The Mississippi Curriculum Frameworks were designed to inform teachers of the grade-level content skills they are to teach students. According to the 2013 MCT2 Interpretive Guide the language arts test consisted of 63 multiple choice items to assess students' ability in four competencies: vocabulary, reading, writing, and grammar. The students' performance in each area is tabulated to produce a collective scale score ranging from 120-180. The students' scale scores also correlated to the four proficiency performance levels: minimal, basic, proficient, and advanced. The 2013 third grade language arts assessment's scale score and proficiency levels were as follows:

- Advanced – students scoring with a scale score of 162 and above
- Proficient – students scoring with a scale score range of 150-161
- Basic – students scoring with a scale score ranging from 138 to 149
- Minimal – students scoring with a scale score of 137 or lower

The Pearson Testing Company and the MDE utilized various analyses to evaluate the reliability and validity of the test. The MCT2 reliability was measured using the

Cronbach's Alpha ( $\alpha = .88$ ; MDE, 2013). This method measured the internal consistency of the assessment based primarily on how students responded to one test item as compared to their ability to respond to another test item the same way (Gall, Gall, & Borg 2003). Both item development and item review process efforts were made to determine if an item was bias for any subpopulations in the state of Mississippi.

To validate that the MCT2 measured what it purports to measure and to ensure the appropriateness of the interpretations made from test scores, three types of validity procedures were utilized by the MDE and Pearson testing company: content validity, construct-related validity, and criterion-related validity. Content validity was established to ensure that the test items measured the specific knowledge and skills described in the 2006 Mississippi Curriculum Framework for Language Arts. Additionally, the Pearson testing company conducted a Norman Webb study to evaluate the alignment of the competencies and objectives listed in the Mississippi Curriculum Framework with Depth of Knowledge levels (MDE, 2008).

Construct validity, one of the most important forms of validity, referred to what the test scores mean and what kinds of inferences they support. For the MCT2, four metrics of construct validity were reviewed: alignment of the MCT2 with test specifications, item-total point-biserial correlations, inter-correlation among competencies, and construct validation through confirmatory factor analysis. The MDE planned to continue a comparative analysis of performance on the MCT2 and NAEP. According to the MCT2 Technical Manual published in 2013, the MCT2 test covered the essential instructional objectives and competencies as required by the MCT2 test blueprint.

### **Data Collection**

Existing data were used for this study; therefore, the researcher requested official approval from the school district to conduct the study. Upon approval, the researcher solicited data from the school district's Office of Research and Accountability. The data provided to the researcher were extracted from the MSIS. The data requested included the language arts MCT2 scale scores for third grade students, students' performance level, students' gender, ethnicity, and students' lunch status. Once collected, data were sorted according to the sub-groups identified in the participants section of this chapter.

### **Data Analysis**

Analysis of Variance (ANOVA) procedures were used to determine if there is any effect on the academic achievement of the groups based upon their participation/non-participation in the district's Pre-k program. Specifically a two-way ANOVA was used in the study; whereas reading achievement served as the dependent variable, and gender and Pre-k status served as the independent variables. As a means of controlling the SES, defined in this study as eligibility for free or reduced lunch, only students who qualified for free or reduced lunch were included. MCT2 was the state assessment administered to students during the Spring of 2013. The gender categories consisted of African American males and African American females. Those students selected for participation in the study participated in the district's Pre-k program in 2008-2009 or were first time kindergarten enrollees during the 2009-2010 school year.

## CHAPTER IV

### RESULTS

Chapter four presents the findings of the analysis in determining if there was a statistically significant difference in the language arts scores, as measured by the MCT2, of students that participated in the Pre-k program and those students that did not participate in the Pre-k program. This chapter presents a descriptive summary of the scores of the measure (MCT2 language arts) that provided the data for this study and the results of the data analysis used to answer the research question:

Is there a statistically significant difference in language arts MCT2 scores between third grade African American students that qualified and participated in a Pre-k program and third grade African American students that qualified but did not participate in a Pre-k program?

#### **Descriptive Summary of Measure**

During the 2012-2013 school year, the third grade students were administered the MCT2. The language arts scores for African American students attending 25 elementary schools were used to determine the effect of Pre-k. The scores of students of other races and those that did not attend one of the selected elementary schools during the 2013 administration of the MCT2 were eliminated from the study. A summation of the selected students' demographic data are provided in Tables 1 and 2.

Table 1 displays the gender percentages of the third grade students that were administered the MCT2 in 2013. As seen in Table 1, 48.8% of the students were male students and 51.2% of the students were female.

Table 1

*Demographics of Third Grade African American Students by Gender*

	<b>Frequency</b>	<b>Percentage</b>
Males	972	<b>48.8</b>
Females	1019	<b>51.2</b>
<b>Total</b>	<b>1991</b>	<b>100.0</b>

Table 2 displays the participation and non-participation status of the third grade students. Of the 1991 students, 21.2% of the students participated in the district’s Pre-k program and 78.8% of the students did not participate in the school district’s Pre-k program.

Table 2

*Demographics of Third Grade African American Students by Pre-k Participation*

	<b>Frequency</b>	<b>Percentage</b>
Pre-k Participants	423	<b>21.2</b>
Non Pre-K Participants	1568	<b>78.8</b>
<b>Total</b>	<b>1991</b>	<b>100.0</b>

Table 3 displays the participation status for each gender group. As displayed in Table 3, 24.1% of the male students participated in the Pre-k program and 75.9% did not participate in the Pre-k program. Table 3 also reveals that 16.9% of female students participated in the Pre-k program and 83.1% did not participate in the district's Pre-k program.

Table 3

*Third Grade African American Students by Gender and Pre-k Participation*

	<b>Male</b>	<b>Percentage</b>	<b>Female</b>	<b>Percentage</b>
Participants	251	24.1	172	16.9
Non Participants	721	75.9	847	83.1
<b>Total</b>	<b>972</b>	<b>100.0</b>	<b>1019</b>	<b>100.0</b>

**Analysis for Research Question**

This section of Chapter 4 presents the results of the data analyses that were used to answer the research question that guided this study. The research question asked whether a statistically significant difference in language arts MCT2 scores existed between third grade African American students that qualified and participated in a Pre-k program and third grade African American students that qualified but did not participate in a Pre-k program. The research question was answered by analyzing the 2013 archived achievement data of 1991 third grade African American students with free and reduced lunch statuses.

An ANOVA of the 2013 MCT2 language arts scale scores was used to determine if a significant difference existed in the academic performance of third grade African American females and African American males when controlling SES and Pre-k participation. A two by two ANOVA was computed to determine MCT2 Language Arts scale score differences in gender and pre-k experience. ANOVA results, as displayed in Table 4, showed a significant main effect for gender,  $F(1, 1987) = 12.45, p < .001$ , partial  $\eta^2 = .006$  and pre-K experience  $F(1, 1987) = 123.97, p < .01$ , partial  $\eta^2 = .059$ . The analysis of scores revealed that the mean MCT2 language arts score for females ( $n = 1019, m = 148.90, SD = 13.12$ ) was statistically significantly higher than the mean MCT2 language arts score for males ( $n = 972, m = 145.20, SD = 13.88$ ) as displayed in Table 5. The analysis of the results also indicated that the mean MCT2 language arts score of students who did not attend the pre-K program ( $n = 1568, m = 148.88, SD = 13.27$ ) was statistically significantly higher than the mean MCT2 language arts score of students who attended the pre-K program ( $n = 423, m = 140.47, SD = 12.85$ ) as indicated in Table 6. The interaction between factors (gender and pre-K status) was not significant,  $F(1, 1987) = .961, p = .327$ , partial  $\eta^2 = .000$ ; therefore, it appears that attending the pre-K program resulted in lower MCT2 language arts for both males and females as displayed in Tables 7 and 8.

Table 4

*ANOVA Summary: Language Arts Mean Scale Scores by Gender and Pre-K*

*Participation*

<b>Source</b>	<b>Type III Sum</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Corrected Model	2814.531	3	9382.844	54.665	.000	.076
Intercept	27090776.920	1	27090776.920	157832.339	.000	.988
Gender	2137.687	1	2137.687	12.454	.000	.006
Pre-K	21278.392	1		123.969	.000	.059
Participant	21278.392			.961	.327	
Gender*Pre-K	164.941	1	164.910			.000
Error	341054.146	1987	171.643			
Total	43448894.000	1991				
Corrected Total	369202.677	1990				

R squared = .076 (adjusted R squared = .075)

Table 5

*Third Grade African American Students Language Arts Mean Scale Scores by Gender – 2013 MCT2*

<b>Gender</b>	<b>Mean</b>	<b>SD</b>	<b>N-Count</b>
Females	148.90	13.121	<b>1019</b>
Males	145.20	13.882	<b>972</b>
<b>Total</b>	<b>147.10</b>	<b>13.621</b>	<b>1991</b>

Table 6

*Third Grade African American Students Language Arts Mean Scale Scores by*

*Participation Status – 2013 MCT2*

<b>Participation Status</b>	<b>Mean</b>	<b>SD</b>	<b>N-Count</b>
Non Pre-k	148.88	13.270	<b>1568</b>
Pre-k	140.47	12.850	<b>423</b>
<b>Total</b>	<b>147.10</b>	<b>13.621</b>	<b>1991</b>

Table 7

*Third Grade African American Females Language Arts Mean Scale Scores by*

*Participation Status – 2013 MCT2*

<b>Gender</b>	<b>Pre-K Participation</b>	<b>Mean</b>	<b>SD</b>	<b>N count</b>
Females	No	150.39	12.697	847
Females	Yes	141.57	12.734	172
<b>Total</b>		<b>148.90</b>	<b>13.121</b>	<b>1019</b>

Table 8

*Third Grade African American Males Language Arts Mean Scale Scores by Participation**Status – 2013 MCT2*

<b>Gender</b>	<b>Pre-K Participation</b>	<b>Mean</b>	<b>SD</b>	<b>N count</b>
Males	No	147.11	13.710	721
Males	Yes	139.71	12.900	251
<b>Total</b>		<b>145.20</b>	<b>13.882</b>	<b>972</b>

**Summary**

The purpose of this study was to determine if there was a significant difference in the MCT2 language arts scores of African American students that participated in the Pre-k program and those that did not participate in the Pre-k program. The results indicate a significant difference in the performance of female and male students. Female students that had not participated in the Pre-k program scored higher than the females that participated in the Pre-k program. Additionally, the females that participated in the Pre-k program scored higher than the males that had not participated in the Pre-k program as well as the males that had participated in the Pre-k program. In both instances, regardless of gender, the females and males that had not participated in the Pre-k program outperformed their female and male counterparts that had participated in the Pre-k program.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter includes a summary of the findings of the study, conclusions drawn from the findings, limitations, implication for practice, and recommendations for additional research that may be completed to further enhance or extend this study. The purpose of this study was to determine the effect Pre-k programs have on the academic achievement of third grade African American students. This study employed a causal-comparative research design to determine if there was a difference in language arts MCT2 scale scores for students that attended a Pre-k program and students that did not attend a Pre-k program.

#### **Summary**

##### **Research Question**

Is there a statistically significant difference in language arts MCT2 scores between 3<sup>rd</sup> grade African American students that qualified (based on SES) and participated in a Pre-k program and 3<sup>rd</sup> grade African American students that qualified (based on SES) but did not participate in a Pre-k program?

The results of the analysis of research for this question indicated that there was a statistically significant difference in the MCT2 language arts scores for third grade African American students that attended Pre-k and third grade African American grade

students that did not attend the Pre-k program. The analyzed data showed that African American students that did not attend Pre-k scored significantly higher than African American students that did attend the Pre-k program. Additionally, the results revealed that female students, whether Pre-k participants or non-Pre-k participants, scored significantly higher than their male peers. More specifically, female students that did not attend the Pre-k outperformed each of the following sub-groups: African American females that participated in Pre-k, African American males that did not participate in Pre-k, and African American males that did participate in Pre-k.

### **Conclusions**

In 2013, the Literacy-Based Promotion Act was enacted by Mississippi Governor Phil Bryant, as a method of ensuring that students are proficient readers by the end of third grade. Referred to as the Third Grade Reading Gate, this legislation led to the creation of a third grade summative assessment to determine if third grade students were reading below, at, or above grade level. According to the Literacy-Based Promotion Act, students that do not read at or above grade level by the end of their third grade year will not be promoted to the fourth grade unless they are classified as a student that meets one of the good cause exemptions (Literacy-Based Promotion Act, 2013). This state legislation was enacted in response to Mississippi students' poor academic performance on national assessments, such as NAEP.

The review of literature in chapter two showed that while studies such as the High/Scope Perry Preschool Project (Parks, 2000) and the Abecedarian Project (Spodek & Saracho, 1994) found evidence to support improved academic achievement of program participants, there are other research studies, such as the Westinghouse Learning

Corporation (Ohio University, 1969) and the Texas Project (Nail, 2008) that dispelled the idea that improved academic achievement extended over a period of time. The commonalities and differences of impact results among the four aforementioned studies and this study illuminates the significance of measuring the effect of Pre-k within this school district.

The results of the High/Scope Perry Preschool Project indicated that program participants scored significantly higher than the non-program participants (Parks, 2000). While it is important to note that program participants were provided with weekly home visits, it is also important to note that parents attended monthly small group meetings which fostered parental involvement (Parks, 2000). Additionally, the High/Scope Perry Preschool Project research team collected data on an annual basis. Whether the data collected were utilized to make adjustments within the program as it relates to teacher credentials, professional development, or parent training, is unknown; however, these factors could contribute to the academic achievement of the High/Scope Perry Preschool Project participants. The results of this researcher's study contrasts the High/Scope Perry Preschool Project results. The present researcher's study results indicated that non-Pre-k participants performed higher than Pre-k participants; however, possible explanations for these result differences could be explained through the use of the High/Scope Perry Preschool Project incorporating teachers' weekly home visits and hosting monthly parent meetings to increase parental involvement.

According to findings within the Abecedarian Project, program participants performed better than non-program participants. When comparing the Abecedarian Project to this researcher's study, there are glaring differences in the supplemental

services, student-teacher ratio, hours of operation, and length of program. According to Masse and Barnett (2002) the Abecedarian preschool and control groups received nutritional supplements, social services, and health care. The preschool participants also attended school year round and extended learning time was provided due to the preschool program operational hours lasting from 7:30 a.m. until 5:30 p.m. on weekdays. The student-teacher ratio ranged from one adult for every 3 children to one adult for every 6 children. (Masse & Barnett, 2002). The present research study participants were not provided supplemental services through the school district. The teacher-student ratio of one adult for every 10 students is approximately twice the teacher-student ratio utilized in the Abecedarian Project. Year round schooling was not an option for this researcher's study and weekday school hours were limited to 7:30 a.m. to 2:15 p.m. The Abecedarian participants were mostly African American participants; whereas, this researcher's study utilized only African American subjects.

Overall, the findings in the present research study produced results that contrast the High/Scope Perry Preschool Project and the Abecedarian Projects results. Both the High/Scope Perry Preschool Project and the Abecedarian Project found that significant differences existed as indicated by program participants out-performing non-program participants while this researcher's study found the opposite effect. This researcher's study results found that non-Pre-k participants scored significantly higher than Pre-k participants. The result differences could be explained through factors such as:

- Length of the academic school year (i.e. year round school versus nine month schooling).

- supplemental services (i.e. nutritional supplements, social services, healthcare) being provided;
- teacher-student ratios;
- length of daily instructional hours;
- weekly home visits conducted by teachers;
- monthly parent meetings held to increase parental involvement; and
- program participants ethnicity

The Westinghouse Learning Corporation and Texas Projects (as cited in Nail, 2008) both dispute the long term effect of Pre-k programs. The research findings for the Westinghouse Learning Corporation (Ohio University, 1969) and the Texas Project (Nail, 2008) indicated that while there may be limited positive student achievement impact at the earlier grades, by the end of third grade there was no significant difference in the performance of Pre-k participants and non-Pre-k participants.

This study contrasts the Westinghouse Learning and Texas Project research because it revealed that by the end of third grade there was a significant difference in the performance of Pre-k participants and non-Pre-k participants. The significant difference lies in the non-Pre-k program participants performing higher than the Pre-k program participants. The Texas project focused on the low socio-economic population; however, the participant's within the population consisted of African American, Caucasian, and Hispanic students. This present study focused solely on the performance of low socio-economic African American students. Each of the studies' results were measured utilizing their state assessment. The Texas Project utilized the Texas state assessment to

measure the language arts and mathematic achievement of the participants; whereas, the MCT2 was utilized to measure the academic achievement of this study's population.

Although different in most performance outcomes, this researcher's findings aligned with all four of the previously referenced studies when comparing the academic performance of males and females. In each study, female students scored significantly higher than their male counterparts. This trend is further acknowledged in the NAEP scores referenced in previous chapters (NAEP, 2013).

The present study extends previous research in several important ways. Although research exists, Gilliam and Zigler (2004) noted:

In many states, formal evaluation of program implementation and impact is mandated in the state legislation authorizing the program. However, most states have not formally evaluated the impacts of their state-funded Pre-k programs, and most states that have conducted such evaluations have relied on less-than-rigorous methods of estimating program effects. (p. 5)

Research regarding Mississippi's Pre-k program is not extensive and deserves further exploration in order to adequately measure its impact on student learning. While most southern states within the SREB have state-funded Pre-k programs, Mississippi is the only high poverty state without a state-funded Pre-k program. Due to the lack of research on the impact Pre-k has on Mississippi's students, more attention should be given to this program. Secondly, this study contributes to prior research on Pre-k effectiveness and its unique impact on under-performing, at risk populations, such as low socio-economic African American students. By narrowing the focus to this particular population, the researcher extends the study of Nail (2008) and research on Pre-k by

focusing on African American students in a public school district's Pre-k program. Additionally, other studies, such as the High/Scope Perry Project and the Abecedarian Projects, have suggested a need for more research on the long-term effect of early childhood programs. With the onset of the Third Grade Reading Gate, knowing the impact a state funded Pre-k program has on student achievement can aid district administrators in determining if funds should be further directed into the Pre-k program or utilized in subsequent school years, such as kindergarten, first or second grades.

The present study also presented findings that were consistent with the NAEP trend of female students performing higher than male students. Being able to determine factors that contributed to these findings allows more research to be constructed to determine ways to lessen the achievement gap that exists among gender and racial groups and eradicate the low achievement of African American students, particularly males.

This study compared MCT2 language arts scores of third grade African American students who attended Pre-k and African American students who did not attend Pre-k. As noted in chapter two there are studies that argue in favor of Pre-k effectiveness due to the favorable results found in lower grades; however, there are researchers that contend that the long-term impact of effectiveness does not correlate to the amount of investment needed to fund such an intervention that has a low return on investment. Due to inconsistencies in the results of academic achievement and Pre-k participation, the argument of the impact participation in Pre-k has on increasing student achievement continues.

### **Limitations of the Study**

The limitations of a study implies that there are elements within the study in which the researcher cannot control. This study was limited by the participants' mobility rate. Students that are transient or have a high mobility rate have a more difficult time receiving a stable educational environment while enrolled in school. Additionally, students with a high mobility rate are more difficult to track for data purposes. This study was also limited due to the number of teachers that students were exposed to between kindergarten and third grade. Various years of teaching experience and teacher training may have also impacted the student learning process.

### **Implications for Practice**

As Mississippi school districts continue to channel state and federal funding into Pre-k programs, it is important that factors that could increase the long term effect of student achievement be considered. When comparing this study's findings to other research that indicate increased student achievement at third grade and beyond, there are several implications to consider.

State education leaders, superintendents, and principals should consider infusing several key components that may benefit the impact the Pre-k programs have on students; especially low socio-economic African American students. The findings of the present study, indicated that a difference existed in the performance of program participants and non-program participants. To increase the program participants' achievement, districts may consider the implications discussed below.

First, program participants from studies that had higher academic performance had lower teacher-student ratios. These findings could indicate that having a lower

teacher-student ratio within classes could increase the student's academic performance. Providing supplemental services to address the health, vision, and dental needs could benefit the students academically as they matriculate through school. The study's findings also imply that requiring parents to attend monthly parental sessions during their child's enrollment in the Pre-k program could increase the likeliness that parents will continue to engage in the education of their child through subsequent years which may also increase students' academic performance.

Data from the present study indicated that the difference in the academic achievement of program and non-program participants could suggest a lack of fidelity to the district's Pre-k instructional model. Additionally, students received a new teacher each year as they matriculated through school; therefore, the district may consider exploring the reading models that are being utilized across the elementary schools. If a district-wide reading model exists, the district should determine if there is fidelity among all schools and within all classrooms. If a district-wide reading model does not exist, the district may consider exploring a reading model that can may be utilized in every elementary school.

Providing literacy focused professional development opportunities for teachers may positively impact student learning; especially for teachers that do not have reading endorsements indicated on their teaching certification. Additionally, district administrators should also explore the instructional delivery taking place within classrooms. Identifying a teaching model that clearly identifies the instructional delivery method within the classroom is important. Lastly, extending learning time, by extending

hours of schooling and length of the school year could aid in enhancing the students' performance.

Each of these implications add to the conversation surrounding the return of investments for interventional programs like Pre-k. Allowing the data to drive the decision; legislatures, state and local district officials, and parents can determine how to meet the needs of the children that are the most deserving, yet the least performing within the state.

### **Recommendations for Further Research**

Based on the findings of this study, the following recommendations for further research are suggested:

1. This study utilized the MCT2 as the reading proficiency measurement tool. If assessment instruments specific to measuring reading proficiency were utilized such as DIBELS, DRA, or STAR Early Literacy, early interventions could occur more regularly throughout the school year. Additionally, each of these reading assessments, could be used as a progress monitoring tool which will allow schools to intervene and address the students' academic deficiencies early. It would be helpful to also determine at which grade level do the four sub-groups (minimal, basic, proficient, advanced) begin to show significant differences in reading achievement.
2. This research study focused on language arts; however, future research could include additional subjects, such as math and science, to determine if the achievement results will be consistent with the findings of this study.

The findings from additional research could aid in determining if female students are outperforming male students in every subject and whether the achievement results of African American students with low-socio economic statuses will mirror the language arts results.

3. This study contained students that were transient and moved frequently among schools within the district. Additional research that focuses on the concept of “looping” could provide more insight to this particular topic. Students that remain at the same school with the same teacher from Pre-K thru third grade could yield results that are consistent or non-consistent with the findings of this research study.
4. This study was a quantitative study. Additional research, based on a qualitative study, would be beneficial to analyze the impact of instructional delivery, level of student engagement, and job-embedded professional development have on student achievement.
5. Exploring the credentials (licensure certification, years of teaching experience, reading endorsements, etc.) of the teachers that are providing reading instruction could aid in understanding the effectiveness of the instruction being held in classrooms.
6. This study focused on African American students; however, additional research could explore the academic achievement of other racial groups of students. Research pertaining to the impact race has on student achievement should be explored. Considering whether disparities exists

between genders and students of the same ethnicity could provide explanations that are consistent with the findings of this study.

7. This study focused on third grade student's performance on the MCT2 which assessed curriculum content aligned to the Mississippi Framework. With the infusion of Mississippi's College and Career Readiness Standards and performance based assessments, additional studies could be conducted to measure the impact the change in content standards and method of assessing student's knowledge will have on student achievement.
8. This study focused on third grade students that applied and attended the pre-k program; however, additional studies could compare the academic achievement of students that applied and attended the pre-k program with the academic achievement of students that applied but did not get attend the pre-k program.

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APPENDIX A  
INSTITUTIONAL REVIEW BOARD APPROVAL LETTER



**MISSISSIPPI STATE**  
**UNIVERSITY™**

Protocol Title: **The Effect of the Prekindergarten Program on the Reading Achievement of African American Students**

Protocol Number: 14-268

Principal Investigator: Ms. Sebrina Palmer

Date of Determination: 8/29/2014

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

Dear Ms. Palmer:

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

- Retain a copy of this correspondence for your records.
- Only the MSU staff and students named on the application are approved as MSU investigators and/or key personnel for this study.
- You do not need to submit an application for annual continuing review; however, a new application must be submitted if the study is ongoing after 5 years from the date of approval. (SOP 01-03 Administrative Review of Applications)
- Any modifications to the project must be reviewed and approved by the HRPP prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project.
- Per university requirement, all research-related records (e.g. application materials, letters of support, signed consent forms, etc.) must be retained and available for audit for a period of at least 3 years after the research has ended.
- It is the responsibility of the investigator to promptly report events that may represent unanticipated problems involving risks to subjects or others.

This determination is issued under the Mississippi State University's OHRP Federalwide Assurance #FWA00000203. All forms and procedures can be found on the HRPP website: [www.irc.msstate.edu](http://www.irc.msstate.edu).

Thank you for your cooperation and good luck to you in conducting this research project. If you have questions or concerns, please contact me at [nmorse@irc.msstate.edu](mailto:nmorse@irc.msstate.edu) or call 662-325-5220.

Sincerely,

Nicole Morse, CIP  
IRB Compliance Administrator

cc: Jianzhong Xu (Advisor)

*Institutional Review Board for the Protection of Human Subjects • P.O. Box 6223 • Mississippi State, MS 39762 • (662) 325-3294*