

DIFFERENCES IN LITERACY SCORES AMONG STUDENTS WHO ATTENDED
SCHOOL-BASED PREKINDERGARTEN, HEAD START, AND NO PREKINDERGARTEN

by

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Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

With no state-funded prekindergarten program in Mississippi, some school districts have chosen to divert Title I funds to the creation of school-based prekindergarten programs. This study looked at archival data to determine differences in the beginning of the year kindergarten scores between students who attended local Head Start programs ($n = 41$), students who attended school-based prekindergarten programs ($n = 64$) in schools that use Title-I funds to support such programs, and students who did not attend prekindergarten ($n = 31$). The study sought to examine the question of whether a difference existed in the overall scaled score of the STAR Early Literacy test of these three groups of students at the beginning of the kindergarten year. This study also examined whether or not there was any interaction between the type of prekindergarten education received and the gender of the students. This study used data from a district administered test to examine STAR score results, and thus used an ex post facto design. Analysis was conducted using a Two-Way ANOVA and a significant difference was found among students who attended these three program types differed in their STAR Early Literacy score. Post-hoc analysis concluded that significance differences existed between Head Start and school-based prekindergarten. No differences based on gender were found. Future research should look at the specific aspects of school-based programs to determine what characteristics contribute to their effectiveness.

Keywords: prekindergarten, Head Start, school-based prekindergarten

Dedication

I dedicate this dissertation to my family. They have all had to adjust and endure the effects of having a wife/mother who had to devote many hours each week to research and writing. Through it all they have encouraged and supported me along this journey and never once complained about the time I had to devote to my dissertation. My husband, Randall, has been my biggest supporter and has had to listen endlessly to me “talk through” the process, the literature review, and statistical analysis procedure. Even though I’m sure it was not very interesting to him, he always listened and encouraged. My children, Stephen, Austin, and Emmalyn, have all been great in understanding when Mommy had to have work time. I am honored that they have been able to witness me persevere through this process, seeing the lows and highs, and I hope remembering this will encourage them in their future endeavors. I love you all more than I can express and I thank you for believing in me. This is for you, my dear family.

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Although this has been a long journey, and not always an easy one, the support of my family and friends, who always believed in me, even when I didn't believe in myself, has kept me going and reaching for my goal. I know sometimes their encouragement made me work a little harder, and other times it was needed to prod me along the path. Without them, and without faith and prayer, I could not have completed this journey.

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List of Abbreviations

Mississippi Department of Education (MDE)

National Institute for Early Education Research (NIEER)

No Child Left Behind (NCLB)

Socio-Economic Status (SES)

CHAPTER ONE: INTRODUCTION

Background

With a push in education for schools to show improvement and to meet the requirements of Common Core State Standards, which Mississippi has adopted, schools and communities are looking to the early grades to provide a solid foundation for later learning (Brown, 2013). With the rise of political pressure on education, more is expected academically of younger students than in the past (Wesley & Buysse, 2003). There is a push for students to be ready to reach these high standards when they enter kindergarten (Brown, 2013). This desire for students to be ready to learn academic material creates an environment where prekindergarten education is seen as essential, which may lead schools to divert funds in order to get these children in their buildings before kindergarten so that the learning can begin (Brown, 2013).

Prekindergarten has served many roles over the years. Initially conceived as child care so that mothers could enter the workforce (Andrews & Slate, 2001), prekindergarten has evolved into a way to provide children with social skills and to increase academic school readiness (Brown, 2013). In today's society, prekindergarten can take many different forms. Among these forms are the federally-funded Head Start program, which serves low-income children (Head Start, 2013), state-funded programs with differing requirements (Wong, Cook, Barnett, & Jung., 2008), school-based programs with differing requirements and funding sources (Canter & Schrouf, 2012), and private programs and faith-based programs that are tuition-supported (Winsler, Tran, Hartman, Madigan, Manfra, & Bleiker, 2008).

All of these programs aim to serve children prior to kindergarten entry. Much of society, and the school systems, see participation in prekindergarten as a way to give children an early start on academics, increasing their readiness to learn when they reach kindergarten (Andrews &

Slate, 2001). While this has been shown to be true in some cases (Huang, Invernizzi, & Drake, 2012), there still remains the question as to whether or not these prekindergarten programs deliver on the promises of producing academic gains for students who attend them. Some even argue that prekindergarten may not provide any benefits for certain groups of children and could actually be harmful (Olsen, 1999). Fears are that introducing formal education at this age is too much for preschool children and may be developmentally inappropriate (Marcon, 2002). While the aims and curriculum used in various programs differ, the programs that children in this study attended followed the Mississippi Department of Education(MDE) Early Learning Standards for Classrooms Serving Four-year-old Children.

Head Start is one widely used program, attended by 37.1% of Mississippi three and four year olds (Canter & Schrouf, 2012). This federally-funded program was established as a way to provide child care to low-income parents so that they could enter the work force (Andrews & Slate, 2001). Over the years, this program has changed and now seeks to prepare children for kindergarten entry and later school success (Head Start, 2013). The Head Start programs are completely separate from the local school districts in which they operate and are not overseen by the local or state boards of education (Mississippi Head Start Association, 2012).

State-funded prekindergarten programs have been developed in response to calls for a more universal form of prekindergarten for all students, rather than the income restricted Head Start program (Wong et al., 2008). Several states have developed statewide programs, with requirements varying from state to state (Wong et al., 2008). In research, these programs have shown some promise in promoting school readiness by increasing pre-reading and pre-math skills, but the results are varied for actual gains once the student enters school (Huang et al., 2012). The settings of state-funded programs vary, with some being housed in local school

buildings, while others are constructed as stand-alone facilities (Wong et al., 2008). State-funded programs are under the authority of the state board of education (Wong et al., 2008). State-funded programs are often opposed by those who fear they will create competition for children with local Head Start programs (Karch, 2010).

Mississippi has taken steps to begin state funding of voluntary prekindergarten programs. Passed in 2013, the Early Learning Collaborative Act of 2013 is the first step Mississippi has taken toward state-funded prekindergarten. This Act established state funding to “early learning collaboratives” on a phased in basis. Collaboratives may consist of local public schools, Head Start centers, private care centers, and other child care centers. For a collaborative to receive funds, it must draft a plan detailing how the money will be spent and which organization will lead the collaborative. The lead organization is responsible for dispersing funds to other members of the collaborative. The Act also requires that all students who participate must take a kindergarten readiness assessment at the end of the prekindergarten year. The Act, as passed by the legislature, details three phases through which funding will be dispersed, with each phase lasting 3-5 years. Collaboratives were first able to submit applications in 2013. The total funding provided from the state for the first year of phase 1 was three million dollars, which was appropriated by the state to Mississippi Department of Education (MDE) and split among 11 collaboratives for the 2014-2015 school year. Collaboratives must also match state funding, which may be done with funds from tax collection, parent tuition, collaborative investors, or other funds as allowed by the Act. Continued state funding of the program is contingent upon interest and effectiveness, as determined by the readiness assessments (Early Learning Collaborative Act, 2013).

There are also school-based programs that are not part of statewide initiatives, but rather have been created by the local school board and are funded through different sources, including federal Title I funds (Canter & Schrouf, 2012), which are granted to districts based on the number or percentage of low-income students served (Mississippi Department of Education, n.d). Many programs seek to serve the same students targeted by Head Start, but do so within the school setting and with certified teachers, which are not found in all Head Start centers. School-based programs fall under the authority of the building administrators and the local school board. In Mississippi, school-based programs also follow the MDE Early Learning Standards for Classrooms Serving Four-year-old Children (Mississippi Department of Education, 2013).

Private prekindergarten programs are tuition-supported. As such, they do not typically serve children of poverty (Winsler et al., 2008). Private programs vary in composition and quality, but are primarily attended by middle to upper class children whose parents can afford the cost of tuition (Winsler et al., 2008). Many faith-based programs are also tuition-supported, and seek to provide prekindergarten education intertwined with religious values.

Some parents choose to not send their child to any type of center-based formal prekindergarten program (Valenti & Traci, 2009). Often these children stay home with a parent, or are cared for by a relative (Valenti & Traci, 2009). Some research suggests that children who do not receive any prekindergarten education fare as well as their counterparts who do attend prekindergarten, and that much of children's school readiness scores are dependent upon the home learning environment (Melhuish Sylva, Sammons, Siraj-Blatchford, Taggart & Phan, 2008). However, other research has shown a disadvantage for the non-prekindergarten group in terms of academic ability upon formal school entry (Tucker-Drob, 2012).

With Head Start being federally-funded (Head Start, 2013), and school-based programs being funded through federal Title-I dollars (Canter & Schrouf, 2012), schools have an interest in knowing whether or not their monies are being well spent. If society sees the goal of prekindergarten as a child care service for mothers (Andrews & Slate, 2001), then it serves its purpose if children are kept safe throughout the day. However, when the purpose is seen as a means to provide an academic foundation, there needs to be evidence that this goal is being met. In the case of school-based programs, monies are being diverted from other areas of the local school budget to establish and maintain the program (Canter & Schrouf, 2012). If the program is not producing students who perform as well as or better than students in other prekindergarten configurations not paid for by the school district, then these monies may be better spent on other resources.

Some research on prekindergarten programs lumps all types of programs together and compares them to non-attendance (Magnuson & Shager, 2010). This gives an incomplete picture of specific programs and their effect on student achievement. When all programs are lumped together, it cannot be determined if one program is more beneficial than others. In such cases, it is possible that one type of prekindergarten produced students who were able to score high enough on the assessments used that it made up for, or masked, dismal outcomes of another program.

Much of the research looks at growth over the prekindergarten year, such as Winsler et al. (2008), who used the Learning Accomplishment Profile-Diagnostic (LAP-D) to measure motor skills, language skills, and cognitive development over the course of the prekindergarten year, and Diamond, Gerde, and Powel (2008), who used a variety of assessments, such as Head Start's Family and Child Experience Survey (FACES), Early Language and Literacy Classroom

Observation-Literacy Environment Checklist (ELLCO), and Concepts about Print (CAP). The ability of prekindergarten education to produce growth over the prekindergarten year shows mixed results (Winsler et al., 2008; Sylvest & Kragler, 2012).

Students in different prekindergarten programs are exposed to different environments. Bronfenbrenner (1979) developed the ecological systems theory, which breaks down the different systems in which a person develops. Bronfenbrenner identified four different systems, which are the microsystem, the mesosystem, the exosystem, and the macrosystem. According to Bronfenbrenner, differences in these systems affect the way an individual develops. The system that is closest to the individual is the microsystem, which involves the developmental differences caused by the interaction of a person and their immediate environment (Bronfenbrenner, 1979). Differences in the microsystem, or any other system, have an effect on the development of the individual.

Problem Statement

Schools need to ensure that students are academically successful. This is necessary for the welfare of the students and also for the school and community as a whole. States are looking to prekindergarten to provide an early start for students. As such, there is an interest in the field of education to find out if prekindergarten does provide academic advantages for the students who attend.

Research has shown the differences in prekindergarten attendance versus non-attendance (Magnuson & Shager, 2010). The outcomes of such studies are variable, and do not provide a clear picture of the possible effects of prekindergarten. Also, many of these studies lump all forms of prekindergarten into one entity, so that differences among program types are not clear.

Taylor, Gibbs, and Slate (2000) looked at prekindergarten attendance versus non-attendance and included Head Start, public preschool, and private preschool. They found that children who attended preschool had higher readiness scores than those students who did not attend preschool. The three forms of prekindergarten in this study were put together and used to compare against non-attending children. The possibility exists that one form of prekindergarten that was included produced poor results, but that this outcome was covered up by the results of other programs in the study. Also, any possible differences in outcomes among the different configurations of prekindergarten were not explored.

Some studies also looked only at one form of prekindergarten and compare students who attend that program to students who do not attend any program (Huang, et al., 2012). No examples of comparing two specific program types, while maintaining a group that did not attend prekindergarten, can be found.

Furthermore, gender is a factor that continues to be of interest to researchers in many different fields, including education. In later childhood, some studies have shown that as students progress through school, academic achievement gaps in the area of reading/language favor girls and these gaps widen as the years progress (DiPrete & Jennings, 2012). In the field of early childhood research, girls who begin kindergarten with academic scores higher than those of boys maintain the advantage over the kindergarten year; even though the boys also make gains, they do not gain enough to catch up with, or overtake, the girls (Matthews, Ponitz, & Morrison, 2009). Specifically, some research on prekindergarten has shown no differences based on gender in the areas of language, literacy, and numeracy (Weiland & Yoshikawa, 2013). This presents an incomplete picture of the influence of gender on the outcome of prekindergarten.

There is an interest in examining different program types and their effects on measurable academic scores. This can help a variety of stakeholders as they make decisions about issues related to prekindergarten. However, at the current time research provides an unclear picture of the possible effects of different prekindergarten and how these effects may differ based on gender. The problem is that current literature does not adequately address the comparison of kindergarten entry scores for students who attended different types of prekindergarten.

Purpose Statement

The purpose of this ex post facto study is to compare kindergarten performance of students who attended school-based prekindergarten, Head Start, and no prekindergarten by using archival data from the beginning of year kindergarten scores, as measured by the STAR Early Literacy test, in the First School District (pseudonym) in Mississippi. The independent variable will be composed of two groups, which are type of prekindergarten and gender. The group, type of prekindergarten, will be generally defined as school-based prekindergarten, Head Start and no prekindergarten. The group gender will be generally defined as male and female. The dependent variable will be generally defined as kindergarten beginning of the year scores on the district administered STAR Early Literacy test. The underlying theory for this study is Ecological Systems Theory (Bronfenbrenner, 1979).

Significance of the Study

This study is significant in the field of early childhood education because it will add further literature on the effects of prekindergarten in Mississippi to be considered when determining whether or not to pursue prekindergarten programs as a means to increase kindergarten entry scores for low-income students. Using the ecological systems theory, a difference is expected in the dependent variable for the three subgroups of the independent

variable. Using this theory, others have found that students in different “nursery school” environments in the UK have different perceptions about the purpose of school (Evans & Fuller, 1998). The nursery school serves the same age group of children as prekindergarten in the United States. Morrissey and Warner (2007) used Ecological Systems Theory to determine that early childhood education is beneficial in an analysis that included all system levels. Based on the theory, and other research informed by Ecological Systems Theory, a difference may be expected because the students were exposed to different micro systems during their prekindergarten year, resulting in different developmental paths for these three groups of students (Bronfenbrenner, 1979).

Practically, this study may provide evidence for school personnel and policy makers who seek to determine whether or not to spend school funds on school-based prekindergarten programs. Currently, some studies have found positive outcomes for students in prekindergarten programs (Huang et al., 2012; Rashid, Sanallah, Iqbal, & Khalid, 2013); others have found little or no impact (Valenti & Tracey, 2009; Wong et al., 2008). However, the majority of available studies fail to delineate between different types of prekindergarten experiences (Bassok, 2010; Dearing, McCartney, & Taylor, 2009). This creates a dilemma for policy makers, who will not know which prekindergarten format is likely to produce results if the results for all programs are reported together.

This study seeks to delineate two different types of prekindergarten programs that serve similar students, while maintaining a group of students who experienced no form of prekindergarten. By using programs that serve similar populations, this study will add to empirical research about the differences in achievement of students who attend prekindergarten programs and those who do not.

Research Question

The research questions for this study were:

RQ1: Is there a difference among the STAR Early Literacy scores of male and female kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program?

Null Hypotheses

The following were the null hypotheses:

H₀₁: There is no significant difference among the STAR Early Literacy scores of kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program.

H₀₂: There is no significant difference between the STAR Early Literacy scores of male and female kindergarten students.

H₀₃: There is no significant interaction among the STAR Early Literacy scores of male and female kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program.

Definitions

1. *Prekindergarten* - Education taking place prior to school entry that is aimed at providing academic and social skills (Howes, et al., 2008)
2. *Head Start* - Federally-funded prekindergarten program serving low-income children (Head Start, 2013)
3. *Scaled score* - “fundamental scores used to summarize students’ performance on STAR Early Literacy Enterprise tests” (STAR Early Literacy Enterprise, 2013, p. 100)

4. *School-Based Prekindergarten* - Prekindergarten programs serving four-year-old students that are housed within the local elementary school building (Canter & Schrouf, 2012) For purposes of this study, these programs will also be defined as being funded through Title I funds.
5. *STAR Early Literacy* - “a computer-adaptive assessment instrument designed to measure the early literacy skills of beginning readers” (STAR Early Literacy Enterprise, 2013, p. 1)
6. *Ecological Systems Theory* - The theory developed by Bronfenbrenner (1979) that states that different environments interact in different ways to contribute to the development of the child.
7. *Microsystem* - The system of Ecological Systems Theory that encompasses the relationship between a person and the setting they are in (Bronfenbrenner, 1979)
8. *Low Income* - “an individual whose family's taxable income for the preceding year did not exceed 150 percent of the poverty level amount.” (U.S Department of Education, 2013)
9. *Title I* - An appropriation of federal funds provided to local school districts with high number of low-income students the purpose of which is to ensure high-quality education for all students. (U.S Department of Education, 2013)
10. *Readiness* - The academic and social skills that are required to be successful once a child enters school (Halle, Hair, Wandner, & Chien, 2012)

CHAPTER TWO: LITERATURE REVIEW

Introduction

Available literature on the topic of prekindergarten education and academic achievement examines many different factors that are of importance when considering what may, or may not, be gained from the prekindergarten experience. There are several mixed and contradictory findings in the literature available for prekindergarten. Also, much of the literature is broadly focused and encompasses all possible compositions of the prekindergarten experience.

Just as the literature concerning differences among different types of prekindergarten is mixed, so is the literature related to gender differences during the early childhood years. Much of the literature that focuses on early childhood-aged children is primarily concerned with social competence and self-regulation as a contributor to any other differences observed.

This chapter will begin with an exploration of Ecological Systems Theory and how it relates to prekindergarten education. The chapter will include discussions on the history of prekindergarten, prekindergarten accessibility, types of prekindergarten, prekindergarten quality, the impact on school readiness, and the impact on future academic success.

Theory

Ecological Systems Theory

Bronfenbrenner (1979) developed the theory of ecological systems. This theory was developed with influences from Piaget, who saw the child as an active learner in their environment. As a constructivist theorist, Piaget focused on the role of the child and the need for exploratory learning, citing that the needs of children are different than the needs of adults. Piaget believed that children would learn best when encouraged to explore their environment, rather than attend to formal learning tasks like lecture (Cooke & Cooke, 2001).

Bronfenbrenner (1979) seeks to go beyond the role of the child and explain how the interaction of different environments affects the development of the individual. Bronfenbrenner recognized that development is not only affected by the individual, but that the surroundings of the individual can affect and change development. With this understanding, Bronfenbrenner identified ecological structures, which are “a set of nested structures, each inside the next,” (pg. 3) that affects the development of a person.

Bronfenbrenner (1979) identified four ecological systems, which range from the system very specific to the individual to the setting that has the least intimate connection, but still affects the developing person. At the innermost layer of the ecological systems lies the microenvironment. This system is composed of the individual and their setting. A person has multiple microsystems, which all interact. The interaction of the microsystems of a person makes up the next level of ecological systems, which is the mesosystem. The next ecological system is the exosystem, which does not involve the person in question; however, the events that occur in this system have an effect on the individual. The final system is the macrosystem, which encompasses the “consistencies” among the other systems. This final system refers to the underlying culture in which all the other systems exist (Bronfenbrenner, 1979).

Bronfenbrenner (1979) emphasizes the importance of the interaction between a person and their environment. According to Bronfenbrenner, the person can affect the environment, just as the environment also changes the person, making the relationship between a person and their environment one of reciprocity.

Within the four systems are continual changes, as people come in and out of settings. Bronfenbrenner (1979) refers to these changes as “ecological transitions.” Throughout the

course of the human life span people undergo many transitions, which all interact with the development of the person (Bronfenbrenner, 1979).

Bronfenbrenner (1979) considers development to have occurred if “a change is produced in a person’s conceptions and/or activities that carry over into other settings and other times” (pg.35). Based on this definition, development has not occurred if there is no change in the individual that extends into other settings.

Of specific interest to this study is the concept of the microsystem, which is the environment in which a child is interacting. In these microsystem settings, the individual engages in “molar activities.” These activities cause growth in the individual (Bronfenbrenner, 1979). Bronfenbrenner (1979) states that “development of the child is a function of the scope and complexity of the molar activities engaged in by others that become part of the child’s psychological field” (pg. 48).

In the school setting, students see their teachers engage in molar activities, and also engage in molar activities with their teacher, which becomes dyadic activities. These activities contribute to the development of the child. In different microsystem settings, the environment and activities would be different, which would result in different developmental outcomes (Bronfenbrenner, 1979).

In this study, the different microsystems that are under investigation are two types of prekindergarten experiences. Since these two settings are different in terms of the individuals involved, the relations between the individuals and the environment will differ (Bronfenbrenner, 1979). According to Bronfenbrenner (1979) these differences would affect the development of the child in different ways, which could contribute to differences in academic attainment.

Literature

History of Prekindergarten

Education in America has existed since colonial times, with the greatest influence coming from English settlers. Many of these early schools were based around religious affiliations and the Bible was used as a teaching tool for reading. Most early schools were housed in individual homes, where multiple grade levels were educated together. Different classes of children often attended different schools, and girls were less likely to attend than boys (Webb, Metha, & Jordan, 2000).

Infant schools, which were the equivalent to the modern day preschool, were developed primarily in the Eastern United States. The concept of the modern elementary school was born from the infant schools, as they began to fade out in the 1850s (Webb, et al., 2000).

The common school movement between the 1830s-1860s saw more solidarity to the implementation of schools, as they began to be state-funded. While this movement saw upwards of 50% of children enrolled in school in northern, western, and Midwestern areas, the South lagged behind in enrollment and public support (Webb, et al., 2000).

Over time, the support for schools increased further until all states established laws and regulations in regards to public schools. In modern society, formal education is mandatory, although different states have the authority to set different cut-off points for age-based entry (Webb, et al., 2000).

In 1929, the nursery school movement took place to provide care and social learning for children prior to formal school entry (Zigler & Stycfo, 2010). During and after World War II, when women began entering the work force in large numbers, the societal need for preschools increased (Krogh & Slentz, 2010). Though common thought swung back and forth throughout

much of the early 1900s as to whether young children belonged with their mother or in a preschool type setting, Head Start was established in the 1960s (Zigler & Styfco, 2010).

Head Start was born out of the “War on Poverty” and was designed to provide opportunities for low income children and their families. It was hoped that by targeting low income families who had no other means of entering preschool programs, the readiness of these children could be increased closer to that of their more affluent peers, and with child care provided their parents would be able to enter the workforce. Even though school readiness is part of the modern Head Start equation, it does not tell the whole picture. Head Start aims to provide a comprehensive education model, seeking social, physical, and academic wellbeing of participants (Zigler & Styfco, 2010).

While Head Start is specific to low income families, other programs are available for a wide range of children. Some state prekindergarten programs accept children just as the formal public school, without income criteria (Wong, et al., 2008). As with times past, parents with sufficient income also may choose to send their child to a private prekindergarten program (Winsler, 2008).

In modern society, many educators, policy makers and parents view prekindergarten as essential (Wesley & Buysse, 2003). Much is known about the effectiveness of prekindergarten in increasing scores from the beginning of the prekindergarten year to the end (Wong et al., 2008; Winsler, et al., 2008; Sylvest & Kragler, 2012; Rashid et al., 2013). However, differentiation as to which programs are best and if the effects carry over into the kindergarten year is largely missing from the literature.

Purposes of Prekindergarten

Child Care. Child care can be in a formal setting, such as a child care facility or in the care of a relative or other informal setting. Most often, parents who choose relatives or family members do so because they are a lower cost option than formal child care facilities (Zigler, Marsland, & Lord, 2009). Parents need child care so that they can go to work, or even complete their education through college classes (Duncan & Magnuson, 2013; Hawkinson, Griffin, Dong, & Maynard, 2013).

When there are programs available to low socio-economic-status (SES) parents, they may have more opportunity to enter the workforce (Duncan & Magnuson, 2013). In the case of low income parents, subsidies may be provided to encourage parents to place their child in prekindergarten or another form of child care. When the children are enrolled in some form of child care, and the parents do not have the financial burden of its cost, they may be better able to get a job or return to school (Hawkinson et al., 2013).

Universal prekindergarten, which is offered by some states, also has the potential to increase the work force by way of providing a place for all children, regardless of income, to go during the day. Offering universal prekindergarten in Georgia and Oklahoma was found to raise the enrollment of four year old children. However, even with this increase, no corresponding increase in mothers entering the work force was found (Fitzpatrick, 2010).

Academic Readiness. Another important purpose of prekindergarten is to prepare children to enter kindergarten. Increasing kindergarten readiness is the aim of many different configurations of prekindergarten, including Head Start, prekindergarten, and some center-based care facilities. Readiness for kindergarten can refer to either academic readiness, which is

an increase in academic skills, or social readiness, which is an increase in social competence (Farran, 2011).

One seen purpose of prekindergarten is to academically ready young children for kindergarten entry (Farran, 2011). With all states experiencing some form of high stakes testing, kindergarten classes across the nation have specific academic standards that they are expected to meet, with the thought that mastering skills in early grades will ultimately lead to higher test scores later in their academic career (Brown, 2013). When children enter kindergarten, there is an expectation on the part of kindergarten teachers that the students will be ready to learn (Wesley & Buysse, 2003). Evidence suggests that this can be accomplished by attending high quality prekindergarten centers (Garcia & Jensen, 2007).

Readiness skills have been shown to be greater for children who attend prekindergarten versus those who do not (Camilli, Vargas, Ryan, & Barnett, 2010). Research implies that children who are ready for kindergarten entry are more likely to be successful later in their academic careers than those children who are not ready (Sawhill, Winship & Grannis, 2013). When accounting for other factors of readiness, such as maternal education and income, Sawhill et al. (2013) found prekindergarten attendance was a strong predictor of readiness.

In terms of academic readiness, there is great disparity among students from families at different income levels. There is more than a 25 percentage point gap in the readiness scores of low-income children and middle and high income children. Given this, some suggest that targeted prekindergarten may be a better option than universal prekindergarten, as it would specifically focus on students who are more at-risk of later academic struggles (Isaacs, 2012).

The purpose of academic readiness can be seen in both Head Start and prekindergarten programs (Zahai, Walkdfogel, & Brooks-Gun, 2013). However, Head Start restricts their

population, while many state-funded prekindergarten programs are universal in nature, meaning they allow all students to attend (Gormley & Gayer, 2005). While state-funded programs, school-based programs, and Head Start all hope to increase academic readiness, this function is more of a focus in state-funded and school-based programs than in Head Start (Bassok, 2012).

Social Readiness. Another important component of the readiness equation is the need for students to be socially ready to enter school. Kindergarten places many demands on students, such as attentiveness, group work, and discipline (Wesley & Buysse, 2003). Students who have not experienced any type of center or school-based care prior to kindergarten entry have been found to have lower levels of social competence than those children who have been in care center situations (Zhai, Brooks-Gunn, & Waldfogel, 2011).

In pre and post measures of children's social skills and behavior, Bracken and Fischel (2008) found that each of these domains improved over the course of the prekindergarten year. However, while both improved, the students with the lowest risk for socio-behavior issues were in prekindergarten classrooms that incorporated a structured literacy program. Academic skills in the domains of language, literacy, and math were related to children with lower incidences of socio-behavior issues (Bracken & Fischel, 2008). This suggests that it is not merely attendance in preschool that matters in terms of social skills, but that the academics of prekindergarten are intertwined with the social outcomes of children who attend such programs.

School readiness in the social sense also involves self-control. Evidence suggests that some students who attend prekindergarten may experience decreased levels of self-control than those who do not attend prekindergarten (Magnuson, Ruhm, Waldfogel, 2007). Aggression in kindergarten was also noted by parents of boys who attended preschool (Chazan-Cohen &

Kisker, 2013). Magnuson, et al. (2007) also found that the effects of decreased self-control are seen well into first grade and may manifest as behavior problems.

Types of Prekindergarten Programs

Head Start. The Head Start program is a federally-funded program that grew out of a desire to provide a comprehensive early childhood program for low-income children. Unlike other prekindergarten programs, Head Start serves children in the 3-5 age range and seeks to provide more than just basic academic support to students. Children who attend Head Start may also receive health and social service support through the Head Start program. To be eligible for Head Start, families must meet certain income requirements, as the program only serves low-income students (Head Start, 2013).

It is not required that all Head Start teachers be certified or hold a degree in education or childhood development. The latest guidelines require that 50% of all Head Start teachers hold such degrees (Head Start, 2013). While this does provide some children with highly qualified prekindergarten teachers, others are left without a highly qualified teacher.

Head Start has often been the subject of various studies trying to demonstrate its effectiveness. Much of the literature related to Head Start is inconsistent, leading to an unclear picture of whether or not this program contributes to greater academic readiness and gains in kindergarten or throughout elementary school (Huang, et al., 2012; Rashid et al., 2013). While some studies find that Head Start students make gains over the course of the prekindergarten year (Halle, et al., 2012), others find that scores on readiness measures are only greater than those of children not enrolled in any type of prekindergarten program (Shager et al., 2013).

Head Start targets children who are part of low-income families in hopes of reducing many of the risk factors that are often associated with living in a low-income home. These risk

factors include low levels of parent education, lack of financial resources, lack of both parents in the household, and prenatal exposure to harmful substances, such as alcohol and tobacco (Isaacs, 2012). Most adults are unable to move from one income bracket to another. Given this, one of the hopes of Head Start is that it can create a better start for a child who would otherwise likely remain in the bottom income bracket as an adult (Sawhill et al., 2013). If Head Start is effective in its mission to give low-income students a better start to their academic career, then it may be able to help them break the cycle of poverty as adults.

State-Funded. Some states have created their own prekindergarten programs that are supported with state funds. In total, 40 states have some type of state-funded prekindergarten program. The goal of these programs is “to enhance learning and healthy development.” In this respect, many state-funded programs share goals with the Head Start program, although there is generally a greater academic focus in state-funded programs (NIEER, 2012).

State-funded programs can differ in their implementation. Some states and programs are not as well monitored as others, leading to inconsistent results from these programs as a whole (NIEER, 2012). Some state-funded programs are housed separately from the primary school, while others are housed in the same building as the primary school (NIEER, 2012; Wong et al., 2008). Also among the differences in the implementation from state to state, teacher qualifications vary (NIERR, 2012).

The funding formula for state prekindergarten programs varies, and may include a variety of prekindergarten configurations, such as free-standing programs or providing additional monies to existing programs for added teachers or resources. States that have a high percentage of children enrolled in Head Start are less likely to create free-standing programs out of fear that they would take away from the available population to enroll in Head Start (Karch,

2010). To ease this fear, legislation prekindergarten funding in Mississippi states that the enrollment in other prekindergarten programs may not drop the Head Start enrollment in that area (Early Learning Collaborative, 2013).

While some states have had some form of state-funded prekindergarten for several years, Mississippi is just beginning to put state funds into prekindergarten education. The state funds will slowly phase in over several years, beginning with the 2014-2015 school year, and are available only to a select few “collaboratives,” or groups composed of local public schools, local Head Start centers, and/or other child care centers. The program is to be overseen by the Mississippi Department of Education, and its continuation depends upon its effectiveness, as measured by mandatory readiness tests given to participating children at the end of the prekindergarten year (Early Learning Collaborative, 2013). The school district used in this study is not part of a collaborative that receives state funds, and scores used will be from the 2014-2015 school year, the first year that state funds were dispersed to select collaboratives.

Like Head-Start, some studies have focused exclusively on the state-funded prekindergarten programs. Mashburn, et al. (2010) found that state-funded programs offer more, and better, professional development for teachers. Focused professional development was associated with better end of the year scores in the areas of receptive language and vocabulary (Mashbrun, et al., 2010), which are both areas that contribute to school readiness.

Some critiques of state-funded programs have pointed to the increased pressure placed on teachers through state level initiatives. Since these programs are funded by the state, they are under the same regulations as other schools, which can be burdensome on the prekindergarten teacher. Many teachers in these programs feel they do not have adequate

support at their grade level, yet they are expected to meet the same standards of other teachers, whom they perceive as better supported (Sylvest & Kragler, 2012).

School-Based. School-based programs are those programs which are housed in the local elementary building and are funded by school/district funds. In Mississippi these funds are Title I funds that are diverted from other areas for the prekindergarten program. When school-based programs use federal Title I funds for their program, the students who enroll must meet the same requirements as Head Start students (Canter & Schrouf, 2012).

In 2012 the federal government issued “non-regulatory guidelines” for Title I spending on prekindergarten (U.S Department of Education, 2012). This was in response to the growing trend of districts to use Title I funds to create school-based programs for students in their districts. In the year 2000, 17% of all districts with Title I funds used them to establish or maintain prekindergarten programs (United States General Accounting Office, 2000). This growing trend shows the desire of districts to provide education for prekindergarten aged children.

While school-based programs are not as great in number as other types of programs, they are beginning to grow. Along with the expansion of these programs comes some friction. In some instances, programs that are housed with a school may be contracted through Head Start, creating a salary discrepancy between the prekindergarten teacher and the other teachers in the building. In addition to the salary imbalance, the addition of a prekindergarten class can create issues related to the sharing of space and support and integration of the prekindergarten teacher into the school (Desimone, Payne, Fedoravicius, Henrich, & Finn-Stevenson, 2004).

Even though there may be some initial issues when beginning these programs, there may also be positive benefits. In one study of a voluntary prekindergarten that was school-based,

Sylvest and Kragler (2012) found that more students in the program met the minimum standards than the students who were not in the program. However, this advantage over peers who did not attend school-based prekindergarten was no longer significant by the end of first grade (Sylvest & Kragler, 2012). As with other programs, it remains questionable as to how long benefits may persist.

School-based programs also have the advantage of being held in the elementary school the children will attend. This gives students an advantage in adjusting to their setting in kindergarten. Students who attend school-based prekindergarten are found to have less separation anxiety upon kindergarten entry than students who attend other types of programs. Being familiar with the building and faculty of the school also helped to nurture positive relationships with the children's parents (Desimone et al., 2004).

Private. Private prekindergarten programs are tuition-funded. Since these programs require tuition, the children they serve are largely limited to middle and upper class children whose parents are able to afford the cost of tuition. As private institutions, much like private elementary and high schools, these schools do not have to adhere to many federal and state guidelines that are in place for public programs (Winsler, 2008).

These programs have primarily been studied in conglomeration with other types of prekindergarten and compared to Head Start. In one study that did delineate tuition-based programs from others, Winsler et al. (2008) found that children in private, fee-based programs had better achievement scores than children in other prekindergarten. This can be explained by the elimination of the factor of poverty that comes with a tuition-based program (Winsler et al., 2008).

Prekindergarten Accessibility

Access to prekindergarten programs varies by race and socio-economic status. The Head Start program specifically targets low SES students by having income requirements that must be met in order to enroll students (Head Start, 2013). Private prekindergarten programs have tuition fees, which effectively limits the students who are able to attend to those whose parents have higher incomes (Winsler et al., 2008). Head Start and other public programs are able to operate tuition free because they are funded through federal monies, or in the case of state-funded prekindergarten, state monies (Head Start, 2013).

A discrepancy in enrollment can also be seen on the basis of race. While Bassok (2010) found that 60% of Caucasian prekindergarten age children attended some type of prekindergarten program, only 8% of those went to Head Start. However, among African American children who went to prekindergarten, 32% of them were enrolled in Head Start (Bassok, 2010).

Not all prekindergarten type programs or care are equal. Often, it is minority children and those children who have a low SES family who are unable to afford quality care. Income, transportation, and other factors can affect the accessibility of prekindergarten programs, especially those of higher quality, to these children (Pianta, Barnett, Burchinal, & Thorburg, 2009).

Universal prekindergarten programs aim to be accessible to all children, regardless of race or SES status. This will give all children access to a quality prekindergarten education (Gormley & Gayer, 2005). However, some opponents believe that the universal approach will not be as beneficial to groups of children who are seen as “at-risk” because the program is not targeted to them (Dotterer, Burchinal, Bryant, Early, & Pianta, 2012). Yet, others suggest that

by being in a classroom with peers who are not at-risk will be a beneficial factor for at-risk students (Mashburn, et al., 2008).

Universal prekindergarten would most likely provide the greatest benefit to the middle class, who often have too high of an income to qualify for Head Start or subsidies, but too low to afford quality prekindergarten programs (Zigler, Marshal, & Lord, 2009). Even though universal prekindergarten programs may increase accessibility, evidence suggests that academic outcomes of prekindergarten for middle class children are slight or nonexistent in comparison with similar children who do not attend (Olsen, 1999).

Prekindergarten Quality

Teacher Factors. Teachers are the facilitators of learning in all classrooms, including prekindergarten. Factors relating to the teacher can have an impact on the experience a child has in the prekindergarten classroom. Factors related to the teacher that may impact the prekindergarten experience include interactions, qualifications, support, and experience.

Teacher Interactions. Classrooms are made up of teachers and children. While the parental aspect of education has been shown to be important (Powell, 2010), the parental presence is not in the day-to-day activities of the classroom. Research has demonstrated that the quality of the interactions between the teachers and the students can play a role in the educational outcomes for the students.

Language and language development activities are important in prekindergarten, and a critical component of school readiness (Weiland & Yoshikawa, 2013). Burchinal et al. (2008) found that language skills in kindergarten were predicted by the quality of interactions between the teacher and the child in prekindergarten. Related to language are phonics and phonological awareness skills. These have also been found to be influenced by high quality teacher

interactions, such as higher degrees of emotional support (Curby, Rimm-Kaufman, & Ponitz, 2009). While the link between reading skills, such as language and phonological awareness, and quality teacher interactions were established, Burchinal et al. (2008) and Curby et al. (2009) did not find evidence that such a link existed between teacher interactions and math attainment.

Positive interaction in prekindergarten in the form of greater warmth toward students was shown to have an effect on the students' scores on vocabulary measures at the end of first grade (Connor, Son, Hindman, & Morrison, 2005). Other language measures were found to be higher at the end of the prekindergarten year for students who experienced high quality interactions with their teacher (Mashburn et al., 2008). This implies that the outcomes of positive interactions in prekindergarten are both immediate and long lasting.

When interactions between the teacher and child are strained, there are short and long-term consequences for the children (Bulotsky-Shearer & Fantuzzo, 2011). Bulotsky-Shearer & Fantuzzo (2011) found that children who did not have positive interactions with their teachers in preschool were more likely to have lower scores in phonetic skills at the end of first grade. The relationship between children and their teachers in prekindergarten had negative effects on vocabulary development in early elementary school (Wen, Bulotsky-Shearer, Hahs-Vaughn, & Korfmacher, 2012).

Negative interactions between students and teachers may be a product of certain characteristics such as gender or race. As a whole, Graves and Howes (2011) found that teachers had relationships with female students that were more positive than those they had with male students. In addition to findings based on gender, Graves and Howes also found that students who were placed with teachers of the same ethnic background had more positive interactions than those placed with teachers of a different ethnicity.

Teacher Qualifications. With the implementation of No Child Left Behind (NCLB) the federal government mandated that teachers in public schools meet certain qualification requirements. This policy speaks to the thought that better qualified teachers may produce better outcomes for students (NCLB, 2002).

Teachers complete many hours of course work and must pass rigorous tests to obtain a teaching license. In Mississippi, teachers must take the Praxis II and must meet minimum score requirements to pass the exam. In addition to requirements for initial licensure, professional development is required during each license renewal cycle to keep the license valid (MDE, 2013). By requiring tests and ongoing professional development, policy makers are sending a clear message that the qualifications of a teacher matters.

Some states, such as Oklahoma, that have implemented state-funded prekindergarten require that their prekindergarten teachers hold certain certifications (Gormley & Gayer, 2005). Ludwig & Phillips (2008) asserted that one explanation for the greater effectiveness of state-funded prekindergarten over Head Start could be the degree requirements of the state-funded programs.

Halle et al. (2012) found that higher teacher education levels were related to greater increases in spring scores of the prekindergarten year. Teacher qualifications, in the form of college degrees, were among several factors that contributed to an increase in school readiness among prekindergarten students (Weiland & Yoshikawa, 2013).

Another measure of teacher quality can be the amount of professional development received. In a study of state-funded prekindergarten programs, Mashburn et al. (2010) found a link between teachers' professional development and student outcomes. Students in classrooms in which the teacher was provided focused professional development had higher scores in the

areas of receptive language and receptive vocabulary in the spring of the prekindergarten year than those students whose teachers did not participate in such professional development (Mashburn, et al., 2010).

However, the impact of teacher qualifications on student outcomes is not supported in all literature. Buddin and Zamarro (2009) did not find that teacher education or scores on teacher licensure tests contribute to teacher quality and that degree attainment did not have an effect on student outcomes. Likewise, Breffni (2011) found that the qualifications of teachers were not a factor in any measured outcomes.

Teacher Support of Students. The support offered in the classroom contributes to classroom quality (Cunningham, 2010). Cunningham (2010) found that in classrooms that provided “exemplary support,” more students scored above the 50th percentile at the end of the prekindergarten years on literacy measures. Halle et al. (2012) also found a relationship between the quality of classroom support and academic outcomes for students.

Teacher Experience. Each year a teacher teaches, valuable knowledge and experience is gained. This experience may translate into better outcomes for students as compared to the students of teachers with less experience. Buddin and Zamarro (2009) found positive associations of teacher experience and students’ outcomes in the academic areas of reading and math. Connor et al. (2005) noted that the experience of the prekindergarten teacher was a positive factor relating to first grade reading outcomes.

Teacher Professional Development. Teachers are provided with professional development opportunities in order to keep them up-to-date on new research and teaching methods and to allow them to spend time sharing ideas and learning from other professionals (Breffni, 2011). Some state-funded programs allot money for professional development of

prekindergarten teachers (Early Learning Collaborative, 2013). Prekindergarten teachers in school-based programs have the advantage of attending professional development sessions with the elementary teachers in their building or district (McCabe & Sipple, 2011).

In a study on literacy and prekindergarten outcomes, Grace, Bordelon, Copper, Kazelskis, Reeves, and Thames (2008) found that teachers who received professional development support for the literacy program had students who scored better on literacy measures at the end of the prekindergarten year than those students who were in classrooms where teachers did not receive professional development. Attendance of professional development sessions has also been found to enhance teaching practices overall (Breffni, 2011). Breffni (2011) also noted that the overall quality of the classroom is largely influenced by the extent to which teachers participate in professional development opportunities.

Classroom Factors. In addition to the teacher, who leads the instruction of the prekindergarten students, there are also classroom-based factors that interact with the students' development and can have positive or negative influences on student outcomes. The importance of the classroom environment was found by Hyon-Joo, Langill, Peterson, Luza, Carta, & Atwater (2010) to be related to higher individual experiences in the prekindergarten classroom. Lower quality classrooms produced, on average, lower experiences in individual students (Hyon-Joo et al., 2010). Burchinal, et al. (2008) found that the quality experienced in a prekindergarten classroom was predictive of better outcomes as late as the end of the kindergarten year; a full year after prekindergarten had ended. Some classroom level factors include the time spent on academics, class sizes, and the impact the students have on one another.

Some prekindergarten programs are set up as full day, while others are half day programs. Within each configuration, time spent on academics seems to be about the same, with the additional hours of a full day program being spent on lunch, naps, and other non-academic activities (Loeb, Bridges, Bassok, Fuller, & Rumberger, 2007). Connor et al. (2005) found that students who spent more time engaged in academic activities in prekindergarten had better vocabulary outcomes in first grade than those students who spent less time engaged in academic activities in prekindergarten.

Hofer, Farran, and Cummings (2013) distinguish between instructional time and time engaged with the academic material. This important distinction illustrates that not all time a teacher dedicates as instructional time actually counts as student time spent on academics. Students who had greater engagement time with math-related activities showed greater math related gains over the course of the prekindergarten year (Hofer, et al., 2013).

There is some evidence that suggests that time spent on formal instructional activities may actually hinder children (Olsen, 1999). According to Piaget, children learn through exploratory activities (Cooke & Cooke, 2001). These types of activities are seen as more developmentally appropriate for prekindergarten students. One of the arguments against prekindergarten cites that these programs may introduce formal instruction too early (Olsen, 1999). When prekindergarten funds are tied to scores on readiness tests, as in the case of Mississippi, teachers may feel more of a push to focus too much on academic content rather than incorporating more developmentally appropriate learning activities (McCabe & Sipple, 2011).

Teachers have the responsibility to attend to all students in the class. Because of this, it may seem that lower class sizes would lead to better student outcomes. However, in the case of

prekindergarten, Buddin and Zamarro (2009) found no correlation between class size and the academic outcomes of students. This may be in part due to the tendency for prekindergarten classrooms to not only have a teacher, but also one or more teacher assistants (Han & Neuharth-Pritchett, 2010). The addition of one or more teacher assistants reduces the student-teacher ratio.

Teacher assistants have been found to have an impact on the outcomes of prekindergarten students. Unlike teachers, teacher assistants are usually not afforded professional development opportunities or provided with resources to help them improve their classroom skill set. However, research shows that when assistants are provided with meaningful professional development, they improve in their instructional techniques and students have better outcomes than those in classes where assistant teachers were not provided with professional development opportunities (McKenzie, 2011).

Within the classrooms students not only interact with their teacher, but they also interact with one another. When peer relationships are negative, students show less academic growth (Bulotsky-Shearer & Fantuzzo, 2011). Lower achieving students who are placed in classrooms with higher achieving peers have higher vocabulary and other cognitive outcomes. This effect was shown to not only be present at the end of the preschool year, but also to persist through the end of kindergarten (Henry & Rickman, 2007).

According to Vygotsky (1933) peer interaction and play is a primary contributing factor to the development of prekindergarten children. Children use play to establish meaning and work through realities (Vygotsky, 1933). Given this, peer interaction and play in preschool becomes a critical component of the development of the child. Part of the argument for universal prekindergarten over targeted prekindergarten actually alludes to this notion, as it

purports the potential benefits to lower achieving or at-risk students who would have interaction with higher learners or those who are not considered at-risk (Mashburn, et al., 2008).

Gaps Among Student Groups

Gender. Students can differ on their outcomes based on their gender. In some instances, females may perform better, yet in others males may have greater outcomes. These differences in outcomes can exist in both academics and social/emotional competence, both of which are factors of school readiness (Halle et al., 2012).

Social/emotional skills encompass a range of behaviors, from social interaction and self-regulation, to emotional competence (Matthewset al., 2009; DiPrete & Jennings, 2012). When children first enter prekindergarten, the advantage in social/emotional skills is in favor of female children (DiPrete & Jennings, 2012). Over the course of the prekindergarten year, male children show growth in their social/emotional skills, but are still not at the same level as females by the end of the year (Matthews, et al., 2009). At the end of the prekindergarten year, not only is there still a significant gap in social/emotional skills between girls and boys (Taylor et al., 2000), but males are also rated higher in behavior problems than girls by their teachers (Graves & Howes, 2011). As these students progress throughout their academic career, this gap continues and grows (DiPrete & Jennings, 2012).

A student's gender has an impact on the interactions that a student experiences with adults and with peers (Mansson, 2011). Since many measures of social/emotional skills are derived from teacher questionnaires, the male students' interaction with adults could affect the way they are rated by teachers.

Also of interest are gaps that may exist between males and females in the academic domain. Matthew et al. (2009) note that while historically, academic gender gaps have favored

males, this is beginning to change as females narrow and close the traditional gaps. In a study that looked at different delivery formats for prekindergarten classes, Marcon (1999) found that girls performed equally well in all delivery formats (teacher-led, child-directed, combination), whereas boys exhibited poor performance in a combined format. This indicates that certain classroom factors may contribute to the noted academic gender gaps. Other researchers have also noted the female advantage, as evidenced by females outperforming males in measures of academic skill (Marcon, 1999; DiPrete & Jennings, 2012).

The primary academic area in which female children experience more success than male children appears to be the reading/language area. Female children in prekindergarten show greater knowledge of letter-word identification and early writing skills at the end of the prekindergarten year, as compared to male children (Domitrovich, et al., 2013). Female prekindergarten children also exhibit greater performance on measures of reading, which persists throughout the elementary school years (DiPrete & Jennings, 2012).

Not all achievement gaps favor girls. Boys do have an advantage over girls in the area of math in the early primary grades. Much like the reading advantage seen in females, the math advantage of boys persists, and grows, as the children progress through elementary school (DiPrete & Jennings, 2012).

All literature is not in agreement as to the existence of gender gaps in early childhood on academic measures. In a study where children were grouped into different readiness profiles, Chien et al. (2010) found that males and females were equally likely to be in any of the categories. The implication of this is that neither males nor females were likely, as a whole, to perform better than the other gender. Other studies have found no gender differences in

measures of several academic subjects, including literacy and math (Weiland & Yoshikawa, 2013; Matthews, et al., 2009)

Race. In the United States, racial gaps are typically studied in terms of Caucasian, African American, and Hispanic. While all students, regardless of racial background, may benefit from prekindergarten experience (Gormley, Gayer, Phillips, & Dawson, 2005), some racial groups may outperform others.

Henry and Rickman (2007) found that African American children scored an average of one standard deviation below their Caucasian peers on cognitive measures. However, the Hispanic subgroup in the study did not differ significantly from the Caucasian group. These differences held true for measures of pre-reading and expressive language, which are both part of the school readiness equation. (Henry & Rickman, 2007). Possession of such school readiness skills are significant predictors of school success (Duncan, et al., 2007). Language scores of African American children also lag behind those of their Caucasian peers (Gormely & Gayer, 2005).

Of the three main racial subgroups that are often the focus of study in the United States, some studies find that Hispanics seem to fare worse than African Americans and Caucasians. The Hispanic population tends to score lower on measures of achievement than other subgroups. A contributing factor to this gap could be that Hispanic children are less likely to be enrolled in quality programs than are Caucasian or African American children. Even though Hispanic children often have lower scores on academic measures (Garcia & Jenson, 2007), they also show greater academic benefits when they are able to enroll and attend quality prekindergarten programs, such as the one in Tulsa, Oklahoma (Gormley & Gayer, 2005).

Another likely factor in findings that report lower scores for Hispanic children would be that many Hispanic children are English language learners. Hispanic children in prekindergarten have an added burden of learning to navigate the English language, as well as learning the skills and objectives taught by the teacher (Garcia & Jensen, 2007).

Socioeconomic Status. Children of all races can be found across the SES spectrum. These children are often the recipients of subsidies, which are aimed not only at giving parents the opportunity to work, but also at helping families provide quality care for their children (Hawkinson et al., 2013).

Even without prekindergarten experience, children from low-income homes are less likely to possess school readiness skills at kindergarten entry than their peers from middle-income and high-income homes. This gap noted by SES status held true when accounting for other family factors, such as parental education and race. Prekindergarten education may hold promise for children from low-income homes as an avenue to narrow this gap in school readiness skills. However, it is uncertain if this gap could ever be closed, as low-income children who attend prekindergarten still score lower than mid- and high-income children who attend prekindergarten on academic readiness skills (Isaacs, 2012).

Children who are considered low-income reaped greater benefits from attending the Tulsa, Oklahoma, prekindergarten program than their peers (Gormley & Gayer, 2005). Even though these children show growth and benefit from attending prekindergarten, they still fall behind their peers who are not considered low-income. Reading and math scores of children who are eligible for free/reduced lunch have been found to fall behind scores of children who do not qualify for the lunch program, and these gaps persist throughout elementary school (Buddin & Zamaroo, 2009).

There is a link between SES class and achievement (Sirin, 2005). Students in lower SES classes tend to score lower on academic measures than their more affluent peers (Duncan & Magnuson, 2013). Even though SES can be used to predict academic achievement trajectories across all racial groups, this connection is strongest for Caucasian children (Sirin, 2005).

Prekindergarten Growth and Readiness

Academic. Over the course of the prekindergarten year students are expected to make strides in their academic knowledge and skills in order to prepare them for entry into kindergarten, which is often referred to as increasing the child's school readiness. Academic skills measured often include both reading related skills, such as literacy and phonemic awareness, and math skills (Halle, et al., 2012). There is no consensus as to which program type may have the greatest effect on growth and readiness.

The results of several studies (Diamond et al., 2008; Sylvest & Kragler, 2012) indicate that letter knowledge is one readiness skill that different types of prekindergarten programs can impact. The language and literature activities in the prekindergarten classroom were also found to be positively associated with an increase in several literacy related skills, including receptive language, vocabulary, blending, and emergent literacy (Mashburn, et al., 2010).

Other growth noted by Diamond et al. (2008) was not consistent across program types. This leaves the question as to which prekindergarten programs will better prepare students for entry into kindergarten by increasing readiness skills.

In studies that examined only Head Start programs, researchers found growth over the prekindergarten year in writing skills (Diamond, et al., 2008). Diamond et al. (2008) also found that those students who were better at writing had a greater knowledge of letter names. Knowledge of letter names is a school readiness skill that students are expected to master before

the end of kindergarten. While the children in Head Start begin their prekindergarten year with lower language scores than other forms of prekindergarten, they also show greater growth from the fall to the spring in language measures (Assel, Landry, Swank, & Gunnewig, 2007).

Halle, et al. (2012) also found that the number of students in the Head Start classroom that demonstrated high “approaches to learning” scores grew from 8% in the fall to 11% in the spring. “Approaches to learning” is broad and does not give insight about specific skills that may be enhanced through the Head Start curriculum.

Not all studies find positive benefits of Head Start. Zhai et al. (2011), in comparing different programs, found that Head Start students had cognitive scores greater than children who were in parental or non-parental home-based care, but not children who were in other prekindergarten or center-based programs. In a comparison study Bassok (2010) found that students in Head Start scored no better than their peers in relative-care on end of the year literacy measures. Loeb et al. (2007) also found that for the full sample of Head Start children, readiness impacts were not significant in any of the tested subject areas.

School-based prekindergarten programs were examined by Sylvest and Kragler (2012) and the only significant growth over the course of the year was in letter knowledge. The students did not show significant growth in other areas of literacy readiness (Sylvest & Kragler, 2012). However, in examining several different programs that used a consistent curriculum, including some school-based programs, Weiland and Yoshikawa (2013) found that enrollment in such programs produced large gains on academic measures.

In other configurations of prekindergarten education, varying degrees of gains have been found among all students and several distinct subgroups. State-funded programs produce growth on measures of literacy (Howes, et al., 2008), and while Cabell, Justice, Logan and

Konold (2013) echo the finding that children grow during their prekindergarten year, their research showed that their rank in relation to that of their peers does not vary significantly. This would imply that all students are growing and increasing their readiness at about the same rate, with no one subgroup making greater strides than any other.

Other studies have suggested that prekindergarten impact may be greater for certain subgroups of children. Low-income children who experience any type of preschool or child-care program appear to have greater growth in areas of cognition than similar children who do not attend preschool or child-care (Loeb, et al., 2007; Fram, Kim, & Sinha, 2012). Phillips and Meloy (2012) examined the subgroup of special needs children and found that when these children attended prekindergarten programs they showed gains across measures of literacy.

In addition to readiness in the literacy/reading realm, teachers also expect that students will enter school with a certain amount of math readiness. Since math and language are the primary focus of the early grades, potential impact on math cannot be overlooked. Burchinal, et al. (2008) were unable to find any connection between prekindergarten attendance and kindergarten success in math. Likewise, Phillips and Meloy (2012) found no significant effects of prekindergarten attendance on the math scores of special needs students. Others have found that math gains exist, but may be less than the gains seen in dimensions of reading (Gormley, et al., 2005).

Some research concludes that math gains are only seen when a focus is placed upon math. Klein, Starkey, Clemets, Sarama, and Iyer (2008) found that students who were exposed to focused interventions made greater gains in math than students who were not exposed to the interventions. Jung, Hartman, Smith, and Wallace (2013) saw an increase in math scores in their treatment group, who were exposed to the targeted teaching of different forms of number

relationships, such as the part-whole and more-less connections, over their control group, who received typical math instruction. These cases indicate that prekindergarten students are capable of mathematical gains, but may require more focused and deliberate instruction to be able to experience these gains.

Social-Behavior. Social-behavioral skills are also an important factor in school readiness (Halle, et al., 2012). As such, it is important to know if prekindergarten experience is likely to enhance social skills. In some cases, social skills have been found to increase after exposure to prekindergarten (Howes, et al., 2008), but others have noted negative behavior problems as a result of prekindergarten (Magnuson, et al., 2007)

Since children in any form of prekindergarten are exposed to same age peer social relationships sooner than those children not in prekindergarten, it stands to reason that they may have better social skills. Howes et al. (2008) found that students in state-funded prekindergarten had better social skills at the end of the prekindergarten year than students who were just entering prekindergarten. However, this is not a peer to peer comparison and may not be a fair measure to determine that social-behavioral skills are better for prekindergarten students than for those who do not attend.

Taylor et al. (2000) compared students who did not attend any form of prekindergarten to students who did. Their comparison found that students in prekindergarten had higher scores in social dimensions than children who were not in prekindergarten. This study used all forms of prekindergarten grouped as one, compared to no prekindergarten (Taylor, et al., 2000). In a study of Head Start children Zhai et al. (2011) found that attention problems were reduced for those children who attended Head Start, as compared to their peers who attended other forms of prekindergarten.

Not all social-behavioral findings show positive relationships with prekindergarten attendance. Magnuson, et al. (2007) found that students who attended prekindergarten were more aggressive than their peers who did not attend prekindergarten. The prekindergarten students also had lower levels of self-control than did students who did not attend prekindergarten. These negative impacts were not short-lived; they were found to persist through at least the end of first grade (Magnuson, et al., 2007).

Impact on Future Academic Success

Teachers, administrators, parents, and policy makers are also concerned with the potential impact of prekindergarten into the elementary school years. To this end, Huang et al. (2012) found that the initial gains that state-funded prekindergarten students made in kindergarten were no longer significant by the end of first grade. The effects of attending any form of prekindergarten may diminish quickly, within a year or two of entering formal school (Duncan & Magnuson, 2013). These findings suggest that any initial impacts of prekindergarten attendance may be fleeting.

However, in a meta-analysis, La Paro and Pianta (2000) found that early success in prekindergarten was a predictive factor in later school success. Dearing, et al. (2009) also found that when low-income students attended high quality settings prior to formal school entry, they showed greater achievement across disciplines as late as middle school. Children who attend prekindergarten have been found, in some studies, to have higher graduation rates and a lower incidence of repeating a grade (Pianta et al., 2009; Magnuson, Meyers, Ruhm, & Walkdfogel, 2004). The positive academic effects reaching into later elementary school, and beyond, appear to be strongest for the most disadvantaged subgroups of children (Magnuson, et al., 2004).

In long term studies of individuals who attended Head Start during its early years have been found to have better outcomes as adults than those individuals who did not attend. Some of the positive adult outcomes are higher likelihoods of having health insurance and more stable homes (Muennig, Scheinhart, Montie, & Neidell, 2009). Even though this is promising, Ludwig and Phillips (2008) note that the Head Start program has changed significantly over the years, so early cohort of children may not be representative of today's children.

The results of studies concerning later school success and prekindergarten are inconsistent. Some studies find that academic advantages disappear within a year or two after prekindergarten (Huang et al., 2009; Duncan & Magnuson, 2013) Some studies find continued academic advantages based on prekindergarten attendance (LaParro & Pianta, 2009; Dearing et al., 2009; Pianta, et al., 2009; Magnuson, et al., 2009). Others find that clear academic advantages fade, but effects reappear later in life (Muennig, et al., 2009; Schweinhart, 2013).

Summary

What research has shown is that different prekindergarten programs can produce different results for students. In some cases (Winsler et al., 2008) these associations are positive for the learning outcomes of the students. In other cases, little or no academic benefit has been found for students who attend prekindergarten (Sylvest & Kragler, 2012).

While the academic outcomes are often seen as the greatest focus for schools, it should be noted that factors such as nutrition and family experiences can impact children in any program (Isaacs, 2012). The sum of these factors could hinder or propel students. Schools and policy makers should make these non-academic factors a consideration as they look into different options for prekindergarten.

Most research is focused on attendance of one program versus nonattendance, or lumps various prekindergarten programs together compared to nonattendance. Much less research has focused on a comparison of different prekindergarten programs and their impact on students' learning outcomes in the kindergarten year, not just growth over the prekindergarten year. For schools and policy makers to make informed choices about whether or not to divert funds to prekindergarten programs, they need to know if those programs can produce better outcomes for their students than what is already available through programs such as Head Start.

CHAPTER THREE: METHODS

Design

The design of this quantitative study was ex post facto. This design was appropriate for this study because data was collected after students had ended their prekindergarten year, so the cause that was investigated, prekindergarten education, had already occurred (Fraenkel & Wallen, 2006).

This design also involves the use of a variable that is not, and could not be, manipulated by the researcher (Fraenkel & Wallen, 2006). In the case of this study, the type of prekindergarten education received could not be manipulated because it would not be ethical to dictate to parents which prekindergarten education their child received. However, this design does allow for the study of participants who have already experienced the conditions of the independent variable (Fraenkel & Wallen, 2006).

This non-experimental design was used in an attempt to uncover any differences between the type of prekindergarten education and performance at the end of the kindergarten year on the STAR Early Literacy test. This does not allow for definitive inferences in regards to causation (Fraenkel & Wallen, 2006). While causation cannot be exclusively determined, differences and relationships can be established (Fraenkel & Wallen, 2006).

In this study, the independent variable had two levels, which were prekindergarten type and gender. Prekindergarten type was defined as either Head Start, school-based prekindergarten, and no prekindergarten. Gender was defined as male and female. The dependent variable for this study was the beginning of the year STAR Early Literacy scores of kindergarten students.

Research Question

The research question for this study was:

RQ1: Is there a difference among the STAR Early Literacy scores of male and female kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program?

Null Hypotheses

The following were the null hypotheses:

H₀₁: There is no significant difference among the STAR Early Literacy scores of kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program.

H₀₂: There is no significant difference between the STAR Early Literacy scores of male and female kindergarten students.

H₀₃: There is no significant interaction among the STAR Early Literacy scores of male and female kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program.

Participants and Setting

Population

This study took place in a rural school district in central Mississippi using archival data drawn from school records in the First School District (pseudonym) from the 2014-2015 school year. This school district was a county school district. The county was 50.3% Caucasian, 47.0% African American, and 2.7% other races, or a combination of two or more races. The median household income was \$41,025, with 24.4% of the population living below the poverty line (United States Census Bureau, 2014).

Within the county that this school district operated, there were no other public school districts. There were six private schools that served K-12. Within the school district, there were eight elementary schools. The district also had two intermediate schools, one alternative school, two junior high schools, and two high schools. The district served 8,301 students, 665 of which were enrolled in kindergarten, during the 2014-2015 school year (Mississippi Department of Education, 2014). During the 2014-2015 school year, the district enrollment by gender was 49.13% female and 50.87% male. Racially, the district was 64.55% African American, 32.80% Caucasian, and 2.65% other (Mississippi Department of Education, 2014).

The settings that were being compared in this study were Head Start, school-based prekindergarten, and non-attendance to prekindergarten. The school-based programs were located in elementary schools in the First School District (pseudonym). The Head Start programs were located in various communities throughout the county, and students from the Head Start programs regularly enter the public school district when they are the required age for entry.

The participants in this study who have attended Head Start have attended local Head Start centers that were in the same communities but separate from the local schools. These Head Start centers served children who were ages 3 and 4 and who were from low-income families. The Head Start classes met for 5 hours each weekday. Students in these classes had access to educational material, were fed breakfast and lunch, and participated in social activities. Teachers in these Head Start centers may have possessed, but were not required to hold, a valid Mississippi teacher's license. The Head Start centers in this study followed the Mississippi Early Learning Standards for Classrooms Serving Four-Year-Old Children.

The participants in the study who have attended the school-based prekindergarten program were from the various elementary schools in the district. The school-based prekindergarten classes met 7 hours each week day. Students received breakfast, lunch, and an afternoon snack. Students were exposed to academic and social activities. The teacher in each of the prekindergarten classrooms held a valid Mississippi teacher's license and had a minimum of a Bachelor's degree. The classrooms also included an assistant, giving them a teacher-students ratio of approximately 10:1. The school-based programs in this study followed the Mississippi Early Learning Standards for Classrooms Serving Four-Year-Old Children.

Sample

The available population for this study was all students who entered kindergarten during the 2014-2015 school years in the First School District (pseudonym). Available archival records for the 2014-2015 school year were 665 (Mississippi Department of Education, 2014). From the population, a total of 136 samples were used ($N = 136$). To select samples from the available population, systematic random sampling was used. The procedure used to obtain the sample is explained in detail in the "procedures" section.

The sample's archival data was drawn from the school records of students who entered kindergarten during the 2014-2015 school years in the First School District (pseudonym) at any of the eight elementary schools and from the school data binder. The hard copies of the student records were stored in a locked filing cabinet in a locked room. The school data binder was also stored in this room. Access to this room was limited to administration, the counselor, the secretary, and the bookkeeper of each school. The data used in this study was from students who entered kindergarten during the 2014-2015 school years and who participated in one of the three subgroups of the independent variable, prekindergarten education ($N = 136$). The subgroups of

the independent variable were students who attended Head Start ($n = 41$), students who attended school-based prekindergarten ($n = 64$), and students who did not attend prekindergarten ($n = 31$).

The records in the sample came from students who entered kindergarten during the 2014-2015 school year and who had attended Head Start, school-based prekindergarten, or no prekindergarten program prior to kindergarten entry. Students who attended another type of prekindergarten program were not eligible for participation in this study. Students who were kindergarten repeaters were excluded from this study.

Gender and race was collected from each record included in the sample. The sample consisted of 72 males and 64 females. The sample consisted of 92 African American records, 40 Caucasian records, and 4 other records.

Head Start Group

The Head Start group contained 23 males and 18 females. The racial make-up of this group was 38 African American records, 3 Caucasian records, and 0 records that were identified as “other.”

School-based Prekindergarten Group

The school-based prekindergarten group had 34 males and 30 females. In this group there were 39 African American records, 24 Caucasian records, and 1 record with a racial identity of “other.”

No Prekindergarten Group

In the no prekindergarten group there were 15 males and 16 females. This group had 15 African American records, 13 Caucasian records, and 3 records with the racial identity of “other.”

For ex post facto research, the sample size recommended is $n = 30$ for each subgroup of the independent variable (Fraenkel & Wallen, 2006). The sample size of this study, $n = 41$ for Head Start, $n = 64$ for school-based prekindergarten, and $n = 31$ for no prekindergarten exceeds this recommendation and was appropriate for this study. The sample size allowed for a determination of any differences between the two groups of the independent variable. The difference between the two groups had to exceed .05 to be determined statistically significant (Fraenkel & Wallen, 2006).

Data was collected from a test administered by the school that is part of the district protocol for monitoring student progress. No identifying information was provided to the researcher. School counselors reported only the STAR Early Literacy score, type of prekindergarten education received, gender, and race.

Instrumentation

The STAR Early Literacy test was used to assess the literacy knowledge of students at the beginning of the kindergarten year. This test was routinely administered to students in kindergarten at the beginning of each school year in the First School District (pseudonym). This assessment was computer-based and was administered by the classroom teachers (STAR Early Literacy Enterprise, 2013). Students were logged in using unique usernames and passwords, the test was pulled up, and students were left to complete the test on their own (STAR Early Literacy Enterprise, 2013). Scores were reported in a variety of formats, including the scaled score, percentile ranks, and grade equivalence measures (STAR Early Literacy Enterprise, 2013). The overall scaled score was used for this study. The kindergarten test has a generic reliability of .78 (STAR Early Literacy Enterprise, 2013).

Once logged into the computer using their unique usernames and passwords, students did not require teacher assistance to complete the test (STAR Early Literacy Enterprise, 2013). The students were presented questions to which they chose the answer, from three possible answer choices, using the computer mouse or keyboard. The questions were presented using computer graphics and instructions were given in the audio format. Students utilized headphones to hear the question prompt (STAR Early Literacy Enterprise, 2013). Students were able to click an icon to have the instructions repeated. The test was adaptive and adjusts to the level of each student as they take the assessment to determine their level of early literacy skills. The entire assessment consisted of 27 questions. The average time needed to complete the assessment was 11 minutes. Teachers can access the scores immediately by using their unique username and password (STAR Early Literacy Enterprise, 2013).

The range of scores possible on the STAR Early Literacy was 300-900, with categorical descriptions of score ranges that are “emergent reader, transitional reader, and probable reader” (STAR Early Literacy Enterprise, 2013, p.10). The test was designed to be taken by children ages 3-9. The scaled score, which was used in this study, can be viewed as an overall summary of the student’s early literacy skills. The scaled scores were intended to be 100 times the age range for which the test was designed. For example, a five year old student could generally be expected to score around 500. Students scoring 675 or below were considered to be emergent readers. Students scoring 676-774 were classified as transitional readers. Finally, students scoring 775 and above were considered to be probable readers (STAR Early Literacy Enterprise, 2013).

The test had three domains, which were word knowledge and skills, comprehension and constructing meaning, and numbers and operations (STAR Early Literacy Enterprise, 2013).

Within each domain were subdomains. In the domain of word knowledge and skills, the subdomains were alphabetic principle, concept of words, visual discrimination, phonemic awareness, phonics, structural analysis and vocabulary (STAR Early Literacy Enterprise, 2013). In the domain of comprehension and constructing meaning, the subdomains were sentence-level comprehension and paragraph-level comprehension (STAR Early Literacy Enterprise, 2013). In the domain of numbers and operations, the subdomain was early numeracy (STAR Early Literacy Enterprise, 2013).

This test was part of normal school procedures and did not require extra time on the part of the students or the teachers. The test had already been taken by kindergartners at the beginning of the 2014-2015 school year, which was prior to data collection. Each school was responsible for maintaining student test data in a school data binder.

Procedures

Prior to submitting an application for IRB approval, written permission to gather, use, and report the data was gained from the superintendent of the First School District (pseudonym). To obtain permission from the superintendent, the researcher completed the district research application form and submitted it to the district (see appendix D). Once approved, the superintendent sent it back, along with a letter of permission (see appendix E). The researcher was also assigned a contact person from the district who served as the liaison for data collection.

After obtaining written permission from the superintendent, the researcher submitted an application for IRB approval. After IRB approval was obtained (see appendix F), data was collected and analyzed. During data collection, the researcher had frequent contact with the district liaison, who oversaw the collection of data and who personally gave the researcher the data collected.

To collect the data, a written request was given to the district liaison (See Appendix B), who then organized collection through each school counselor (See Appendix A). The request asked that the counselor begin with the 5th record and randomly pull every 3rd student record after that from the filing cabinet where student records were kept for students who were enrolled in kindergarten for the 2014-2015 school year. The counselor was also asked to use the school data binder in conjunction with the hard copy student records. The counselor was then asked to complete accompanying data sheets about the students (See Appendix C). Each of the eight elementary schools were given a data sheet that consisted of 20 spaces. The counselor was instructed to disregard any records of students who did not attend Head Start, school-based prekindergarten, or no prekindergarten. They were also asked to disregard any records of students who were kindergarten repeaters.

The counselor was instructed to first examine the hard copy of the student record and determine if the record met the inclusion requirements. Once a record was determined to be eligible, the counselor recorded the type of prekindergarten, gender, and race of the student. This information was found in the hard copy of the student record. The counselor then used the school data binder to record the scaled score from the STAR Early Literacy assessment given in August of the kindergarten year. The data sheet had a set number of rows, which was 20. The counselor was instructed to continue randomly pulling every 3rd record from the filing cabinet and using them in conjunction with the school data binder until all rows of the data sheet were full, or until they had been through the process of pulling every 3rd record two times.

If counselors were unable to complete all rows on their data sheet after pulling every 3rd record from the filing cabinet for two consecutive times, they were instructed to leave the uncompleted rows blank. Once the data sheets were complete, the counselor placed the data

sheets in a manila clasp envelope and returned them to the district liaison. Per district request, she held the data until all schools had completed the task. After a time period of three weeks, the researcher communicated with the district liaison to see if all the data sheets had been returned. Once the researcher received confirmation from the district liaison, the files were picked up from the office of the district liaison.

Once the researcher collected all data sheets, they were combined into an Excel document, which was saved and password protected. A hard copy of the individual data sheets was kept in a locked filing cabinet to safe-guard against electronic failure of the combined data. The electronic file containing the combined data was password protected, as was the computer which contained the file.

Data Analysis

The data in this study was analyzed using a two-way ANOVA. This was appropriate because the study looked at the mean difference between two factors and the dependent variable, as well as the interaction of the two factors (Green & Salkind, 2008). Each participant had a “score” on the dependent variable, the STAR Early Literacy scaled score, and two factors, which were the type of preschool attended and gender. The two-way ANOVA answered the first two null hypotheses by determining if the means were the same on the dependent variable across type of preschool and if they were the same across gender. The two-way ANOVA also answered the third null hypothesis by determining if there was any interaction between the type of preschool attended and the gender of the students.

The data was screened for outliers. To find any possible extreme outliers in the data set, box plots were used.

The data was entered into SPSS to conduct the Two-Way ANOVA. A significance level of $p < .05$ was required to reject each null hypothesis. Effect size was measured by partial eta-squared and was interpreted using Cohen's d .

One assumption of a two-way ANOVA was the assumption that the data was normally distributed (Green & Salkind, 2008). To test this assumption, a histogram was constructed for each population. To support the assumption of normality, the histogram should be symmetrical. Since $N > 50$, a Kolmogorov-Smirnov test was also used to test for normality.

To test the assumption of equal variance, Levene's Test for Equality of Variance was conducted. Non-significant ($p > .05$) results would indicate that equal variance could be assumed.

CHAPTER FOUR: FINDINGS

Research Question

The research question for this study was:

RQ1: Is there a difference among the STAR Early Literacy scores of male and female kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program?

Hypotheses

The following were the null hypotheses:

H₀₁: There is no significant difference among the STAR Early Literacy scores of kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program.

H₀₂: There is no significant difference between the STAR Early Literacy scores of male and female kindergarten students.

H₀₃: There is no significant interaction among the STAR Early Literacy scores of male and female kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program.

Descriptive Statistics

The dependent variable for this study was STAR Early Literacy scores. There were two levels of independent variables: type of prekindergarten and gender. The variable, type of prekindergarten, had three groups: school-based prekindergarten, Head Start, and no prekindergarten. The variable, gender, had two groups: male and female. The descriptive statistics of the variables are presented in Table 1 and Table 2.

Table 1

Descriptive Statistics for STAR Early Literacy Assessment, Types of Prekindergarten

Gender	<u>School-Based Prekindergarten</u>		<u>Head Start</u>		<u>No Prekindergarten</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male	547.12	110.20	462.91	62.19	505.27	84.05
Female	561.23	100.15	460.06	87.78	519.50	98.92
All	553.73	105.02	461.66	73.01	512.61	90.78

Table 2

Descriptive Statistics for STAR Early Literacy Assessment, Gender

Gender	<i>M</i>	<i>SD</i>
Male	511.50	98.06
Female	522.34	103.97

Results

Data Screening

The data was screened for errors or inconsistencies. There were no errors or inconsistencies found in the data. Additionally, the data was checked for outliers. Box plots were examined to determine if any scores should be considered outliers. An examination of the box plots did not yield to an identification of outliers, so analysis of the data continued.

Assumptions Testing

The null hypotheses were all analyzed using a two-way ANOVA. Assumption testing was necessary to ensure the data did not violate the assumptions of normality or of equal variance. To test the assumption of normality, a histogram and a Kolmogorov-Smirnov test were used. Histograms were checked for their appearance of normal distribution. Kolmogorov-Smirnov results were checked for $p < .05$ to be considered significant, which would mean the data was not normally distributed. Histograms were consistent with normal distribution and the Kolmogorov-Smirnov test for each of the independent variables $p > .05$, which was non-significant. Results are presented in Table 2. Based on these, the data was assumed to be normally distributed.

Table 3

Kolmogorov-Smirnov Test for Normality

<u>Variable</u>	<u>Kolmogorov-Smirnov Significance Level</u>
School-Based Prekindergarten	.06
Head Start	.20
No Prekindergarten	.20
Males	.20
Females	.20

Another assumption of the two-way ANOVA is equal variance of the data. The data was checked for equal variance using Levene's Test for Equality of Variance. For equal variance to be assumed, the results should be non-significant ($p > .05$). The results of Levene's test was .14,

which is not significant. Since the test did not yield significant results, equal variance of the data was assumed.

After the data met the assumptions of normality and equal variance, each null hypothesis was analyzed.

Null Hypothesis One

The first null hypothesis stated: There is no significant difference among the STAR Early Literacy scores of kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program.

After assumptions of normality and equal variance were met, this hypothesis was analyzed using a two-way ANOVA. The dependent variable was the STAR Early Literacy scaled score. The independent variable was the type of prekindergarten attended, which had three groups, school-based prekindergarten ($M = 553.73$, $SD = 105.02$), Head Start ($M = 461.66$, $SD = 73.01$), and no prekindergarten ($M = 512.61$, $SD = 90.78$). To reject the null hypothesis, $p < .05$ was required. For the first null hypothesis, the results yielded were $F(2, 130) = 12.05$; $p < .001$, partial $\eta^2 = .16$, and the observed power was .99. These results led to the rejection of null hypothesis one.

Post hoc analysis was conducted using Tukey's test. This test showed that Head Start and school-based prekindergarten differed significantly, yielding $p = .000$. Head Start was not significantly different from no prekindergarten, $p = .063$. School-based prekindergarten was not significantly different from no prekindergarten, with a results of $p = .117$.

Null Hypothesis Two

The second null hypothesis stated: There is no significant difference between the STAR Early Literacy scores of male and female kindergarten students.

After assumptions of normality and equal variance were met, this hypothesis was analyzed using a two-way ANOVA. The dependent variable was STAR Early Literacy scale score. The independent variable was gender, which had two groups; male ($M = 511.50$, $SD = 98.06$) and female ($M = 522.34$, $SD = 103.97$). To reject the null hypothesis, $p < .05$ was required. The results for null hypothesis two were $F(1, 130) = .25$; $p = .62$; partial $\eta^2 = .002$, and the observed power was .08. Given these results, the researcher failed to reject null hypothesis two.

Null Hypothesis Three

The third null hypothesis stated: There is no significant interaction among the STAR Early Literacy scores of male and female kindergarten students who attended Head Start, school-based prekindergarten, or no prekindergarten program.

After assumptions of normality and equal variance were met, this hypothesis was analyzed using a two-way ANOVA. This final null hypothesis examined interaction between the two independent variables, type of prekindergarten and gender on the dependent variable, STAR Early Literacy scale score. To reject the null hypothesis, $p < .05$ was required. The results of this analysis were $F(2, 130) = .12$; $p = .89$; $\eta^2 = .002$, and the observed power was .07. Given that this analysis yielded non-significant results, the researcher failed to reject null hypothesis three.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion

The purpose of this study was to determine if any differences exist on the beginning of the year Start Early Literacy scores of male and female students who attended Head Start, school-based prekindergarten, and no prekindergarten.

Null Hypothesis One

Null hypothesis one was aimed at examining the differences in beginning of the year STAR Early Literacy scores based on the type of prekindergarten education received. The results of the two-way ANOVA yielded significant results, which led to the rejection of the null hypothesis. There was a significant difference between students who attended Head Start, school-based prekindergarten, and no prekindergarten. To further examine this difference, post-hoc analysis was conducted, using Tukey's test. The results of the post-hoc analysis found a significant difference between Head Start and school-based prekindergarten ($p = .000$). There was no significant difference between Head Start and no prekindergarten ($p = .063$) or between school-based prekindergarten and no prekindergarten ($p = .117$).

Between the school-based and Head Start group, the finding of $p = .000$ indicates a large difference. The two groups exhibited the only significant difference, using $p < .05$ as the standard for significance. This finding indicates that, for this sample, the difference between Head Start and school-based prekindergarten was great. While no comparison study using Title I school-based prekindergarten and Head Start were found, some studies comparing Head Start to other prekindergarten or center-based programs found similar results.

Loeb, et al. (2007) found that attending center-based care prior to kindergarten entry had

a greater effect on students than attending Head Start prior to school entry. Loeb, et al. used center based care to refer to several different care arrangements rather than a particular type of prekindergarten, which was used in the present study.

Studies comparing universal state prekindergarten initiatives to Head Start also found significant cognitive differences between prekindergarten groups and Head Start. Lee et al. (2014) found lower cognitive outcomes for children in Head Start than for children who attended either center-based or state-funded prekindergarten. Similarly, Henry et al. (2006) found that students who were in state-funded prekindergarten prior to kindergarten entry outperformed students who were in Head Start prior to kindergarten entry. While the findings of the current study are consistent with the findings from Lee et al. and Henry et al., it should be noted that the state-funded programs used in those studies were universal in nature, in contrast to Head Start, which uses income as a basis for need. The school-based prekindergarten programs used in the current study had the same income restrictions as Head Start.

When looking at no prekindergarten, the results of the post hoc analysis found no significant difference between school-based prekindergarten and no prekindergarten ($p = .117$), with a significance level of $p < .05$. This difference was large enough to conclude that these groups do not differ from one another. This finding is in contrast with Sawhill et al. (2013), who found that students who attended prekindergarten were more academically ready at the beginning of kindergarten than those who did not. Taylor, et al. (2000) also found significant differences between students who did not attend prekindergarten and those who did. The current study does not find that students in school-based prekindergarten were significantly different in their early literacy skills from students who did not attend prekindergarten.

One possible explanation for this contrast could be that Sawhill et al. (2013) and Taylor

et al. (2000) did not differentiate between various formats of prekindergarten, and included students from a variety of prekindergarten formats, including public and private (tuition supported) programs. The current study also did not measure family factors, such as maternal education or income level. Magnuson et al (2004) found that prekindergarten was more beneficial for disadvantaged children. It is possible that the no prekindergarten records in this sample were largely from students with fewer economic risk factors than those enrolled in the school-based prekindergarten, who are assumed to be economically disadvantaged because of the enrollment stipulations of the program.

Likewise, there was no significant difference found between Head Start and no prekindergarten ($p = .063$). However, between the Head Start and no prekindergarten groups, the difference ($p = .063$) was only marginally above the significance level of $p < .05$. Even though this sample failed to meet the significance threshold, a definitive determination that Head Start and no prekindergarten are not different cannot be made. With a difference that falls within such a proximity to the set significance level, it is plausible that, given a larger sample size, the significance threshold may be met.

Null Hypothesis Two

Null hypothesis two was aimed at examining the differences in beginning of the year STAR Early Literacy scores based on gender. The results of a two-way ANOVA did not yield significant results ($p = .62$). Therefore, this study concludes that there is no difference in beginning of the year STAR Early Literacy scores based on gender. Given the non-significant results, no further testing was conducted on this hypothesis.

The results of this study are similar to the findings of Weiland and Yoshikawa (2013), who found no gender differences in the areas of language, literacy, and numeracy of

prekindergarten students at the end of the prekindergarten year. Even though later gender differences have been reported (Matthews et al., 2009), these differences do not appear to be significant at the prekindergarten level based on the sample in the current study.

Null Hypothesis Three

Null hypothesis three was aimed at examining any interaction between prekindergarten type and gender. The results of a two-way ANOVA did not yield significant results ($p = .89$). This study concludes that there is no interaction between prekindergarten type and gender.

An interaction between prekindergarten type and gender would mean that a type of prekindergarten was better, or worse, for one gender than the other. This type of interaction would indicate that either males or females were at a disadvantage, over the other gender, in a certain prekindergarten type.

In this study, the absence of an interaction means that none of the three formats of prekindergarten favored one gender over the other. Neither gender was put at a disadvantage by attending a prekindergarten type in this study.

Conclusions

The primary conclusion of this study is that there is a significant difference between some groups of students who attend different types of prekindergarten. There was no significant difference based on the gender of the students, and no interaction between gender and prekindergarten type. Therefore, in the current study, the type of prekindergarten attended was the only factor that yielded a significant result.

The conclusion drawn from this study is that there is a connection between the type of prekindergarten attended and the scores on the beginning of the kindergarten year STAR Early Literacy test. The design of this study does not allow for any causation to be concluded, but a

statistically significant difference between the types of prekindergarten and no prekindergarten exists. Among these three types of prekindergarten attendance, only Head Start and school-based prekindergarten scores were significantly different. This difference supports others who found that students in other prekindergarten arrangements were more academically ready for kindergarten than students who attended Head Start (Loeb, et al, 2007; Lee et al., 2014; Henry et al., 2006).

Possible factors that contribute to this difference are teacher qualifications and program aims. As noted by Halle, et al. (2012), the higher level of education a teacher has, the better the student outcomes. In school-based programs, the teachers would have at least a Bachelor's degree, which would be equivalent to approximately four years of college. Other research, such as Ludwig and Phillips (2008), also asserts that teacher qualification is a factor in student outcomes, which they noted in the differences between state-funded prekindergarten and Head Start. It is possible that the difference in education and qualifications of the teachers in school-based prekindergarten and Head Start contributed to this difference.

It should also be noted that the program goals of school-based prekindergarten and Head Start differ. The primary goal of school-based prekindergarten is to ready students for academic success once they enter kindergarten, and beyond. Head Start has a more holistic approach and seeks to not only provide academic foundations, but also to increase social competence, as well as provide for certain health and wellness needs (Zigler & Styfco, 2010). With such a broad range of goals, Head Start programs possible do not devote as much time to academic skills as school-based programs.

Another notable difference between school-based prekindergarten and Head Start is the location. School-based prekindergarten is housed in the same building as the local elementary

school, while Head Start is separate. Given this, students who attend school-based prekindergarten would already be adjusted to the school environment, whereas students coming to kindergarten from Head Start would be in the process of making this adjustment in the fall of the kindergarten year.

The determination of differences between Head Start and no prekindergarten are inconclusive for the current study, given that the difference was found to be in close proximity to the set significance level. This means that no determination can be made as to whether or not Head Start and no prekindergarten would hold to have no significant difference in a replication of this study.

Even with a lack of statistical significance, the mean scores of Head Start and no-prekindergarten could lead to the conclusion that students who stay home are as academically ready, or even more ready, than their counterparts in Head Start. Again, it is important to note the varying goals of the Head Start program. The current study only measured literacy skills. No measures of math, social skills, or health/wellness skills were included. These are all important components of a Head Start programs. It is possible that, if other facets of development were included, Head Start students would score as well or better than the students who did not attend prekindergarten.

This study also concludes that the effects of prekindergarten on beginning of the kindergarten year academics are not influenced by gender. Scores were not significantly different for males and females and no significant interaction between prekindergarten type and gender was found. Given this, no form of prekindergarten included in this study seems to favor one gender over the other in terms of academic outcomes.

Implications

In the current school atmosphere of high-stakes testing there is a push for prekindergarten. However, with mixed literature, one cannot be certain that efforts to start or continue a school-based prekindergarten program would be fruitful, especially if it entails the diversion of Title I funds from other areas.

This study adds to the literature by looking at the effects of prekindergarten education on beginning of the kindergarten year STAR Early Literacy scores and revealing a significant difference based on the type of prekindergarten attended. Empirically, this study helps to close a gap by separating two specific types of prekindergarten, school-based and Head Start, and also using a group that did not attend prekindergarten. This study also adds to the literature by demonstrating that differences exist between children who attend different types of prekindergarten, specifically Head Start and school-based programs, which both have similar entry requirements and follow the same curriculum standards.

By using programs that have similar entry requirements, the results of this study should not be influenced by certain factors known to have an impact on academic achievement, such as SES status. The two prekindergarten types in this study also followed the same curriculum standards, so a difference in taught curriculum should not be a factor in the results. This current study finds that students in school-based prekindergarten score significantly higher on the STAR Early Literacy test at kindergarten entry than students who attended Head Start.

Since there was a difference found between program types, it is advisable parents to carefully consider options when choosing a prekindergarten experience. The selection of which prekindergarten to enroll ones child in can be a very personal decision, and factors contributing to the decision to enroll can vary based on the family situation. For parents who are seeking to

provide their children with an environment that will produce increased literacy skills, school-based prekindergarten may provide the best option. However, with different programs having different aims; parents should consider the needs of their child and what they hope to gain from the prekindergarten experience. Given that children will differ in their needs, and parents in their expectations, it would be beneficial for parents to look at the literature to get a well-rounded picture of the possible impacts on readiness produced by different prekindergarten types.

For schools with available Title I funds, using those funds to establish a school-based prekindergarten program would likely be worth their investment. With the political pressure facing schools, their primary goal in prekindergarten outcomes is academically focused. In measures of literacy, school-based prekindergarten had a higher mean score than the two other types of prekindergarten options. Schools with a desire to increase literacy skills of entering kindergarten students may determine that the cost of establishing such a program is a worthwhile investment.

When children interact within the prekindergarten environment, they are interacting in a microsystem environment (Bronfenbrenner, 1979). Since each prekindergarten experience will provide a different microsystem, the outcomes can be expected to be different. This expectation held true for the two types of prekindergarten programs included in the current study. Based on these results, schools that choose to divert Title I funds for prekindergarten may be giving students an advantage in literacy over the already available Head Start. The impact of different microsystem environments on measures of math, social competence, or health/wellness was not examined in this study.

Limitations

One limitation of this study is the lack of randomization. This creates a selection bias threat to validity (Rovai, Baker, & Ponton, 2013). Since the study is ex post facto, data was collected after the fact and randomization of the sample was not possible (Rovai, et al., 2013). However, the demographics of the subgroups of the independent variable were similar in terms of race and socio-economic status. Stratified random sampling was also used to lessen any effects of the lack of randomization.

Another limitation is the lack of the ability to draw inferences about cause and effect relationships. This study only sought to determine if there was a difference in the kindergarten performance of children who attend Head Start, school-based prekindergarten and no prekindergarten. As an ex post facto study, this study cannot conclusively determine causes of any differences that may exist (Fraenkel & Wallen, 2006), nor did it seek to determine the factors that contribute to any differences.

This study was also conducted in a specific geographic area in Mississippi and included only one school district. The results obtained may not be true for different populations.

Recommendations for Future Research

This study showed a difference in the STAR Early Literacy scores of three specific groups of kindergarten students. The difference was related to the type of prekindergarten education received and was statistically significant between Head Start and school-based prekindergarten. As a quantitative study, no possible explanations for this difference were explored. Any differences in these environments that could have led to the results were not included in this study. As such, it would be beneficial for further research in this area to have a qualitative focus so that different factors of each of the environments could be examined. As

schools and states continue to look for the best way to educate prekindergarten children, an examination of those factors could be beneficial from a practical stand-point.

This study also included data from only one school district in Mississippi. Future research could expand upon these results by broadening the geographic area included. This may also allow for more conclusive evidence in the comparison of the Head Start group to the no prekindergarten group, as results from this comparison in the current study were inconclusive.

This study also excluded other types of prekindergarten, such as private and religious-based prekindergarten. In the future, including these groups would further add to the literature on prekindergarten education by adding additional types of prekindergarten to compare against one another to determine any differences on student outcomes.

Including other measures of kindergarten readiness, even within the types of prekindergarten included in this study, would provide greater knowledge about the various ways that prekindergarten education impacts the developing child. This study looked only at measures of literacy. Looking at other measures, such as math skills, social competence, and health/wellness measures, could show other differences in the outcomes of prekindergarten programs.

One difference found in this study was between school-based prekindergarten and Head Start. Teacher certification is a possible contributing factor to this difference. The certification of prekindergarten teachers and its impact on prekindergarten outcomes is an area that could be explored further.

Continuing to delineate different program types would be beneficial in future research. This allows for a comparison instead of a broad generalization that prekindergarten is beneficial. Based on this study, not all prekindergarten formats are equally beneficial on measures of

literacy. When they are all lumped together, better performance of some programs could mask poor performance of others and lead to the overgeneralization that all prekindergarten is beneficial.

The two formal prekindergarten programs used in this study had certain requirements, one of which was low-income. Therefore, these results may not hold true in populations of middle or upper class children. Studying different types of prekindergarten with different socioeconomic groups, and comparing across SES groups, could broaden the picture of the effects of prekindergarten.

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Appendix A

Letter to School Counselor

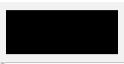
Dear School Counselor,


Thank you for your willingness to assist me with my dissertation by recording the data I need to complete my data analysis. The attached data sheets should be used to record the data. Please complete the following steps to record the data:

1. Begin by opening the appropriate area of the filing cabinet in which hard copies of student records are kept to current year (2014-2015) kindergarten students. Find the 5th record. Beginning at the 5th record, pull every 3rd record.
2. Also, pull the school data binder which contains the STAR scores for students. As per the District Testing and Data Coordinator, this binder should be organized by year and grade, and the reports contained in it should be in alphabetical order.
3. Examine each hard copy record individually. First, find the type of prekindergarten listed for each student. If the type of prekindergarten is anything other than Head Start, school-based prekindergarten, or no prekindergarten, disregard that record for reporting purposes. Disregard any records of students who repeated kindergarten.
4. For an eligible student record, get the data sheet to record the appropriate information (see #5 & #6).
5. Record the type of prekindergarten, gender, and race of that student using the student record.

6. Using the school data binder, record the STAR Early Literacy score for that student from the beginning of the year kindergarten test.
7. After recording the STAR score, you are finished with that record and may place it to the side and move on to the next hard copy student record.
8. At the end of the first set of records, if there are still unfilled data sets, return to the filing cabinet, and again pull every 3rd record. Repeat steps 3-7 until your data sheet is full.
9. After you have randomly pulled every 3rd record for 2 consecutive times, you may leave blank any data fields that do not have data.
10. After you have completed the data sheets, please place it in the provided clasp envelop, seal it, and place it in the school vault where it can be kept locked with other student records.

***Example:** You have pulled every 3rd record and find that John Doe is the first record in your stack of records. After examining John Doe's record you find that he attended Head Start. You will then complete the data sheet with his type of prekindergarten, gender, and race. Before moving to your next record, you will find his STAR score from beginning of the kindergarten year and record it. This will complete all data needed for this record. You will place it to the side and examine the next record.*

When you have finished, please contact  who will pick them up from you and store them at Central Office. I will be in contact with her in three weeks and will pick up all data from her once all eight elementary schools have completed their data sheets.

If the procedures are unclear, or if you have any other questions, you may call or e-mail me for clarification.  is also available to help you if needed. Again, I thank you for your willingness to take the time to record this data for me.

Educationally yours,

Melissa Hughes, Ed.S

601-214-2113 (cell)

mhughes4@liberty.edu

Appendix B

Letter to District Testing and Data Coordinator

Dear 

Thank you for your willingness to help with the collection of data from schools in your district. As we discussed, I am sending a detailed letter for each of the elementary school counselors (8), along with data sheets that contain 20 spaces each. Please distribute the letters and data sheets to your school counselors at your earliest convenience. The procedure outlined in the letter is as we discussed, and an additional copy for you is also included.

Also, as per district request, the letters instruct the counselors to return the data sheets to you. I will call you in three weeks to see if they are all complete. Once all data sheets are complete, I will pick them up from your office. If there should be any problems, concerns, or questions about the process, please feel free to contact me at any time. Again, thank you for your help.

Educationally yours,

Melissa Hughes

601-214-2113

mhughes4@liberty.edu

Appendix C

Data Recording Sheet

Record Number	Prekindergarten Attended HS = Head Start SC = School-Based N = None	STAR Early Literacy Scaled Score	Gender M = Male F = Female	Race 1 = White 2 = Black/African American 3 = Other
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Record Number	Prekindergarten Attended HS = Head Start SC = School-Based N = None	STAR Early Literacy Scaled Score	Gender M = Male F = Female	Race 1 = White 2 = Black/African American 3 = Other
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Appendix D

Request to School District for Data Collection



Office of Curriculum & Instruction
 [Redacted]
 [Redacted]

Request to Conduct Research Date 11-5-2014

Name of Requestor Melissa Hughes (Title) Doctoral Candidate
 School/Department/Organization Liberty University, Virginia
 Address 21457 HWY 18 Raymond MS 39154
Street No. Name of Street Apt. No. City State Zip Code
 Phone number 601-214-2113 Email address mhughes4@liberty.edu

Date Needed: _____

Information Needed and Reason (Be specific. Include grade, years, schools, etc.)
 The information is needed for the purpose of my doctoral dissertation, *Differences in Literacy Scores Among Students who Attended School-Based Prekindergarten, Head Start, and no prekindergarten.* The information needed is as follows: 2014-2015 STAR Early Literacy scaled scores of kindergarten students from the beginning of the year test with student gender, race, and type of prekindergarten education received. It is requested that the data be a random sample from all K classes in the district. It is also requested that each elementary school supply 20 data samples, for a target total of 160 records. Student age and race will be used only for purposes of describing the sample.
 It is requested that data be supplied in data sheets and include only the requested information with no student names or other identifying information, such as student numbers.

*I understand I may only use this data for the purpose of this request.
 I agree to confidentiality of all participants and data.
 I agree to exclude scores for any groups with less than ten members.*

Melissa Hughes
Digitally signed by Melissa Hughes
 DN: cn=Melissa Hughes, o=LU, email=melhughes4@liberty.edu, c=US
 Date: 2014.11.05 17:07:11 -0500
 Signature of Requestor

Department of Curriculum and Instruction Use Only	
Date Received <u>11-5-2014</u>	NOTE: The _____ would like a free copy of the results of this research. Accountability Staff Member _____
Date Completed <u>2-5-2015</u>	
<input checked="" type="checkbox"/> Request Approved Emailed _____ Faxed _____ Mailed _____ Picked up by <u>Hughes, on LU approval</u>	
<input type="checkbox"/> Request Denied	

Appendix E**School District Letter of Approval**

[REDACTED]
Office of the Superintendent
[REDACTED]
[REDACTED]
Phone: [REDACTED]
FAX: [REDACTED]

TO: Melissa Hughes
FROM: [REDACTED] Superintendent
RE: Data Request
DATE: February 5, 2015

Ms. Melissa Hughes,

The [REDACTED] is pleased to grant you permission to utilize beginning of the year (BOY) kindergarten STAR Early Literacy scores for students who attended school district pre-kindergarten, Head Start, and no pre-kindergarten by gender and race. This data will be provided to you after all identifying information pertaining to individual students has been removed. We are aware that this request is being made for the purpose of your dissertation and that school and school district names and counties will not be revealed in your study.

If you have any questions, please do not hesitate to contact me.

[REDACTED]
[REDACTED] Superintendent
[REDACTED]

Appendix F

IRB Approval

LIBERTY UNIVERSITY

INSTITUTIONAL REVIEW BOARD

February 23, 2015

Melissa Hughes

IRB Application 2126: Differences in Literacy Scores among Students Who Attended School-Based Prekindergarten, Head Start, and No Prekindergarten

Dear Melissa,

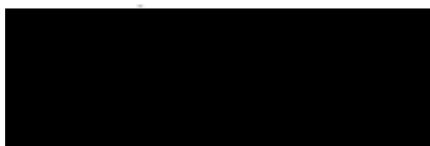
The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your approved application.

Your study does not classify as human subjects research because it does not involve the collection of private information from individuals.

Please note that this decision only applies to your current research application, and that any changes to your protocol must be reported to the Liberty IRB for verification of continued non-human subjects research status. You may report these changes by submitting a new application to the IRB and referencing the above IRB Application number.

If you have any questions about this determination, or need assistance in identifying whether possible changes to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,



Professor, IRB Chair
Counseling

(434) 592-4054

LIBERTY
UNIVERSITY.

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