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Will Implementing a Research Based DESE Approved Early Childhood Program Have an Effect on the School Readiness of Prekindergarten Students

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by

Stephanie Small

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

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Abstract

The purpose of this comparative study was to examine the connection between the implementation of a quality early childhood program and the kindergarten readiness of prekindergarten students as measured by the Developmental Indicators for Assessment of Learning-DIAL-3. The researcher analyzed historical data obtained from approximately 40 students in the Study Site School District in the prekindergarten programs at Woodbridge Elementary School for the 2008-2009 and 2009-2010 school years.

The researcher developed two research questions: a) What impact does a MODESE approved, research-based early childhood program have on the kindergarten readiness of prekindergarten students in the Study-Site School District as measured by the DIAL-3? and b) Will there be a difference in the average DIAL-3 scores of the students who did not participate in a DESE approved early childhood program and the average DIAL-3 scores for students who did?

The implementation of a high quality early childhood program, (the independent variable) was measured by the change in DIAL-3 scores on each subtest for each of the participants (dependent variable). The results were then compared to the scores of the control group, the students that did not participate in a high quality early childhood program. Using a two-tailed *t*-test to examine the difference between the mean scores of participating and non-participating students, the researcher found that overall there was no statistically significant difference in scores of students who participated and those who did not.

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Chapter I: Introduction of the Study

Background of the Study

Over the last five years, the number of children categorized as at-risk has steadily increased (Ewen & Matthews, 2007). According to the National At-Risk Education Network (NAREN):

> students are placed at-risk when they experience a significant mismatch between their circumstances and needs, and the capacity or willingness of the school to accept, accommodate, and respond to them in a manner that supports and enables their maximum social, emotional and intellectual growth and development. (p. 1)

Researchers consider students in poverty and minority status to be more at-risk than their age related peers who are of a higher socioeconomic or different racial status (Chapin, 2006; Harris & Herrington, 2006). In addition, researchers assert that a child's tendency to be at-risk may be further increased if his or her parents were also considered at-risk (Chapin, 2006). Parents of at-risk students may have dropped out of high school, may have little to no educational expectations for their children, or may be completely disconnected from school due to stressful living conditions (Berliner, 2009; Pellino, 2007). The cycle of poverty, low educational attainment, and low socio economic status contributes to what is known in educational circles as the achievement gap (Anderson, Medrich, & Fowler, 2007; Berliner, 2009). The term achievement gap was first used by Walker in his article "Englewood and the Northern Dilemna" in 1963. In his article discussing the achievement gap, Walker (1963) described a "two year educational achievment gap" (p. 8) that existed between students of segregated schools in the same school district; the Black students of Lincoln Elementary school and the White students

from the other elementary schools. Gwartney (1970) later used the term in a scholarly journal in his discussion about the "widening achievement gap between (whites and nonwhites) as the general education level increases" (p. 878). Today, many researchers define the achievement gap as the difference in the performance scores on standardized achievement tests between white and disaggregated subgroups (Anderson et al., 2007; Harris & Herrington, 2006; King, 2009).

In *Our Schools and Our Future: Are We Still At-risk?*, the Koret Task Force found that while there is some evidence that the achievement gap that exists between cultural groups is narrowing, minority and poor children are still at a significant disadvantage (Peterson, 2003). This increase in the number of poor and low-income children poses a particular problem for educators. Research has shown that poverty during the formative years (birth through kindergarten) contributes to factors that negatively influence the growth, development, and learning of young children, and can have long-term effects on their future success (Berliner, 2009; Camilli, Sadako, Ryan, & Barnett, 2010; Pellino, 2007). Berliner (2009) called the factors that contribute significantly to achievement, out of school factors (OSFs). According to Berliner (2009), there are six OSFs that negatively impact the growth, development, and future academic success of students in poverty; "low birth weight and non-genetic influence on children; inadequate medical, dental , and vision care, food insecurity; environmental pollutants; family relations and family stress; and neighborhood characteristics" (p. 1). In addition, Berliner (2009) further explained that these OSFs have a strong correlation with a range of additional poverty related social and behavioral problems that negatively affect future school success of these individuals as well.

Investment in high quality early childhood education offers the best alternative to offset the negative effects of poverty and low-socio-economic status. Ewen and Mathews (2007) purported that "the growth in poverty and its associated risk factors among very young children suggests that efforts to reduce the achievement gap should begin in children's earliest years" (p. 1). The *No Child Left Behind Act of 2001* (NCLB) forced leaders in the field of education to meet new accountability standards in education (United States Department of Education, 2002). A legislation, which addressed the standards that directly affected children from birth to school age, was Title I of NCLB. Ewen and Matthews (2007) further explained that "Title I of NCLB presents an opportunity for schools and school districts to increase investments in high quality early education initiatives which may have long term benefits for at-risk children" (p. 1). According to the Consolidated Federal Programs Administrative Manual (2010), the primary legislative purpose of Title I was to:

> Ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging state academic achievement standards and assessments. This can be accomplished by meeting the educational needs of low-achieving children, closing the achievement gap between high- and low-performing children, high standards for all students, enriched and accelerated instruction, decentralized decision making, improved accountability, high quality professional development, coordination and integration of services, expanded family involvement, extended learning time, and early intervention. (p. 20)

A review of past and recent research demonstrates that this fair and equal opportunity should begin as early as possible for students that are economically disadvantaged.

As stated by the *Consolidated Federal Programs Administrative Manual* (2010) school districts are allowed to use Title I federal funds for early intervention services to address the developmental needs of students "whose educational attainment is below the level appropriate for children of their age" (p. 29). In order to meet the mandates of NCLB, states across the country adopted measures that supported the execution of programs that benefited economically disadvantaged children. Leaders in early childhood education from the state of Missouri have taken a proactive approach toward closing the achievement that exists for at-risk students by setting standards for early learning.

Missouri's Department of Elementary and Secondary Education (MODESE) has been at the forefront of early childhood education with the realization of the Parents as Teachers Program in the 1980s and their connection with the School Readiness Initiative (Pfannenstiel & Zigler, 2007). In support of early learning for all children, as well as compliance with NCLB, MODESE established guiding principles to direct the development and implementation of Title I early childhood programs. The program manual has identified key components of high quality childcare that school districts must include; selection of students, certification and qualification of teachers and Para professionals, developmentally appropriate curriculum, scheduling, class size, teacher-student ratio, and parent involvement (Consolidated Federal Programs Administrative Manual, 2010). The MODESE (2011) Early Program Learning Standard's Vision stated, "Children in Missouri will have access to high-quality early learning experiences that will

prepare them to succeed in school and in life" (p. 1). In the state of Missouri, there is a sustained and concentrated effort to ensure that all children have access to high quality early childcare through Title I early childhood programs, as well as an intitative entitled the Missouri Pre-School Project.

The Study-Site School District, a low socio-economic district whose student population was 98% African-American, made the decision to address the issues surrounding early childhood education through the launching of two prekindergarten classrooms at Woodbridge Elementary School in 2006 using Title I funds (Woodbridge Elementary School and Study-Site School are fictitious names, used to preserve confidentiality). Woodbridge Elementary School is a dedicated primary grade facility that houses prekindergarten through third grade self-contained classrooms. Student enrollment for the school year of 2008-2009 closely approximated 340, but fluctuated due to high student transience. In 2008-2009, 94% of Woodbridge students were eligible for the federal free and reduced lunch programs. There were two prekindergarten classrooms, and enrollment fluctuated between 18-20 students per class throughout the school year. In 2009-2010, 98% of Woodbridge Elementary students were eligible for federal free and reduced lunch programs and there were two prekindergarten classrooms as well, however the school district reduced the class size to 12-15 students per class to comply with MODESE guidelines (Consolidated Federal Programs Administrative Manual, 2010).

Statement of Problem

During the 2008-2009 school year, the Study-Site School prekindergarten program did not meet all of the Title I requirements as outlined in the Administrative

Manual in the following key areas: curriculum, class size, and staff development (Consolidated Federal Programs Administrative Manual, 2010). In addition, district administrators observed that there was an increase in inappropriate student behavior as the students transitioned from the early childhood program to the kindergarten level. A recurring theme at district meetings was that the academic curriculum prepared pre-school students for academic tasks; however, after they completed the prekindergarten program they appeared to lack the necessary social, or kindergarten readiness skills. This forced the school district to adopt specific measures to comply with all of the standards set by MODESE.

The purpose of this study was to determine the effect that participation in a research-based DESE approved early childhood program had on the kindergarten readiness of prekindergarten students in the Study-Site School District. This study compared the Developmental Indicators for the Assessment of Learning-Third Edition (DIAL-3) scores of students who were enrolled in the Study-Site School District's prekindergarten program prior to the implementation of a MODESE approved early childhood program to the scores of students who were enrolled following implementation. The researcher analyzed the scores to determine if there was a positive increase in kindergarten readiness. Previously, the prekindergarten program did not meet MODESE or Title I standards due to the following reasons:

- The School District implemented the Open Court Reading and Everyday Math Programs as the early childhood curriculum; however, they did not directly address social skills.

- Class size was approximately 18-20 with one certified teacher and one pre-school assistant.
- The school district trained the classroom teachers, but not the preschool assistants.
- In addition, the district's curriculum did not address Missouri Pre-k standards.

The School Study-Site District made the following changes in order to meet MODESE and Title I requirements:

- The district adopted and implemented a MODESE approved early childhood curriculum, Project Construct.
- The district reduced class size from 20 to 15, as required by MODESE.
- Professional Development and Training (Project Construct) were provided for prekindergarten teachers and assistants, and was ongoing.
- Parents as Teachers educators provided the parent involvement component, two home visits per year using the Born to Learn Curriculum.

Even though the DIAL-3 is not a direct measure of kindergarten readiness, it provides information on the specific areas that research has proven to be indicators of school success; motor concept, language and a parent report section that describes the social emotional growth of prekindergarten students (Isakson, Higgins, Davidson, & Cooper, 2009; Mardell-Czudnowski, & Goldenberg, 2009). The school district implemented program changes not only to ensure that the school district met state standards, but also to provide a high quality early childhood program to participating students in an effort to ensure kindergarten readiness and later school success.

Purpose of Study

The researcher collected data for this study from two prekindergarten classrooms from the Study Site School District for two consecutive school years: 2008-2009 and 2009-2010. The non-participants, the control group (2008-2009), did not participate in a MODESE approved early childhood program, while the participants (2009-2010) did. This researcher analyzed and compared data from two different DIAL-3 test administrations for both the participants and non-participants. The Parent as Teachers parent educators administered the DIAL-3 assessments to both groups prior to the start of their prekindergarten school year (pre-test), and prior to the start of their kindergarten school year (posttest).

The researcher used inferential and descriptive statistics to determine what relationship, if any, existed between the implementation of a research-based, high quality early childhood program and kindergarten readiness of the treatment and control groups. This study will provide valuable information to the Study-Site School District related to curriculum and best practices in the early childhood setting, as well as to provide insight on the benefits of implementing, sustaining, and evaluating a high quality early childhood program and its effect on not only kindergarten readiness, but later school success as well.

Research Questions and Hypotheses

Research Questions. Throughout the course of this study, the researcher will address the following questions:

1. What impact does a MODESE approved, research-based early childhood program have on the kindergarten readiness of prekindergarten students in the Study-Site School District as measured by the DIAL-3?
2. Will there be a difference in the average DIAL-3 scores of the students who did not participate in a MODESE approved early childhood program and the average DIAL-3 scores for students who did?

Hypothesis. Students who participated in a MODESE approved early childhood program will show a larger increase in kindergarten readiness as measured by scores on the DIAL-3 than students who did not participate in a MODESE approved early childhood program.

Independent variable. In this study, the independent variable was the implementation of MODESE approved guidelines, which included a MODESE approved curriculum, reduction in class size, and training for staff for the 2009-2010 school year. The intervention group was comprised of students that participated in the prekindergarten program for the 2009-2010 school year. The control group was the group of students who participated in the prekindergarten program for the 2008-2009 school year. These students did not participate in the MODESE approved program.

Dependent variable. The dependent variable was the DIAL-3 pre and posttest scores of both the intervention and control groups across the five domains of learning, Motor (fine and gross motor development), Language, Concepts, Self-help Development, Social Development. This goal of this study was to ascertain the nature of the relationship between the independent and dependent variables.

Definition of Key Terms

At-Risk. An individual that does not have the sufficient support in the home environment due to socio-economic status, poverty, learning difficulties, significant detrimental family issues, and quality of healthcare may have more difficulty being successful in school (Rossi & Montgomery, 1994).

Constructivism. A theory of teaching and learning that is based on a substantial body of research that supports the idea that individuals learn best when provided opportunities that allow them to construct their own knowledge and make meaning of their world through hands-on learning experiences with their environment (Baker, 1993; Bredekamp & Copple, 2009; Jean Piaget (1973) was an early proponent of constructivism and one of the first to apply constructivist theory to childhood development and teaching practices.

Developmentally Appropriate Practices (DAP). Practices described by the National Association for the Education of Young Children (NAEYC). Developmentally appropriate practices refer to the learning environment, activities, and expectations that researchers believe are synonymous with the needs and characteristics of children. Research has proven that these practices, based on the theory of constructivism, effectively promote optimal learning in young children (Bredekamp & Copple, 2009). Early childhood advocates recommend these as acceptable and necessary practices to implement in the early childhood setting.

Developmental Indicators for the Assessment of Learning- Third Edition (Dial-3). MODESE recommends the DIAL-3 as a developmental screening tool. Parent educators in the Study Site School District used the DIAL-3 to identify students

that may have benefitted from further assessment. Mardell-Czudnowski & Goldenberg, (2009) explained that the "DIAL-3 items assess developmental skills (motor, concept, and language) which are the foundation for academic learning. These skills relate directly to successful classroom functioning or to behaviors that are clearly associated with the domain that is being measured" (p. 1). MODESE recommended the DIAL-3 as a reliable screening tool used to assess and place prekindergarten students in Title I Early Childhood Programs (Consolidated Federal Programs Administrative Manual, 2010).

Everyday Math Program. According to the Center for Elementary Mathematics and Science Education at the University of Chicago (CEMSE), *Everyday Mathematics* is a comprehensive pre-k through sixth grade mathematics curriculum (2008, p. 1). *Everyday Mathematics* curriculum emphasizes real-life problem solving, whole-class and self-directed learning, communication, parent involvement and participation, as well as the use of technology" (2008, p.1).

High Quality Early Childhood Programs. Quality is a necessary component of successful kindergarten and prekindergarten programs. Researchers characterized high quality early childhood programs as programs that hired highly trained staff, utilized a curriculum that provided meaningful learning experiences and allowed for student choice (Bredekamp & Copple, 2009; Early Learning Program Standards, 2011; Early et al., 2007; Mashburn et al., 2008). These types of programs recognized that all areas of a child's growth and development were essential to later school success and addressed all areas of development; social, emotional, cognitive, and physical growth (Cross & Conn-Powers, 2011; Rhode

Island KIDS COUNT, 2005; Webster-Stratton, Reid, & Stoolmiller, 2008). High quality early childhood programs must also include a strong parent involvement component as well (Consolidated Federal Programs Administrative Manual, 2010).

High Quality Professional Development. According the *No Child Left Behind Act of 2001* (NCLB), high quality professional development is characterized by several major interrelated components (United States Department of Education, 2002). The major goal of high quality professional development is to assist educators; paraprofessionals, staff members, teachers, and administrators, with broadening their skills and deepening their learning and understanding of content as well as their application of effective instructional strategies. According to MODESE, the expectation is for schools to provide professional development that meets the following criteria in the state of Missouri:

- Actively engages teachers in planning, skills, and information over time;
- Directly linked to improved student learning so that all children may meet the Show-Me Standards at the proficient level;
- Directly linked to district and building school improvement plans;
- Developed with extensive participation of teachers, parents, principals, and other administrators;
- Provides time and other resources for learning, practice, and follow-up;
- Supported by district and building leadership;
- Provides teachers with the opportunity to give the district feedback on the

- effectiveness of participation in this professional development activity. (2001, p. 1)

Highly Qualified Staff. One of the mandates of the *No Child Left Behind Act of 2001* (NCLB) was for school districts to hire highly qualified teachers (United States Department of Education, 2002). The *Consolidated Federal Programs Administrative Manual* (2010) described a highly qualified staff member as "a teacher who has at least a baccalaureate degree, has full state certification in the content area and grade level they are teaching, and can document content expertise" (p. 6).

Open Court Reading. The Open Court Reading Program, developed by SRA/McGraw-Hill is a basal reading program that is "designed to systematically teach decoding, comprehension, inquiry, investigation, and writing in a logical progression" (U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse, 2012, p. 1) The Open Court Reading Program consisted of three parts: Part 1, Preparing to Read which focuses on phonemic awareness, fluency, and word knowledge; Part 2, Reading and Responding which focused on reading for understanding, comprehension, and practical reading applications; and Part 3, Language Arts which included spelling, vocabulary and writing process strategies as well as grammar, speaking, and penmanship (U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse, 2012)

Missouri Department of Elementary and Secondary Education (MODESE). According to the MODESE website, "The Department of Elementary and Secondary Education

(DESE) is the administrative arm of the State Board of Education. It is primarily a service agency that works with educators, legislators, government agencies, and citizens to maintain a strong public education system" (MODESE, 2013, p. 1).

No Child Left Behind Act of 2001 (NCLB). The No Child Left Behind Act was proposed and enacted under the administration of former President George W. Bush soon after he took office in 2001. NCLB supported the premise that standards based education along with accountability measures would improve the academic achievement of all students. Each state was required to develop and give mandated achievement tests that assessed the skills of all students in specific grades. Schools were required to demonstrate that their students were making adequate yearly progress (AYP) in order to receive Title I Federal funding (United States Department of Education, 2002). Not only did NCLB provide federal support to the states, the act mandated school districts across the country to meet accountability standards by making adequate yearly progress; and sanctioned schools and districts that failed to meet accountability standards (United States Department of Education, 2002).

Prekindergarten Program (pre-k). For the purpose of this study, prekindergarten refers to a program that the Study Site school district provided for students aged 4-5 preceding their kindergarten year.

Preschool Program. For the purpose of this study, preschool refers to early childhood programs that service children ages birth to five and are not attached to an elementary school.

Parents as Teacher Program (PAT). The Parents as Teachers program is a research-based

comprehensive home visiting program that assists and supports educational agencies, private daycares, and other early childhood organizations with providing ongoing education, training, and support to parents during the early years of their child(ren)'s growth and development from birth to age five (Parents as Teachers National Center, 2010).

Project Construct. Project Construct is a learner-centered early childhood curriculum for children. MODESE developed the Project Construct Program in 1986. Project Construct, based on the theory of constructivism, supports the use of developmentally appropriate practices in the early childhood setting. In addition, MODESE recommends that schools receiving Title I funding use one of three curricula; and lists Project Construct as one of those three (Consolidated Federal Programs Administrative Manual, 2010).

School Readiness. Webster-Stratton et al. (2008) defined school readiness as a combination of "emotional self-regulatory ability, social competence, the absence of behavior problems, and parent teacher involvement" (p. 1). Researchers address and measure readiness across five major domains:

- Physical Well-Being and Motor Development
- Social and Emotional Development
- Approaches to Learning
- Language Development
- Cognition and General Knowledge (Rhode Island KIDS COUNT, 2005, p. 4).

Title I.A Funds. Title I.A programs provides federal dollars to

school districts for the development and implementation of programs that will improve the academic achievement of at-risk and economically disadvantaged students. The Title I.A programs are a component of NCLB that directly affects early childhood education initiatives (United States Department of Education, 2002).

Title II.A. Provision of Title II.A provides funding to school districts under NCLB and deals specifically with the training, recruitment, and staff development of highly qualified staff and administrators (United States Department of Education, 2002).

Generalizations of the Study

The information generated from this quantitative research study is generalizable to school districts in urban settings with similar demographics as the Study-Site School District. During the time of the study, the Study-Site School District had four prekindergarten classrooms housed at each of its three elementary buildings. Each school site had one prekindergarten classroom that served students within their school boundaries, with the exception of Woodbridge Elementary School. Woodbridge Elementary School had one classroom that serviced students in the Woodbridge enrollment area, while the other classroom accepted students that resided within the boundaries of the other two elementary schools. The researcher and readers can generalize the results of this study to urban school districts with similar demographics as the Study Site School District.

Limitations

There are certain limitations that are specific to this study, which examined the effects of a research-based MODESE, approved early childhood program on kindergarten readiness. The known limitations of the study are as follows:

Instructional approaches. The participants in this study all attended the Woodbridge Elementary School for prekindergarten. The researcher omitted students who did not attend the program for the entire school year from the study. Despite the fact that there were two classrooms, there still may have been differences in the quality and level of instruction, as well as adherence to the format of the approved curriculum.

The experience of the two teachers is also a limitation, while one teacher has taught since the inception of the program in 2007-2008, the other classroom teacher was a beginning teacher. In addition, the classroom teachers and teachers' assistants received training a few months prior to the start of the program, which may have influenced the effective implementation of the prekindergarten program.

Prekindergarten and kindergarten screenings. The Parents as Teachers (PAT) staff administered the DIAL-3 Screenings. Due to the shortage of parent educators, some variability may have existed between individual parent educators and variability in test administration. In addition, there may have been differences in the testing environment that affected the outcome as well. Parent Educators from the Parents as Teachers Program screened participants at either the school site or the PAT house; therefore, there may have been differences in design, space, and lighting. However, Parents as Teachers Programs trained the individuals that administered the DIAL-3. In addition, the parent educators who conducted the screenings reviewed the DIAL-3 administration procedures

annually; the PAT program trained all parent educators annually in standardized test administration, as well as scoring procedures (Parents as Teachers National Center, 2010).

Variables. Because this was a causal-comparative study, the independent variable was the beyond the control of the researcher. For the purpose of this study, the outcome variable was the difference in the growth of DIAL-3 pre and posttest scores between program participants and non-participants. The goal of this study was to determine, what relationship, if any existed between the two variables; participation in a high quality early childhood program and the effect on kindergarten readiness skills as measured by the DIAL-3 Indicators of School Success. It is important to note that according to Fraenkel and Wallen (2006), causal comparative research studies cannot be used to identify, prove or disprove a direct cause/effect relationship.

Conclusion

The researcher conducted this study to determine the effect of high quality early childhood programs on the kindergarten readiness of prekindergarten students in the Study Site School District. More specifically, the researcher compared the DIAL-3 scores of prekindergarten students who participated in a high quality early childhood program and those students who did not to determine if there was a difference in kindergarten readiness.

The remainder of the study will encompass chapters II through V. In the next chapter, the literature review, emphasis was given to the review of current literature related to the impact of high-quality early childhood programs and the connection to what has been identified as kindergarten readiness skills, as well as later school success. The

researcher will also attempt to uncover the research about the various components of high quality early childhood programs and the subsequent impact on the academic success and kindergarten readiness of economically disadvantaged children. Further, the researcher will examine research pertaining to the DIAL-3 as a measurement tool for kindergarten readiness.

Chapter II: Literature Review

Introduction

The literature review will focus on the connection between high quality early childhood programs, and their effects on kindergarten readiness. This researcher will examine the key components of a high quality early childhood program which include developmentally appropriate teaching practices, small class sizes, and a developmentally appropriate curriculum (NICHD Early Childcare Research Network, 2002; Webster-Stratton et al., 2008; Bredekamp & Copple, 2009). The researcher will also attempt to uncover research that supports the premise that there is a difference between high quality early childhood programs and typical daycare programs; and that high quality early childhood programs have a significant positive impact on school readiness, specifically kindergarten readiness. This research would support the assumption of MODESE that an early childhood program meeting its published guidelines has an impact on kindergarten readiness.

What is High Quality Early Childhood Education?

Over the past 30 years, there has been continued analysis and reflection concerning early childhood programs. At one time, educators questioned the very idea of early childcare. However, as more information emerged about brain development in the formative years (birth to five), research in early childhood has shifted focus from the question of whether participation in daycare or early childcare is beneficial or harmful, to improving the quality of early childhood programs for all children (Essa, 2007). Essa (2007) explained that high quality early childhood programs are a combination of several best practices. Over 30 years of research has clearly determined that early childhood

education has a positive and long lasting impact on the academic, social, emotional, and behavioral development of at-risk students (Barnett, 2004;Camilli et al., 2010; Clark, Pritchard, & Woodward, 2010; Early et al., 2007; Galinsky, 2006; Schweinhart, 2004; Webster-Stratton et al., 2008).

Researchers have also analyzed various early childhood programs to ascertain what actually constitutes a high quality early childhood program (Barnett, 2004; Barnett, Schulman, & Shore, 2004; Burchinal, Cryer, Clifford, & Howes, 2002; Early Learning Program Standards, 2011; Mashburn et al., 2008). A growing body of research has identified several key components that are crucial if students who are identified as at-risk are to benefit from quality early childhood instruction (Barnett et al., 2004; Burchinal et al., 2002; Bredekamp & Copple, 2009; Early et al., 2007; Hamre & Pianta, 2007; NICHD Early Childcare Research Network, 2000; Webster-Stratton et al., 2008). Further, research also supports the idea that participation in a high quality early childhood program differs from participation in a typical daycare (Barnett, 2004; Burchinal et al., 2002).

Over the years, researchers and educators in early childhood have debated, dialogued, and questioned the benefits of early childhood education. After conducting a careful analysis of three long-term studies, researchers identified specific and interrelated components that must be present in early childhood programs in order to have a positive impact on kindergarten readiness, as well as later school success (Burchinal et al., 2002; Chapin, 2006). The evidence yielded from the analysis of these three programs led researchers to a definitive conclusion: low teacher ratio, small class size, staff trained in early childhood education and development, a curriculum that emphasizes and addresses

the four domains of learning, as well as parent education and involvement, are the combination of factors that must be included in a program for it to be deemed a high quality early childhood program (Rhode Island KIDS COUNT, 2005; Essa, 2007; Webster-Stratton et. al, 2008).

The American Federation of Teachers (AFT, 2003) also supported the premise that not only are the combination of these key components effective at helping to close or narrow the achievement gap for at-risk students, but also high quality early childhood programs prepare students for later kindergarten success by promoting school readiness. AFT suggests that high quality early childhood programs should also "have standards and curriculum that, in addition to cognitive, social emotional, and physical development, emphasize language, early literacy and early numeric skills and the provision of comprehensive and social services and nurturing environments" (p. 11).

Small class size and child-adult ratio. Researchers' belief about the benefits of small class size is in line with the mandates of NCLB for early childhood programs (United States Department of Education, 2002; Riney, Thomas, Williams, & Kelley, 2006). A significant body of research connects high quality early childhood experiences with increased kindergarten readiness skills, as well as future school success. Small class size and low child-adult ratios are key indicators of high quality early childhood programs. The most significant research connecting low child-adult ratios and class size with an overall increase in academic behavioral and performance of at-risk students came from a careful analysis of the High Scope/Perry and Abecedarian early childhood programs (Early et al., 2007; Perez-Johnson & Maynard, 2007; Chapin, 2006).

The evidence from these early studies concluded that the teacher to child ratio and class size had a significant effect on the academic and social development of young children. In both the Abecedarian and High/Scope Perry preschool programs, researchers limited the class size to less than 15. This increased the opportunities for more frequent and positive teacher-child interactions. Results from the study demonstrated that children enrolled in programs where class size and teacher ratios were low, performed better academically and socially than their same aged peers (Early et al., 2007; Perez-Johnson & Maynard, 2007). Smaller class sizes increased the quantity and quality of the contact between students and teachers (Howes, 1997). According to Essa (2007), this is due to the fact that the lower the child to adult ratio is, the more "sensitive and responsive the teacher is with students" (p. 17). In addition to quality and quantity of interactions between student and teachers, low teacher-student ratio and small class, size also positively influenced long-term outcomes for prekindergarten students (Barnett et al., 2004; Early et al., 2007; Essa, 2007).

The National Institute for Child Health and Human Development (NICHD) conducted a study of 1,364 at-risk, prekindergarten students (NICHD Early Child Care Research Network, 2002). The purpose of the study was to examine the relationship between student performance and classroom size. The results of the study provided tangible evidence that children placed in classrooms that met the indicators of high quality programs demonstrated increased school readiness skills. In their detailed review and analysis of research, the NICHD found tangible evidence that small class sizes combined with low teacher-student ratios resulted in increased academic and behavioral outcomes for at-risk students (NICHD Early Child Care Research Network, 2002).

Project STAR, a study in Tennessee that involved prekindergarten and kindergarten students, also provided conclusive evidence that a positive relationship existed between low class size and teacher-child ratio and increased school performance. Researchers of Project STAR's true experimental study randomly assigned students to two groups; one with class size of 13-17 students; and one with class sized of 22-26 for student in grades 1-3 (Mosteller, 1995). In this study, the researchers placed students in classes with lower teacher-student ratios and found that these students were more academically successful in all achievement areas than the students assigned to the control group (Mosteller, 1995).

Barnett et al. (2004) pointed out that in addition to Project STARS true experimental study, there are quasi-experimental studies that have produced similar findings. The results of Wisconsin's Project SAGE (Student Achievement Guarantee in Education) were very consistent with the findings of Project STAR. Barnett et al. (2004) stated that "they also found positive impacts of small classes on student achievement, especially for minority students, and these impacts were consistent for the four years from kindergarten to third" (p. 5). Overall, children participating in early childhood programs where the child-adult ratio is low, obtained more individualized attention received more confirmation of their worth, and more affirmation of their value and importance (Barnett et al., 2004; Mosteller, 1995).

Highly qualified staff. NCLB of 2001 held school districts accountable for hiring and retaining highly qualified teachers (U.S. Department of Education, 2002). In order to receive federal funds, the federal government mandated that at the very least, early childhood educators must possess certification in their prospective states and a bachelor's degree in early childhood education (ECE) (Barnett,2004; Barnett, Lamy, &

Jung, 2005). Multiple studies demonstrate the link between the quality of the classroom teacher and children's school readiness (NICHD Early Childcare Research Network, 2002; Philipsen, Burchinal, Howes, & Cryer, 1997; Burchinal et al., 2002). Researchers, educators, and pioneers of early childhood education all recognize that having a highly trained teaching staff is the first step toward ensuring a program is recognized as a high quality early childhood program (Riney et al., 2006). Earlier longitudinal studies in the field of early childhood education provided strong evidence that supports the premise that students have increased acheivement when the teacher has either a bachelors degree or training in early childhood education (Essa, 2007; O'Brien & Dervarices, 2007; Burchinal et al., 2002). In the Carolina Abecedarian, Chicago Child-Parent Centers studies, and High/Scope Perry Pre-School Project, all of the teachers possessed at least a bachelor's degree. In each of these studies, the participants performed higher on tests that measured cognitive and language skills than the control groups (Burchinal et al., 2002; Chapin, 2006; O'Brien & Dervarices, 2007).

Overall studies have yielded strong evidence that teachers with an educational background in early childhood development have a clearer undersanding of the developmental needs of prekindergarten students (Burchinal et al., 2002; Essa, 2007). *Getting Ready: Findings from the National School Readiness Initiative:Making Progress for Young Children* was a 17 state intiative that produced recommendations about the components that early childcare advocates deemed essential to kindergarten readiness. Researchers on the National School Readiness Indicators Initiative upheld that an early educator's credentials are "a part of the emerging indicators crucial to school success" and that the education and credentials of early childhood educators are a part of the "core

set of school readiness indicators" (Rhode Island KIDS COUNT, 2005, p. 40). The team of researchers and educators involved with the school readiness project contended in their report that in order for schools to have a positive impact on the academic and social deveopment of at-risk students, prekindergarten programs must have what is known as ready services, which include hiring highly qualified prekindergarten teachers with comprehensive knowledge of how young children develop and learn (Rhode Island KIDS COUNT, 2005). In addition, advocates of high quality early childhood programs state that "a responsive and well educated staff is one of the major componenets of high quality early childhood programs" (Olson, 2005, p. 1). The research of Doherty, Forer, Lero, Goelman and Lagrange (2006) paralleled their assertions that training of early childhood program staff is an indication of a high quality early childhood program. Gorey (2001) conducted a meta analysis of 35 experimental and quasi experimental early childhood educational programs and found, on average, the connection between high intensity early childhood programs and an increase in IQ and achievement was "quite large" (p. 18). More importantly, the strongest results were present when students participated in programs where the teachers were highly qualified (Barnett, 2004; Burchinal et al., 2002; Gorey, 2001).

Perez-Johnson and Maynard (2007), however, expressed skepticism as to the relationship "between a teacher's credentials (i.e. degress and/or certification) and program effectiveness" (p. 611). In their analysis of research, *The Case for Early, Targeted Interventions to Prevent Academic Failure,* they asserted that the overlap between teacher education and other components such as higher pay and low staff turnover made it difficult to distinguish a clear relationship between the education of the

teacher and the academic, social, and behavioral performance of students (Perez-Johnson & Maynard, 2007). Similarly, Early et al. (2007) analyzed and evaluated the relationship between the educational preparation of the classroom teacher and the academic progress of prekindergarten students in their project study, *Teacher's Education, Classroom Quality, and Young Children's Academic Skills:Results From Seven Studies of Preschool Programs*. Early et al. (2007) gathered evidence from seven major early childood studies with the goal of answering three research questions:

1. Does the educational degree of lead teachers relate to observed classroom quality and children's academic skills using a value added specification? In addition, more specifically, do teachers with a Bachelor's degree or higher have classrooms of higher quality or children who learn more during the prekindergarten years?
2. Among lead teachers whose highest degree was in early childhood education or child development, does the level or the highest degree predict classroom quality and/or children's academic skills using a value-added specification?
3. Among teachers whose highest degree is a bachelor's, does a major in early childhood education or child development predict better quality or greater academic skills than a major in another field of education or a non-education major, controlling for baseline skill levels using a value-added specification? (p. 561)

The researchers found that policies that simply mandate more education, such as NCLB, are not enough on their own to have a positive influence on the academic progress of preschool students. Early et al.'s (2007) analysis did not yield evidence of "associations

between teachers' education and both classroom quality and children's outcomes" (p. 573). Early et al.'s team of researchers also discussed the implications behind their results in great detail and suggested that policy makers investigate the role teacher education programs play in adequaltely preparing teachers to create trusting and respectful relationshships, which are the "basis for learning in early childhood" (p. 574).

In an effort to answer similar questions, Mashburn et al. (2008) analyzed the behavioral and cognitive development of 2,439 children enrolled in prekindergarten programs in 11 states across the nation. Their research team examined the relationship between the quality of the prekindergarten program and the potential effect on the academic and social growth of students. Mashburn (2008) found that "the elements of program design and infrastructure such as requiring teachers to have a degree in ECE are not directly associated with student outomes" (p. 744). Mashburn's team of researchers did conclude that the overall charateristics of both the classroom and program (teacher education and training) indirectly influences the academic and social growth stating, ".that they may directly influence emotional and instructional interactions within classrooms thereby indirectly influencing children's development" (p. 744). This supports previous research that teachers with high credentials, such as training and education in early childhood education, may indeed influence academic, social and behavioral outcomes for students, to the extent that education and training in the ECE will enable the teachers to engage in a higher quality of developmentally appropriate dialogue and interactions with the children they teach (Burchinal et al., 2002; NICHD Early Childcare Research Network, 2002; Philipsen et al., 1997).

Overall, a summary of findings suggests that while teacher education may be an important component of high-quality early childood programs, it is, however, but one contributing factor that is necessary to ensure student success in early childhood settings (Early et al., 2007; Mashburn et al., 2008). The research also indicates that training for teachers of prekindergarten students should not only include language and literacy development, but also ongoing education, training, and staff development in developmentally appropriate practices (DAP) (Dickinson & Brady, 2006; Dickinson & Caswell, 2007; Neuman, Copple, & Bredekamp, 2000; Neuman, Roskos, Wright, & Leinhart, 2007).

Developmentally appropriate practices for early childhood. Early childhood professionals and researchers are concerned that the changes that many school districts may consider implementing in an effort to prepare students for the 21st century will push school districts to place too much focus on academics in the early childhood setting (Essa, 2007). Essa (2007) advocated for programs that "respect the emerging abilities of young children without imposing inappropriate expectations" (p. 18). In their position paper in the mid-1980s, the National Association for the Education of Young Children (NAEYC) laid out what quality early childhood education, which they explained should include developmentally appropriate practices (DAP) (Bredekamp & Copple, 2009; Schattgen, 1993). Traditional teaching practices in early childhood have not always been child-centered. In most cases, administrators, classroom teachers, and curriculum specialists dictated what they believed was important and necessary for students to know, and how they believed students should learn. Prior to NAEYC's position, which was a response to current trends in early childcare, drill and practice,

recitation, rote learning activities, and whole group instruction were primary modes of teaching and learning (Bredekamp & Copple, 2009).

In marked contrast, the theory of constructivism supports developmentally appropriate practices, which encourages students to explore their environment through hands-on learning and meaningful classroom activities (Schattgen, 1993; Project Construct National Center, 2000). Student play is a primary focus of the Project Construct curriculum; therefore, learning via structured play is important (Project Construct National Center, 2000). Constructivism emphasizes the importance of "creating a supportive community of learners, allowing children opportunities to construct their own understanding, and providing students with engaging environments as well as meaningful activities that are tailored to their specific needs" (MODESE, 2001, p. 1). Constructivists explained that teachers should create curricular experiences that address children's physical, emotional, social linguistic and cognitive development (Bredekamp & Copple, 2009; Schattgen, 1993).

The constructivist approach to early childhood is in direct contrast to early childhood programs that emphasize the mastery of academic skills and whole group teacher directed instructional methods. High quality early childhood programs that uses DAP allows students to participate in learning that will allow them to "work independently as well as collaboratively with others to solve problems that integrate a variety of curricular areas" (MODESE, 2001, p. 1). There is conclusive evidence from a number of studies that demonstrate when parents enroll their children in programs that use DAP, their children have higher skills across three readiness domains, socio-moral,

cognitive, and physical development (Bredekamp & Copple, 2009; Early et al., 2007; Essa, 2007; Webster-Stratton et al., 2008; (Camilli, Sadako, Ryan, & Barnett, 2010).

Parent education and involvement. Researchers are adamant about the necessity of education and involvement of parents in the academic and social development of their children (Chapin, 2006; Perez-Johnson & Maynard, 2007; Rhode Island KIDS COUNT, 2005; Webster-Stratton et al., 2008). Participation in a well-structured parent involvement program is a key component of a high quality early childhood program (Chapin, 2006; Early et al., 2007; Rhode Island KIDS COUNT, 2005). High quality early childhood programs actively involve parents by seeking their input, providing support and training about the development of their child, incorporates screenings, and offers group meetings and ongoing support (Parents as Teachers National Center, 2010; Webster-Stratton et al., 2008; NICHD Early Child Care Research Network, 2002). Multiple studies have yielded strong evidence that parent involvement in a child's early developmental stages is crucial to the later academic success of at-risk children ((Bredekamp & Copple, 2009; Early et al., 2007; Essa, 2007; Rhode Island KIDS COUNT, 2005;Parents as Teachers National Center, 2010. High quality early childhood programs that have a well rounded, ongoing parent involvement component provide parents with more oppornmitiues to connect with their children's school experiences and to replicate the learning experiences at home. The parents benefit from not only being educated about their child's growth and development, but also from receiving consistent support, as well as referrals to outside community agencies. This process increases the chances of success for at-risk students. Research supports the premise that early childcare programs that make it a priority to involve families and educate the parents, are

programs where the enrolled children will benefit the most, because both the school and family share a common goal (King, 2009); Essa, 2007; Pfannenstiel & Zigler, 2007).

Proponents of the Parents as Teachers program have also uncovered research that supports the idea that parent involvement is a key element of high quality early childhood programs. In 2007, the Parents as Teachers National Center funded a study conducted by Pfannenstiel and Zigler (2007), which revealed that participation in the Parents as Teachers program, or similar programs, leveled the playing field for socially disadvantaged children. The Parents as Teachers Program (PAT) acknowledged and embraced the idea that parents are their "children's first and most influential teachers" (Pfannenstiel and Zigler, 2007, p. 6). Based on their research on PAT, Pfannenstiel and Zigler (2007) strongly asserted that by providing education, support and training to participating parents, the children of those parents will be more prepared for kindergarten and later school success. In their research summary, *The Parent as Teachers Program: It's Impact on School Readiness and Later School Success*, Pfannenstiel and Zigler (2007) found that participating parents spent more quality time with their children, and focused more on kindergarten readiness skills than non-participating parents. In addition, the parents who actively participated in the PAT were more likely to become actively involved in their child's kindergarten experiences and overall educational program than parents who did not participate (Pfannenstiel & Zigler, 2007). The results of this study yielded even more compelling evidence about the benefit of early parent involvement; the findings demonstrated that both poverty and non-poverty families who participated in PAT had children that were better prepared for school and peformed better on standardized tests of achievement that were required in the later grades (Pfannenstiel &

Zigler, 2007). Their results were substantitated by the National School Readiness Indicators Report which pointed out that when "compared to children in lower quality childcare and early education programs, children in higher quality programs have more advanced language and pre-math skilss, more advanced social skills and warmer relationships with teachers" (Rhode Island KIDS COUNT, 2005, p. 15).

Head Start and PAT have made parent involvement a requirement for participation. These programs focus on promoting healthy childcare from pregnancy through kindergarten and beyond. The success of programs that are simliar to Head Start and PAT suggests that not only do parents need to be involved, they also need targeted and specific information on how they can assist with the healthy academic, social, and behavioral growth and development of their children in the years prior to entering kindergarten. A review of the results from these major studies in early chilhood education and parent involvement substantiates the idea that parent involvement is critical to kindergarten readiness and later school success and should be included as a part of a high quality early childhood education (Bredekamp & Copple, 2009; Pfannenstiel & Zigler 2007; Rhode Island KIDS COUNT, 2005; Webster-Stratton et al., 2008).

High Quality vs. Low Quality Early Childhood Programs

Research supports the idea that students who attended well-structured high quality early childhood programs have more developed language skills, higher cognitive scores, and are more socially adjusted in comparison to children enrolled in programs that are not "high quality" (Garces, Thomas, & Currie, 2002; Loeb, Bridges, Bassok, Fuller, & Rumburger, 2007); NICHD Early Childcare Research Network, 2002). Perez, Johnson, and Maynard (2007) analyzed the results of three studies of high quality and high

intensity interventions: High Scope Perry Preschool Project (Schweinart et al., 2005), the Carolina Abecedarian Project (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Ramey, et al., 2000) and the Chicago Child Parent Centers. While there were significant distinctions between the three studies, they were all programs that have been identified as high quality early childhood programs. The results of the three studies showed that high quality early childhood programs can significantly reduce the achievement gap of at-risk students (Chapin, 2006; Early et al., 2007). Magnuson & Waldfogel (2005) claimed that when economically disadvantaged children receive low quality childcare, this decreased their chance of being prepared (socially, emotionally, and academically) for kindergarten.

The Need for High Quality Early Childhood Programs

The No Child Left behind Act of 2001 has implemented measures that force schools to address the glaring deficiencies in our educational system. One of the glaring issues that is at the forefront of education is the achievement gap that exists between white students and other populations of students: children of lower socio-economic status, Blacks, Hispanics, and children who receive special education services. Perez-Johnson and Maynard (2007) explained that the decline in national test scores, the inability of students to compete globally, the changing demographics of the United States, and the belief that by the year 2050, white Americans will no longer be the majority population, are major concerns faced by the American educational system. Perez-Johnson and Maynard (2007) also asserted that, “This is cause for alarm for parishioners, researchers, and policymakers. . . . Debates abound on the most cost effective strategies to reduce, eliminate and prevent these achievement gaps” (p. 588).

Recent brain research "establishes that experiences in early childhood help shape the architecture of the brain" (Perez-Johnson & Maynard, 2007, p. 590). Children will develop the necessary and critical skills that enable them to become successful learners in the future if they are properly nurtured during the neo-natal period to age five (Pfannenstiel & Zigler, 2007; Camilli et al., 2010). Research also supports the premise that during this stage, the human brain experiences more growth than at any other developmental stage (Perez-Johnson & Maynard, 2007; Parents as Teachers National Center, 2010). Conversely, it is also during the pre-school years that poverty and socio-economic status begins to affect the cognitive ability of children (Perez-Johnson & Maynard, 2007). Fryer and Levitt (2006) noted that a distinct relationship exists between low income and disadvantaged students. In a series of papers analyzing the achievement gap, Fryer and Levitt (2006) show evidence that by the time children of low socio-economic status become school aged, these factors have already negatively influenced their cognitive, behavioral, and social emotional development (Duncan & Brooks-Gunn, 2000; Fryer & Levitt, 2004, 2006).

Results from the Early Childhood Longitudinal Study (ECLS), a national sample that consisted of 20,000 students in kindergarten and first grade, indicated that "exposure to multiple poverty-related risks increases the odds that children will demonstrate less social competence and emotional self-regulation and more behavior problems than more economically advantaged children" (West, Denton, & Reaney, 2001, as cited in Webster-Stratton et al., 2008, p. 472). Early childhood "represents an optimal intervention period" for counteracting the negative effects of poverty" (Perez-Johnson & Maynard, 2007, p. 589). Interventions are most effective for children of poverty when implemented at an

early age, “the quality of a child’s earliest experiences has the great influence on future development and potential to succeed” (Pellino, 2007, p. 6). While the ability to learn is still possible later in life, it does becomes more difficult and costly to reverse, or counteract, the effects that poverty has on school readiness, cognitive ability ,and social-emotional behavior (Perez-Johnson & Maynard, 2007; Pellino, 2007).

In early childhood, the developmental gaps that are a result of poverty increase as children enter kindergarten and matriculate through school (Pellino, 2007). Therefore the best and most cost effective approach for increasing the school readiness of disadvantaged children, and in turn improving their chances at later school success, is by exposing children to early intervention services, or getting them involved in high quality early childhood programs (Webster-Stratton et al., 2008).

Benefits of High Quality Early Childhood Programs

Recent brain research has also proven that early brain development has a significant impact on cognitive ability, social emotional growth, and future academic success of children (Edie & Schmid, 2007). Brain research not only substantiates the need for early childhood intervention, it clearly shows that children benefit the most from programs or interventions during the neo-natal to prekindergarten years (Edie, & Schmid, 2007). Children from poverty are already at a disadvantage when they are born. Pellino (2007) explained that children from these backgrounds have limited “opportunities for intellectual development such as the development of cognitive skills and thinking patterns” (p. 6). This, in turn, directly affected their school readiness and future academic success. The best approach for counteracting the effects of poverty on school readiness or success is to provide opportunities that stimulate brain growth and development during

this critical time in the form of high quality early childhood education (Karoly, Kilburn, & Cannon, 2005). The American Federation of Teachers (AFT, 2003) stated that "high quality early childhood programs provide young children with experiences that promote healthy cognitive and social development and are the basis for thriving in school" (p. 15).

Barnett, Lamy, and Jung (2005) examined the prekindergarten programs of five different states. While the programs varied in length from full to half day, all of the programs had staff who were highly qualified, which is one indicator of a high quality early childhood program. The results of Barnett et al.'s (2005) study showed that state-funded high quality early childhood/preschool programs:

> produces an increase in children's vocabulary scores of nearly raw score points, which equals 31% more growth over the year and an 8 percent increase in children's average vocabulary scores; … increased children's math scores by almost one and a half raw score points, 44% more growth in a year due to the program and a 13 percent increase in children's average math scores; . . . had strong effects on children's understanding of print concepts. The program increased all children's print awareness scores by nearly 17 percentage points, which is 85% more growth over the year and a 39% increase in children's print awareness scores. (p. 2)

Overall, state funded programs had a positive effect on the academic growth of the students in the area of math, vocabulary, letters recognition, and sound association as well as an increase in early literacy skills (Barnett et. al, 2005). Similarly, in the study conducted by Perez-Johnson and Maynard (2007), *The Case for Early Targeted Interventions to Prevent Academic Failure*, the authors analyzed the problem of the

persistent achievement gap that exists among children of different races and ethnicities, or, more specifically, disadvantaged children. The authors collected and analyzed data from three well-known studies, the High Scope Perry Preschool Project, the Carolina Abecedarian Project, and the Chicago Child Parent Centers, to demonstrate how early childhood programs benefit disadvantaged youths. The researchers hypothesized that vigorous early childhood interventions offer the highest potential to altogether reduce or eliminate gaps in school readiness (Perez-Johnson & Maynard, 2007).

In the High Scope Perry Preschool Project, an experimental study, researchers randomly assigned kindergarten students to a program group of 59 students and a control group (Chapin, 2006). The students assigned to the control group did not attend pre-school, while the students in the program group participated in an early childhood intervention program for two years (Chapin, 2006; Early et al., 2007; Perez-Johnson & Maynard, 2007). In another experimental study, the Carolina Abecedarian Project, the researchers randomly assigned 11 high-risk infants from poor families either to the Abecedarian intervention group or to a typical basic childcare group. The treatment group participated in a full day, year-round childcare program from birth to kindergarten. At the age of five, researchers randomly assigned both the program group and control group of participating students into groups that did not receive support or school age intervention (Chapin, 2006; Perez & Maynard, 2007). Researchers measured the performance to determine if the exposure to high quality early childhood had a lasting impact on school readiness and success for at-risk students. Finally, the authors examined a non-experimental study, the Chicago Child Parent Centers. The researchers from the Chicago Parent Center study chose 1,539 low-income children that enrolled in

25 schools across the city of Chicago, which comprised the study sample (Chapin, 2006; Early et al., 2007). Children assigned to the program group attended neighborhood preschools, which consisted of a half day preschool program from 3 and 4-year olds, followed by a half-day or full-day kindergarten program and an enriched curriculum through age nine; the other groups of children did not participate in a preschool program (Chapin, 2006; Early et al., 2007; Perez-Johnson & Maynard, 2007).

The findings of these three studies indicated that overall, early childhood interventions demonstrated and provided evidence that high quality early childhood programs can significantly reduce achievement gaps (Chapin, 2006). In both the High Scope Perry and Abecedarian studies, students who participated in high quality early childhood programs exhibited gains almost one standard deviation higher in IQ and other measures of cognitive development when compared to the groups that received no intervention (Chapin, 2006; O'Brien & Dervarices, 2007; Perez-Johnson & Maynard, 2007). More importantly, the evaluation of these studies demonstrated that participation in early childhood programs made a difference in the future academic success of students (Perez-Johnson & Maynard, 2007). By the age of 40, participants in the High Scope Perry Project had higher high school graduation rates as well as grades, higher rates of employment, and fewer lifetime arrests (Chapin, 2006). Similar findings were gathered from the Abecedarian study; participants in a high quality program had higher achievement scores, lower enrollment in special education classes, fewer retentions, higher graduations rates, and were twice as likely to attend college as their same age peers who did not participate in a high quality early childhood program (Mosteller, 1995; Chapin, 2006; Camilli et al., 2010).

School Readiness

In the past, many educators and researchers have believed that one of the best predictors of future school success or performance is an individual's intellectual ability (Task Force Established by the American Psychological Association, 1996; Ackerman & Heggestad, 1997). However, recent research conducted by Webster-Stratton et al. (2008) indicated that school readiness may in fact be a better predictor of future academic success or performance than one's intelligence.

In the study, "Preventing Conduct Problems and Improving School Readiness: Evaluation of the Incredible Years Teacher and Child Training Programs in High Risk Schools," Webster-Stratton et al. (2008) defined school readiness as a combination of "emotional self-regulatory ability, social competence, the absence of behavior problems, and parent teacher involvement" (p. 1). They asserted that school readiness is the key to the academic success of early learners (Webster-Stratton et al., 2008). School readiness, or social competence, is what Porath (2009) stated as necessary for the successful start of a student's academic career. Porath (2009) described social competence as "an essential capability to bring to school because of its relationship to school success" (p. 93). Porath (2009) explained that children who are able to interact positively with their peers and teachers in the complex social setting of prekindergarten have an increased chance of a being successful in kindergarten and beyond. In his book, *Project Spectrum: Preschool Assessment Handbook*, Krechevsky (1994) described that social competence includes a child's ability to monitor, assess, and analyze his or her behaviors, as well as to make modifications in social settings that will enable the child to have positive peer interactions in the educational setting. While there are multiple definitions of school

readiness, most researchers agree that the essential components of school readiness include physical well-being and motor development, social and emotional development, language development, cognition, and general knowledge (Cross & Conn-Powers, 2011; Rhode Island KIDS COUNT, 2005; Pagani, Fitzpatrick, Archambault, & Janosz, 2010).

In order for students to be successful in school, they must first demonstrate that they are prepared to learn, both socially and emotionally. Students must come to school with the ability to become fully engaged in the learning process. School readiness, however, poses a particular problem for children of different racial/ethnic backgrounds, lower socio-economic status (SES), and those with disabilities. Perez-Johnson and Maynard (2007) reported, "Children who experience poverty and deprivation in their early years are especially vulnerable to adverse long-term outcomes" (p. 2). A growing body of research has shown that providing access to high quality early childhood programs to those children who are disadvantaged, have special needs, or are considered at-risk, is extremely beneficial and has long lasting benefits (Barnett, 2004; Chapin, 2006; Webster-Stratton et al., 2008). More specifically, in their research study, Gormley, Gayer, Phillips, and Dawson (2005) showed that at-risk students who participated in high quality, preschool programs scored higher on tests of reading and mathematics as early as one year after participation when compared to non-participants. When Gormley et al. (2005) analyzed the results of their study of Oklahoma's universal preschool program; they concluded that students who selected to participate in the program benefited academically. The researchers claimed that "the program was found to have statistically significant effects on children's performance on cognitive tests of prereading and reading skills, prewriting and spelling skills, and math reasoning and problem-solving abilities"

(Gormley et al., 2005, p. 880). Other research also suggested that these benefits are not short term; students that participated in high quality childcare were also less likely to be retained in a grade, had increased opportunities for graduating, and were less likely to have academic and behavioral problems as they matriculated (Barnett, 2005; Olson, 2005; Porath, 2009). More importantly having access to a high quality early childhood program ensured that children from these type of backgrounds entered kindergarten prepared to learn both academically and socially.

Project Construct Curriculum and School Readiness

MODESE developed the Project Construct curriculum, based on the theory of constructivism. Constructivism is a learning theory that is based on the belief that individuals learn best when they are allowed to construct their own learning (Gagnon & Collay, 2000). Proponents of constructivism embrace teaching and learning practices that are student centered. In a constructivist classroom, the focus is on the activation of prior knowledge through hands on learning experiences and open-ended questioning (MODESE, 2001; Project Construct National Center, 2000). The classroom teacher adjusts their teaching in response to how their students are learning (Schattgen, 1993; Baker, 1993; Gagnon & Collay, 2000; MODESE, 2001).

There are specific teaching behaviors and practices that foster kindergarten readiness (Cross & Conn-Powers, 2011). Based on a significant body of research across several states, Cross and Conn-Powers (2011) have concluded that teachers have a profound effect on the ability of students to learn. The authors asserted that when teachers provided explicit instructional supports that encouraged higher order thinking skills and provided multiple opportunities for prekindergarten students to increase their

understanding of new concepts via practice, the classroom teachers were helping to prepare students for later school success by increasing their capacity to communicate (Hamre & Pianta, 2007). Cross and Conn-Powers (2011) and Hamre and Pianta's (2007) views are consistent with constructivists' belief that the teacher plays an important role in the development of skills and the acquisition of knowledge; however the proponents of Project Construct provide a slightly different perspective on the teacher's role in supporting learning.

Proponents of the Project Construct Curriculum described and supported educational practices that engaged the interest of the children, allowed active experimentation, and supported activities that allowed children to make meaning of the world surrounding them by constructing knowledge based on what they already knew (Baker, 1993). This belief was in slight contrast to Cross and Conn-Powers' (2011) assertion that explicit and direct instruction in academic areas will improve readiness for kindergarten (Cross & Conn-Powers, 2011). Cross and Conn-Powers' research even suggested that Creative Curriculum, one of the three curricula MODESE mandates for early child programs, was not effective or measurable (Consolidated Federal Programs Administrative Manual, 2010). In contrast, Project Construct's approach to early childhood education was consistent with recent brain research and the development of what researchers identified as a brain-compatible curriculum (Westwater & Wolfe, 2000; Gagnon & Collay, 2000). Constructivist theorists are definitive in their belief that children are not blank slates, but instead they come to school armed with a body of knowledge, and teachers build on their pre-existing knowledge (Schattgen, 1993; Bredekamp & Copple, 2009). Similarly, brain research explains that from birth, all

individuals store information in the neural circuits of the brain and that human brains are "designed to scan its environment constantly and to make sense of what it experiences, and to determine whether the incoming information is meaningful for survival" (Westwater & Wolfe, 2000, p. 49). Westwater and Wolfe (2000), like Piaget and other proponents of constructivism, support and promote the idea that it is necessary for teachers to link learning to meaningful experiences so that students will have multiple opportunites to make connections and sense out of the knowledge they already possess (MODESE, 2001; Edie & Schmid, 2007; Bredekamp & Copple, 2009). It is clear that the previous experiences of students are essential to academic success and student engagement.

Thus, Project Construct approached the relationship between teacher and student in a different fashion. Teachers were trained to utilize the Project Construct curriculum as mentors, facililators, and guides who seek to encourage: mental stimulation through intitiative taking, meaningful play, active reasoning, and social collaboration between children (Schattgen, 1993). Social interaction and the ability to work cooperatively with classmates and peers is an essential component of school readiness (Webster-Stratton et al., 2008; Rhode Island KIDS COUNT, 2005). Hamre and Pianta's (2007) research does note the necessity of teachers providing explicit instruction and support to students, across the three dimentions that are addressed in Project Construct: a) promoting higher order thinking skills though the use of "why and how" questions, rather than basic recall skills; b)providing high quality feedback so children can extend their own undertanding rather than simply hearing that they are in error; and c) modeling language to enable children to increase their communication skills and vocabulary (Hamre & Pianta, 2007).

This is in alignment with the goal of contructivism, and the proponents of the Project Construct curriculum, which expressed the importance of students being allowed to make meaningful connections through real word experiences.

There are, however, some distinct differences in the research and beliefs of both Hamre and Pianta (2007), Cross and Conn Powers (2011), and proponents of Project Construct. While Hamre and Pianta (2007) and Cross and Conn-Powers (2011) focused on academic skills through explict instruction as one of the core components of kindergarten readiness, Project Construct outlined their learning goals by "four interraleted domains rather than by traditional subject areas because young children do not categorize experiences in the same ways that older children and adults do" (Project Construct National Center, 2008, p. 6). Hamre and Pianta's (2007) research suggested that the early childhood curriculum utilized by teachers should present skills in a sequential manner, which is more effective in promoting learning in the areas of math and science. Hamre and Pianta (2007) explained further and asserted that school entry math skills are the single strongest predictor of later academic achievement.

Their research was substantiated by other experts in early childcare who have concluded when students equally apply math skills which forces them to access their working memory, they will have an increased ability to acquire and/or improve literacy and language skills (Cross & Conn-Powers, 2011; Duncan et al., 2008; Hooper, Roberts, Sideris, Burchinal, & Zeisel, 2010). Proponents of Project Construct have also identified key areas and goals for students that they believe fully promote kindergarten readiness skills. However, constructivist theory emphasized that early childhood curriculum should be developmentally appropriate (MODESE, 2001). Constructivists frown on the practice

of pushing students into traditional learning models that are primarily based on the acquisition of content skills (Schattgen, 1993; Neuman et al., 2000; Bredekamp & Copple, 2009). The Project Construct Curriculum moves away from explicit instruction, to focusing on the child's ability to make meaning of his or her wold and construct their learning through various domains: the socio-moral, cognitive, or representationl (Baker, 1993; Project Construct National Center, 2000; MODESE, 2001). In each domain, children who are in Project Construct classrooms are encouraged and assisted with structuring their own learning through meaningful, real-world experiences and activities (Baker, 1993; Gagnon & Collay, 2000; Bredekamp & Copple, 2009).

Still other researchers concluded that in addition to school entry math skills, the attention span of students is a key indicator of kindergarten readiness and later school success (Duncan et al., 2007;Pagani et al., 2010). In their paper, *New Information About School Readiness*, Cross and Conn-Powers (2011) insisted that in order for a child to be successful upon entering kindergarten, he or she must posses the abililty to regulate their emotions and behavior. Cross and Conn-Powers are joined by a group of researchers in early childhood education that have categorized the skills assosciated with emotions and behavior as executive functioning skills, which are essential to school readiness al (Blair, et al., 2007; Clark et al., 2010). In contrast, constructrivists did not identify attention as a key area of school readiness, instead they recommended a focus on developmentally appropriate activities that encouraged children to be curious, take the initiative, and be creative (Gagnon & Collay, 2000; Westwater & Wolfe, 2000). Constructivists firmly believe that behavior issues and learning problems stem from educatiors providing information to students rather than allowing them to "identify and choose content that

intrigues children and arouses in them a desire to figure something out" (Baker, 1993, p. 5).

Assessment in Early Childcare using the DIAL-3

There is much debate about the effective assessment and screening of preschool children. According to McAfee, Leong, and Bodrova (2004), the definition of assessment should be clear. In their book, *The Basics of Assessment: A Primer for Early Childhood Educators*, McAfee et al. explained that although there are multiple definitions of assessment, "assessment is the process of gathering information from several forms of evidence, then organizing and interpreting that information" (p. 3). Embedded in their definition is an understanding that the purpose of those assessments should be clear and comprised of multiple measures (McAfee et al., 2004). The National Association for the Education of Young Children (NAEYC, 2006) included a framework for early childhood assessment in their Early Childhood Program Standards. In their rationale about the assessment of young children, NAEYC explained:

> systematic assessment is essential for identifying children who may benefit from instruction that is more intensive or intervention or who may need additional developmental evaluation. This information ensures that the program meets its goals for children's learning and developmental progress and informs program improvement efforts. (Standard 4, 2006)

Overall, Saluja, Scott-Little, and Clifford (2000) summarized that assessment tool, process, and collections efforts should be beneficial to children, parents, and teachers;

collected from multiple sources; appropriate developmentally and culturally; and provide information on the reliability and validity of the assessment tool.

From the perspective of Pool and Hourcade (2011), there are very few "technically adequate, low-cost screening tools" that will effectively measure the developmental growth of preschool children" (p. 270). On the contrary, the American Academy of Pediatrics (American Academy of Pediatrics (AAP), 2006) has identified an array of developmental screening tools that they deem to be effective and appropriate instruments for preschool screenings. One of the suggested assessment tools recommended by AAP is the Developmental Indicators for the Assessment of Learning-Third Edition, DIAL-3. The DIAL-3 measures the five domains of early childhood learning that the federal government mandated school districts assess prior to kindergarten: physical development, cognitive development, communication skills, social/emotional development, and adaptive behavior (Bredekamp & Copple, 2009; Cross & Conn-Powers, 2011; Pearson Assessments and Information, 2012). Despite the fact that the DIAL-3 is not a direct measure of kindergarten readiness, the DIAL-3 does measure the developmental growth of preschool students across multiple domains of learning (Cross & Conn-Powers, 2011; Duncan et al.,2008; Rhode Island KIDS COUNT, 2005; Grissmer, Grimm, Aiyer, Murrah, & Steele, 2010). The DIAL-3 is not designed for placement of students, but rather to identify students that may have potential delays in comparison to their peers (Mardell-Czudnowski & Goldenberg, 1998).

As of the year 2000, many states across the country have implemented policies about the assessment of preschool and prekindergarten students (Saluja et al., 2000). Several school districts in those states rely on the DIAL-3 as an assessment and screening

tool to determine kindergarten readiness or to identify potential delays. The city of San Antonio Texas, with the support of community organizations, funded a study, the Early On/School Readiness program, with the sole purpose of providing support to families so that children would start school with the academic and social skills necessary for school success (Winter, Zurcher, Hernandez, & Yin, 2007). The researchers involved with the Early ON School Readiness Project administered the DIAL-3 to participating 3 to 5-year-olds in the fall and spring for two consecutive school years (Winter et al., 2007). The results of their study indicated that for all of the children who participated in the readiness program "during the second year all subtest scores and composite scores were higher…" (p. 55).

Similarly, the Newport Early Childhood Network whose objective is to "improve results for every child, every step of the way, from cradle to career, in Cincinnati, Newport and Covington" (Strive Partnership, 2013, p. 1.) obtained data from DIAL-3 to measure kindergarten readines for the school districts of Covington and Newport in Cincinnati, Ohio. Based on their DIAL-3 screenings over 70% of their students were identified as kindergarten ready (Strive Partnership, 2013). Wichita Schools in Kansas have made the use and implementation of DIAL-3 as their primary screening tool a priority (Kuhn, 2001). During the 1999-2000 school year, Emile McGill, Director of Early Childhood Development for Wichita Schools, "used the DIAL-3 district-wide to pre-test 4000 kindergarten children in the fall and then for post-testing in the spring. The results were so positive that program administrators expanded DIAL-3 screening to include pre-K students for the current school year" (Kuhn, 2001, p. 1). The school

district then used the information from the DIAL-3 to ensure that students were getting the additional support they need in order to be successful (Kuhn, 2001).

Summary

Overall, research shows that participation in high quality early childhood intervention programs promotes school readiness. Children who participated have shown increases in their social and emotional development, cognitive abilities, and language development, which are all essential components for later school success (National Dropout Prevention Center Networki, 2009). Further, the research also indicates that kindergarten readiness can be measured and assessed using the DIAL-3, as long as the instrument is used to identify and provide support for children, parents, and teachers rather than to suggest placement or prevent entry (Pyle, 2002). Determining if there is a connection between the implementation of a high quality early childhood program and an increase in the DIAL-3 scores of participating students will further assist school districts in making sound decisions regarding the implementation and maintenance of high quality early childhood programs, as well as effectively measuring the success of the programs.

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Chapter III: Methodology

General Perspective

The goal of this quantitative comparative study was to determine if there is a connection between student participation in a research-based MODESE approved early childhood program and the kindergarten readiness of participating prekindergarten students. More specifically, to examine whether or not students participating in a program that employed best practices for early childhood education will be better prepared for kindergarten. In this study, the researcher compared data from the pre- and post-DIAL-3 scores of participating students across five domains, language, concepts, motor skills, and a parent questionnaire section that included parents' perception of their child's self-help skills and social development. The purpose of the study was to determine if participation in a high quality prekindergarten program led to increased school readiness. Program changes were implemented not only to ensure that the school district met state standards, but also to provide a high quality early childhood education to participating students as well.

Research Context

The study took place in an elementary school in a small urban school district in North St. Louis County. For purposes of confidentiality, the researcher referred to the school under the fictitious name, Woodbridge Elementary School, and the school district as the Study Site School District. The Study Site School District is comprised of three surrounding townships of approximately 20, 000 residents. During the time of the study, the Study Site School District enrolled approximately 3,500 pre-k through 12th grade

students. The student population of Woodbridge Elementary was 98.9 % African American; and 86% of the students received free and reduced lunch.

Research questions. The researcher addressed the following questions throughout the course of this study:

1. What impact does a MODESE approved research-based early childhood program have on the kindergarten readiness of prekindergarten students in the Study-Site School District as measured by the DIAL-3?
2. Will there be a difference in the average DIAL-3 scores across three domains of learning of the students that participated in the MODESE approved early childhood program and the average DIAL-3 scores for students that did not?

Null hypothesis. Students who participated in a prekindergarten program where a MODESE approved early childhood program was implemented will not show a larger increase in kindergarten readiness as measured by the DIAL3 than students who participated in the prekindergarten program and did not have exposure to a research-based MODESE approved early childhood program.

Independent variable. In this study, the independent variable was the implementation of the MODESE approved early childhood program for the 2009-2010 school year, which included the components recommended for high quality early childhood programs. The intervention group was comprised of the students who participated in the prekindergarten program for the 2009-2010 school year. The control group was comprised of students who participated in the prekindergarten program for the 2008-2009 school year. These students did not participate in a MODESE approved early childhood program.

Dependent variable. The dependent variables were language, conceptual, social, and motor skills readiness as measured by the DIAL-3 pre and posttest scores of the intervention groups.

School Readiness and the DIAL-3

For the purpose of this study, researchers define school readiness as "children having the skills to achieve later success in school" (Cross & Conn-Powers, 2011). The DIAL-3 (Developmental Indicators for the Assessment of Learning) is a screening tool that assesses all five areas that researchers have identified as the five early childhood areas that ensure later school success:

(a**)** Motor Area: gross motor items include catching, jumping, hopping, and skipping. Fine motor items include building with blocks, cutting, copying shapes and letters, and writing, and the popular finger-touching task from the DIAL-3; (b) Language Area**:** items include answering simple personal questions (name, age, and sex), articulation, naming (expressive) or identifying (receptive) objects and actions, plus phonemic awareness tasks such as rhyming and I Spy; (c) Concepts Area: items include pointing to named body parts, naming or identifying colors, and rote counting, counting blocks, placing a block in named positions relative to a little house, identifying concepts in a triad of pictures, and sorting shapes. The DIAL-3 includes an item that assesses automatic naming of colors. Research indicates that is associated with potential learning disabilities;(d) Self-Help Development**:** looks at the child's development of personal care skills related to dressing, eating, and grooming; and (e) Social Development: looks at the child's development of social skills with other children and parents, including rule

compliance, sharing, self-control, and empathy (Pearson Assessments and Information, 2012).

Parents as Teachers Program

MODESE in conjunction with the Danforth Foundation piloted the Parents as Teachers Program (PAT) in the 1980's (Parents as Teachers National Center, 2010). The purpose of PAT was to provide early childhood services for parents of children from birth to age three. The Parents as Teachers Program expanded in 1985 to include all parents of every school district in the state of Missouri (Parents as Teachers National Center, 2010). The Parents as Teachers program has four main goals: (a) Increase parent knowledge of early childhood development and improve parenting practices; (b) provide early detection of developmental delays and health visits; (c) prevent child abuse and neglect; (d) and to increase children's school readiness and school success (Parents as Teachers National Center, p. 2010, p. 1).

During the time of this study, the Study Site School District enrolled every prekindergarten student in the PAT. In addition, the Study-Site School District provided training for all Parent Educators via Parents as Teachers National Center. Parents as Teachers trained parent educators with the Born to Learn Model Curriculum. The early childhood program included five important components for enrolled families; two personal one-on-one home visits to families, developmental screenings with the DIAL-3 (parent educators completed these twice a year), access to research-based lessons using the Born to Learn Curriculum, and an invitation to participate in all Parents as Teachers monthly group meetings.

Project Construct Curriculum

MODESE developed the Project Construct curriculum based on the theory of Constructivism. Project Construct is a learner-centered approach to teaching and learning based on scientific research about how students learn (Project Construct National Center, 2008). According to Project Construct National Center (2000), students in Project Construct classrooms, "solve realistic problems, explain their thinking and examine their reasoning (p. 1). The Project Construct Curriculum embraces and fosters the idea that student achievement and growth is closely connected to a solid combination of knowledge of content standards and the application of those standards to authentic problems as well the extension of solutions to new and different situations (Project Construct National Center, 2000).

Similar to the Missouri Show Me Standards, which outlined what children should understand, know and be able to do, the Project Construct Curriculum promotes and supports hands-on, minds-on learning for all children. Teachers and paraprofessionals in Project Construct classrooms focus on what students need to know in a nurturing, respectful atmosphere (MODESE, 2001). According to the Project Construct National Center (2000), Project Construct trainers who provide professional development to both teacher and Para professionals help teachers to develop classrooms that,

> (a) use students' interests to motivate and engage them in learning, (b) encourage children to collaborate and work together, (c) allow children to take initiative, express opinions, and make choices, (d) view children's errors as learning opportunities, (d) assess children's thinking, as well as their work, in order to teach more effectively. (p. 1)

In the 2009-2010 school year, the Study-Site School District's Early Childhood Program reviewed three MODESE-approved early childhood curricula in effort to comply with state standards for early childhood. After careful consideration of Creative, High/Scope®, and Project Construct curriculums, the Early Childhood Program Director and Teachers chose the Project Construct Curriculum. The Project Construct Curriculum organizes learning goals by four major, interrelated domains: socio-moral domain, which includes social and personal development; cognitive domain, which includes mathematical and scientific thinking; representational domain, which includes language expression; and the physical domain, which consists of fine and gross motor skills as well as health and safety (Project Construct National Center, 2008).

Study Design

This quantitative comparative study consisted of data gathered from DIAL-3 scores. The researcher included a sample of all students enrolled in the prekindergarten program at Woodbridge Elementary School for the 2008-2009 and 2009-2010 school years. In order to measure kindergarten readiness, the researcher compared the DIAL-3 pre and post-test scores of participating children. Even though the DIAL-3 is not a direct measure of kindergarten readiness, it provided information on the specific areas that research has proven to be indicators of school success. Motor skills, concepts, language skills, and a parent report section that described the social emotional growth of prekindergarten students comprises the DIAL-3 (Webster-Stratton et al., 2008; Krechevsky; 1994; Rhode Island KIDS COUNT, 2005); Porath, 2009). The parent educators administered the DIAL-3 to the participants prior to entering prekindergarten

and kindergarten. The Study Site School District granted access to the researcher, who was the former Director of Early Childhood.

Subjects and Sampling Procedures

The study occurred within the limits of Study Site School District. The researcher chose the two prekindergarten classes at Woodbridge Elementary School in order to measure the effectiveness of the program changes. These two classrooms were the only two prekindergarten classrooms that were in operation for the entire school year. Because this an ex-post facto study, the researcher included all of the scores of the students that participated for the entire year for both the 2008-2009 and the 2009-2010 school years. The target population was primarily African American, mixed gender, and of low socio-economic status.

The subjects in this study were the male and female students that attended the prekindergarten program at Woodbridge Elementary School in the Study-Site School District for the 2008-2009 and 2009-2010 school years. In 2008-2009, 15 (60%) of the participants were male and 10 (40%) of the students were female. In 2009-2010, 10 (50%) of the participants were males and 10 (50%) were females. A more detailed in-depth analysis revealed in 2008-2009, 96% of the 25 participants were identified as Black, Hispanic, and Multiethnic while 1% was characterized as White. In 2009-2010, 100% of the 18 participants were identified as Black, Hispanic, and Multiethnic.

Data Collection

The researcher gathered quantitative historical data from the DIAL-3 Indicators for Assessment of Learning (AGS Publishing, 2005) from the Study Site School District's Parents as Teachers Database. The data included pre- and post-DIAL-3 scores

(the scores prior to prekindergarten and kindergarten) for both groups of students (2008-2009 and 2009-2010 Woodbridge Elementary prekindergarten students). The researcher omitted student names and assigned a number to each student to ensure anonymity.

Confidentiality of subjects and threats to external validity. The researcher kept the individual DIAL-3 scores of the subjects anonymous, with the exception of the Parents as Teachers personnel of the Study Site School District, who used the data in the course of their normal activities with children. The researcher numerically coded and placed student scores in a database and removed individual student names after coding was completed. All data associated with individual students remained in the database of the Parents as Teachers Program.

Table 1. *Coding Grid*

Code	Student's Name	Gender	DOB
1	Mary Doe	F	01/04/04
2	John Doe	M	06/07/04

Instrumentation

The researcher collected historical data from one assessment instrument. The primary sources of data were the scores from the DIAL-3 (Mardell-Czudnowski & Goldenberg, 1998; AGS Publishing, 2005). Students who participated in the prekindergarten program for the entire school year were the subjects of this study.

Developmental indicators for the assessment of learning-DIAL-3. The DIAL-3 is an early childhood screening tool that covers the five domains mandated for assessment by the Federal Government: physical, cognitive, communication, social/emotional, and adaptive behavior (Pearson Assessments and Information, 2012).

Although the DIAL-3 does not directly measure school readiness, the instrument does measure the components that are consistent with what researchers identify as skills that are necessary for later school success; school entry math skills (Pagani et al., 2010), attention skills (Pagani et al., 2010; Clark et al., 2010); school entry language and reading skills (Pagani et al., 2010); fine motor skills (Grissmer et al., 2010; Pagani, et al., 2010); and health and well-being, and social-emotional development (Brock, Rimm-Kaufman, Nathanson, & Grimm, 2009). The researcher conducted a *t*-test for difference in the mean scores of the pre and posttest DIAL-3 scores across the three domains of learning.

Reliability and Validity

Validity of testing instrument. In the validity study of the DIAL-3, there were 1,560 participants; the mean of the study population was 101.3; with a standard deviation of 14.9 (AGS Publishing, 2005). The researcher posted the norm groups' scaled scores as percentile scores, and then converted those scores to standard scores. The inter-correlation between the scores on the all three subtests, concepts, motor and language respectively were 0.50, 0.41, and 0.65 (AGS Publishing, 2005; Mardell-Czudnowski & Goldenberg, 1998; Pearson Assessments and Information, 2012).

Reliability of testing instrument. To determine reliability of the DIAL-3, researchers used the Cronbach's coefficient alpha. The mean reliability of the DIAL-3 was .87 (AGS Publishing, 2005). The researchers derived the score from the sum of the scaled scores for all three subtests, motor, concepts, and language. Children from the ages of five years to five years and five months yielded more reliable scores than all of the other age groups of students that were administered the screening (AGS Publishing,

2005). Children who were older, 6 years and 6 months to 6 years and 11 months had scores that were close to perfect (Mardell-Czudnowski & Goldenberg, 1998; AGS Publishing, 2005).

The participants of the DIAL-3's reliability study were both male (54%) and female (46%). The diversity of race and ethnicity of the participants were disparate in numbers; the percentage of White participants was 91%; African American representation was 6.3%; and Hispanic participation was 1.9%. In contrast, the population of this study was African American with parents having little to no college; the participants of the DIAL-3 reliability study came from homes where 63% of the parents had some college education (AGS Publishing, 2005; Mardell-Czudnowski & Goldenberg, 1998).

Quantitative Data Analysis

The quantitative data the researcher collected in this study consisted of the pre and post DIAL-3 scores from all of the subjects that participated in both programs for two years. The researcher collected data on the domains that research support as indicators of kindergarten readiness (Cross & Conn-Powers, 2011; Grissmer, Grimm, Aiyer, Murrah, & Steele, 2010). The Study Site School District granted the researcher access to student scores from the Parents as Teachers database. The researcher organized and coded the pre and post DIAL-3 scores for each domain measured as indicators of kindergarten readiness, motor, concepts, language development, as well as the parent perceptual data on self-help and social-development skills.

Table 2. *DIAL-3 Pre and Posttest Percentile Scores for Non-participants*

	Mot. Pre	Mot. Post	*Conc. Pre*	Conc. Post	*Lang. Pre*	Lang. Post	*Tot. Pre*	Tot. Post	*Self-Help Pre*	Self-help Post	*Soc. dev. Pre*	Soc. dev. Post
1	*95*	97	*77*	63	*28*	78	*75*	89	*3*	1	*39*	52
2	*52*	87	*15*	49	*67*	95	*38*	83	*76*	88	*46*	94
3	*94*	93	*87*	79	*58*	99	*88*	98	*83*	28	*53*	3
4	*96*	99	*67*	71	*92*	75	*92*	95	*55*	38	*83*	49
5	*99*	98	*53*	60	*85*	91	*92*	94	*92*	39	*77*	21
6	*97*	95	*32*	63	*72*	99	*77*	98	*38*	61	*48*	86
7	*92*	99	*62*	54	*54*	86	*74*	92	*91*	73	*82*	60
8	*99*	98	*77*	91	*92*	97	*97*	99	*75*	86	*85*	54
9	*91*	92	*85*	85	*90*	98	*92*	98	*82*	90	*74*	79
10	*94*	94	*85*	71	*68*	84	*89*	91	*50*	65	*74*	71
11	*95*	96	*76*	95	*87*	99	*91*	99	*58*	76	*70*	87
12	*83*	83	*62*	79	*80*	91	*77*	89	*86*	76	*63*	61
13	*92*	97	*69*	84	*64*	88	*80*	98	*47*	67	*93*	82
14	*97*	98	*25*	71	*58*	94	*62*	95	*68*	82	*46*	52
15	*98*	88	*84*	86	*97*	95	*98*	95	*88*	92	*91*	97
16	*76*	90	*16*	81	*28*	92	*33*	94	*75*	83	*68*	31
17	*98*	95	*77*	97	*56*	99	*88*	99	*75*	34	*61*	20
18	*71*	99	*87*	81	*81*	98	*84*	99	*68*	83	*60*	93
19	*91*	96	*71*	66	*90*	94	*95*	96	*94*	90	*2*	15
20	*99*	97	*86*	94	*94*	88	*99*	98	*79*	67	*85*	82
21	*88*	76	*69*	44	*98*	98	*92*	83	*91*	73	*90*	80
22	*51*	98	*88*	91	*41*	31	*68*	80	*96*	94	*98*	36
23	*3*	38	*6*	59	*6*	62	*3*	49	*4*	38	*34*	56
24	*76*	96	*48*	81	*58*	50	*60*	90	*82*	90	*31*	44
25	*25*	57	*21*	17	*58*	89	*29*	48	*39*	43	*67*	44
Mean	82.08	90.24	61	72.48	*68.08*	86.8	74.9	90	67.8	66.28	64.8	57.96

Table 3. *DIAL-3 Pre and Posttest Percentile Scores for Participants*

	Mot. Pre	Mot. Post	*Conc. Pre*	Conc. Post	*Lang. Pre*	Lang. Post	*Tot. Pre*	Tot. Post	*Self-help Pre*	Self-help Post	*Soc. dev. Pre*	Soc. dev. Post
1	*68*	98	*70*	85	*82*	89	*75*	98	*91*	2	*95*	8
2	*60*	57	*22*	57	*31*	78	*32*	54	*70*	88	*78*	3
3	*92*	97	*47*	73	*80*	78	*77*	94	*69*	73	*70*	86
4	*33*	46	*65*	40	*70*	75	*54*	49	*88*	78	*8*	92
5	*96*	99	*60*	65	*25*	79	*68*	96	*27*	47	*52*	83
6	*83*	99	*69*	73	*95*	70	*87*	93	*91*	70	*86*	83
7	*91*	96	*48*	85	*48*	94	*66*	98	*61*	81	*45*	85
8	*79*	92	*60*	76	*32*	98	*58*	96	*36*	32	*94*	56
9	*60*	99	*39*	94	*54*	99	*48*	99	*78*	67	*63*	48
10	*92*	97	*83*	88	*92*	96	*93*	99	*54*	61	*4*	68
11	*51*	97	*40*	38	*68*	90	*50*	60	*21*	43	*89*	6
12	*33*	19	*11*	33	*47*	84	*24*	40	*10*	7	*27*	45
13	*83*	98	*69*	98	*64*	91	*74*	99	*69*	28	*63*	47
14	*87*	98	*56*	77	*58*	94	*79*	98	*89*	81	*25*	44
15	*92*	87	*73*	59	*70*	96	*83*	91	*70*	65	*78*	71
16	*92*	92	*63*	77	*88*	94	*86*	96	*91*	90	*89*	97
17	*51*	90	*77*	94	*75*	96	*69*	98	*95*	91	*89*	90
18	*82*	48	*70*	63	*75*	96	*78*	74	*84*	61	*74*	9
Mean	73.61	83.83	56.78	70.83	64.11	88.72	66.72	85.11	66.33	59.17	62.72	56.72

In order to gather a true random sample, the researcher randomized the study sample, and conducted on *F*- test to test for differences in standard deviations for both data sets and each domain of learning measured. After determining that there was no difference in variations for each subtest score, the researcher chose a *t*-test for difference in means, due to sample size, to determine the increase in school readiness scores.

Summary

In Chapter III, the researcher presented the research context, study design, subject and sampling procedures, data collection methods, and instrumentation used to measure

kindergarten readiness. In addition, the researcher discussed the validity and reliability of the assessment tool, the DIAL-3. This was necessary to demonstrate that the DIAL-3 was an appropriate and effective assessment tool. In this chapter, the researcher also explained the limitations, and described the measures used to control and addresses the limitations. This researcher also described the steps taken to ensure anonymity and confidentiality of the school district, the school, and the subjects.

Chapter IV will address the two research questions and present the findings of the analyzed data yielded from this comparative study. In Chapter V, the researcher will provide a discussion of the results in relation to the research questions; each alternate hypothesis; an explanation of unanticipated findings; implications for administrators; and recommendations for future study.

Chapter IV: Presentation and Analysis of Data

The field of education has experienced some dramatic changes with the onset of NCLB of 2001. NCLB forced educators and researchers in the field of education to examine their practices and to take proactive measures to address the increasing achievement gap that existed between economically disadvantaged students and their higher achieving peers. The goal of NCLB was to "ensure that all children have a fair and equal opportunity to obtain a high quality education" (Consolidated Federal Programs Administrative Manual, 2010, p. 20). A large body of research in the field of early childhood education supported the goal of Title I of NCLB, which was to provide access to high quality early childhood for students who were considered to be "at-risk," which would then ensure that all children entered kindergarten prepared to learn.

As previously indicated in Chapter II, Ewen and Matthews (2007) stated that Title I of NCLB made provisions by providing funds for schools districts to invest in high quality early childhood programs that would ultimately benefit students who were economically disadvantaged. The state of Missouri supported NCLB by setting clear guidelines for the effective implementation of high quality early childhood programs. MODESE recommended curriculum and program specifications that were deemed best practices in early childcare (Barnett et al., 2004; Bredekamp & Copple, 2009; Early Learning Program Standards, 2011; Neuman et al., 2000; Project Construct National Center, 2008). In accordance with NCLB and state guidelines, the Study Site School District implemented major changes to their early childhood program for the 2009 -2010 school year. The district a) adopted and implemented one of the MODESE approved early childhood curriculum, Project Construct; b) reduced class size from 20 to 15, as

required by MODESE; c) provided ongoing staff development and training (Project Construct) for preschool teachers and assistants; and d) provided the parent involvement component, via the Parents as Teachers Program.

In this chapter, the researcher reports on the statistical analysis of this quantitative study. The researcher used descriptive and inferential statistics to address the overarching research question, "What impact does a MODESE approved, research-based early childhood program have on the kindergarten readiness of prekindergarten students in the Study-Site School District as measured by the DIAL-3?" More specifically, the researcher examined the difference in the mean DIAL-3 percentile scores of the students who did not participate in a MODESE approved early childhood program and the average DIAL-3 scores for students who did, across the three main domains of learning: motor skills, cognitive skills, and language concepts, in order to address the research question. The researcher first analyzed the data using the *F*- test to determine if there was a difference in the standard deviation of each group. The researcher ascertained through data analysis that there were no statistical differences between variances of each test group, and selected to run a one-tailed *t*-test for small sample sizes to analyze the difference in mean scores. For each subtests of the DIAL-3, the researcher ran the *F*-test, to test for differences in variances and a *t*-test to test for differences in the mean values. The researcher used Microsoft Excel's Statistical Package for the Social Sciences.

Data Analysis Procedures

The researcher selected the Developmental Indicators for the Assessment of Learning-Third Edition, DIAL-3 to provide data to address the research question. The researcher collected data from the pre and posttest administration of the DIAL-3 for the

subjects in the study. The DIAL-3 consisted of three main subtests that covered the domains mandated by federal law, physical, cognitive, communication, social/emotional, and adaptive (AGS Publishing, 2005; Mardell-Czudnowski & Goldenberg, 1998). Parent educators administered the DIAL-3 to both groups prior to the start of their prekindergarten school year and approximately one year later prior to the start of their kindergarten school year. The researcher used hypothesis testing and descriptive statistics and compared the pre and post DIAL-3 scores to measure growth across the three domains of learning, motor, concepts, and language. The DIAL-3 subtests also measured parents' perceptual data about their child's self help skills and social development in relation to his or her peers; therefore the researcher addressed parent perceptual data in this section as well.

For each of the subtests of the DIAL-3: motor, concepts, and language, the subjects of the study were asssessed and given a subscale raw score based on their performance. The subscale scores were converted to percentile ranks from 1 to 99 (See Tables 1 and 2). This researcher evaluated the pre and posttest scores in each of the three areas. This section of the study was organized around the results yielded from the three domains of learning as measured by the DIAL-3, parent perceptual data regarding their children's self-help and social skill, as well as results generated through testing of the null hypothesis corrresonding to each domain of learning measured by the DIAL-3.

Results of Null Hypothesis Testing

Motor. To compare the difference in growth in motor skills, the researcher analyzed pre and posttest scores from the motor skills subtest of the DIAL-3. The motor

skills section of the DIAL-3 measured both fine and gross motor skills. Each item of the subtest assessed various tasks related to motor skills. For each fine motor task, depending on the chronological age of the assessed child, examiners assigned scaled scores of 3 to 6; 2 to three; 2 to five; 3 to 16; and 2 to 3, respectively. The individual task scores yielded raw scores, which the screeners then converted to item, scaled scores from 0 to 4, with 4 being the highest and 0 being the lowest. The screeners assessed a maximum of 27 scaled score points in the motor section. The researcher then converted the scale scores to percentile ranks and used descriptive statistics to calculate the mean scores and standard deviations for each group. The students that participated in a high quality early childhood program yielded a higher mean percentile score in motor skills when compared to the non-participants.

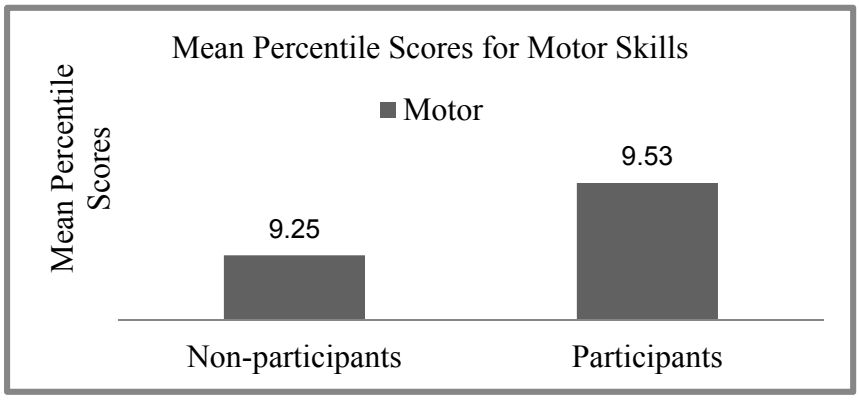


Figure 1. DIAL-3 Mean Scores of Motor Skills Subtest for Participants vs. Non-participants

Null hypothesis 1. Students who participated in a prekindergarten program where a MODESE approved early childhood program was implemented will not show a larger increase in pre and posttest scores of kindergarten readiness as measured by growth on the Motor subtest of the DIAL-3 than students who did not have exposure to a research-based MODESE approved early childhood program. To address the null hypothesis, the

researcher chose to run a *t*-test for the difference between means for small independent samples. According to Fraenkel and Wallen (2006), researchers use the *t*-test to evaluate the difference between means when the two samples are independent and when the samples are taken from two normally or approximately normally distributed populations. If the variances are unknown, the researcher must first run an *F*-test to determine if the variances are equal. The researcher assumed that there was not a difference in variances, and ran an *F*-test for two sample variances to confirm that there was no difference in the variances of participants and non-participants. Results of the *F*-test when comparing 2010 variance to 2009 variance for motor skills provided the following results:

Table 4. *F-test forTwo-Sample Variance for Motor Skills*

	Non-participants	*Participants*
Mean	9.25	9.53
Variance	366.55	239.98
Observations	15.00	20.00
df	14.00	19.00
F	1.53	
P(F<=f) one-tail	0.19	
F Critical one-tail	2.25	

The researcher did not reject the null hypothesis, since $1.5 < 2.25$. The researcher assumed the variances were equal and chose to run a one-tailed *t*-test for a change in growth assuming equal variances. Results of a one-tailed *t*-test when comparing 2010 change in growth to 2009 change in growth provided the following results:

Table 5. *t-test for Two-Sample Assuming Equal Variances for Motor Skills*

	Non-participants	*Participants*
Mean	9.25	9.53
Variance	239.98	366.55
Observations	20.00	15
Pooled Variance	293.6813131	
Hypothesized Mean Difference	0.00	
df	33.00	
t Stat	-0.48	
P(T<=t) one-tail	0.48	
t Critical one-tail	1.69	

The researcher did not reject the null since .04< 1.69. There was no significant difference between the two groups. Even though participants experienced an observably larger growth in motor skills than the non-participants did, the growth was not statistically significant at the .05 level.

Concepts. To determine the difference in growth in concepts between the non-participants and the program participants, the researcher analyzed data from the Concepts subtest of the DIAL-3. According to the DIAL-3 technical manual (Mardell-Czudnowski & Goldenberg, 1998; Pearson Assessments and Information, 2012), the Concepts subtest area encompasses such tasks as identifying and naming body parts, naming coloros, block placement in relation to a specific object, and sorting shapes. The DIAL-3 also included a unique portion in this area that asked students to automatically name colors. As previously indicated, the subtest score provided a raw score from 0 to 4 with 4 being the highest and 0 the lowest. The raw score was then converted to percentile ranks which the

researcher retrieved from the Parents as Teachers database. The participants of high quality program showed a larger increase in the mean scores than the non-participants.

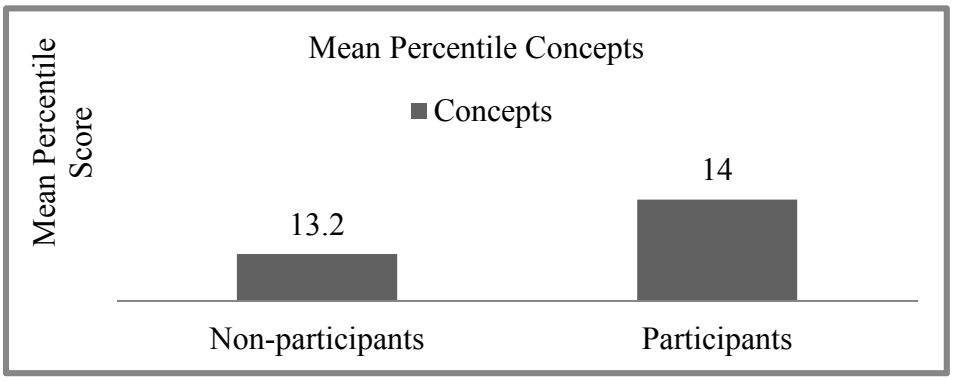


Figure 2. Mean Scores of Concepts Subtest for Participants vs. Non-participants

Null hypothesis 2. Students who participated in a prekindergarten program where a MODESE approved early childhood program was implemented will not show a larger increase in kindergarten readiness as measured by pre and posttest scores of the Concepts subtest of the DIAL-3 than students who did not have exposure to a research-based MODESE approved early childhood program. The researcher assumed that there was not a difference in the variances and ran an *F*-test for two sample variances to confirm. Results of the *F*-test when comparing 2010 variance to 2009 variance for Concepts provided the following results:

Table 6. *F-test for Two-Sample Variance for Concepts*

	Non-participants	*Participants*
Mean	13.2	14
Variance	457.3	445.57
Observations	20.00	15.00
df	19.00	14.00
F	1.03	

P(F<=f) one-tail	0.48
F Critical one-tail	2.40

The researcher did not reject the null hypothesis, since 1.03, the F value is less than 2.4., the critical value. Therefore, the researcher assumed the variances were equal and chose to run a one-tailed *t*-test for difference in means assuming equal variances. Results of a one-tailed *t*-test for difference in means when comparing 2010 change in growth to 2009 change in growth provided the following results:

Table 7. *t-test for Two-Sample Assuming Equal Variances for Concepts*

	Non-participants	*Participants*
Mean	13.20	14.00
Variance	457.32	445.57
Observations	20.00	15.00
Pooled Variance	452.33	
Hypothesized Mean Difference	0.00	
df	33.00	
t Stat	-0.11	
P(T<=t) one-tail	0.45	
t Critical one-tail	1.69	

The researcher did not reject the null hypothesis, since -0.11< 1.69. Despite the fact that the participants had an observably larger mean growth than the non-participants did on the Concepts subtest, the difference in growth was not statistically significant.

Language. The researcher measured difference in growth of language skills between groups by analyzing the pre and posttest Language subtest scores of the DIAL-3. This subtest measured both and receptive and expressive language. Receptive language, which includes listening comprehension, is related to early literacy skills and refers to a

child's ability to understand and follow directions. Expressive language refers to the child's ability to use language to communicate with others. The participants of high quality program showed an observably larger increase in the mean scores than the non-participants.

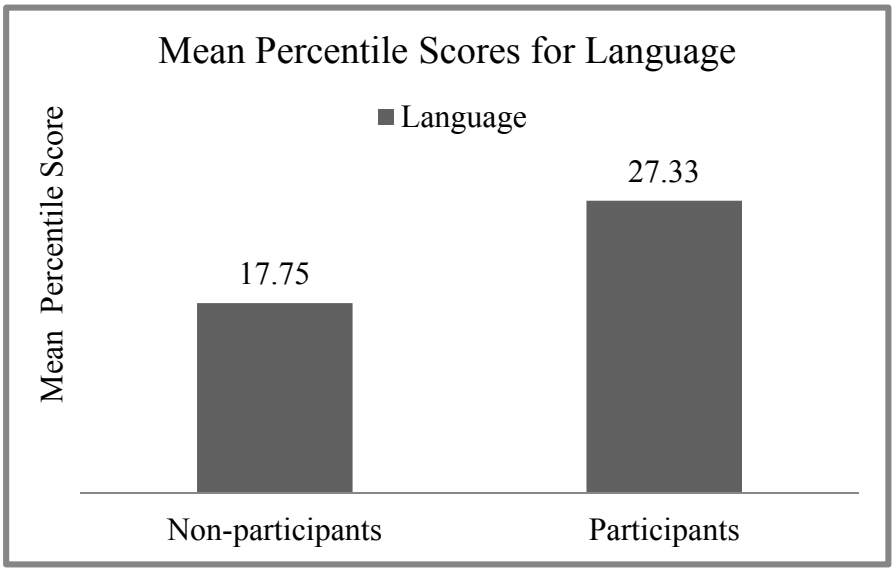


Figure 3. Mean Scores of Language Skills Subtest for Participants vs. Non-participants

Null hypothesis 3. Students who participated in a prekindergarten program where a MODESE approved early childhood program was implemented will not show a larger increase in kindergarten readiness as measured by pre and post-test scores of the Language subtest of the DIAL-3 than students who did not have exposure to a research-based MODESE approved early childhood program. The researcher assumed that there was no difference in variances, and ran an *F*-test for two sample variances to confirm that there is no difference in variances. Results of the *F*-test when comparing 2010 variance to 2009 variance for Language Skills provided the following results:

Table 8. *F-test for Two-Sample Variance for Language Skills*

	Non-participants	*Participants*
Mean	17.75	27.33
Variance	516.41	440.80
Observations	20.00	15.00
df	19.00	14.00
F	1.171498951	
P(F<=f) one-tail	0.387370404	
F Critical one-tail	2.40003874	

The researcher did not reject the null hypothesis, since 1.17 < 2.40. This researcher assumed the variances were equal and chose to run a one-tailed *t*-test for difference in means assuming equal variances. Results of a one-tailed *t*-test for difference in means when comparing 2010 change in growth to 2009 change in growth provided the following results:

Table 9. t-test for Two-Sample Assuming Equal Variances for Language Skills

	Non-participants	*Participants*
Mean	17.75	27.33
Variance	516.40	440.80
Observations	20.00	15.00
Pooled Variance	484.33	
Hypothesized Mean Difference	0	
df	33.00	
t Stat	-1.27	
P(T<=t) one-tail	0.10	
t Critical one-tail	1.69	

The researcher did not reject the null hypothesis since 1.27<1.69. There was not a significant difference between the two. Even though the participants had an observably larger growth, the growth was not statistically significantly larger amount of growth than attained by non-participants.

Total DIAL-3. To derive the Total DIAL-3, the screeners combined three scores from the subtest areas of Motor, Concepts, and Language. To measure the difference in growth between the participants and non-participants, the researcher analyzed the pre and posttest scores from the Total DIAL-3 to measure overall growth. The researcher used descriptive statistics to calculate the mean value. The participants of high quality program showed an observably larger increase in the mean scores than the non-participants.

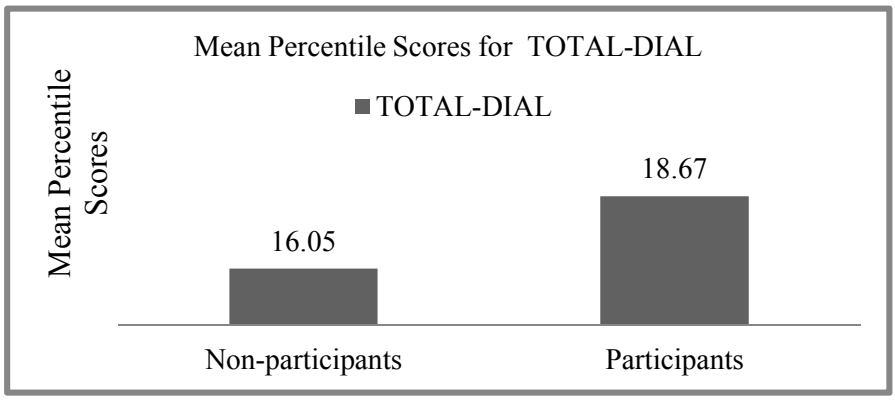


Figure 4. Mean Scores of Total DIAL-3 Subtest for Participants vs. Non-participants

Null hypothesis 4. Students who participated in a prekindergarten program where a MODESE approved early childhood program was implemented will not show a larger increase in kindergarten readiness as measured by pre and posttest scores for the Total DIAL-3 than non-participants. The researcher assumed that there was not a difference in variance and ran an *F*-test for two sample variances to confirm that there was no

difference in variances. Results of the *F*-test when comparing 2010 variance to 2009 variance for Total DIAL-3 provided the following results:

Table 10. *F-test for Two-Sample Variance for Total DIAL-3*

	Non-participants	*Participants*
Mean	16.05	18.67
Variance	297.73	232.52
Observations	20.00	15
df	19.00	14
F	1.28	
P(F<=f) one-tail	0.32	
F Critical one-tail	2.40	

The researcher did not reject the null hypothesis, since 1.28 < 2.4. The researcher assumed the variances were equal and chose to run the one-tailed t-test for difference in means assuming equal variances. Results of a one-tailed *t*-test for difference in means when comparing 2010 change in growth to 2009 change in growth provided the following results:

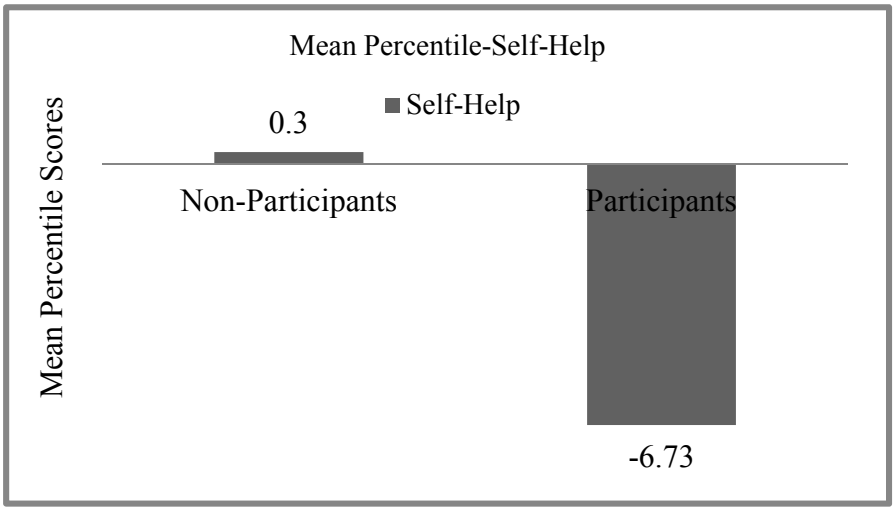
Table 11. *t-test for Two-Sample Assuming Equal Variances for Total DIAL-3*

	Non Participants	*Participants*
Mean	16.05	18.67
Variance	297.73	232.52
Observations	20.00	15.00
Pooled Variance	270.06	
Hypothesized Mean Difference	0.00	
df	33.00	

t Stat	-0.46
P(T<=t) one-tail	0.32
t Critical one-tail	1.69

The researcher did not reject the null hypothesis since -0.4< 1.69. There was no statistically significant difference between the two. Even though the participants had an observably larger mean growth from 16.05 to 18.87, the growth was not a statistically significantly larger amount of growth than attained by the non-participants.

Self-help development. In order to determine a difference in the growth of self-help skills for the study subjects, the researcher analyzed the self-help portion of the DIAL-3. In this section, the parent answers questions about their child's development in the area of personal care skills. The participants of high quality program showed an observably larger decrease in the mean scores than the non-participants.



F*igure 5.* Mean Scores of Self-Help Parent Questionnaire Subtest for Participants vs. Non-participants

Null hypothesis 5. Students who participated in a prekindergarten program where a MODESE approved early childhood program was implemented will not show a

larger increase in kindergarten readiness as measured by pre and posttest scores of the Self-Help parent questionnaire subtest of the DIAL-3 than students who did not have exposure to a research-based DESE approved early childhood program. The researcher assumed that there was not a difference in the variances for the participants and the non-participants, and ran an *F*-test for two sample variances to confirm that there was not a significant difference in the variances of each group. The results of the *F*-test when comparing 2010 variance to 2009 variance for Total DIAL-3 provided the following results:

Table 12. *F-test for Two-Sample Variance for Self-Help Skills*

	Non-participants	*Participants*
Mean	.30	-6.73
Variance	817.9238095	451.5894737
Observations	15.00	20.00
df	14.00	19.00
F	1.81	
P(F<=f) one-tail	0.11	
F Critical one-tail	2.25	

The researcher did not reject the null hypothesis, since 1.8 < 2.25, the critical value. The variances were assumed equal by the researcher who chose to run a one-tailed *t*-test for difference in means assuming equal variances. Results of a one-tailed *t*-test for difference in means when comparing 2010 change in growth to 2009 change in growth for Self-Help Development provided the following results:

Table 13. *t-test for Two-Sample Assuming Equal Variances for Self-Help Skills*

	Non-participants	*Participants*
Mean	0.30	-6.73
Variance	451.58	817.92
Observations	20	15.00
Pooled Variance	607.00	
Hypothesized Mean Difference	0.00	
df	33.00	
t Stat	0.84	
P(T<=t) one-tail	0.20	
t Critical one-tail	1.69	

The researcher did not reject the null hypothesis, since .84 < 1.69. There is not a significant difference between the two mean scores. The participants of the study have a smaller mean change in parent perception than non-participants and the difference in growth was not statistically significant.

Social development. The researcher measured the difference in the growth in social development by analyzing the pre and posttest scores on the parent questionnaire portion of the DIAL-3. The social development section asks parents to respond to questions about how they perceive their child's interaction with other children and parents. This section of the DIAL-3 assesses the social development skills from the parent's perspective and includes the ability to follow rules, share with peers, and demonstrate self-control and empathy (AGS Publishing, 2005). The researcher used descriptive statistics to calculate the mean values. The participants of high quality program showed a larger negative increase in the mean scores than the non-participants.

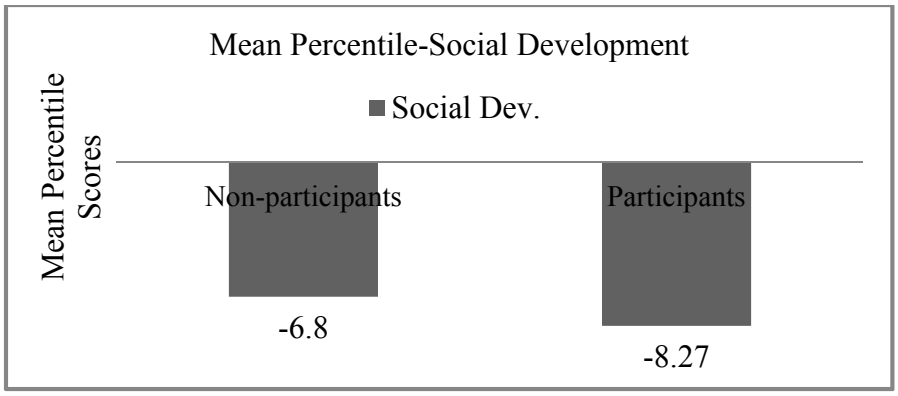


Figure 6. Mean Scores of Social Development Parent Questionnaire Subtest for Participants vs. Non-participants

Null hypothesis 6. Students who participated in a prekindergarten program where a MODESE approved early childhood program was implemented will not show a larger increase in kindergarten readiness as measured by pre and posttest scores of the Social Development parent questionnaire subtest of the Dial-3 than students who did not have exposure to a research-based MODESE approved early childhood program.

The researcher assumed that there was not a difference in the variances between the variances for the participants and the non-participants and therefore ran an *F*-test for two sample variances to confirm. Results of the *F*-test when comparing 2010 variance to 2009 variance for Social Development provided the following results:

Table 14. *F-test for Two-Sample Variance for Social Development*

	Participants	*Non-participants*
Mean	--6.88	8.27
Variance	2832.20	1594.48
Observations	15	20
df	14	19
F	1.77	
P(F<=f) one-tail	0.12	
F Critical one-tail	2.25	

The researcher did not reject the null hypothesis since 1.77< 2.25, and assumed the variances were equal. The researcher chose to run a one-tailed *t*-test for difference in means assuming equal variances. Results of a one-tailed *t*-test for difference in means when comparing 2010 change in growth to 2009 change in growth provided the following results:

Table 15. t-test for Two-Sample Assuming Equal Variances for Social Development

	Non-participants	*Participants*
Mean	-6.8	-8.27
Variance	1594.48	2832.20
Observations	20	15
Pooled Variance	2119.57	
Hypothesized Mean Difference	0	
df	33	
t Stat	0.09	
P(T<=t) one-tail	0.46	
t Critical one-tail	1.69	

The researcher did not reject the null hypothesis, since .09< 1.69. There is not a significant difference between the two scores. Although the participants of the study had an observably larger negative growth in the mean percentile scores of the parent perception of their child's social development than non-participants, the difference was not statistically significant at the .05 level.

Summary

In Chapter IV, the researcher analyzed and addressed two research questions:

1. What impact does a MODESE approved, research-based early childhood program have on the kindergarten readiness of preschool students in the Study-Site School District as measured by the DIAL-3?
2. Will there be a difference in the average DIAL-3 scores of the students that did not participate in a MODESE approved early childhood program and the average Dail-3 scores for students that did?

The researcher addressed each question by analyzing the pre and posttest scores of the DIAL-3 for each subtest. The implementation of a high quality early childhood program, (the independent variable) was measured by the change in DIAL-3 scores on each subtest for each of the participants (dependent variable). The results were then compared to the scores of the control group, the students who did not participate in a high quality early childhood program.

For each subtest of the DIAL-3, the researcher conducted an *F*-test to determine if the variance of the population was equal. In each case, the researcher found the variances to be equal and ran a one-tailed *t*-test to measure the difference in the mean scores for the participants and non-participants. Based on the data yielded from statistical analysis, while there was a greater increase in the mean scores of the participants on the Concepts, Language, Motor, and Total DIAL scores; overall the increase in each area was not statistically significant at the 95% confidence interval (refer to tables 13, 11, and 9). In addition, on the parent questionnaire section, the participants experienced a larger negative mean increase that the non-participants.

A review of current research demonstrated that high quality early childhood programs increased the kindergarten readiness of students. The results of this study were

not consistent with the review of research. Overall, the results of this study demonstrated that there was not a statistically significant increase in the mean growth of the scores of the participants when compared to the non-participants for each domain measured by the DIAL-3.

Chapter V of this study will include an overview and more in-depth discussion of the results presented in Chapter IV, an interpretation of the unanticipated findings, implications for researchers, policymakers, educators and administrators, as well as recommendations for further research.

Chapter V: Discussion, Summary, and Recommendations

Chapter V of this comparative study will further summarize and discuss the results and findings of Chapter IV, provide a detailed analysis and interpretation of the results, as well as discuss recommendations and implications for future practice.

As explained in Chapter I, during the 2008-2009 school year, the Study Site School District's early childhood program did not meet all of the Title I requirements as outlined in the administrative manual. This forced the school district to adopt specific measures to comply with all of the standards set by MODESE and Title I programs; as well as to ensure that all students participated in a high quality early childhood program. In an effort to comply with state standards and increase the quality of their early childhood program, the Study Site School District made specific changes in their program. They: a.) adopted and implemented one of the MODESE approved early childhood curricula, Project Construct; b.) reduced class size from 20 to 15; c.) provided ongoing staff development for prekindergarten teachers and assistants; and d.) provided a parent involvement component via the Parents as Teachers program. The researcher studied the effect that implementation of a MODESE approved early childhood program had on the kindergarten readiness of prekindergarten students as measured by the DIAL-3 Indicators of School Success.

Connection to Literature Review

Advocates of early childhood education recognized the need to make sure every child had access to high quality early childcare. Prior to NCLB and recent federal mandates in the field of early childhood education, researchers called for changes in early childhood programs. In the early 1980s the controversial report, *A Nation At-risk*

challenged school leaders to take action to improve our educational system for all students (The National Commission for Excellence in Education, 1983). Due to an increase in the achievement gap and a decrease in national test scores, national leaders recognized that in order to improve outcomes for all students they had to address the foundation for school success, early childhood education.

Shortly after *A Nation At-risk* was published, federal, state, and local leaders created an organization entitled the National Education Goals Panel (National Education Goals Panel, 1997). The National Education Goals declared eight national education goals that were expected to be met by the year 2000. School readiness was the first goal declared by the council (National Education Goals Panel, 1997). The National Educational Goals Panel (1997) declared:

> (i) all children will have access to high-quality and developmentally appropriate preschool programs that help prepare children for school; (ii) every parent in the United States will be a child's first teacher and devote time each day to helping such parent's preschool child learn, and parents will have access to the training and support parents need; and (iii) children will receive the nutrition, physical activity experiences, and health care needed to arrive at school with healthy minds and bodies, and to maintain the mental alertness necessary to be prepared to learn, and the number of low-birth weight babies will be significantly reduced through enhanced prenatal health systems. (Sec. 102, p.1)

These goals and objectives layed the framework for what is deemed high quality early childhood education.

In addition to laying the framework for best practices in the early childhood educational settings, the planning group for Goal 1, Resource and Technical Planning Group, more specifically suggested that there were five dimensions of early learning and development that should be addressed, observed and assessed as children enter kindergarten: (1) physical well-being and motor development, (2) social and emotional development, (3) approaches toward learning, (4) language development, and (5) cognition and general knowledge. These are also the areas that MODESE expects early childhood programs in Missouri to screen and asses using approved screening tools. The DIAL-3 is one of the recommended instruments used to screen prekindergarten students in the state of Missouri.

Major progress in the field of early childhood was further achieved when the results of the Early Childhood Longitudinal Studies, which was funded by the Department of Education, was published. These long term studies provided educators with concrete proof that high quality early childhood programs have a lasting impact on school success and that the benefits were long reaching. Additional studies of this nature have produced compelling evidence that have led to changes in the evaluation of early childhood programs.

More recently, Title I of NCLB (2001) influenced the practices that were prevalent in early childhood settings by mandating standards that leveled the playing field for economically disadvantaged children and improved the quality of childcare for all children. Supporting federal mandates was a large body of research that clearly linked best practices in early childhood settings with increased school readiness. The most compelling research was the Early Childhood Longitudinal Studies, which supported the

premise that participation in a high quality early childhood programs not only led to an increase in kindergarten readiness, but later school success as well.

Despite the fact that the results of this study did not parallel findings from the research that was uncovered, the subjects of this study that participated in the high quality early childhood program for one year, experienced an observable increase in the DIAL-3 scores in the areas of motor skills, language, and concepts. While the difference was not statistically significant, there was an observably larger increase in the overall scores as measured by the DIAL-3 for the participants, than there was for the non-participants. This observable increase in scores was consistent with findings from other studies that have yielded supporting evidence those students who participated in high quality early childhood programs had increased scores of kindergarten readiness prior to entering kindergarten (AGS Publishing, 2005; Mardell-Czudnowski & Goldenberg, 1998).

Unanticipated Findings

The data yielded some promising results, however the overall data did not support what was uncovered in the research. In order to discuss the unanticipated findings in this study, the research will evaluate each research question.

Research question 1. What impact does a MODESE approved, research-based early childhood program have on the kindergarten readiness of preschool students in the School Study Site School District as measured by the DIAL-3?

In order to address the first research question, the researcher focused on the change in the Total DIAL-3 scores, which combined the motor, concepts, and language portion of the test. Based on past and present research, the researcher expected that there

would be a statistically significant increase in the Total DIAL-3 scores of the participating students. Although the participating students showed an increase in the Total DIAL-3 scores, the increase was not statistically significant at the .05 level. The researcher could not definitively state that the implementation of a high quality early childhood program in the Study Site School District led to an increase in school readiness. Based on statistical analysis, this researcher has concluded that the implementation of a MODESE approved early childhood program was not linked to an increase in kindergarten readiness as measured by the Total DIAL-3 scores. A review of literature however supported the premise that changes made by Study Site School District to improve the quality of their early childhood should and may have provided a contribution to the observable increase in the DIAL -3 scores. However, there were no statistically significant results to strongly indicate a difference in kindergarten readiness as measured by the DIAL-3 for students who participated in a high quality early childhood program and those who did not.

Research question 2. Will there be a difference in the average DIAL-3 scores of the students that did not participate in a MODESE approved early childhood program and the average DIAL-3 scores for students that did?

In order to address the second research question, the researcher focused on the change in the DIAL-3 scores for each subtest; motor, concepts, language, Total DIAL-3, self-help, and social development. Based on a substantial review of literature, the researcher expected that there would be a larger significant increase in the Total DIAL-3 scores of the participating students for each subtest when compared to the non-participants. The results yielded mixed results; although the participating students

showed an observable increase in the Total DIAL-3 scores for the Motor, Concepts, and Language and Total DIAL categories, the results of the study indicated that there was also an observably larger decrease in scores on the Self-Help and Social Development subtests. However, neither the increase nor decrease in scores was statistically significant at the 95% confidence interval.

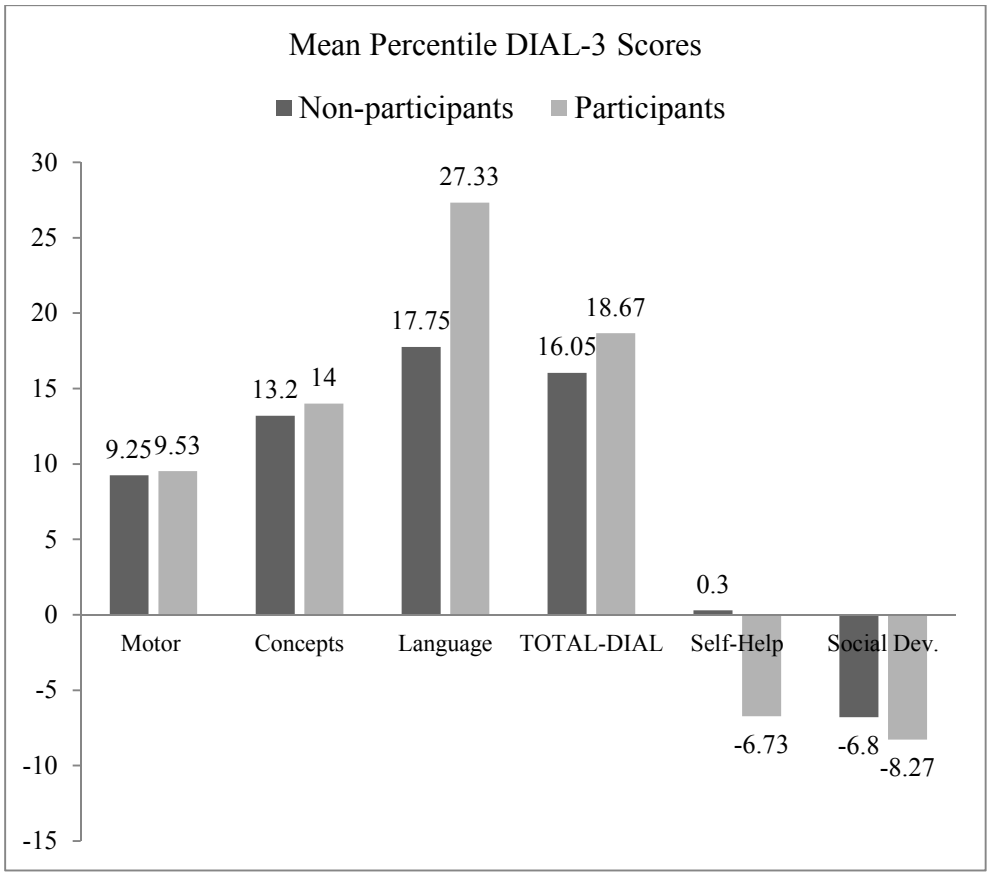


Figure 7. Mean Percentile DIAL-3 Scores of Participants vs. Non-participants

In addition to these unexpected results, the parent report section showed an observably larger decrease in positive parent perception of self-help skills and social development, which was also inconsistent with the research associated with this study. One would expect, based on research and previous studies, that there would be

an increase in the parent perception of their child's self-help skills. On the parent report section of the DIAL-3 (Self-help and Social Development), the parents of the non-participants perceived their children to have higher self-help and social development skills than the parents of the participants. However, the results of the *t*-test demonstrated that while the nonparticipants mean scores showed an observable increase, the increase was not statistically significant at the 95% confidence interval.

Discussion of the Results

The overall results of the study indicated that there was not a statistically significant difference in the mean scores of the students that participated in a MODESE approved early childhood program for one year and those students who did not. A detailed analysis and discussion of the results revealed that the researcher addressed the alternate hypothesis for each domain measured by the DIAL-3. This researcher has concluded that for the purpose of this study, the implementation of a MODESE approved early childhood program was not linked to an increase in kindergarten readiness as a measured by the DIAL-3 scores. Several factors may have affected the overall results of the study.

Teacher education, training, and quality. The participants in this study all attended the Woodbridge Elementary School for prekindergarten. Despite the fact that there were two classrooms, there may have been differences in the quality and level of instruction, as well as adherence to the format of the approved curriculum. A number of factors affect the quality of classroom instruction and training. As pointed out by Early et al. (2007), the education, training and experience of the classroom teacher could have a direct impact on student performance, "Even the most highly skilled teachers need for

example adequate materials, curricular support skilled teaching assistants and a physical setting that is appropriate to meeting the needs of young children" (p. 577). Another major factor that could have influenced the results and was beyond the control of the researcher, was the fact that only one teacher from the 2008-2009 school year remained for the 2009-2010 school year. In addition, this same classroom teacher had more experience than the other classroom teacher did. The lack of experience could have had a significant impact on the academic and social growth of students.

In addition to experience, one of the classroom teachers possessed a Master of Arts degree, while the other possessed only a Bachelor of Science in Early Childhood education. This could have had an influence on the observable increase on the Concepts subtest of the DIAL-3. According to Early et al. (2007), "it is possible that the benefits children experience from a highly educated teacher can be seen only in children's higher order thinking skills or when application of knowledge is measurable (p. 575). An additional factor that could have affected the results was the fact that both teachers were learning a new program while trying to implement the program with fidelity. The observable increases and mixed results could have been a result of multiple components in this area.

Test administration. The PAT staff administered the DIAL-3 screenings. Due to the shortage of parent educators, some variability may have existed between individual parent educators and test administration procedures. In addition, differences in the testing environment may have also affected the scores. Parent educators from the Parents as Teachers Program screened participants at either the school site or the PAT house; therefore, there were differences in design, space, and lighting that could have affected

how students responded to the questions. It is also important to note that the PAT staff screened a large number of students prior to the start of the 2009-2010 school year. The goal of this school year was to screen each student that enrolled in the program. During the 2008-2009 school year, the director was not required to ensure that every incoming kindergarten student was screened. This was a major difference. The pressure of administering a large number of DIAL-3 screenings to incoming prekindergarten students, as well as all kindergarten students, could also have been a contributing factor to the unexpected results on the parent report section.

Another major factor that was different in the administration of the DIAL-3 was concerning the testing set-up. The DIAL-3 was designed for the test to be administered by three different screeners, one for each section of the test. Students were expected to rotate to each section and complete each sub-test portion of the test with a different screener. The parent educators for Study Site School District did not administer the different sections of the test in this fashion. Rather, one screener conducted all portions of the DIAL-3. The DIAL-3 administration in this area was the same however for both test groups the participant and the non-participants. This change in the testing design could have had an impact on the scores of both the participants and non-participants.

Parent involvement. The results of the parent report section was the greatest unanticipated finding of this study. It is the opinion of this researcher that due to the large number of screenings for kindergarten, the parents may have been rushed when completing the parent report section of the DIAL-3. Another perspective is that the parent's perception of their child's self-help and social skills for the participating students could have been attributed to the fact that the parents had more knowledge of what to

look for verses the non-participants when it came to social and self-help skills. The PAT program provided two home visits and offered parents the opportunity to participate in the two or more group meetings. These parents received more information about the healthy growth and development of their child, as well as information about the meaning of kindergarten readiness; therefore they may have had more knowledge about how to accurately rate their children. As previously indicated, these were factors beyond the control of the researcher. Optimum testing conditions for all students would have standardized the test administration procedures.

Adoption and implementation of a new program and curriculum. The implementation of a new program or curriculum requires more than just setting a date and starting a program. It is a very detailed process that involves engaging in new behaviors and practices, incorporating new beliefs, and then finally, the utilization of new materials with fidelity (Fullan, 2001). Newmann, King, and Youngs (2001) described the factors that increased the success of the implementation of a new school program, as well as improved student achievement, as school capacity. Newmann et al. (2001) also identified the five factors that make-up school capacity, (1) knowledge of content and skill at presenting the content, (2) the community of learners, (3) program coherence, (4) technical resources, and (5) school leadership beliefs and practices. The researchers explained that the individuality capability of a teacher is affected by their knowledge, skills, and disposition (Newmann et al., 2001). School districts can increase the capacity of a teacher in this area by providing ongoing, job-embedded professional development or by hiring classroom teachers that already possess the education, training, and knowledge of the program that is, being implemented (Newmann et al., 2001). In other

words, the authors suggest that leaders combine changed individuals with a changed environment.

The fact that the restructuring of the early childhood program was at the initial phase of implementation could have had a very profound effect on student outcomes as measured by the DIAL-3. The classroom teachers were virtually unchanged, but were placed in a changed environment (new program, lower class size, different philosophical approach) without the benefit of sustained professional development prior to implementation. First, the teachers were responsible for learning and implementing very new practices and did not have the opportunity to embrace the concept or to incorporate new beliefs. Project Construct was a very different approach to teaching and learning from the approach that was previously used in the early childhood program. Second, the staff development occurred during the course of implementation, but was also needed prior to the start of the program.

Program coherence was another dynamic that could have also affected the outcome of this study. There were several changes implemented at once to the early childhood program. Hatch (2000) described this as the collision of multiple initiatives. He asserted that in order for school change efforts to be truly effective in increasing student achievement , schools and school leaders must have a laser-like focus and should be very selective about what, when, and why the changes will be made (Hatch, 2000). The Study Site School District was forced to initiate all of the changes at once due to compliance issues. The need to become compliant in such a short time was a major factor that could have affected the outcome of the study. The Study Site School District did not have the opportunity to be selective, which is what Hatch (2000) suggests, and

this could have influenced not only the effective implementation of the new program, but student scores on the DIAL-3 also.

Class size. According to the research, lower class size is associated with increased student performance. However, for the purpose of this study, this researcher cannot definitely link lower class size with increased DIAL-3 scores. One would expect that as the class size decreases, student performance would increase. Largely because the classroom teacher and assistant has more time and attention to devote to fewer children when the class size is smaller. Despite the fact that class-size was reduced from 20 to 15, from 2008-2009 to 2009-2010, there was not a significant increase in the overall DIAL-3 scores for the participants. As previously discussed, the benefits of low class size could have been affected by teacher training and education, as well as the need of the classroom teacher to learn and implement a new program in short time. All previous research supports the premise that as the class size decreases, the early childhood teacher has more time to focus on the needs of each individual student. The research also recommends and supports the low-ratio of teacher to student (Barnett et al., 2004; Bredekamp & Copple, 2009; Early et al., 2007). Although the results of this study did not replicate the results of previous studies, there is a body research that provides evidence that smaller class size for economically disadvantaged children is beneficial in the early childhood setting (Barnett et al., 2004).

Implications for Researchers and Policy Makers

A review of the literature connected to this study indicated that there are implications for researchers and policymakers to address in the field of early childhood in the coming years. First, there is a need for a clear definition of what actually constitutes

kindergarten readiness. Secondly, there is also a need for an effective tool by which to measure kindergarten readiness although many states across the country have made an effort to address readiness for kindergarten in a variety of ways.

Further researchers must clearly identify and agree on the factors contribute to kindergarten readiness and later school success. This means that research and policy makers must make a commitment to providing current research based studies in this area that will provide information about all groups of students in order to improve practices in early the early childhood setting across the country. It is also important for policy makers to assess the decisions that that educators make for and about children based on the results of assessment data.

Recommendations for Educators and Administrators

Based on the findings of this study the researcher suggests several recommendations for educators. First, districts, principals, and teachers must make early childhood education a priority by investing in early childhood education initiatives. Second, school districts must implement an early childhood program with fidelity. This means that school districts must make a commitment to following best practices in the early childhood setting. Based on current and past research this means: (a) choosing an appropriate research based curriculum, (b) maintaining the recommended class size, (c) providing ongoing training and staff development for qualified classroom teachers and paraprofessionals.

The results of this study could allow the Study Site School District's Board of Education to review the district's current practices in its early childhood program. The goal of this study was to provide evidence to the district that would support continued

investment in high quality early childcare. The focus was on not only implementing an early childhood program, but to provide high quality early childhood programs to as many students as possible, but also specifically those with the greatest need.

Third, the review of literature, past studies, as well as the data (although not statistically significant) indicated that at the very least, educators should implement best practices implemented in all grade levels, not just testing grades. Educators tend to focus on remediation and often forget that the ages from birth to five is the time when the child experiences the most growth. It is the optimum time for implementing developmentally appropriate practices (Westwater & Wolfe, 2000).

This researcher recommends that the director/administrator in charge of the prekindergarten program have extensive background knowledge, education, and training in not only early childhood education, but developmentally appropriate practices in the early childhood setting as well. This researcher also suggests that the director/administrator should also participate in staff development and training. The continued training and education of the leader will assist him or her with providing prescriptive and targeted feedback to both classroom teacher and assistants, which would ultimately affect student growth and achievement and help to ensure uniformity of practices in each classroom.

It is essential that the principal/school leader also provide teachers with time, access to materials, and opportunities to collaborate with others in order to share their expertise. The school leader is key to ensuring that school change and reform occurs in such in a manner that provides opportunities for teachers to alter behaviors, skills, and

beliefs. This is most essential for the effective implementation of any new program. The school leader must also evaluate and assess the program, regularly.

Further, the administrator must take into account that the implementation of new programs must be tailored to the needs of the parents as well. Johnson and Maynard (2007) point out, "It is well-established that disadvantaged families do not always take advantage of well-intentioned programs, because of perceived stigma, inconvenient locations or hours, and other reasons" (p. 613). There should be a concentrated effort to include and inform parents as much as possible.

Thus, based on the results of this study, it is imperative that prekindergarten and kindergarten screenings are done as conveniently as possible for the parents (at the local school verses the PAT house). This would increase the participation and ownership of parents. In summary, training for teachers and assistants, a developmentally appropriate curriculum, low class size, and continuous parent involvement, along with regular screenings, are practices to incorporate in early childhood programs in addition to a mandate by federal and state guidelines. It is this researcher's hope that the review of data could possibly result in the retention, further improvement, and/or expansion of the current early childhood program in the Study Site School District.

Recommendations for Future Research

Kindergarten and school readiness are controversial topics in education. Researchers agree that students are more successful when they enter kindergarten ready to learn. A review of research supports the premise that participation in a high quality early childhood program leads to an increase in kindergarten readiness as well as later

academic student success (Chapin, 2006; Early et al., 2007; Cross & Conn-Powers, 2011; Duncan et al., 2008; Hamre & Pianta, 2007). Although the results of this research can be generalized to other urban schools with similar demographics, the study was representative of the Study Site School District. A review of literature indicated there were many variables that affected the kindergarten readiness of students; therefore, the researcher recommends continued studies in the field of early childhood. Additional research in this study could include a continued analysis of the kindergarten readiness of students in the Study Site School District after the prekindergarten program has been implemented with fidelity for a number of years. Further research in this field could also include a study of students that had potential delays at initial DIAL-3 screenings and the impact that participation in a high quality early childhood program may have on the academic growth of those students over time. An additional recommendation is for researchers to conduct a longitudinal study that compiles data for more than two years; or that includes data from more than one school or program. This would allow for a more comprehensive analysis of the effectiveness of a high quality early childhood program. The final recommendation would be the use of a different instrument or multiple instruments.

Other areas that warrant further investigation and analysis are:

- Connection between student performance on MAP scores and the participation in a prekindergarten program in the Study Site School District.
- Participation in high quality prekindergarten program and graduation/college entry rate of participants.

- A closer look at the use of developmentally appropriate early childhood curricula and multiple measures of kindergarten readiness.
- An evaluation and comparison of various kindergarten-screening instruments and the predictability of kindergarten readiness.

Summary

While this study did not provide concrete proof that participation in high quality early childhood programs led to a statistically significant increase in school readiness as measured by the DIAL-3, a review of research clearly supported that premise. In addition, the preliminary results did show an observably larger increase in the mean DIAL-3 scores for the participants when compared to the non-participants. The literature review and study suggests that educators and school leaders must make a commitment to not only implementing practices in the early childhood setting that will have lasting outcomes for academically disadvantaged students, but also a commitment to developing tools and procedures that will allow for the effective evaluation of those programs.

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Appendix A

State Policies Regarding School Readiness Assessment

Readiness Assessment Policies	Number of States	Names of States
State conducts screening or assessment	13	Alabama, Alaska, Arkansas, Florida, Louisiana, Maryland, Minnesota, New Mexico, New York, North Carolina, Ohio, Tennessee, Utah
Local schools conduct screening or assessment	5	Florida, New York, Oklahoma, Oregon, Texas
Some local school districts conduct assessments	26	Arizona, California, Colorado, Connecticut, Georgia, Idaho, Indiana, Kentucky, Maine, Massachusetts, Michigan, Missouri, Montana, Mississippi, Nevada, New Hampshire, New Jersey, North Dakota, Pennsylvania, Rhode Island, South Carolina, South Dakota, Washington, West Virginia, Wisconsin, Wyoming
State is developing plans to implement statewide readiness assessment	16	Delaware, Florida, Hawaii, Kansas, Kentucky, Michigan, Missouri, Montana, New Jersey, North Carolina, Ohio, South Carolina, Texas, Vermont, Washington, Wyoming
State does not assess school readiness	6	Delaware, Hawaii, Kansas, Oklahoma, Nebraska, Virginia

Vitae

Stephanie Small was born in St. Louis, Missouri. Currently she calls St. Peters, Missouri her home. Stephanie Small has been the principal of Koch Elementary School in St. Louis, Missouri for the past three years. Additional educational support and administrative experience include one year as an Elementary Assistant Principal, two years as the Director of Parents as Teachers and Early Childhood, and two years as an Elementary School Counselor for the Jennings School District. Her teaching experiences have included sixth, seventh, and K-12 alternative school for 15 years with the Pattonville School District and two years as a sixth and seventh grade math teacher with the St. Louis Public Schools.

Educational studies have resulted in a Bachelor of Science Degree in Education and a Master of Arts in Educational Processes from Maryville University in 1994; a Master of Arts in School and Professional Counseling in 2005 (while receiving the Outstanding Student in School Counseling Award); and a Master of Arts in Educational Administration from Lindenwood University. In 2013, she is expecting to complete her doctoral studies at Lindenwood University by receiving a Doctorate of Education in Administration.